ISSN 2347-811X

JASA

THE JOURNAL OF ASSOCIATION
OF SURGEONS OF ASSAM

VOLUME - 21, NO. 3, Sept-Dec 14

Editor : Dr. H. K. DUTTA

JASA, *The Journal of Association of Surgeons of Assam* (Assam Chapter of the Association of Surgeons of India), Volume 21, No.3 September-December 2014, Edited by Dr H. K. Dutta and published by The Association of Surgeons of Assam, H.Q. Swagat Endolaparoscopic Surgical Research Institute, A.T. Road, Shantipur, Guwahati - 781 009 Assam.

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ISSN : 2347-811X

Cover Design & Layout :
Editor

Printed at :
Designer Graphics
H. S. Road
Dibrugarh - 786001
Tel. : 0373-2322121

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* Q J expt Physiol 1955; 40-89-111

Books :

* Stansfield A. G. Lymph mode biopsy interpretation. New york: Churchill Livingstone, 1985.

Articles in Books :

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ISSN 2347-811X

JASA

Journal of the Association of Surgeons of Assam

JASA, Vol. 21, No. 3, September - December 2014

JASA
Journal of the Association of Surgeons of Assam
Vol. 21, Issue No. 3
September-December 2014

CONTENTS

DOYENS OF SURGERY

Dr. Bhabit Ch. Dawka

DR BHABIT CH DAWKA was born in a small village in Nalbari on 10th October 1927. He lost his father before he was born and he had a difficult childhood. He learned to face life's struggles at an early age and while a school student he ran a wholesale shop to support himself. He was a brilliant student and seeing his hard work he was mentored and encouraged by his teachers to continue studies at cotton collegiate in Guwahati and then to go on to study Medicine at the newly established Assam Medical College, Dibrugarh. He passed his MBBS with the second batch of students and then joined the Department of Surgery as a Registrar. Later he obtained his FRCS from Edinburgh, UK on a government scholarship. He then joined back his alma mater as an Asst. Professor and started making his mark as a daring and fast surgeon. He shifted to Guwahati with the foundation of the Gauhati Medical College in the year 1962 and served in the Deptt. of Surgery as Professor and later as HOD & Vice Principal of GMCH till his retirement in 1986.

Following his retirement he started his own Hospital called "Dawka's Clinical Hospital' at sixmile, Guwahati and continued in his passion for Surgery and Service to the people of Assam till his death from a Brain tumor on August 16th 1999.

Besides being a brilliant Surgeon, he was an unconventional teacher and has inspired many a young doctor to take up Surgery as a discipline.

Editorial

Thesis work and the need for publication

Submission of a thesis or a dissertation is a requirement for obtaining masters degree in India and many other countries. This document is submitted in support of candidature for a professional qualification presenting the author's research and findings [1]. The word "thesis" is used for part of a bachelor's or master's course, while "dissertation" is normally applied to a doctorate [2]. Originally, the concepts "dissertation" and "thesis" were not interchangeable. When, at ancient universities, the lector had completed his lecture, there would traditionally follow a disputation, during which students could take up certain points and argue them. The position that one took during a disputation was the thesis, while the dissertation was the line of reasoning with which one buttressed it [3]. The required complexity and/or quality of research of a thesis or dissertation can vary by country, university and/or program, therefore, the required minimum study period may vary significantly in duration. Degree-awarding institutions often define their own house style that candidates have to follow when preparing a thesis document. In addition to institution-specific house styles, there exist a number of field-specific, national, and international standards and recommendations for the presentation of theses, for instance ISO 7144, ISO 2145 on section numbers, ISO 690 on bibliographic references, and ISO 31 on quantities or units [1].

The basic tenet of submission of a thesis is that the student learns about the basics of research methodology, statistics and also learns how to carry out a research work on a particular subject. It is not that every passed out student will need to go for academics or research, but it is based on the premise that whatever he or she does as a professional, will be based on sound scientific principles and has accountability and honesty to go with it.

However, my experience during more than two decades as a guide/co-guide has been very disappointing. We, as teachers have failed on many counts. My personal observation has been that majority of the students enrolled in an academic year for an MD/MS course take the thesis work very casually. They feel that work on a thesis is just a mere formality and that more time should be devoted to clinical work or on acquiring theoretical knowledge. Most unfortunate part is that some

teachers also feel that way. So we find that out of more than couple of hundred theses submitted each year in the medical colleges of the state, hardly few articles get published in reputed journals. In contrast to this, thesis work is taken very seriously in some of the apex institutions of the country. In these institutions, faculties of a department collectively decide the topic for a student and the topic is registered within 3 months of the academic session. The topics are chosen based on the latest developments in the field and the priorities and protocols set by the department or the institution. The guide gets regular update on the progress of the work. After completion, these works regularly get published in reputed journals.

Now-a-days, a researcher or a professional can easily make his research visible or get information on a desired subject through networking sites. One such prominent site is ResearchGate. This is a professional network for scientist founded in 2008 by virologist Dr Ijad Madisch and Soren Hofmayer and IT-specialist Horst Fickenschr [4,5]. By 2014, it has more than 5 million members spread across the world. Author of an article published in any indexed journal gets a point, depending on the impact factor of the journal and also if the article is cited by another author. A ResearchGate score (RG score) is alloted to the member and likewise, an institution's score is the sum total of its member's scores. Every week these scores are updated. One can have an idea about research environment in an institution by looking at this score. Chinese Academy of Sciences has the highest RG score of more than one lakh thirty thousand, whereas the top Indian institution (IIS, Bengaluru or AIIMS, New Delhi) has scores just above ten thousand. There are other metrix of assessing academic standard of institutions. Massachusetts Institute of Technology(MIT) was ranked recently as the best institute in the world. Among other parameters, it had the highest number of citations per faculty. One can imagine the standard of academic environment in the top Indian institutes in comparison to the world leaders.

So, it is time for us to sit up and take a look to see what is happening around us. Senior faculties are responsible to bring about a change in the attitude of students and guides and to see that each thesis has enough material to be accepted by reputed journals. Let us hope in the next ASACON we can see a sea of change.

Dr. H.K. Dutta

References:

1. International Standard ISO 7144: Documentation-Presentation of theses and similar documents, International Organization for Standardization, Geneva, 1986.
2. Douwe Breimer, Jos Damen et al.: Hora est! (On dissertations). Leiden University Library, 2005
3. Olga Weijers: The medieval disputatio. In: Hora est! (On dissertations), Leiden University Library, 2005:23-27.
4. Hardy, Quentin (August 3, 2012). "Failure Is the Next Opportunity". Retrieved June 26, 2014.
5. Lin, Thomas (January 16, 2012). "Cracking Open the Scientific Process". The New York Times. Retrieved June 26, 2014.

Review Article

LEADERSHIP IN SURGERY

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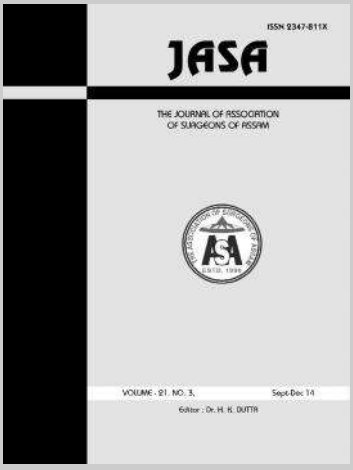

ABSTRACT

Introduction: Leadership is a quality of a person who leads commands or precedes a group, organization or country. The term leadership is redefined in modern times where shift of focus has changed from a person to a process. A surgeon always acts as a team leader in the operating room. He also takes the responsibility in running a clinic, ward, ICU or any other related service in a hospital. At times he has to build a successful surgical unit or reorganize or improvise such a unit academically or otherwise. Knowledge of leadership is an essential professional tool for a surgeon.

Types of leadership:

Three types of leadership have been described in the literature- autocratic, transactional and transformational. Earlier most of the leaders abide by the autocratic type of leadership. Emphasis has been given in modern times to change the leadership from autocratic type to transformational type.

Attributes of a good leadership :

Different qualities like adaptability to situations, alertness to the environment, ambition, orientation to achievement, assertiveness, cooperativeness, the power to take decision and responsibility, dependability, energetic behavior , dominant character, persistency, confidence on self, stress tolerance, adaptive quality etc. are attributed to a great leadership . In leadership of surgery some other qualities like professionalism, technical competence, communication skills, motivation, innovation, resilience, working capability in a team, ethical behavior, emotional competence, decision making capability, business acumen and an effective teaching quality are also required. Moreover proper time management quality, financial, legal and administrative knowledge and knowledge on information management are of great help in leadership in surgery.

Organizational models of leadership:

Different institutions follow different models. British Model, U S Model, German University Model and Japanese Models are some such models.

Levels of leadership:

A leadership in surgery may be at direct level (directed towards the service to the patients), at organizational level or at strategic level.

The challenges:

Information about leadership in surgery in the developing countries is very little in the literature. The challenges are manifold. The major challenges are fund crunch, shortage of staff and a difficult work

environment. The modern day environment is complex, volatile and unpredictable. To work amicably with other health professionals and other stakeholders of the health delivery system, to interpret complexities in the system and then to create a conducive work environment is really a challenging task.

The responsibilities:

An efficient leadership should yield best possible results in an existing environment and find out the path for a better future prospect for the institution or organization. He must work for environment enrichment, workplace safety and organization of human resources. He should do periodic audit and quality control survey and take measures on its recommendations. Analyzing and revising the existing policies are also his responsibilities. A great leader has a vision to set, align and achieve goals.

The future:

In future the leadership will be directed to have more focus in vertical development (developmental stages) than the horizontal development (competencies). The focus will be on collective leadership than individual one, giving development ownership to the individual and on innovation in leadership development module.

Conclusion:

There is no accepted module for leadership development. Leadership in surgery can be developed through experience. Observation and learning in a framework where mentoring, coaching and monitoring are available with assignment, action learning and feedback is helpful. However considering the modern complexities, pursuing a full time course in management and leadership is advisable. Short term training courses are also helpful. Students should be trained in leadership and team management. All clinicians, medical and non-medical persons should be taught team working skills as a part of their foundation courses.

Key Words : *leadership, surgery, types, attributes, organizational model, level, challenge, responsibilities, future*

Introduction :

Leadership is a quality of a person who leads commands or precedes a group, organization or country. The term leadership is redefined in modern times where shift of focus has changed from a person to a process. Heifetz(1994) says that leadership is a process of mobilizing people to face difficult challenges. Mc Cauley and Van Velson, 2004 said that leaders are people in the organization actively involved in the process of producing direction, alignment and commitment. The existent concept is that leadership is a single personal, attribute. But, evidence based practice shows that leadership requires different skills to meet the needs of different people and situations. [1] john C Maxwell said, "Leadership is influence, nothing more nothing less."

A surgeon always acts as a team leader in the operating room. He also takes the responsibility in running a clinic, ward, ICU or any other related service in a hospital. At times he has to build a successful surgical unit or reorganize or improvise such a unit academically or otherwise. Knowledge of leadership is an essential professional tool for a surgeon.

Types of leadership:

Thomas Carlyle once said , "Leaders are born, not made and great leaders are emerged when they are needed." This can be termed as "the great man theory". There is another theory called as "trait theory" which says that leadership is present in some person as a trait. These people lead people naturally. There is a theory called "Great event theory" which says that some important events brings out extraordinary leadership quality in an ordinary person. Transformational leadership is another form of leadership where leadership is taken by choice. The leader in this form learn the leadership skills in a systematic and scientific way. The modern day people accepts this theory.[2]

Three types of leadership have been described in the literature- autocratic, transactional and transformational. Earlier most of the leaders abide by the autocratic type of leadership. In this type of leadership the leader has high level of power over the other team members. There is only one leader and others are simply his followers. Resentment among the followers is very common in this type of leadership. There are few opportunities (at times no opportunity at all) for suggestion to the leader.

The transactional type of leadership thrives in a specific environment. This type of leadership encourages problem solving and innovation. It also promotes networking.

The transformational leadership stress on collaboration. It thrives on collective participation to achieve an ideal. [3]

Emphasis has been given in modern times to change the leadership from autocratic type to transformational type.

Attributes of a good leadership : Different qualities like adaptability to situations, alertness to the environment, ambition, orientation to achievement, assertiveness, cooperativeness, the power to take decision and responsibility, dependability, high activity level with energy , dominant character, persistency, confidence on self, stress tolerance etc. are attributed to a great leadership[2]. In leadership of surgery some other qualities like professionalism, technical competence, communication skills, motivation, innovation, resilience, working capability in a team, ethical behavior, emotional competence, decision making capability, business acumen and an effective teaching quality are also required[8]. Moreover ability of time management, financial, legal and administrative knowledge and knowledge on information management are of great help in leadership in surgery[2].

Several authors define leadership attributes in terms of business settings.(1) Shamir O Lawich et al (2013) cited six leadership goals in health care delivery system in operating rooms at public sector hospitals in Jamaica[1]. Kamal et al used 18 leadership skills for assessment in their study "Physician leadership is a new mandate in surgical training,"(2) Sarah et al found that surgeons frequently showed guiding and supporting(33%),communicating and coordinating(20%) and task management behaviors(15%) in the operating room. It was noted in the study that the surgeon's leadership was directed to the room rather than a specific member of the team. In the same study it was also observed that surgeon's leadership behavior is more in high complexity cases than the low complexity cases in the operating room [4].

Most important quality of a leader is his power of influence on other people. John C Maxwell said, "Leadership is not about titles, positions or flowcharts. It is about one life influencing another."

Organizational models of leadership:

Different institutions follow different organizational models. British Model, U S Model, German University Model and Japanese Models are some such models. In British model the consultant is the leader of a small staff. The leadership rarely reaches the critical mass. In this model the funding for research is taken from external sources.

In US model there is large surgical department with an omnipotent chairperson. The chairman has extreme freedom in organizing his staff and in financial matters. In this model significant discretionary funding is available with closed industry cooperation.

In German University model consider the department as nominal units with several semi-autonomous divisions. In this model the funding is strictly controlled by the university or hospital administrators.

In Japanese model the leadership is very authoritian . The department comprises of large staff and substantial productivity. The clinical workload is very less and the funding is very strong with industrial participation[2].

Levels of leadership: A leadership in surgery may be at direct level (directed towards the service to the patients), at organizational level or at strategic level. In a health delivery system the direct level is at the level of leadership of a team, unit in terms of task force perspective. At organizational level it is the leadership of a organization or system in the process perspective. At the strategic level the leadership is at the level of global, regional or national perspective.

At academic level the direct level is at the leadership as a head of the division. At organizational level it is the leadership as chairman of the department. At strategic level the university equivalent is the leadership as a dean of the medical school [2].

The challenges: Information about leadership in surgery in the developing countries is very little in the literature [1]. The challenges are manifold. The major challenges are fund crunch, shortage of staff and a difficult work environment. The modern day environment is complex, volatile and unpredictable. So, managing and leading the health care system is becoming more and more complex day by day. To work amicably with other health professionals and other stakeholders of the health delivery system, to interpret complexities in the system and then to create a conducive work environment is really a challenging task.

In an interview of ten female surgical leaders it has been found that a majority of them(60%) faced greatest challenges in obtaining buy-in, building consensus and leading people through changes. The other challenges they faced were maintaining clinical skills, keeping communication effective, creating positive cultures, avoiding burn out of the team members and dealing with difficult personalities. They also said that staying as a role model, reorganizing and implementing ideas, managing funds and making tough decisions were other challenges they faced during their leadership [3].

In many instances the leadership is held by virtue of the experience and seniority. It is also governed by government rules. Because of lack of formal training many leaders are frequently ill equipped to manage the system.

An effective leadership adapts to the social, political, financial, cultural and environmental realities of working place and prepares strategy to deliver the health care services in an effective way.

The responsibilities: An efficient leadership should yield best possible results in an existing environment and find out the path for a better future for the institution or organization. He must work for environment enrichment, workplace safety and organization of human resources. He should do periodic audit and quality control survey and take measures on its recommendations. Analyzing and revising the existing policies are also his responsibilities. A great leader has a vision to set, align and achieve goals.

A leader has to face many difficulties in his day to day management particularly in the operating theatre when there is crunch of fund. Most commonly it happens in the public sector hospitals of the developing countries an the surgical team has to work under constraints at times. Shamir O Cawich et al commented that there are many barriers to surgical care. The optimal functioning of operating rooms in Jamaica is hampered by scarcity of monitoring equipments, ventilators, operating tables, personal protective equipment, drugs, surgical disposables and hard wares. Even the basic supplies (e.g. hand soaps, scrubs, surgical aprons, puncture resistant sharp disposable containers, consistent water supply and uninterrupted electrical supply are not routinely available in Jamaica[1]. The surgeon's dilemma is that he has to act under cost containment and balanced budget prepared by the administrators who are not responsible for the outcome of the patient, but the surgeon is[4].

The leadership has influential power over its fellow members. However it is seen that use of coercive power does not show the desired results[1]. The autocratic style of leadership decrease the productivity of the operating room functions. Animosity develops in between the leader and other health care workers, attitude becomes negative and productivity goes down. A leader should rely more on charismatic power. In modern times leaders work with constructive dialogues, forms common interest groups, discuss problems with other health care workers and finds out the proper solutions[1].

Several group of people work in a health care delivery system. An effective communication is a necessity between these groups and in the members of those individual groups for providing effective service to the patients. In an operation theatre an effective leadership ensures effective communication among the team members to ensure safe and proper service to the patient.

A great majority of the population of the developing countries cannot afford the facilities of the private health care system. The leader should see that the health care services go on smoothly as far as practicable in spite of the deficiencies in the system. The surgical leader has a great responsibility in this regard particularly in the operating room. At times he has to decide whether not to do or do some operations which need high dependency intra-operative and postoperative care that are not available in the system. A decision has to be made at times about some operations when sufficient blood products, intensive care unit back up, personal protective equipments and other support services are not available. The leader has to decide on cancellation or postponement of a surgery when minimum requirements are not fulfilled.

Shortage of staff is another major issue In the public sector hospitals of the developing countries that the leader has to tackle with. A leader must be good enough to utilize his existing staff in an efficient and productive way to get the maximum output from his team. In spite of all these deficiencies a good leadership can change the environment to a great extent.

Enrichment of the work environment is a responsibility of the leader. It is a good leadership policy to retain trained, competent and motivated staff in the institution or the organization[1]. The leadership should ensure a sense of satisfaction in the workplace. He should stand for fairness in the workplace and should not show any gender, race, class or religious discrimination. He should create an environment where everyone gets freedom of expression[1]. A good leader can identify the strength and weaknesses of the members of his staff and can disburse works accordingly. He should invest in human resources by providing scholarships, training and fellowships to the deserving members. A good leadership policy is to provide inspiration to its staff. Great leaders always inspire. It is applicable to academic institutions also. William Arthur Ward once said, "The mediocre teacher tells. The good teacher explains. The superior teacher demonstrates. The great teacher inspires"[5].

It is the responsibility of the leadership to change the work culture with a positive imbibe, resolve the

conflicts inside and outside the organization or institution and balance the demands met by the members[6-8]. A leader should lead himself with personal perspectives that impact effectiveness in the members of the team. He should support his associates and team members at critical situations. The leader should be ready to take responsibility and if anything goes wrong he should accept it, discuss it and find out a solution out of it. The leader has responsibility to build a team in times of need. He has also responsibility to maintain an existent team effectively[2,8]. A Leader should also be able to find out the informal leaders that are presently working in the system. These informal leaders should be nurtured[1]. The organizational skills of these persons can be used effectively in delivery of the health care services. An effective leader uses his delegation power intelligently. It is imperative to know that a person can have direct control over a limited no of people or units (approximately 7 or 8). A leader controls the rest of the team with delegation[4]. A leader should avoid micromanagement. But, he should establish a guideline in the unit for the management of the patients in the ward.

Workplace safety is the responsibility of the leader in surgery. He should ensure the main safety measures for the patient, surgeon, staff and the environment. One should introduce the operating room checklist in operation theatres. Appropriate resources are to be used for safety measures [1,8].

Analyzing and revising the existing policies are another responsibility of the leader. The successful function of the ward, OPD and operating room activities depends upon policies based on available resources and local need. Effective leadership ensures analysis of the policies from time to time and revision of them if needed. The leaders can also issue evidence based practice guidelines suitable to the situation.

A leader should be very particular about time management[4]. It gives him enough space for his varied type of activities and at the same time his followers get inspiration from him.

For a leader, financial, legal and administrative knowledge are essential.(4) It gives him power over the health care delivery system. He can understand and handle the system more effectively. Information management is another important responsibility of the leadership[4].

A leader should do periodic audit and quality control survey and take measures on its recommendations. Analyzing and revising the existing policies are also his responsibilities. He should also find out people in his team who are interested in research and should encourage them and motivate them in research activities. It is the responsibility of the leader to create a research culture in his institution or organization. Partnership with similar institution or organization who have similar research interests can create a good research environment. Leaderships are accountable for predefined goals in the institution or organization[1].

A leader should be knowledgeable and he must keep himself up to date with the changing scenario of medical world[4]. Henry S Truman said, "Not all readers are leaders, but all leaders are readers."(5) A leader in surgery should know that he is dealing with intelligent and efficient people. So he must be judicious in taking decisions[2].

A great leader must have a vision to set, align and achieve goals. He should have a power to see beyond the present. Rosalynn Carter once commented on leader, "A leader takes people where they want to go. A great leader takes people where they don't necessarily want to go but ought to be"[5].

Leadership courses for surgeons:

There is no universal recipe for leadership in surgery[2]. Theoretically, to be a best leader one should study business administration. But, no doctor has so much of time to spend in such a course. The cost of doing such a course is also not affordable for many doctors. In west, many professional bodies (e.g. American College of surgeons, Union College Schenectady of New York) have started short term leadership courses for the surgeons to enable them to meet the present day challenges of the leadership [2,7].

The practice of learning by doing (see one, do one, teach one), as was practiced in old days is now a day considered obsolete [2]. In pursuing any training or study a learner should consider his personality, age and need in the profession. For young people who are interested in leadership should develop the mindset from an early age and should attend seminars, meetings and courses and become knowledgeable by using different sources like books, net, internship etc.

Modern surgery needs leaders with superior leadership skills[9]. Leadership program should be introduced in curriculum and post-graduate training. In the present day world the academic leadership has grown and it has touched the non-academic institutions also. One should remember that there is always a room for developing leadership in the existing leaders.

The future: In future, the leadership will be directed to have more focus in vertical development (developmental stages) than the horizontal development (competencies). The focus will be on

collective leadership than individual one, giving development ownership to the individual and innovation in leadership development module[10].

Conclusion: there is no accepted module for leadership development. Leadership in surgery can be developed through experience. Observation and learning in a framework where mentoring, coaching and monitoring are available with assignment, action learning and feedback is helpful. However considering the modern complexities, pursuing a full time course in management and leadership is advisable. Short term training courses are also helpful. Students should be trained in leadership and team management. All clinicians, medical and non-medical persons should be taught team working skills as a part of their foundation courses.

References:

1. Cawich SO, Harding HF, Crandon et al. Leadership in surgery for public sector hospitals inJamaica: Strategies for the operating room. Perm J 2013;17(3):e121-5
2. Turina M. Leadership in Surgery or how to Create a successful Surgical nit, University Hospital, Zurich, Switzerland, a PP presentation, sha-conferences.com/files/presentation 2011.
3. Prabhakaran S, Economopoulos KR, GraboDJ, Sakaran JV : Surgical leadership across generations, Bulletin of the American College of Surgeons, August,2012, http://bulletin.facs.org/2012/08
4. Parker SH, Yule S, Flin R : Surgeons'leadership in the operating room : an observational study , The American Journal of Surgery, Vol. 204, issue 3,September 2012, pages 347-354
5. Quotes on leader, Brainy quotes ; brainyquote.com
6. Kamal M.F., Liscum K, Brunicardi FC: Physician leadership is a new mandate in surgical training, The American Journal of Surgery, Vol. 187, issue 3, pages 328-331
7. Surgeon as Leaders Course, American College of Surgeons website, https://facs.org/…/courses/surgeonsasleaders
8. Giddings A, Williamson C: The leadership and management of surgical teams, The Royal College of Surgeons of England, June 2007, www.rcseng.org
9. Patel VM, Warren O, Humphris P, Ahmed K, Ashrafian H, Rao C, Athanasiou T, Darzi A: What does leadership in surgery entail ? PNZ J Surgery, 2010, Dec:80(12):876-83
10. Nick Petrie : Future trends in leadership development, White paper, Centre for creative leadership, Colorado, 2014, integralleadershipreview.com

Review Article

LAPAROSCOPIC REPAIR OF PRIMARY INGUINAL HERNIA IN ADULTS: IS IT THE RIGHT CHOICE?

Dr. Elbert Khiangte,
Dr. Iheule Newme,
Dr. Karabi Patowary

ABSTRACT
With a history dating back as far as ancient Egyptian culture, inguinal hernia repair is one of the most commonly performed general surgical procedures. It embodies the art and science of surgery. The advent of laparoscopic technique has sparked off a debate over the superiority of this method versus open repair. We reviewed a myriad of literature and tried to summarize the recommendation of the various guidelines on the laparoscopic repair of primary inguinal hernia in adults for easy assistance of the general surgeons.

Introduction :

With a history dating back as far as ancient Egyptian culture, inguinal hernia repair is one of the most commonly performed general surgical procedures all over the world and constitutes a major part of health care [1,2]. It is also one of the earliest operations for a junior surgical resident during his/her postgraduate training period. Open hernia repair has stood the test of time for decades but the different methods for open hernia repair indicate that the ideal technique has not yet been found. However tension-free mesh repairs are widely used method today because of their low recurrence rates.

Unlike laparoscopic cholecystectomy, which was very quickly accepted by the surgical community, laparoscopic hernia repair has remained a contentious issue since its inception. Tension-free hernioplasty with mesh is currently considered the gold standard treatment for adult inguinal hernia [3]. With recent advances in laparoscopic surgery, the safety and feasibility of laparoscopic technique have been established, and this novel approach has gained popularity. Rattner et al.[4] at Massachusetts General Hospital reviewed his physician patients and found that there is a growing acceptance for laparoscopic hernia repair as an alternative to conventional techniques. The proportion of physicians who requested laparoscopic repair of their inguinal hernia increased from 16% in 1995 to 75% in 1997. In 2004, Lau H [5] surveyed 121 patients who had experience of both laparoscopic and open repair, regarding their choice of operation in the event of future recurrence of hernia or development of contralateral hernia. More than 80% of the patients preferred to undergo laparoscopy, mainly because of diminished pain, faster recovery and earlier ambulation after laparoscopic repair.

Non-operative treatment for Primary inguinal hernia:

Several papers have reported non-operative, watchful waiting as a safe and acceptable option for men with no or minimal symptoms [6-8]. However, a later study showed that the majority of patients with an asymptomatic

inguinal hernia eventually become symptomatic, and the study concluded that the evidence for a watchful waiting policy is lacking [9]. Inguinal hernia is a benign disease and its repair results in only rare and minor complications in elective setting. The International Endohernia Society (IEHS) [10] and the European Association of Endoscopic Surgery (EAES) [11] also recommends surgery in asymptomatic groin hernias for medically fit patients. The rationale for surgery in inguinal hernia is therefore treatment of current or future symptoms, and not to prevent incarceration [11].

Truss is an ancient remedy that is still frequently in use. It is a supportive undergarment designed to keep the small inguinal hernia in a reduced position and relieve discomfort. Prolong use of the truss increases the probability of complications, which include strangulation of the hernia, atrophy of the fascial margins and of the spermatic cord. It also allows the defect to enlarge and makes subsequent repair more difficult. Surgical repair is the best treatment for groin hernias and only in exceptional circumstances, when a patient is unfit for surgery or refuses an operation, should a truss be considered [12].

Surgical aspects of groin hernia surgery:

The history of hernia surgery epitomizes the history of surgery. A large number of surgical procedures for groin hernia have been developed through the years but the three landmarks in the history of inguinal hernia repair are [13].

1.	Tissue repair	Eduardo Bassini	1888
2.	Onlay mesh (tension-free) repair	Irving Lichtenstein	1984
3.	Laparoscopic hernia repair	Ger, Shultz, Corbitt etc.	1990

Inguinal hernias can be operated by either anterior or posterior surgical approach. Bassini repair is an anterior surgical approach consisting of high ligation and resection of the sac followed by suture reconstruction of the posterior wall of the inguinal canal. Bassini's repair became the prime technique for the repair of inguinal hernia repair for almost a century. Tension-free repair of inguinal hernia using a mesh was described by Lichtenstein et al [14] which has now become the most widely performed surgical technique worldwide. As a minimally invasive laparoscopic surgery technique, laparoscopic hernia repair was introduced in the year 1990s [13]. The most commonly performed laparoscopic techniques are Transabdominal preperitoneal technique (TAPP) and totally extraperitoneal technique (TEP). The fact that laparoscopic inguinal hernia repair has become popular worldwide can be attributed to two main reasons. First, laparoscopy has allowed placement of a large piece of mesh behind the defect where, according to Laplace's Law, the same forces that cause the hernia are used to reinforce the repair. Second, the associated benefits of minimally invasive surgery, such as improved cosmesis, less pain, faster recovery, less chronic pain and improved success rates [15].

Primary unilateral inguinal hernia in men:

The European Hernia Society (EHS) [16] and National Institute for Health and Care Excellence NICE [17] guideline recommend treating all symptomatic unilateral hernias using a mesh regardless of the type of hernia. In the guidelines, the open Lichtenstein or laparoscopic inguinal hernia techniques are recommended as best evidence- based options for repair of a primary unilateral hernia provided the surgeon is sufficiently experienced in the specific procedure [18]

The advantages of laparoscopic repair are that it can be done in all groin hernias; inguinal and femoral, unilateral and bilateral, primary and recurrent. The expert panel of EAES states that young, active adult men between 18 and 30 years benefit mostly from endoscopic groin hernia repair because they gain most from early convalescence. They also recommend that there are no absolute contraindications for endoscopic repair in adolescents aged 14-18 years [11]. Another argument in favour of laparoscopic repair is clinically unrecognized contra-lateral hernias. Occult contra-lateral hernias are found in exploration in about 25% of the cases [10]. Therefore, laparoscopic TEP and TAPP techniques as well as the open mesh techniques currently represent the gold standard for treatment of unilateral, primary inguinal hernia for adult men. Among the advantages of the laparoscopic techniques cited in the guidelines of the EHS are lower rates of wound infections and haematomas as well as earlier resumption of normal, everyday working activities compared with the Lichtenstein operation. But on the other hand, the laparoscopic procedures take longer and are associated with a higher seroma rate [16].

Primary unilateral inguinal hernia in women:

Although femoral and umbilical hernias are more common in female population, indirect inguinal hernia is still the most common type of hernia in women [19]. In epidemiological studies from national databases, reoperation rates after female herniorrhaphy are higher, compared to males, without any difference between anterior mesh and non-mesh repairs [20, 21]. Data from the Danish Hernia Database have shown that the risk of recurrence in women is higher when performing an

open repair compared with a laparoscopic repair for a primary inguinal hernia. Furthermore, due to excellent exposure of the myopectineal orifice including the femoral canal during the laparoscopic dissection it is recommended that all women with a groin hernia (inguinal or femoral) should be offered a laparoscopic repair [22]. EHS [15] recommends that in female patients, the existence of a femoral hernia should be excluded in all cases of a hernia in the groin and a laparoscopic preperitoneal (TAPP) approach should be considered in female hernia repair. Putnis et al suggests that laparoscopic repair is an ideal approach in females as both inguinal and femoral orifices can be assessed and hernias repaired simultaneously during surgery [23].

Primary Bilateral Inguinal Hernia:

The IEHS, EAES, EHS and NICE guideline [10, 11, 16, and 17] recommends laparoscopic repair for bilateral inguinal hernias. In patients with bilateral groin hernias, the expert group states that endoscopic repair is ideal because both groins can be reached using two or three small incisions, whereas in open repair, one large incision in each groin is necessary [11]. TEP was found to be the most cost-effective in most cases, since the difference in operation times was not significant [16]. In a recent analysis of the cost effectiveness of laparoscopic surgery for bilateral hernias concluded that it was likely that laparoscopic repair was more cost effective than open mesh repair for the management of symptomatic bilateral hernias [24]. This was because differences in operating time are reduced and differences in convalescence are more marked in favour of the laparoscopic approach.

Primary Hernia in Complex Situations:

In complex situations like patients after major lower abdominal and pelvic surgery, EHS recommends open mesh techniques (Lichtenstein, Plug and Patch, and PHS) as the preferred techniques [16, 17]. The open mesh approach also presents the least risk in the presence of cirrhosis of the liver with ascites or for patients on peritoneal dialysis. EAES recommends that primary inguinal hernias in complex situations like patients after radical prostatectomy or cystectomy, and patients with a scrotal hernia, ascites, previous posterior mesh repair, or peritoneal dialysis should only be performed by a surgeon who has a high level of experience in endoscopic groin hernia repair [11]. The challenges in scrotal hernia are to ensure complete dissection of the large hernia sac from the inguinal canal and scrotum. Failure to remove the large section of the hernia sac will generally result in formation of a persistent seroma [10]. In case of incarcerated inguinal hernia, a diagnostic laparoscopy is recommended followed by either TAPP or TEP [10, 11]. The opening of the incarcerated hernia defect may be enlarged to allow safe dissection of its contents, if necessary making an incision into the cranial hernia ring.

Choice of Anaesthesia:

Virtually all anaesthetic methods have been used in inguinal hernia repair. Though open repair under local anaesthesia has been strongly advocated by a number of surgeons, the majority of inguinal hernia repair is still being performed under general anaesthesia in most institution worldwide [25]. Advances in general anaesthesia ensures a comfortable, safe and pain-free procedure both to the patient and the surgeon. Besides, if the patient becomes uncooperative or finds the pain intolerable during operation under local anaesthesia, conversion to general anaesthesia may carry a higher risk than planned general anaesthesia. Laparoscopic inguinal hernia repair requires general anaesthesia and thus cannot be considered if the patient is unfit for this type of anaesthesias [10]. On the other hand, there are reports with variable experiences of TEP repair performed under regional (Spinal and Epidural) anaesthesia [26, 27]. The studies concluded that laparoscopic TEP repair under spinal or epidural anaesthesia appear to be safe, technically feasible, and an acceptable alternative in patients who are at high risk or unfit for general anaesthesia, but the same is not possible for TAPP [10].

Patients with primary inguinal hernias who are not fit for general anaesthesia or spinal/epidural anaesthesia due to cardiac or pulmonary risk factors, open mesh technique (Lichtenstein, Plug and Patch and PHS) under local anaesthesia is recommended [16].

Cost factor:

Cost evaluation of hernia repair is a complex issue. Methods of cost comparison do not only include direct cost to the hospital or hospital charges to the patient, it also includes other societal considerations, such as loss of working days, quality of life, etc. The economic aspects of inguinal hernia operations can be examined from three different perspectives [16]:

1. from the perspective of the hospital accounting for the direct costs of the operation.
2. from the perspective of the health insurer who funds it.
3. from a socio-economic perspective.

From the perspective of the hospital or the health insurer, an open mesh procedure is the most cost-effective operation in primary unilateral hernias but from a socio-economic perspective, laparoscopic

procedure is probably the most cost-effective approach for patients who participate in the labour market, especially for bilateral hernias. In cost-utility analyses including Quality-adjusted life-year (QALYs), endoscopic techniques (TEP) may be preferable, since they cause less numbness and chronic pain [11, 16].

It is suggested that laparoscopic hernia repair is more expensive than open hernia repair mainly due to the cost of disposable equipments. In the Indian scenario, if we adopt cost-containment strategies such as use of reusable laparoscopic instruments as against disposable ones, relying on sutures rather than the tackers or glue for mesh fixation, use of telescope or indigenous balloons devices to create the working space in TEP rather than commercially available ones, the cost of the laparoscopic hernia repair should be comparable to the open repair.

It is imperative to quote E. L. Felix [28], who wrote "If you are the patient, how much more was it worth to you to return to normal activity faster, with less immediate pain and a decreased chance of developing chronic pain. Only the patient could answer that question."

Learning Curve:

Laparoscopic inguinal hernia repair has a longer learning curve than open repair, and ranges between 50 and 100 procedures, with the first 30-50 being the most critical [16]. There appears to be a higher rate of rare but serious complications of vascular and visceral injuries with laparoscopic repair. These complications are inherent in obtaining access and are unique to laparoscopy. Although such injuries should be less frequent with TEP, they can occur with both TEP and TAPP and are undoubtedly related to the experience of the operator [16, 29]. McCormack et al. [24] in an analysis showed that learning of TAPP for both experienced and inexperienced surgeon was easier than TEP.

The incidences of serious vascular and visceral injuries are found to be higher during the surgeon's learning curve [11]. These serious complications in the initial learning curve are mainly due to insufficient knowledge of anatomy, limited working space, lack of necessary skills, inappropriate instrumentation and simply inexperience in minimal invasive surgery. These deficits are summarized as "early learning curve" and are now considered a historical character which symbolizes "a difficult birth of a new technique" [30]. Today's learning curve has to be different than what it was a decade ago. There is a rising trend in the number of laparoscopic procedures performed by surgical residents and is associated with a drastic decrease in the number of open procedures [31, 32]. Nobody has to "invent the wheel" by himself: it has been invented already and there are enough experienced surgeons now to guide the novice and young surgeons in their endeavour to start laparoscopic hernia surgery [30].

Conclusion:

Laparoscopic hernia repair has transformed the hernia surgery from a "simple and easy resident teaching operation" to a complex enigma, which was first to be defeated rather than adopted. Even some of the most severe critics of the laparoscopic approach admit that it is appropriate to use this technique for the repair of recurrent and bilateral hernias. But how are the surgeons to prepare for these complex cases? Before attempting the laparoscopic repair of complex or bilateral hernias a surgeon must learn the anatomy and the technique by repairing simpler ones, the unilateral hernias, so that all patients, including those patients who have only a unilateral hernia may also benefit from this modern approach. If recurrence rates as well the chances of developing severe pain in the future are equal or less than after open repairs, and the other benefits of minimally invasive surgery, such as improved cosmesis, less pain, faster recovery and improved success rates, why is it inappropriate to use the laparoscopic approach for unilateral primary hernias?

To pass on the advantages of laparoscopy to patients with bilateral and recurrent hernias, one should adopt the practise of performing laparoscopic hernia repair even in uncomplicated unilateral inguinal hernia to achieve a smooth transition into performance of complicated cases. It should be our endeavour to make laparoscopic hernia repair an armamentarium of modern surgical curriculum, and to transfer the skills obtained in laparoscopic hernia surgery to other more complex laparoscopic operations. Our approach should be to employ the laparoscopic repair for all primary inguinal hernias in adults, unless there is a medical or surgical contraindication. The open anterior repair is reserved for those cases in which the laparoscopic approach is contraindicated.

References:

1. Kingsnorth A, LeBlanc K Hernias: inguinal and incisional. Lancet 2003;362(9395):1561-71.
2. Rutkow IM Demographic and socioeconomic aspects of hernia repair in the United States in 2003. Surg Clin North Am 2003;83(5):1045-51.
3. Tsai YC, Ho CH, Tai HC, Chung SD, Chueh SC Laparoendoscopic single-site versus conventional laparoscopic total extraperitoneal hernia repair: a prospective randomized clinical trial. Surg Endosc. 2013;27(12):4684-92.
4. Rattner DW Physicians' choice for their own hernia repairs. J Laparoendosc Adv Surg Tech A; 2000;10:75-7.
5. Lau H Patients' perception of open and endoscopic extraperitoneal inguinal hernioplasty. Surg Laparosc Endosc Percutan Tech. 2000;14: 219-21.
6. Fitzgibbons RJ Jr, Giobbie-Hurder A, Gibbs JO, Dunlop DD, Reda DJ, McCarthy M Jr, et al. Watchful waiting vs. repair of inguinal hernia in minimally symptomatic men: a randomized clinical trial. JAMA. 2006;295:285-92.
7. Barkun J, Neville A, Fitzgerald GW, Litwin D Evidence-Based Reviews in Surgery Group; Canadian Association of General Surgeons; American College of Surgeons. Canadian Association of General Surgeons and American College of Surgeons evidence-based reviews in surgery. 26. Watchful waiting versus repair of inguinal hernia in minimally symptomatic men (2008) Can J Surg. 2008;51(5):406-9.
8. Turaga K, Fitzgibbons RJ, Puri V Inguinal hernias: Should we repair? Surg Clin North Am. 2008;88:127-38.
9. Chung L, Norrie J, O'Dwyer PJ Long-term follow-up of patients with a painless inguinal hernia from a randomized clinical trial. Br J Surg 2011;98(4):596-9.
10. Bittner R, Arregui M E, Bisgaard T, Dudai M, Ferzli G S, Fitzgibbons R J, et al. Guidelines for laparoscopic (TAPP) and endoscopic (TEP) treatment of inguinal Hernia [International Endohernia Society (IEHS)]. Surg Endosc 2011;25:2773 843.
11. Poelman M M, vanden Heuve l B, Deelder J D, Abis G S A, Beudeker N, Bit- tner R, et al. EAES Consensus Development Conference on endoscopic repair of groin hernias. Surg Endosc 2013;27:3505-19.
12. Law NW, Trapnell JE. Does a truss benefit a patient with inguinal hernia? BMJ Apr 1992;25;304(6834):1092.
13. Udwadia TE Inguinal hernia repair: The total picture. J Min Access Surg 2006;3:144-6.
14. Lichtenstein IL, Shulman AC, Amid PK, Montllor MM The tension free hernioplasty. Am J Surg 1989;157:188-93.
15. Tran H Safety and efficacy of single incision laparoscopic surgery for total extraperitoneal inguinal hernia repair. JSLS 2011;15:47-52.
16. Simons M P, Aufenacker T, Bay-Nielsen M, Bouillot J L, Campanelli G, Conze J, et al. European Hernia Society guidelines on the treatment of inguinal hernia in adult patients. Hernia 2009;13:343-403.doi:10.1007/s10029-009-0529-7
17. National Institute of Clinical Excellence (NICE). Final appraisal determination, laparoscopic surgery for inguinal hernia repair (2004) London.
18. Miserez M, Peeters E, Aufenacker T, Bouillot J L, Campanelli G, Conze J, et al. Update with level1 studies of the European Hernia Society guidelines on the treatment of inguinal hernia in adult patients. Hernia 2014;18:151-63.
19. Kulacoglu H Current options in inguinal hernia repair in adult patients. Hippokratia Jul;15(3):223-31.
20. Bay-Nielsen M, Kehlet H (2006) Inguinal herniorrhaphy in women. Hernia 2011;10:30-33.
21. Koch A, Edwards A, Haapaniemi S, Nordin P, Kald A Prospective evaluation of 6895 groin hernia repairs in women. Br J Surg 2005;92:1553-1558
22. Rosenberg J, Bisgaard T, Kehlet H, Wara P, Asmussen T, Juul P, et al. Danish Hernia Database recommendations for the management of inguinal and femoral hernia in adults. Dan Med Bull 2011;58(2):C4243.
23. Putnis S, Wong A, Berney C Synchronous femoral hernias diagnosed during endoscopic inguinal hernia repair. Surg Endosc 2011;25(12):3752-4.
24. McCormack K, Wake B, Perez J, Fraser C, Cook J, McIntosh E, et al. Laparoscopic surgery for inguinal hernia repair: systematic review of effectiveness and economic evaluation. Health Technol Assess Apr;2005;9(14):1-203

25. Kulacoglu H, Alptekin A Current options in local anesthesia for groin hernia repairs. Acta Chir lugosl 2011;58(3):25-35
26. Ismail M, Garg P Laparoscopic inguinal total extraperitoneal hernia repair under spinal anesthesia without mesh fixation in 1,220 hernia repairs. Hernia 2009;13:115-119.
27. Lal P, Philips P, Saxena KN, Kajla RK, Chander J, Ramteke VK Laparoscopic total extraperitoneal (TEP) inguinal hernia repair under epidural anesthesia: a detailed evaluation. Surg Endosc 2007;2:595-601.
28. Felix EL Primary inguinal hernia repair: open or laparoscopic, that is the question. Counterpoint. Surg Endosc 2004;18:1144-8.
29. O'Dwyer PJ Current status of the debate on laparoscopic hernia repair. Br Med Bull. Oct 2004;27;70:105-18
30. Kukleta JF TAPP-The logic of hernia repair. Revista Portuguesa de Cirurgia 2009;(10):51-58
31. Unawane A, Kamyab A, Patel M et al. Changing paradigms in minimally invasive surgery training. Am J Surg. Mar;2013;205(3):284-8
32. McCoy AC, Gasevic E, Szlabick RE et al. Are open abdominal procedures a thing of the past? An analysis of graduating general surgery residents' case logs from 2000 to 2011. J Surg Educ. 2013;70(6):683-9.

Original Article

EPIDEMIOLOGY, MORBIDITY, MORTALITY AND TREATMENT IN BURNS- A CHANGING SCENARIO IN FOUR DECADES IN THE STATE OF ASSAM

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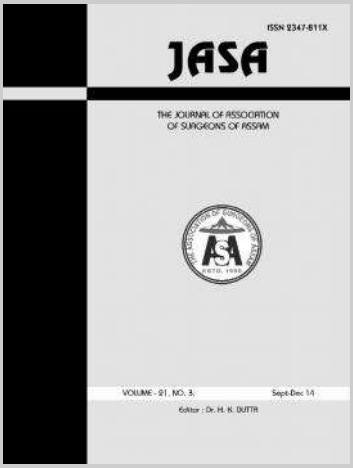


ABSTRACT

Morbidity and mortality in burns have improved in the recent past due to better fluid resuscitation, introduction of better burn wound covers and early excision and skin grafting for full thickness burns. Burn care in the North Eastern Indian state of Assam is still inadequate: but individual effort amongst a section of population of the state has resulted in improved outcome. This retrospective study is the analysis of 5556 cases of burn injuries treated by the author in 3 hospitals of Assam over a period of 33 years. The study intends to analyse the epidemiological pattern of burn injuries in order to plan preventive strategies and also to compare the results of treatment with and without an organized burn unit. There were 4813 (86.6%) minor burns (TBSA burn <20%) and 743 (13.4%) major burns (>20%) in the series. The period of study has been divided into three blocks - Block I- first 14 years of disorganized management, before establishment of Burns Unit, Block II -next 10 years of organized management after establishment of Burns Unit and Block III - last 9 years of modern care with introduction of newer burn wound covers and early excision of burns. The data were analysed and compared.

The overall incidence of burns was more in males, but more numbers of females were the victims of major burns. While the number of accidental burns was almost constant in the three blocks, there was a significant rise in the suicidal burns in the recent blocks. Flame burns (56.7%) constituted the majority of injuries, while scald (31.3%) and electrical burns (9.3%) followed. Domestic burns (73.1%) were of most common occurrence, followed by Industrial (10.8%), Diwali related (9.6%) and Traffic burns (6.4%).

Though the reduction in overall mortality in the three blocks were not remarkable (Block I- 9.4%, Block II- 7.4% Block III-7.2%), mortality in major burns were reduced significantly after introduction of modern methods of management (Block I- 79.7%, Block II-61.2% Block III-46.9%). The quality of wound healing also showed improvement in subsequent years as evident by increase in number of patient with no scar (Block I - 10%. Block II-20%, Block III- 35%) and decrease in number of patients with extensive scar (Block I-20%, Block II- 15%, Block III-5%), measured by Vancouver scar scale. Burn Prevention Programs, introduced in Block II has shown improved awareness amongst the people.

The paper gives an insight into the magnitude of the problem to plan treatment and preventive policies. It also concludes that by individual efforts and introduction of newer methods of treatment one can improve results of burn management.

Key Words : *Epidemiology; burn unit; treatment; mortality.*

Introduction

Burns are a significant cause of morbidity and mortality worldwide. An estimated 322 000 people died from fire-related burns alone worldwide in 2002. The impact of physical disfigurement due to burns is far reaching, as social stigma may lead to isolation and other psychological impairments limiting one's productivity. The overwhelming majority (90%) of fire-related fatalities occur in low and middle-income countries (LMICs), mostly in the South-East Asian countries. where burn deaths and injuries are more common among the poorest populations.

The incidence of burns in India is informed guesses. Davies quoted an incidence of 2 million burns annually; 0.5 million of them receive clinic or hospital outpatient care, 0.2 million are admitted to hospitals and 50000 succumb to the injuries[1]. The above figures may be gross underestimation as a large numbers, especially from the rural areas remain unreported. In 1998, India was the only country in the world where fire (burns) was classified among the 15 leading causes of death. High mortality in young married women from burns has already become an alarming and contentious medical problem in rural India. Jayaraman et al reported that 67% of the total patient died in their study was young females. The most common modes of burning are flames, followed by scalds; a small percentage of victims suffer from chemical and electrical burns[2]. While household accidents, mostly occurring in the kitchens account for majority of the burn injuries, industrial accidents, terrorist violence, major road, rail and air accidents are also contributing a sizeable number of burn injuries in recent times. Non-fatal burns are a leading cause of morbidity, including prolonged hospitalization, disfigurement and disability, often with resulting stigma and rejection. Absence of organized care to the majority of the burn victims is the cause of increased mortality and morbidity in the low and medium income countries of the world. However, better understanding of the fluid resuscitation, introduction of improved burn wound covers and early excision and skin grafting for full thickness burns in the established burn care centers of the developed and developing countries, have lead to reduced mortality and morbidity of the burn patients.

The present retrospective study has been intended to look back into the data of burn injured patients treated in a period when no organized care to burn injured patients was available and to compare with the data of the period when organized facilities for burn care were established. The objective of the study was to analyze the epidemiological data in the two periods in order to find any change in the pattern of burn accidents and thereby formulating preventive strategies and treatment policies and also to compare the results of treatment before and after the establishment of burn units. .

Materials and methods

This is a retrospective study done in a period of 33 years from 1980 to 2013 in three different hospitals of Assam. The data were collected from the admission records, case sheets and the OPD record books of the hospitals. The first 25 years of study was conducted in Indian Oil Corporation Limited (Assam Oil Division) [IOCL (AOD)[Hospital at Digboi. This 200 bedded industrial hospital used to treat patients from a large area of upper Assam and part of Arunachal Pradesh. Burn injured patients were treated in an isolated room or at the corner of the general surgical ward till 1994, when a three bedded burn unit was established there. Well organized burn care, rehabilitation of burn victims, clinical research works and burn prevention programs were started after the establishment burn unit. The records of the patients -both indoor and OPD, treated during that period could be retrieved from case sheets and OPD registers. The next 8 years study was conducted in Guwahati Refinery Hospital, another industrial hospital located in the city of Guwahati and in the burn unit of NEMCARE Hospital, Guwahati. Guwahati Refinery hospital did not have a burn unit, but the facilities for improved treatment were created in isolated rooms with availability of modern gadgets. There is a full fledged five bedded burn unit in NEMCARE hospital, where the last four year's study was carried out. From 2005 to 2013, computerized records of the burn patients were available for the study.

For the convenience of result oriented analysis of the data, the period of study was divided into three blocks- Block I- 1980-1993- Period of disorganized management (before establishment of burn unit) , Block II- 1994 to 2004 - Period of organized management(after establishment of burn unit), Block III- 2005-2013- Period of advanced management of burns.

In Block I, There was no burn unit. Patients were treated in a general ward, without any specified antiseptic protocol. Fluid resuscitation was done by using Evan's formula - using both crystalloids and colloids. No specified diet regime was given to the patients. Most of the burn wounds were treated by exposure method- applying local antimicrobials, like Povidone iodine ointment and covering with a cradle over it. Closed dressing with Povidone iodine ointment was done in some cases. Skin Grafting was done in selected cases after 3-4 weeks, once granulations were formed. No pressure therapy was used in this period.

In Block II, A three bedded burn unit was established in IOCL (AOD) hospital in 1994.Doctors, nurses and paramedics were trained in tertiary burn care centre and hence the whole protocol of management was changed. Fluid requirement was calculated by applying Parkland formula and Ringer's Lactate solution alone was used in first 24 hours. Later on colloids were added. Better monitoring of fluids with CVP line, better nutrition and antibiotic protocol were employed. Burn wound dressings were done daily with 1% Silver Sulphadiazine cream and covering with boiled potato peel dressing. Early skin grafting and use of early excision and grafting in some cases in the later periods resulted in better patient's compliance. Pressure therapies with crepe bandages were used almost in all cases. Pressure garments were also used in selected patients. Scars were measured by using Vancouver scale in all cases coming for follow up and records were kept.

In Block III. Advanced methods of management were employed. Modified Parkland formula was used for fluid resuscitation with hourly monitoring of intake and output. Improved nutritional supplement and use of strict antibiotic protocol was made mandatory. Better assessment of the depth of burn wounds helped in use of appropriate newer burn wound covers. Early excision and skin grafting in all full thickness burns was almost routinely used during this period. Pressure garments were used in all patients for prevention of scar. Patients were regularly followed up and scars were measured by Vancouver scale. Scar excision and other reconstructive surgeries were also done in deserving cases.

Results-Out of total 5556cases of burn injuries, 2898 (52%) were males and 2658(48%) were females.1424 cases were treated as indoor and 4132 were treated as out patients. Amongst the patients, who were treated as indoor, there was more number of females (822) than males (602). Again amongst the indoor cases, 591 (41.4%) were children below 18 years, 588 (41.2%) were between 19- 40 years, 198 (13.8%) were between 41-60 years and 47 cases (3.2%) were above 60 years of age. There were 4813 (86.6%) minor burns (TBSA burn <20%) and 743 (13.4%) major burns (>20%) in the series. Analyzing the modes of burning, it was evident that 95.1% cases (n-5287) were accidental burns, 3.7% (n- 209) were suicidal and 1.07% (n-60) were homicidal burns. Further analyzing the mode of burning in the three blocks separately, it was evident that accidental and homicidal burns remaining almost at par in the three blocks, there was increasing trend of suicidal burns in the recent years (Fig 1).

The analysis of the causative factors of burns revealed; 3153 numbers (56.7%) of flame burns, 1730 (31.3%) scalds, 519 (9.3%) electrical burns and 154(2.7%) chemical burns (Fig 2). Most of the burn accidents, in the present study, occurred at home (n-4056 - 73.1%), followed by industrial burns (602- 10.8%), Diwali related burns (n- 537- 9.6%) and traffic burns (n- 361- 6.5%). Further analyzing the domestic burns (excluding the suicidal and homicidal burns) it was found that there were 1205(31.8%) burn accidents due to kitchen fire, 923 (24.3%) due to stove mishaps. 323 (8.5%) LPG related burns, 1050 (27.7%) burns occurred in fire places outside the kitchen and 286 (7.5%) numbers of burns occurred in other places of the house (Fig 3).

The mortality figures of the burn patients were compared in three different periods (Table I). The overall mortality of the patients was 9.4% in Block I, 7.8 % in Block II and 7.2% in Block III.- the figures showing marginal reduction in mortality in subsequent blocks. The mortality in indoor patients was however found to be substantial-- 36.7% in Block I, 31.3% in Block II and 27.6% in Block III. A significant reduction in mortality was evident in the recent years in cases of major burns (above 20% TABC)-(79.7% in Block I, 61.2% in Block II and 46.9% in Block III) (Fig 4). This is attributed to regular use of early excision and grafting and better infection control.

Improved morbidity was evident in the recent years due to extensive preventive measures for scars and contractures. Use of reconstructive surgeries in disabled patients also reduced morbidity. In Block I, there was no scar in 10% cases; the figure increased to 20% in Block II and 35% in Block III. Mild scars were noticed in 30% cases in Block I & II and in 40% cases in Block III. Moderate scars were reduced from 40% in Block I to 35% in Block II and 20 % in Block III. While extensive scars with contractures were found in 20% cases in Block I, it came down to 15% in Block II and only 5% in Block III (Fig 5).

Year	0-12	13-18	19-30	31-40	41-50	51-60	61-70	71-80	81-100	Total
1980-1993	162	34	96	66	42	14	10	6	-	430
1994-2004	173	61	150	67	37	20	8	4		520
2005-2013	111	50	119	90	*60*	25	11	6	2	474
Total	446	145	365	223	139	59	29	16	2	1424
Percentage	31.3%	10.1%	25.6%	15.6%	9.7%	4.1%	2.0%	1.12%	0.1%	
	591 (41.4%)		588 (41.2%)		198 (13.8%)		47 (3.2%)			

Table 1 : Age Incidence

Discussions

The epidemiology of burns varies from one part of the world to another as it depends on the level of civilization, industrialization, and culture among other things [3]. The lack of uniformity between methodologies in addition to the existence of lots of variables and differences in the periods of study makes any comparison with other studies difficult [4]. Burn injuries and their related morbidity, disability, and mortality represent a public health problem of increasing importance in developing countries [8].

In our study, there were more male victims (52%) than females (48%), while both indoor and out patients were considered; but females outnumbered males amongst the indoor admissions .These findings were in consistent with some other series [5, 11, and 12]. There were more than 50% burns in age group between 13 to 40 years in our series. This distribution is similar to those found in other studies.[3-7] High incidence in this age group is explained by the fact that they are generally more active and exposed to hazardous atmosphere at home and at work[8-10]

A majority of our patients (73.1%) sustained burn injuries at home. This figure is comparable to reports from other developing countries. The figures from Nigeria [19] Ghana,[20] and Egypt[18] show more than 70% injuries occurring at home. There were a large group of patients, who sustained burns in Diwali related events, mostly cracker burns, in the present study. Another major group was industrial burns, as the earlier part of our study was in industrial area.

Most of the burns in our study were caused by flames and scalds; electrical and chemical burns were less common. These findings are in consistent with the findings of a systematic review of unintentional burns done in South East Asian countries [27].

The overall mortality figures of our study, which included both indoor and outdoor patient, showed some improvement in the subsequent blocks. This is attributed to better treatment facilities made available in the later periods. The mortality figures of the indoor cases were 36.7% in blocks I and this is comparable to some of the studies [17,18]. But we have shown considerable reduction in mortality in the subsequent blocks. Again, the reduction in mortality in the major burns in our studies in the subsequent blocks was significant and was attributed to application of early excision and grafting in a large number of cases. This

YEAR	TOTAL NUMBER OF CASES			NO. OF MAJOR & MINOR BURNS		OVERALL MORTALITY	MORTALITY OF INDOOR CASES	MORTALITY IN MAJOR BURNS (20-100%)	MORTALITY IN SALVAGABLE Burns(20-60%)
	OPD	INDOOR	TOTAL	MINOR	MAJOR				
1980-1993 (Block I)	1242	430	1672	1474	198	**158/1672 9.4%**	**158/430 (36.7%)**	**158/198 79.7%**	**110/160 (68.7%)**
1994-2004 (Block II)	1550	520	2070	1804	266	**163/2070 7.8%**	**163/520 (31.3%)**	**163/266 61.2%**	**78/185 (42.1%)**
2005-2013 (Block III)	1340	474	1814	1535	279	**131/1814 7.2%**	**474/131 (27.6%)**	**131/279 46.9%**	**55/196 (28.0%)**

Table 2 : Mortality

is in conformity with some other studies [28] which also showed reduction in mortality after early excision and grafting in patients not having inhalation injuries.

Rehabilitation of the majority of the burn victims in our study were possible in the block II and III, as the contracture and scars could be reduced with physiotherapy, pressure garments and scar reconstruction.

Conclusions

This study has given us an insight into the magnitude of problems of burn injuries in the North Eastern state of Assam. It has also shown that

Fig 3 : Place of occurrence of Burns, 1980-2013 (n-5556)

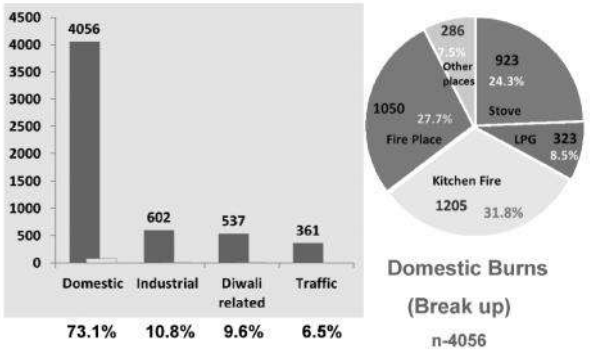


Fig 1 :Mode of Injuries (1980-2013)

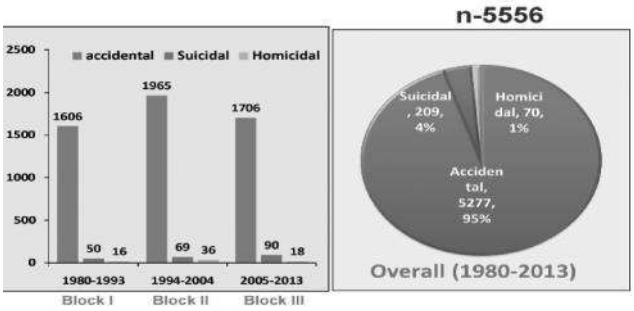


Fig 2 :Causative Factors(1980-2013)

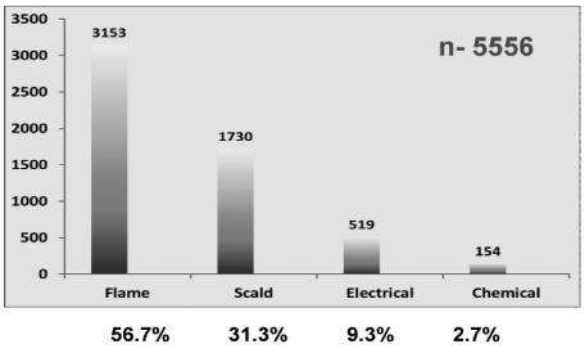


Fig 4 :Mortality 1980-2013

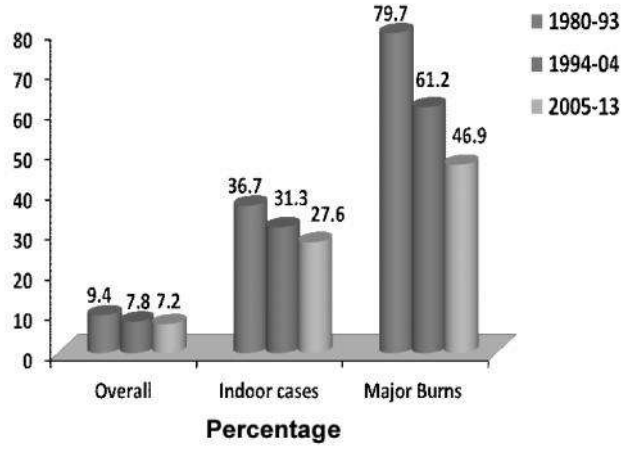
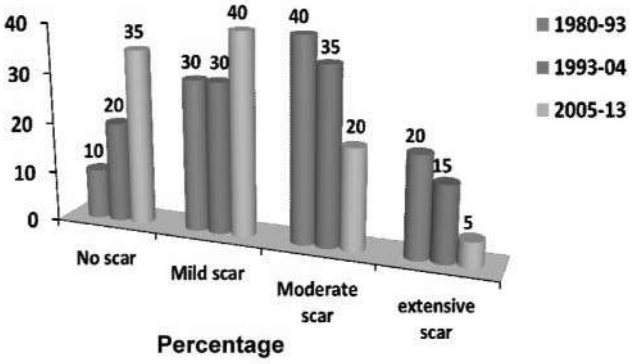


Fig 5 :Scar formation 1980-2013



individual efforts in absence of organized facilities in burn care can do a lot to mitigate the sufferings of the burn patients. The study also depicts the fact that introduction of new methods and technique in burn care can improve the results to a great extent.

Tables and Figures

References

1. Davies J W L. Problems of Burns in India. Burns 1990(Suppl I); S4-52
2. V. Jayaraman, Anandsubramaniam, K.MathangiRamakrishnan(1991) Epidemiology of Burn Injury-Handbook of Burn Management , Published by Jaypee Brothers Medical Publishers Private Limited
3. Subrahmanyam M. Topical application of honey in treatment of burns. Br J Surg. 1991;78:497-8.
4. Ytterstad B, Sogaard AJ. The Harstad Injury Prevention Study: Prevention of burns in small children by a community-based intervention. Burns. 1995;21:259-66.
5. Khan AA, Rawlins J, Shenton AF. The Bradford Burn Study: The epidemiology of burns presenting to an inner city emergency department. Emerg Med J. 2007;24:564-6.
6. Ansari-Lari M, Askarian M. Epidemiology of burns presenting to an emergency department in Shiraz, South Iran. Burns. 2003;29:579-81
7. Wu CC, Lu P, Chao CL. Epidemiology of hospitalized burns patients in Taiwan. Burns. 2003;29:582-8.
8. McCullough JE, Henderson AK, Kaufman JD. Occupational burns in Washington State, 1989-1993. J Occup Envron Med. 1998;40:1083-9.
9. Lyngdorf P. Occupational burn injuries. Burns. 1987;13:294-7
10. Islam SS, Nambiar AM, Doyle E, Velilla A, Biswas R, Ducatman A. Epidemiology of work-related burn injuries: Experience of a state-managed workers' compensation system. J Trauma. 2000;49:1045-51.
11. Wilkinson E. The epidemiology of burns in secondary care, in a population of 2.6 million people. Burns. 1998;24:139-43
12. Grout P, Horsley M, Touquet R. Epidemiology of burns presenting to an accident and emergency department. Arch Emerg Med. 1993;10:100-7.
13. Bilwani PK, Gupta R. Epidemiological profile of burn patients in LG Hospital, Ahmedabad. Indian J Burns. 2003;11:63-4.
14. Batra AK. Burn mortality: Recent trends and socio-cultural determinants in rural India. Burns. 2003;29:270-5.
15. Mohanty MK, Arun M, Monteiro FN, Palimar V. Self-inflicted burns fatalities in Manipal, India. Med Sci Law. 2005;45:27-30
16. Kumar V. Burnt wives: A study of suicides. Burns. 2003;29:31-5.
17. Subrahmanyam M. Epidemiology of burns in a district hospital in western India. Burns. 1996;22:439-42.
18. Gupta M, Gupta CK, Yaduwanshi RK. Burn epidemiology: The pink city scene. Burns. 1993;19:47-51.
19. Adesunkanmi K, Oyelami OA. The pattern and outcome of burn injuries at Wesley Guild Hospital, Ilesha, Nigeria: A review of 156 cases. J Trop Med Hyg. 1994;97:108-12
20. Forjuoh SN, Guyer B, Smith GS. Childhood burns in Ghana: Epidemiological characteristics and home-based treatment. Burns. 1995;21:24-8.
21. El-Sonbaty MA, El-Oteify M. Epidemiology of burns in Assiut province during the last two years. Assiut Med J. 1990;14:106-9.
22. Mashaly AM, Graitcer PL, Youssef Z M. Cairo: 1993. Injury in Egypt: Injury as a public health problem.
23. Lovett HV. Social policy to 1858. In: Mahajan V, editor. Cambridge History of India. Vol. 6. Delhi: S. Chand and Co; 1932. p. 131.
24. Chamania S, Patidar GP, Dembani B, Baxi M. A retrospective analysis of early excision and skin grafting from 1993 - 1995. Burns. 1998;24:177-80
25. Tang H, Zhaofen X, Liu S, Chen Y, Ge S. The experience in the treatment of patients with extensive full thickness burns. Burns. 1999;25:757-9
26. Bharat R. Then and now: Burns in India 1974-1999. Burns. 2000;26:63-81.
27. Ashkan Golshan, Cyra Patel, A systematic review of the epidemiology of unintentional burn injuries in South Asia. J Public Health (2013) doi: 10.1093/pubmed/fds102 First published online: January 14, 2013 1.
28. Ong YS, Samuel M, Song C. Meta-analysis of early excision of burns. Burns. 2006 Mar;32(2):145-50. Epub 2006 Jan 18.

Original Article

LAPAROSCOPIC FUNDOPLICATION WITHOUT 24 HRS PH METRY AND ESOPHAGEAL MANOMETRY

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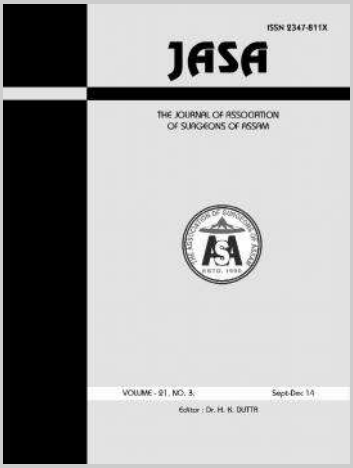


ABSTRACT

Purpose : The treatment of gastro-esophageal reflux disease (GERD) is a challenge to the physician as well as to the surgeon. Patients, refractory to the medical treatment are very much benefited from mechanical repair of the hiatus hernia. The focus of our study was to determine the effectiveness of laparoscopic fundoplication for GERD on the basis of clinical symptoms and endoscopic findings.

Methods : Between April 2011 to May 2014, 20 patients (18 men, 1women and 1 girl of 14 yrs) were selected for Laparoscopic Nissen's Fundoplication on the basis of clinical symptoms not responding to PPI for long time (2 - 3 yrs) and Endoscopic grading (grade III & grade IV) as per Hill's classification.

Results: Twenty patients underwent apposition of crura and fundoplication, 10 patients with 2-0 PDS and 10 patients with 2-0 vicryl sutures. We were able to mobilise the esophagus adequately to achieve an intra-abdominal length of at least 3 cm circumferentially in all patients. Full wrapping of the lower esophagus was done with posterior fundus. Gastric walls were apposed with 2-0 PDS in 10 patients and 2-0 vicryl in 10 patients. Intraoperative complication rate was 10% (2/20). The only complication we had was bleeding from short gastric vessels. Postoperative complication rate was 15% (3/20) which included 2 patients with mild dysphagia for 7 to 10 days and one patient in whom dysphagia continued for one month. Hospital stay was 3 - 5 days. Follow up of 10 patients for 2 yrs, 7 patients for 1 yr and 3 patients for few months with minimal or no PPI.

Conclusion : Our data though small, supports the idea of laparoscopic fundoplication for gastroesophageal reflux disease without the help of 24 hrs pH metry and esophageal manometry. To evaluate the recurrence rate we will have to follow up these patients for at least 5 to10 yrs.

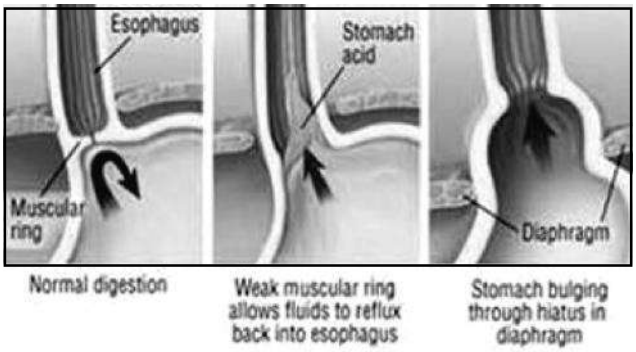
Key Words : *GERD; hiatus hernia; laparoscopy; PPI-retching gastropathy.*

Introduction :

Gastroesophageal reflux disease occurs when the amount of gastric juice that refluxes into the esophagus exceeds the normal limit with associated esophageal mucosal injury (ie, esophagitis), causing symptoms[1]. The known fact of pathophysiology of gastroesophageal reflux disease is not due to acid overproduction but rather mechanical dysfunction centered around the lower esophageal sphincter[2] [Fig.1a,b,c]. All the pathological effects on esophageal mucosa are secondary to reflux of gastric juice into the lower esophagus.

Fig.1a. Normal LES Fig.1b Grade II valve

Fig.1c.Grade III



(Courtesy: www.connecttoresearch.com)

The group of patients who are either on irregular medications or not responding to long term medications may develop dysphagia due to peptic strictures and Barrett's ulcers whose chance of becoming adenocarcinoma are more [3-5]. This group of patients can be protected from the complications of long standing acid reflux with antireflux surgery. The aim of the present study was to evaluate the effectiveness of laparoscopic Nissen's fundoplication [6].

Patients and methods: A total of 20 patients (18 males) having Hill's gastroesophageal valve Grade III & IV with mild to moderate sliding hiatus hernia, underwent laparoscopic fundoplication between April 2011 to May 2014 at Medinova Diagnostics & Services, Hospital and Research Centre, Silchar, Assam. The symptomatic patients were selected for surgery on the basis of upper GI endoscopic grading [7,8] as per Hill's classification of gastroesophageal valve grade I to IV [9] [Fig 2a,b,c]. 24 hrs pH metry and esophageal manometry were not done. No paraesophageal or mixed hiatal hernia was found in our selected patients. All requisite preoperative investigations were performed in all patients. The symptoms included as shown in the Table 1.

Table 1: Symptoms of patients with hiatus hernia.

Symptoms	Number	Percentage
Heart burn	20/20	100%
Regurgitation	11/20	55%
Epigastric pain	6/20	30%
Mild UGI bleeding	2/20	10%
Throat pain	2/20	10%
Choking & cough	1/20	5%

Pre operative endoscopic pictures : Fig. 2:

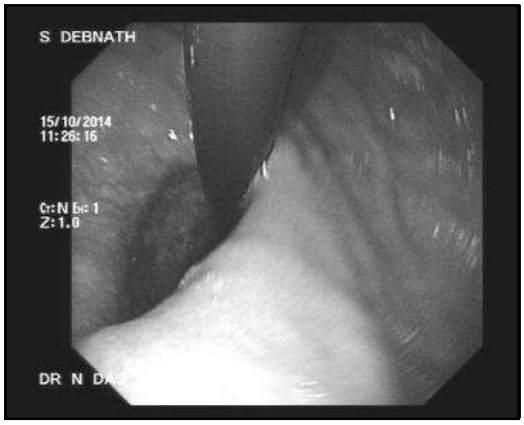


Fig .2a,Hill's grade III GE valve
(Retrograde view)

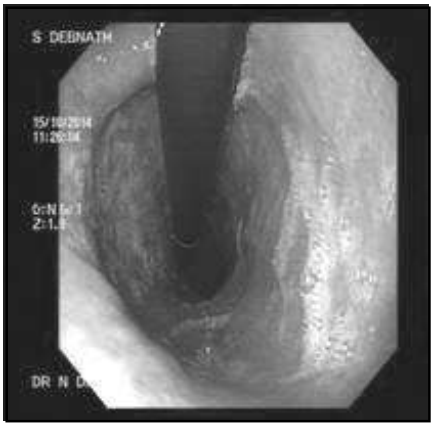


Fig.2b, grade IV GE valve
(Retrograde view)

Fig.2c, grade III GE valve
(Antegrade view)

Indications

Indications for laparoscopic antireflux surgery included in our study were, failure of medical management, (2 to 3 yrs), need for long-term medical therapy (more than 5 yrs), patient preference (eg. desiring discontinuation of medical therapy because of quality of life concerns and intolerance to medication), extraesophageal manifestations (eg. cough, chest pain, aspiration) and sliding hiatal hernia [11].

Surgical technique

The procedure was performed under GA and the patients were placed in reverse Trendelenburg position with 5 -10 degree right tilt. The knees were kept slightly

Fig.3. Positions of surg, camera, asstt & monitor.

flexed in lithotomy position. The surgeon was standing between the legs, the camera assistant on to right and second assistant on to the left of the patient [Fig 3].

Conventional 5 ports approach was followed [Fig.4]. The camera port (10mm) was made above the umbilicus one-third between the umbilicus and the epigastrium towards left of midline. Additional three 5 mm and one 10 mm ports were placed. The 5mm port in the epigastrium was used to retract the left lobe of Liver. The 5 mm port in the right mid clavicular line and the 10 mm port in the left midclavicular line were the surgeons working hands.

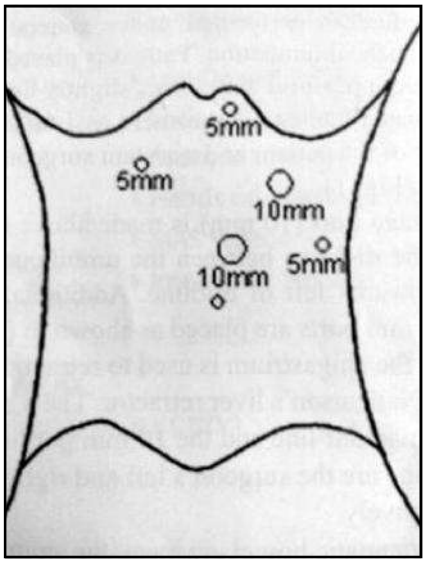


Fig 4. Port sites

Key components: The idea was to -

1. Reduce hernia [Fig.5a].
2. Increase intra-abdominal length of esophagus at least by 3cm. [Fig.5b]
3. Close the crural defects with primary sutures. [Fig.5c]
4. Perform Antireflux procedure- 360 degree wrapping of the lower esophagus by posterior fundal gastric wall (Nissen's Fundoplication). [Fig.6a]

Fig 5a. Retracting stomach

Fig 5b.Mobilisation of Eso & Window

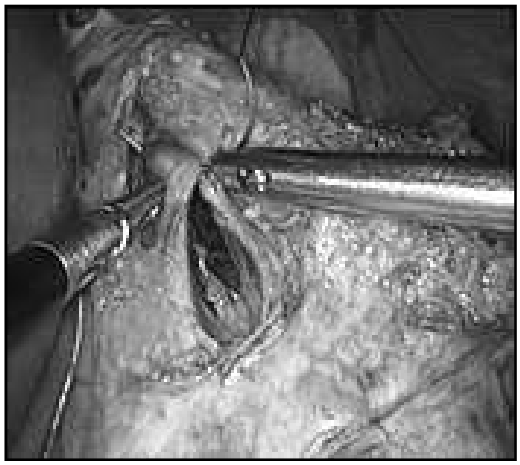
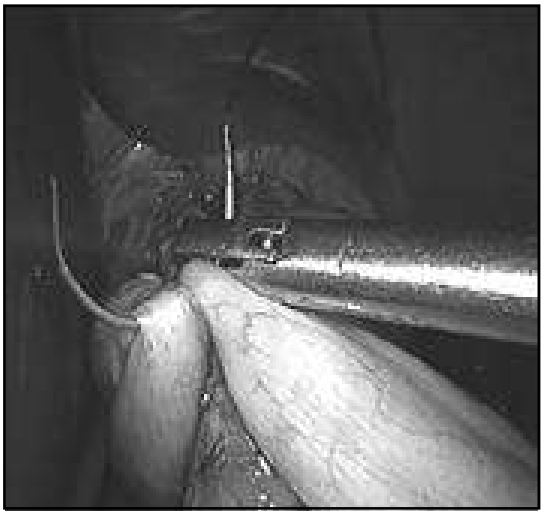


Fig5c. Repair of Crura

As done in all other cases, full inspection of the abdomen was done after pneumoperitoneum in supine posture before putting the patient in reverse Tredelenberg position.The stomach was grasped with atraumatic bowel grasper, retracted to reduce the hernia sac [Fig 5a]. The esophagus was mobilized by releasing its attachment from the diaphragm, freed from the crura [Fig 5b]. Good space was created between the esophagus and the crura. Left side of the esophagus was released by separating the gastrosplenic ligament. All these dissections were done either with harmonic or a hook from a good cautery. Thus at least 3 cm of intra-abdominal esophageal length was achieved. Right and Left crural were stitched together either with 2-0 vicryl or 2-0 PDS with 2-3 interrupted sutures. Care was taken so that the defect was not made too tight to cause dysphagia [Fig 5c].

Fig 6a.Pulling st through space created



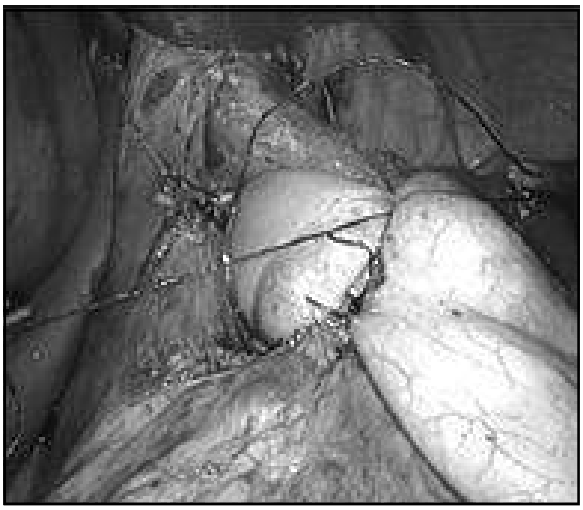


Fig.6b&c. Apposing & fixing the anteroposterior fundal walls

Next, wrapping of the gastric fundus was done at the lower esophagus through the space created posterior to the lower esophagus [Fig 6a]. We followed 360 degree plication (Nissen's fundoplication).Stomach walls were apposed anteriorly and stitched together [Fig.6b & c] with 3 or more interrupted sutures through seromuscular layer taking a bite at the anterior esophageal seromuscular wall (to ensure correct positioning and prevent slippage) with 2-0 vicryl or 2-0 PDS. Abdomen was deflated after sucking out of clots. 10 mm port was closed with 1-0 vicryl. Skin staplers were used for all port incisions.

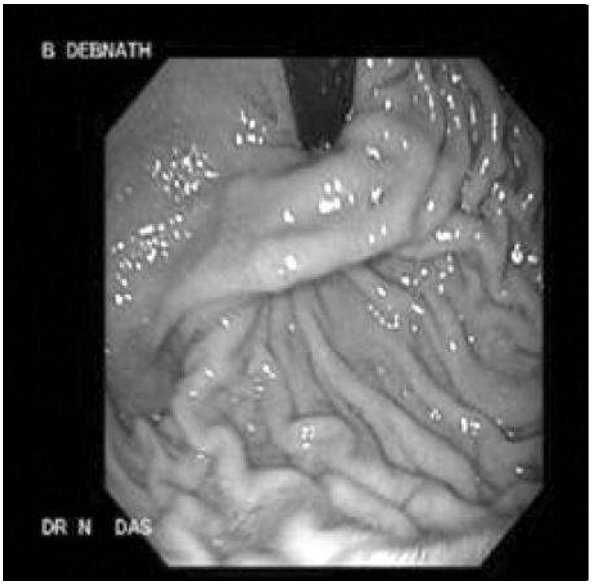
Postoperative management

Patients were kept on liquid diet for 72 hrs followed by soft diet and were usually discharged by 3-5 days. First follow up evaluation was done clinically on 7th-10th day. First endoscopic evaluation was done after 3 months and 1 yearly thereafter. We continued PPI for three months & sucralfate for one month to nullify the effects of gastric reflux on esophageal mucosa.

Outcome & Result

Surgical outcome was very good, all 20 patients gradually recovered from their symptoms from 3rd day onwards. Only one patient continued to have mild dysphagia for one month, possibly because of excess retching gastropathy at the fundus. No other postoperative complication was encountered in our study. However,considering the short follow up period, it is too early to evaluate recurrence. Follow up endoscopy was done in all cases after 3 months of surgery.

Post operative endoscopic pictures after 3 months: (Retrograde view)



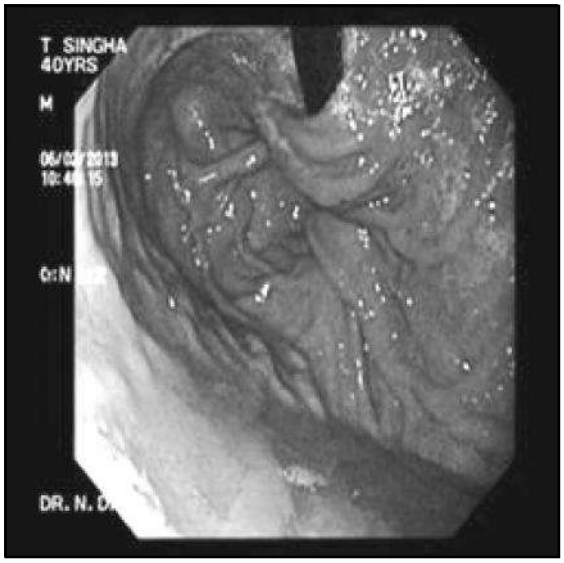


Fig.7. Post-fundoplication lower esophageal sphincter

DISCUSSION

Over past few years, we have been observing increasing numbers of GERD patients, diagnosed both clinically and endoscopically [11]. Facility for 24 hrs pH metry and esophageal manometry was not available at our centre. The necessity of manometric evaluation before fundoplication in patients with gastroesophageal reflux disease is still a matter of debate [12]. Esophageal manometry is not mandatory before laparoscopic fundoplication, but necessary for patient selection [13], Laparoscopic fundoplication is an effective long-term treatment for GERD and may be performed in patients with typical symptoms of GERD and endoscopic findings suggestive of hiatus hernia. Selective use of manometry and pH monitoring are cost effective . Although esophageal manometry and 24-hour pH monitoring might be necessary with abnormal findings on videoendoscopy or atypical symptoms, their routine use is not essential in preoperative evaluation of patients undergoing fundoplication for gastroesophageal reflux disease [14].

Selection of patients considered for antereflux surgery was performed in this study by very meticulous endoscopic evaluation of esophagus and lower esophageal sphincter (LES) following Hill's classification [15]. Patients with Hill's GE valve grade III & grade IV were selected for surgery. Retroflexed endoscopic view of the gastroesophageal junction could provide an assessment of the competency of the gastroesophageal flap valve and could identify a hiatal hernia. Malignancy and peptic stricture were ruled out with endoscopy. Laparoscopic Nissen's fundoplication was chosen in our study as this

procedure also prevents the transient losses of lower esophageal sphincter length associated with gastric distension and is now considered the standard surgical approach for treatment of severe gastroesophageal reflux disease [16,17]. Laparoscopic reflux surgery is more cost effective than lifelong medical treatment [18-20].

In this small study, out of 20 patients operated, 10 patients were followed up for 2 yrs both clinically and endoscopically, 7 patients were followed up for one year and 3 patients reported every three months. 2 out of 20 patients suffered from mild dysphagia which disappeared within 7 to 10 days. Only one patient had dysphagia for one month, may be due to inflammatory changes in and around lower esophagus by severe type of retching gastropathy. All patients recovered from preoperative complaints. No complication was noted after one month of surgery.

We used vicryl and PDS sutures separately in two groups of patients for future follow up and study. The average hospital stay was 3-5 days. We feel that clinical and endoscopic diagnosis may be adequate to assess the symptomatic patients regarding need of surgery where facility for pH metry & manometry is non-existent

Conclusion

In conclusion, for selection of patients with GERD for surgical treatment, endoscopic evaluation of the lower esophageal sphincter (LES) is adequate and in our hands, excellent short term clinical outcome could be achieved with laparoscopic fundoplication.

References

1. DeVault KR, Castell DO. Updated guidelines for the diagnosis and treatment of gastroesophageal reflux disease. The Practice Parameters Committee of the American College of Gastroenterology. Am J Gastroenterol. Jun 1999;94(6):1434-42.
2. Ganz RA, Peters JH, Horgan S. Esophageal sphincter device for gastroesophageal reflux disease. N Engl J Med 2013; 368(21):2039-40. [Medline].
3. Wang KK, Sampliner RE. Updated guidelines 2008 for the diagnosis, surveillance and therapy of Barrett's esophagus. Am J Gastroenterol 2008;103:788-97.
4. Spechler SJ, Sharma P, Souza RF, et al. American Gastroenterological Association technical review on the management of Barrett's esophagus. Gastroenterology 2011;140:e18-52.
5. Spechler SJ. Barrett's esophagus: an overrated cancer risk factor. Gastroenterology 2000;119:587-9.
6. Arnaud JP, Pessaux P, Ghavami B, Flaments JB, Trebuchet G, Meyer C, et al. Laparoscopic fundoplication for gastroesophageal reflux : multicenter study of 1470 cases. Surg Endosc 2000; 14:1024-7.
7. E, Spechler S J, Tytgat G N, Wallin L. Endoscopic assessment of oesophagitis: clinical and functional correlates and further validation of the Los Angeles classification. Gut 1999;45:172-80.
8. Tam W C, Holloway R H, Dent J, Rigda R, Schoeman M N et al.Impact of endoscopic suturing of the gastroesophageal junction on lower esophageal sphincter function and gastroesophageal reflux in patients with reflux disease. Am J Gastroenterol 1999;99:195-02.
9. Hill AD, Kozarek RA, Kraemer SJM, Aye RW, Mercer D, Low DE, Pope CE II. The gastroesophageal flap valve: in vitro and in vivo observations. Gastrointest Endosc 1996;44: 541-7.
10. Katz PO, Gerson LB, Vela MF. Guidelines for the diagnosis and management of gastroesophageal reflux disease. Am J Gastroenterol. Mar 2013;108(3):308-28.
11. Jan G. Hatlebakk, Arnold Berstad Barrett's Esophagus 2001, pp 121- 35.
12. Waring JP, Hunter JG, Oddsdottir M, Wo J, Katz E. The preoperative evaluation of patients considered for laparoscopic antireflux surgery. Am J Gastroenterol 1995;90(1):35-38.
13. Anish P Nagpal, Harshad Soni, and Sanjiv Haribhakti. Is oesophageal manometry a must before laparoscopic fundoplication? Analysis of 46 consecutive patients treated without preoperative manometry. J Minim Access Surg. 2010;6(3):66-9.
14. Constantine T Frantzides, MD, PhD, FACS,Mark A Carlson, MD, FACS,Atul K Madan, MD,Edward T Stewart, MD,Claire Smith, MD. Selective use of esophageal manometry and 24-Hour pH monitoring before laparoscopic fundoplication.Journal of the American College of SurgeonsVolume 197, Issue 3, Pages 358-63, September 2003.
15. Surgical Endoscopy December 1999, Volume 13, Issue 12, pp 1184- 87.

16. Mason RJ, DeMeester TR, Lund RJ, Peters JH, Crookes P, Ritter M, Gadenstatter M, Hagen JA. Nissen fundoplication prevents shortening of the sphincter during gastric distention. Arch Surg 1997;132:719-24.

17. Salminen P. The laparoscopic Nissen fundoplication--a better operation?. Surgeon. 2009;4:224-7.

18. Epstein D, Bojke L, Sculpher MJ. Laparoscopic fundoplication compared with medical management for gastro-oesophageal reflux disease:cost effectiveness study. BMJ. 39:b2576. doi: 10.1136/bmj.b2576.

19. Goeree R, Hopkins R, Marshall JK, Armstrong D, Ungar WJ, Goldsmith C, et al. Cost-utility of laparoscopic Nissen fundoplication versus proton pump inhibitor for chronic and controlled gastroesophageal reflux disease: a 3-year prospective randomized controlled trial and economic evaluation.Value Health. 2011;2:263-73.

20. Wileman SM, McCann S, Grant AM, Krukowski ZH, Bruce J. Medical versus surgical management for gastro-oesophageal reflux disease (GORD) in adults. Cochane Database Syst Rev. 2010;17:CD003243.

Original Article

LAPAROSCOPIC EXTRACORPOREAL LIGATION OF THE INTERNAL INGUINAL RING BY A SPINAL NEEDLE: A SIMPLE METHOD OF HERNIA REPAIR IN CHILDREN

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ABSTRACT

Background: Laparoscopic repair has emerged recently as an alternative technique for hernia repair in children. Various methods of repair have been described. Basic principle is to close the internal inguinal ring either by intracorporeal or by extracorporeal suturing. Objective of this study is to describe and evaluate the outcome of a simple technique of internal ring closure by a spinal needle. **Materials and methods:** A total of 43 hernias in 41 patients were repaired. A prolene thread was passed percutaneously around the internal inguinal ring by encircling it by a prolene thread though a spinal needle under laparoscopic control. The suture is then tied extracorporeally in the subcutaneous plane. **Results:** There were 43 hernias in 41 patients. There were 26 male and 15 female patients. In male patients 20 hernias were on the right side and 6 on the left side. In the females, eleven hernias were on right side and two on the left side. Two girls had clinical hernia on right side but bilateral hernias were detected by laparoscopy and repaired at the same time. Operating time varied from 25 minutes to 10 minutes (mean 12.5 minutes). There was no major complication during surgery except excessive bleeding (external) from the stab wound site in one case but stopped spontaneously by pressure. Vas and vessels were spared in all cases. There was no case of conversion due to technical difficulty. One right inguinal hernia in an eight years old girl recurred one month after operation and that was repaired by open surgery. Conclusion: This technique has all the advantages of laparoscopic hernia repair in children (minimally invasive, less pain, less complication and cosmesis). In addition, the method is simple, it does not need any special equipment or advanced laparoscopic skill for intracorporeal suturing.

Key Words : *laparoscopy; hernia; pediafric; extracorporeal.*

Introduction :

Inguinal hernia is one of the most frequently performed operations in infant and children. Open herniotomy is the standard method of treatment based on which other modalities of repair are evaluated. However, in recent years laparoscopic hernia repair is routinely performed in many centers and its efficacy and safety are well documented [1-4]. Most of these techniques begin with access through the umbilicus, and both internal rings are evaluated. Hernia repair begins with passage of a thread beneath the peritoneum around the internal inguinal ring (IIR), taking care to avoid the cord structures. The procedure is performed with a permanent suture to

reduce recurrence rate. The suture is ligated either intracorporeally or extracorporeally to close the internal ring. Based on this principle various techniques have been described by different authors [3-7]. We devised simple method of encircling the internal ring by using a conventional spinal needle. Aim of the study is to evaluate the feasibility, efficacy and safety of the procedure in randomly selected cases.

Materials and methods:

From December 2011 to March 2013, forty-one patients with inguinal hernia were treated by laparoscopic herniotomy by extracorporeal ligation of the internal inguinal ring (IIR). Age of the patients ranged from 1½ to 12 years. Age distribution is shown in figure 1.

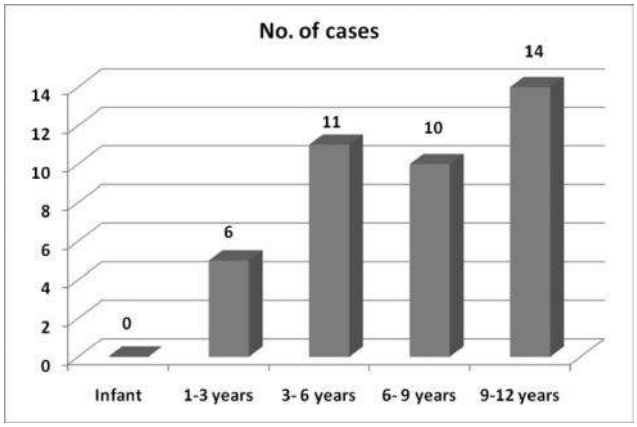

Figure 1: Bar diagram showing age distribution

All the procedures were done under general endotracheal anesthesia. Access was obtained through the umbilicus by inserting a 5 mm trocar by semi-open technique. One 3 mm Maryland forceps was inserted either through umbilicus or midline below umbilicus or lateral border of the rectus abdominis muscle below the umbilicus. Site of the internal ring closure was determined by finger pressure on the abdominal wall at the site of internal ring. Skin and subcutaneous tissue were incised at that point by a pointed knife. A 22 gauge spinal needle threaded with a 2-0 /3-0 prolene in the form of a loop was inserted through the stab wound and pushed down along one side of the IIR just beneath the peritoneum. Maryland forceps was used to lift the peritoneum and made it taught for easy passage of the needle and also to protect the vas deferens and spermatic vessels or the round ligament (Fig.2).

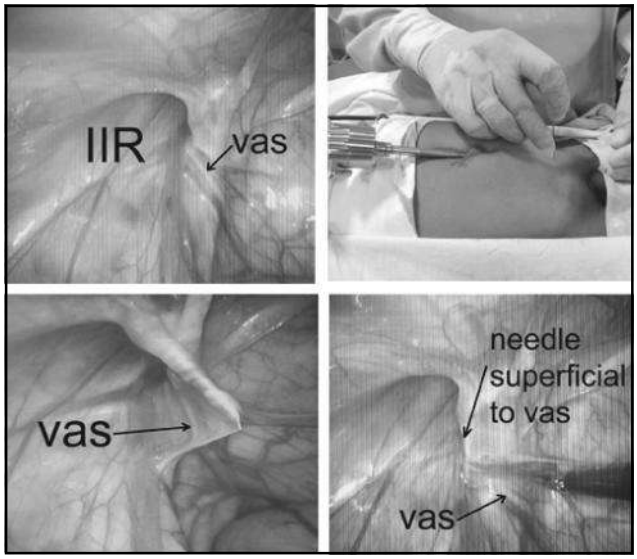

Figure 2: Steps to lift the peritoneum to preserve the vas

Peritoneum was punctured by the needle at 6 O' clock position of the internal ring. Maryland forceps held the apex of the prolene loop and the spinal needle was withdrawn. Then the spinal needle was threaded just short of its tip with prolene. Needle was then reinserted through the same stab along other side of the ring in similar fashion and the peritoneum was punctured again at 6 O'clock position and the prolene thread was pushed through the needle for sufficient length. Thread was held by the Maryland forceps and the needle was withdrawn. Free end of the second thread was then passed through the prolene loop sufficently. The prolene loop was then withdrawn from outside which kinked the second prolene thread and pulled it out. By this maneuver the second prolene thread made a loop around the internal ring (Fig.3). This loop was then tied subcutaneously to close the internal ring. Before closing the ring any gas trapped inside scrotum or labia was squeezed out and pneumoperitoneum was deflated. Umbilical port was closed by absorbable suture. Stab wound and the 3 mm port site were not sutured. Steps of the procedure are schematically shown in figure 4.

In female patients, the procedure was quite easy. Here we have described our standard technique, but the 3 mm Maryland forceps was not routinely needed in female patients, second thread could be negotiated into the prolene loop by manipulating the spinal needle. In the male patients the main limiting factor was avoiding the vas and vessels. There was inadvertent intermediate puncture of the peritoneum in three cases but that was covered by partially withdrawing the needle and passing it again after lifting the peritoneum. In one male patient the omentum was adherent to the sac (Irreducible hernia).It was separated from the sac

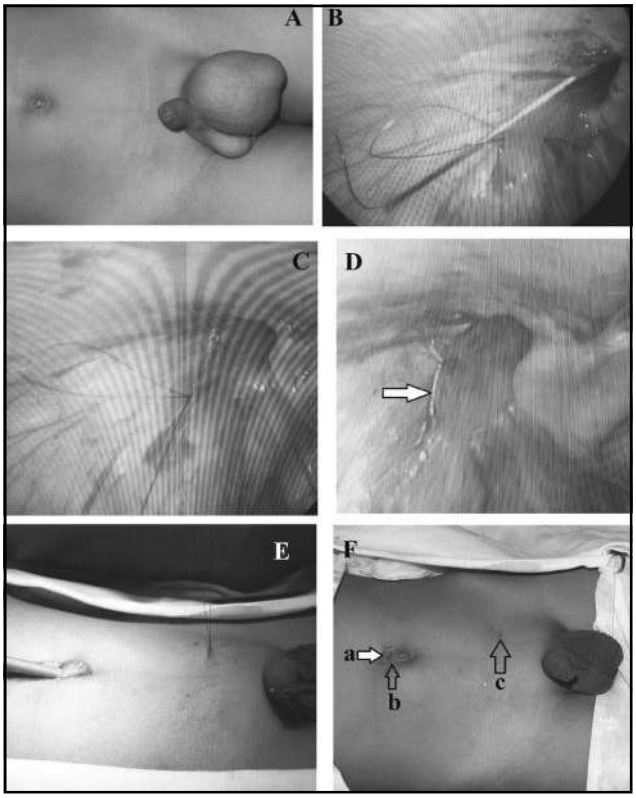

Figure 3: A) pre operative picture, B) second thread passed through the loop, C) prolene threads are interlocked, D) prolene thread pulled out around the IIR extraperitoneally, E) prolene thread ready for tying, F) Procedure completed; arrow a) 5mm telescope, b) 3mm Maryland, c) needle entry site.

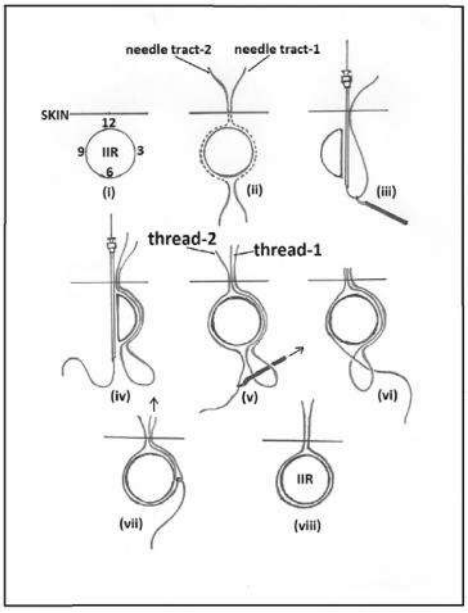

Figure 4: Schematic diagrams showing how prolene threads 1&2 are passed around the IIR and the thread-2 is brought out to encircle the internal ring.

by diathermy without any additional port. All the patients were discharged on the next day and called for follow up visits at 2 weeks, 1 month, 6 months and 1 year. During follow up outcome measurements -scrotal edema, post operative hydrocele formation, iatrogenic testicular ascent, testicular atrophy, recurrence rate and cosmetic results were evaluated.

Results:

There were 43 hernias in 41 patients. There were 26 male and 15 female patients. In male patients 20 hernias were on the right side and 6 on the left side. In the females, eleven hernias were on right side and two on the left side. Two girls had clinical hernia on right side but bilateral hernias were detected by laparoscopy and repaired at the same time. Operating time varied from 25 minutes to 10 minutes (mean 12.5 minutes). There was no major complication during surgery except excessive bleeding (external) from the stab wound site in one case but stopped spontaneously by pressure. Vas and vessels were spared in all cases. There was no case of conversion due to technical difficulty.

All the patients tolerated feed after 6 hours. Pain could be managed by oral analgesic (Acetaminophen or Ibuprofen) and no case needed injectable analgesic for post operative pain. Post operative scrotal edema was minimal even in cases with large hernias. In female post operative sign in labia was unobvious. During follow up visits there was no case of testicular atrophy, testicular ascent or hydrocele. One right inguinal hernia in an eight years old girl recurred on one month follow up visit and that was repaired by open herniotomy. Stab wound site was inconspicuous and 3 mm port sites healed with no or minimal scar and the umbilical incision was unobvious.

Discussion:

In children, the standard surgical treatment of inguinal hernia is limited to ligation of the hernia sac at the IIR [5]. Internal ring is normally reached by dissecting the hernia sac from the cord structures, which bears potential risk of injuring the spermatic vessels and the vas deferens, hematoma formation, wound infection, iatogenic testicular ascent, testicular atrophy, and recurrence of the hernia. It also carries potential risk of damaging the tubes and ovaries which may lead to infertility [1,4,10].

Laparoscopic repair of hernia in children has emerged recently as an alternative method of treatment and is rapidly gaining popularity with more and more authors endorsing its feasibility, efficacy and safety [1-5,11].

Advantages of laparoscopic repair include excellent visual exposure, ready evaluation of the contralateral side, minimum dissection and avoidance

of injury to vas and vessels and iatrogenic ascent of the testis and decreased operating time especially in obese child and in recurrent cases [5,12].

In the open hernia repair, initial time is spent in gaining access to the internal ring by localizing and dissecting the sac from the cord structures. Whereas, in laparoscopy internal ring is visualized directly from within the abdomen which makes the area of dissection bloodless, and magnification renders anatomy very clear, making surgery precise [1,11,13]. In addition, the incidence of testicular atrophy is rare in laparoscopic hernia repair because of the multiple collaterals of the testis which are not disturbed [14,15].

Different laparoscopic techniques of inguinal hernia repair in children have been described. Schier (1998) used 2mm instruments without a trocar for intra-abdominal suturing of the IIR in 25 girls by the placement of two Z-sutures with good result [6]. Lee and Liang performed microlaparoscopic high ligation of IIR in 450 patients with good results and low recurrence rate (0.88%) [5].

But intra-corporeal suturing need considerable laparoscopic skill and it is well documented in the literature as limiting factor [5,16].

Shalaby et al used Reverdin Needle (Martin Medizin Technik, Tuttlingen, Germany) for extra-corporeal ligation of the IIR in 187 groin hernias in 150 patients with superior results over intra-corporeal techniques [4]. Endo and Ukiyama introduced the Endoneedle that is designed especially for extra-corporeal closure of the patent processus vaginalis [7]. Tam et al had reported laparoscopic extra-corporeal hernia repair by hook method in 433 cases with low recurrence rate (0.35%) [3]

Shalaby et al had further compared the intra-corporeal purse string suture with extra-corporeal closure using Reverdin Needle (RN). Laparoscopic hernia repair by RN resulted in a marked reduction of operative time and excellent cosmetic results with low recurrence rate [4].

Common features of all the laparoscopic repairs are ligation the internal ring by an encircling suture. On these footings, we devised an innovative the technique of encircling the internal ring by a spinal needle which is readily available. This method does not need any special needle or hook and can be performed by a surgeon with basic laparoscopic skill without knowledge of intracorporeal knotting techniques. Lifting the peritoneum with the help of 3 mm Maryland forceps ensures complete encirclement of the internal ring without skip area. Literature search revealed that a similar method was described by Tatekawa [19] in 2012 by use of an epidural needle and preperitoneal hydrodissection to separate the vas and vessels. But we believe that vas and vessels can be well preserved by lifting the peritoneum by the 3mm Maryland forceps.

Open herniotomy in children has been reported to have recurrence rates of 0.8-3.8%. While in laparoscopic hernia repair it ranged from 0.7% to 4.5% [17]. On the contrary Shalaby et al had reported lower recurrence rate (0.8%) after laparoscopic repair by RN needle and 2.4% recurrence after open herniotomy [19]. Avoiding the gonadal vessels and vas deferens during subcutaneous endoscopic ligation may leave a small gap in the IIR [11,18]. And, an important step of transecting the sac in open herniotomy is not achieved in many laparoscopic techniques. The skip areas in the IIR and leaving the sac in continuity without disconnection may be the cause of subsequent recurrence of hernia and hydrocele formation in the post operative period [11,17,18,20].

We believe that complete encirclement of the ring, emptying the sac and reducing the abdominal pressure before tying may help in reducing hydrocele formation and recurrence of hernia. We have not encountered any hydrocele during one year follow up. Only one case recurred.

Due to learning period we took longer time at the beginning but it is significantly reduced at present (from 25 minutes to 10 minutes).

Though we have selected the cases randomly, there was preferential bias of selecting older cases in our series. But looking at the ease and efficacy of the procedure, it can be applied to smaller children also.

Contralateral exploration for patent processus vaginalis (PPV) remained a controversial topic. But during laparoscopy it becomes obvious automatically. Some authors suggest that PPVs less than 2mm may be left alone [6], but other had routinely ligated it to avoid development of metachronous hernia [19]. In our series contralateral hernias were detected in two cases by laparoscopy and were repaired at the same time.

We conclude that our technique is simple, safe and efficacious for pediatric inguinal hernia repair. It does not need any special equipment and the procedure can be performed by surgeons with basic laparoscopic skill. Large number of cases and long term follow up is needed to establish recurrence rate.

References:

1. Schier F. Laparoscopic inguinal hernia repair-a prospective personal series of 542 children. J Pediatr Surg 2006;41:1081-4 .
2. Shalaby R Y, Fawy M, Soliman S M, and Dorgham A. A new simplified technique for needlescopic inguinal herniorrhaphy in children. J Pediatr Surg 2006;41:863-7.
3. Tam Y H,Lee K M, Sihoe J D Y et al. Laparoscopic hernia repair in children by the hook method. A single-center series of 433 consecutive patients. J Pediatr Surg 2009; 44(8):1502-5.
4. Shalaby R, Ismail M, Durham A et al. Laparoscopic hernia repair in infancy and childhood: evaluation of 2 different techniques. J Pediatr Surg 2010; 45 (11): 2210-6.
5. Lee Y and Liang J. Experience with 450 cases of micro-laparoscopic herniotomy in infants and children. Pediatr Endosurg and Innovative Techniques 2002; 6(1): 25-8.
6. Schier F. Laparoscopic herniorrhaphy in girls. J Pediatr Surg 1998;33(10):1495-7.
7. Endo M and Ukiyama E. Laparoscopic closure of patent processus vaginalis in girls with inguinal hernia using a specially devised suture needle. Pediatr Endosurg and Innovative Techniques 2001; 5(2):187-91.
8. Cam C, Celik C, Sancak A, Iskender C, and Karateke A. Inguinal herniorrhaphy in childhood may result in tubal damage and future infertility. Arch Gynecol Obstet 2009;279(2):175-6.
9. Ozgediz D, Roayaie K, Lee H et al. Subcutaneous endoscopically assisted ligation (SEAL) of the internal ring for repair of inguinal hernias in children: report of a new technique and early results. Surgical Endoscopy 2007;21(8):1327-31.
10. Lloyd D A and Rintala R J. Inguinal hernia and hydrocele, in Pediatric Surgery, J. A. O'Neill Jr., 5th Edn., pp. 1071-1086, Mosby, St. Louis, Mo, USA, 1998
11. Takehara H, Yakabe S, and Kameoka K. Laparoscopic percutaneous extraperitoneal closure for inguinal hernia in children: clinical outcome of 972 repairs done in 3 pediatric surgical institutions. J Pediatr Surg 2006;41(12):1999-2003
12. Barqawi A, Furness III P, and Koyle M. Laparoscopic palomo varicocelectomy in the adolescent is safe after previous ipsilateral inguinal surgery. BJU International 2002; 89(3):269-72.
13. Riccabona M, Oswald J, Koen M, Lusuardi L, Radmayr C, and Bartsch G. Optimizing the operative treatment of boys with varicocele: sequential comparison of 4 techniques. J Urol 2003;169(2):666-8.
14. Lobe T E and Schropp K P. Inguinal hernias in pediatrics: initial experience with laparoscopic inguinal exploration of the asymptomatic contralateral side. J Laparoendoscopic Surg 1992;2(3):135-40.
15. Tsai Y C, Wu C C, and Yang S S D. Open versus minilaparoscopic herniorrhaphy for children: a prospective comparative trial with midterm follow-up evaluation. Surgical Endoscopy 2010;24(1):21-4.
16. Bharathi R S, Dabas A K, Arora M, and Baskaran V. Laparoscopic ligation of internal ring-three ports versus single-port technique: are working ports necessary? Journal of Laparoendoscopic and Advanced Surgical Techniques A 2008;18(6):891-4.
17. Shalaby R, Ibrahem R, Shahin M, Yehya M, Abdalrazek M, Alsayaad I and Shouker M I. Laparoscopic Hernia Repair versus Open Herniotomy in Children: A Controlled Randomized Study. Minimally Invasive Surgery 2012;Volume 2012(2012), Article ID 484135, 8 pages
18. Marte A, Sabatino M D, Borrelli M, and Parmeggiani P. Decreased recurrence rate in the laparoscopic herniorraphy in children: comparison between two techniques. Journal of Laparoendoscopic and Advanced Surgical Techniques A 2009; 19(2): 259-62.
19. Tatekawa Y. Laparoscopic Extracorporeal Ligation of Hernia Defects Using an Epidural Needle and Preperitoneal Hydrodissection. J Endourol. 2012; 26(5): 474-7.

Original Article

SACROCOCCYGEAL TERATOMAS IN CHILDREN

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ABSTRACT

Teratomas represent a group of benign and malignant tumors deriving from the primordial germ cells. Sacrococcygeal teratomas (SCT) originate from Hensen's node (primitive knot) and results from caudal migration and persistence of the primitive streak. We are reporting 38 cases of sacrococcygeal teratomas treated in a tertiary care centre during more than a decade. Their clinical presentation, treatment and surgical outcome are discussed in light of relevant literature.

Key Words : *Teratoma; sacrococcygeal teratoma; tumour.*

Introduction :

Although a rare condition, SCT is said to be the most common tumour in the newborn period, with a reported incidence of approximately 1 in 35,000-40,000 live births (1-3). It is more common among females with a ratio of 3 to 4 females to 1 male[4]. SCTs originate from embryological pluripotent cell during embryogenesis and results from caudal migration and persistence of the primitive streak [5-8]. Majority of these tumours are benign at presentation, however, the risk of malignancy increases as the child grows and at 3 years of age, almost all SCTs become malignant [9].

Materials and methods: 38 cases of sacrococcygeal teratomas, age ranging from 1 day to 42 months (mean 37.5 months) treated by a single surgeon between January 2000 and September 2013 are reviewed. The cases were diagnosed by history and clinical examination. Apart from examination of blood, urine and chest x-rays, other investigations such as, serum alpha fetoprotein level (in children >6 months), ultrasound and CT scan of abdomen and sacrococcygeal region were done when necessary. All cases underwent surgical excision on elective basis and the resected specimens were sent for histopathological examination. Patients were followed up after 1 month and then at 3, 6 and 12 months intervals.

Results:- There were 27 females to 11 males (M:F=1:2.5). 16 cases presented in the neonatal period, 12 during infancy and 10 cases presented after 1 year. Median age at presentation was 4 months. 34 babies were delivered by normal vaginal delivery and 4 cases were born by LSCS. 35 cases presented with a mass on the back while 3 cases presented with abdomino-pelvic mass (Figs.1-5). Undescended testis, syndactyly and agenesis of last two pieces of sacrum were seen as associated anomalies in one case each. All cases underwent surgical excision on elective basis. 28 cases were operated by sacral approach alone and 10 cases were operated through combined abdomino-sacral approach. 8 patients needed blood

transfusion. There was no mortality during intra or immediate post-operative period.

The tumours were classified according to the criteria proposed by the Surgical Section of the American Academy of Paediatrics as follow [4]:

Table 1: Tumour types in the series

Tumour Type	Tumour components	Number of cases	**α-feto-protein level (no.of cases)**
I	Completely external	8 (21.05 %)	Not done
II	Mostly external with some intrapelvic tumour	15 (39.47 %)	1200 IU/ L (1)
III	Mostly intrapelvic with some external tumour	12 (31.57 %)	2400- 90000 IU/L (8)
IV	Completely intrapelvic or pre-sacral	3 (7.8 %)	1.3-3.6 lakh IU/L (3)

8 cases were predominantly cystic, 27 had both solid and cystic components and 3 cases appeared solid. 14 cases had wound infection, 2 of them needed secondary suturing, 6 children had transient bladder dysfunction after removal of catheter 3 to 5 days after surgery, and 2 cases had increased stool frequency for a period of 15 days to 2 months. Cosmetic appearance of the scar was satisfactory in all cases. 4 patients had malignant components, all yolk-sac tumours (Fig.6). The AFP levels ranged from 1,30,000 -3,60,000 I.U. All the 4 malignant cases completed full courses of chemotherapy comprising of etoposide, cisplatin and bleomycin and have been on follow up from 6 months to 84 months (median 47.5 months). 32 patients are on follow up ranged from 2 months to 124 months (median 31 months). The growth and development of these patients are within normal limits. 18 children are attending schools with average performance. 16 patients lost to follow up.

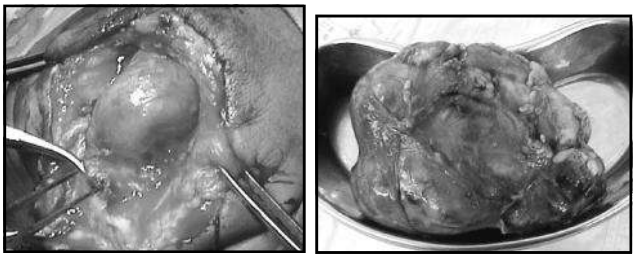
Discussions

The earliest record of SCT was in the cuneiform tablet of the Babylonian Chaldeans between 625- 539BC [10,11]. This neoplasm has been shrouded in mystery since then. The Chaldeans regarded this protuberance in the new born infant as an omen of prosperity rather than medical curiosity [10].

Sacrococcygeal teratoma is the most common neonatal tumour. A female preponderance has been consistently noticed in the published series. We observed a female to male ratio of 2.45:1, somewhat less than the previously reported ratio of 3-4:1 [3,4]. Teratomas in children originate most commonly in the sacrococcygeal region, but they may also occur in the gonads, the retroperitoneal region or even in the brain or the liver[12]. Patients with SCT may present with sacral and pre-sacral anomalies (Currarino's triad), with symptoms of bladder or bowel dysfunction [13]. Billman and Billman reported 20% incidence of associated congenital anomalies in their series of 25 patients [14]. Hashish et al reported 5.7 % cases had associated anomalies; bladder dysfunction with retention and dribbling of urine (due to stretching and compression on bladder neck) and colonic obstruction with faecal impaction [15]. Ahmed reported one case each of congenital heart disease and undescended testis (UDT) in his series of 13 patients [16]. In this study associated congenital anomalies were found in 7.8 % of our cases. Sacral agenesis, syndactyly and UDT were observed in 1 case each.

For investigating SCT, ultrasonography alone suffices and is readily available and harmless. In the western countries, prenatal diagnosis with a planned caesarean delivery and an immediate tumour excision is the current trend of management [17,18]. Intra-uterine intervention in foetuses with large tumours causing complications have been reported [19-22]. Although CT scan and MRI give better characterization of the tumour and its topographical relationship to other structures, these are usually not available in all centres and are expensive and do not change the eventual mode of treatment.

Fig.1: A neonate with type I tumour.



. 2-4: Type III tumour: CT scan, operative finding & resected specimen

Alpha-fetoprotein (AFP) is a cardinal tumour marker used to monitor malignant change and recurrence and hence every effort should be made to assay for this marker in children with SCT. However, serum AFP level was assessed only in cases presenting in late infancy and in histologically confirmed cases of malignancy. Rescorla et al reported that all children presenting after the age of one year had malignant tumors [23]. Ahmed found malignancy in 71% of their patients presenting after the neonatal period[16]. Hashish et al reported 8.6 % malignancy rate in their series and all of them presented after the neonatal period [15]. In our study 10.5 % cases were malignant and all presented after infancy.

Management of SCT is mainly surgical excision of the mass, earlier the surgical intervention, the better the prognosis [24]. One stage trans-perineal or combined transabdominal/ perineal approach can be safely accomplished in all cases [15]. This has been the experience in our series also. Incidence of tumour rupture during resection ranged from 20 to 33.3% in various series [25,26]. Only 2 of our cases had tumour spillage.

Fig. 5: Post-operative result

Fig.6: Malignant SCT

Many reports highlighted the potential postoperative complications after SCT resection. Postoperative rectal dysfunction was found in up to 40% of cases in some series [27]. Temporary fecal incontinence occurred in 2 of our cases. The frequency of postoperative bladder dysfunction in previously reported literature, ranged between 5.9% to 50% of patients [15,28,29]. We observed post-operative bladder dysfunction in 15.7 % of cases.

Reports on long-term cosmetic outcome after SCT surgery have been scarce. One report cited poor cosmetic result in more than half of their patients after a long follow up[14]. The authors recommended that cosmetic results should be integrated with bladder, anorectal and sexual function assessment in the follow up programs of such patients. Few other studies have reported much better cosmetic outcome [16].

Most of our children had benign and heterogenous tumours (>70%). Amoah reported 94.4 % of their tumors as benign and 88.8 % cystic which is consistent with few other studies [24,29].

Malignancy was found in the 4 cases (10.5 %) with a mean age of 37 months, one case had altman's type III and the other 3 had altman type IV tumours. Berry et al observed a malignancy rate of 33.3% in tumours seen after 1 year of age while Donnellan and Swenson reported over 90% malignancies in infants over 2 months of age[30,31]. Amoah reported 2 cases with solid tumours with malignancy in 1 case (5.5 %) with entirely solid tumour.

Tumour recurrence was reported in 2- 35% of patients in the different series. Recurrence was due to incomplete resection of the tumour, failure of the en-block removal of the coccyx along with the tumour, tumour spillage or the presence of immature tumours. Recurrence was not noted in our study

The use of AFP as a tumour marker in the follow up of patients has been recommended by many authors. Persistently elevated AFP levels may indicate a residual, or recurrent tumor [32]. Brewer and Tank reported that the level of AFP is normally elevated in the first 8 months of life; therefore such high levels should be interpreted with caution in infants [33].

Conclusion

SCT are mostly benign tumour. Complex investigations are unnecessary for management. Early diagnosis and surgical excision with coccygectomy is important. Delayed presentation and malignancy remains poor prognostic factors. Close follow up is mandatory especially for malignant cases.

References:

1. Backer D, Erpicum P, Philippe P et al. Sacrococcygeal teratoma: Results of a retrospective multi centric study in Belgium and Luxembourg. Eur J Pediatr Surg 2001;11:182-5.
2. Flake AW. Foetal sacrococcygeal teratoma. Semin Pediatr Surg 1993; 2:113-20.
3. Pantanowitz L, Jamieson T, Beavon I. Pathology of sacrococcygeal teratomas. S Afr J Surg 2001;39:56-62.
4. Altman RP, Randolph JG, Lilly JR. Sacrococcygeal teratoma: American Academy of Paediatrics Surgical Section Survey-1973. J Pediatr Surg 1974;9:389-98.
5. Grosfeld JL, Billmire DF. Teratomas in infancy and childhood. Curr Probl Cancer 1985;9:1-53.
6. Dehner LP, Mills a, Talerman A et al. Germ cell neoplasms of head and neck soft tissues: A pathologic spectrum of teratomatous and endodermal sinus tumors. Hum Pathol 1990;21:309- 18.
7. Isaacs H Jr. Germ cell tumors. Tumors of the Fetus and Newborn. Vol. 35 in the series Major Problems in Pathology. Philadelphia, PA, Saunders 1997;15-38.
8. Donnellan WA, Swenson O. Benign and malignant sacrococcygeal teratomas. Surgery 1968;64:834-6.
9. Dehner LP. Neoplasms of the fetus and neonate. In: Naeye RL, Kissane JM, Kaufman N (eds): Perinatal Diseases, International Academy of Pathology, Monograph number 22. Baltimore, MD, Williams and Wilkins 1981;286-345.
10. Tuladhar R, Patole SK, Whitehall JS. Sacrococcygeal teratoma in the perinatal period. Postgad Med J 2000;76:754-9.
11. Exelby PR. Sacrococcygeal teratoma in children. CA Cancer J Clin 1972;22:202-8.
12. Tapper D, Lack E. Teratomas in infancy and childhood. Arch Surg 1983;198:398-410.
13. Currarino GCD, Votteler T. Triad of anorectal, sacral and presacral anomalies. AJR Am J Roentgenol 1981;137:395.
14. Bittmann S, Bittmann V. Surgical experience and cosmetic outcomes in children with sacrococcygeal teratoma. Curr Surg 2006;63:51-4.
15. Amel HA, Fayad H, Ashraf El-attar A et al. Sacrococcygeal Teratoma: Management and Outcomes Annals of Pediatric Surgery 2009;5;119-25.
16. Ahmed MG. Outcome of surgical treatment for neonatal sacrococcygeal teratoma: experience with 13 cases Egyptian J Surg 2013;32:1.
17. Chuileannain FN, Woodrow N, de Crespigny L. Prenatal diagnosis and management of sacrococ- cygeal teratoma. Aust NZ J Obstet Gynaecol 1999;39:497-501.
18. Okada T, Sasaki F, Cho K, Honda S, Naito S, Hi- rokata G et al. Management and outcome in prenatally diagnosed sacrococcygeal teratoma. Pediatr Int 2008;50:576-80.
19. Garcia AM, Morgan WM, Burner JP. In-utero de- compression of a cystic grade IV sacrococcygeal- teratoma. Fetal Diagn Ther 1998;13:305-8.
20. Elchalal U, Ben-Schachar I, Nadjari M, Gross E, Appleman Z, Caspi B. Prenatal diagnosis of acute bladder distension associated with fetal sacrococcygeal teratoma: Case report. Prenat Diagn 1995;15:1160-4.
21. Hedrick HL, Flake AW, Crombleholme TM, Howell LJ, Johnson MP, Wilson RD et al. Sacrococcygeal teratoma: perinatal assessment, fetal intervention and outcome. J Pediatr Surg 2004;39:430-8.
22. Chiba T, Albanese CT, Jennings RW, Filly RA, Farrell JA, Harrison MR. In-utero repair of a rectal atresia after complete resection of a sacrococcyge- al teratoma. Fetal DiagnTher 2000;15:187-90.
23. Rescorla FJ, Sawin RS, Coran AG, et al. Long-term outcome for infants and children with sacrococcygeal teratoma: a report from the Childrens Cancer Group. J Pediatr Surg 1998;33:171- 6.
24. Galili O, Mogilner J. Type IV sacrococcygeal teratoma causing urinary retention: a rare presentation. J Pediatr Surg. 2005;0:E18-20.
25. Amoah M, Boateng N, Abantanga FA et al. Sacrococcygeal Teratoma: A 4-year experience at Komfo Anokye Teaching Hospital. Postgrad Med J Ghana 2012;1: 1.
26. Wooley MM. Teratomas, in Ashcraft KW, Holder TM (eds): Pediatric Surgery. (2nd edition). Philadelphia, PA, Saunders 1993;847-62.
27. Lahdenne P, Wikstrõm S, Heinheimo M et al. Late urological sequelae after surgery for congenital sacrococcygeal teratoma. Pediatr Surg Int 1992;7:195-8.
28. Khanna SS, Arya NC, Singhal GD. Sacrococcyge- al tumours in children. J Postgrad Med 1987;33:109-14.
29. Ein SH, Adeyemi SD and Mancer K. Benign sac- rococcygea lteratoma in infants and children: A 25 year review. Ann Surg 1980;191:382-4.
30. Berry CL, Keeling J, Hilton C. Teratoma in infancy and childhood. A review of 91 cases. J Pathol 1969;98:241-52.
31. Donnellan W, Swenson O. Benign and malignant sacrococcygeal teratoma. Surgery 1968;64:834- 46.
32. Bilik R, Shandling B, Pope M et al. Malignant benign neonatal sacrococcygeal teratoma. J Pediatr Surg 1993;28(9):1158- 60.
33. Brewer JA, Brewer JA, Tank ES. Yolk sac tumour and alpha-fetoprotein in first year of life. Urology 1993;42(1):79-80.

Case Report

LAPAROSCOPIC-ASSISTED SURGERY FOR ADULT INTUSSUSCEPTION: A CASE REPORT

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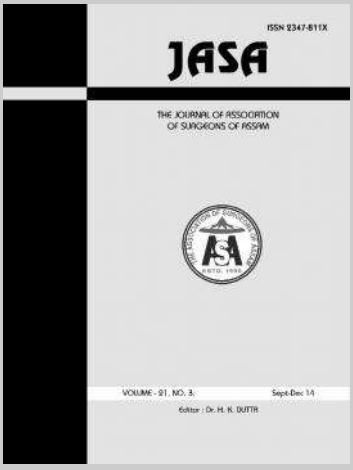

ABSTRACT:
Adult intussusception is a rare condition and, unlike in children where most cases are idiopathic, usually has an identifiable etiology. Often the leading point to adult intussusception is a benign or malignant bowel tumour. Surgical resection of the involved bowel is regarded as the treatment of choice in adult intussusception. We present a case of laparoscopic-assisted small bowel resection in the treatment of adult ileo-ileal intussusception caused by a small submucosal lipoma.

Key words : *Adult intussusceptions; submucosal lipoma; laparoscopy.*

Introduction :

Intussusception is defined as the invagination of one segment of the gastrointestinal tract and its mesentery (intussusceptum) into the lumen of an adjacent distal segment of the gastrointestinal tract (intussuscipiens). Sliding within the bowel is propelled by intestinal peristalsis and may lead to intestinal obstruction and ischemia [1].

Incidence-wise, intussusceptions are almost exclusively seen in the paediatric population. Adult intussusception is a rare condition which can occur in any site of gastrointestinal tract from stomach to rectum. It represents only about 5% of all intussusceptions and causes 1-5% of all cases of intestinal obstructions [2-4].

Unlike children where most cases are idiopathic, intussusception in adults has an identifiable etiology in 80- 90% of cases1. Intussusception in adults usually has a leading point. Benign or malignant tumors such as lipoma, submucosal fibroma, gastrointestinal stromal tumor, Meckel's diverticulum, and adenocarcinoma can be a leading point of intussusceptions[5].

Diagnosis of adult intussusception is difficult secondary to the variable symptoms that can be acute, intermittent, or chronic. Computed tomography has proven to be a valuable diagnostic tool, with an accuracy rate of 78%. In adults, surgery is the recommended treatment considering the high rate of malignant lesions associated with this process[6].

Case Report

A 54 years old female presented to us with the complaint of intermittent pain abdomen for the past 2 months. Pain increased with food intake and

reduced with rest and medications. Patient also complained of vomiting occasionally after food intake. On examination, her general condition was fair, vitals were stable, systemic examination was normal and per abdomen there was no palpable lump.

Investigations revealed her routine blood examination to be within normal limits. She was on treatment for hypothyroidism; TSH levels were normal when she came to us.

An ultrasound abdomen was done which showed fatty pancreas with no other significant findings. However, contrast-enhanced CT scan abdomen revealed an ileo-ileal intussusception having an intraluminal benign-looking mass, 3.4 by 2.2 cm, within the apex of the intussusceptum, along with twisting of the mesentery.

Fig 1: CT scan images showing the ileo-ileal intussusception owing to a suspected small lipoma within the apex (arrow).

Fig 2: Axial cut showing the classical 'donut sign' (arrow) for intussusception.

The patient was planned for a laparoscopic assisted ileal resection. Necessary pre-operative investigations and preparation was done, and surgery undertaken.

Under general anaesthesia, patient was put in supine position. The surgeon stood on the left of the patient. The scrub nurse stood to the right of the patient. The monitor was situated towards the foot end of the patient, opposite to the surgeon. A Stryker high definition camera with a xenon light source was used. Infraumbilical vertical incision was made for around 11 mm. The first trocar was inserted by modified Hassan's technique, followed by carbon dioxide insufflation. Two other ports were made and diagnostic laparoscopy was done.

The patient was found to have an ileo-ileal intussusception, about 10 cms from the ileo-caecal junction. The involved bowel was dilated, but there was no evidence of bowel ischemia or perforation. Laparoscopic intracorporeal reduction with blunt graspers was performed cautiously.

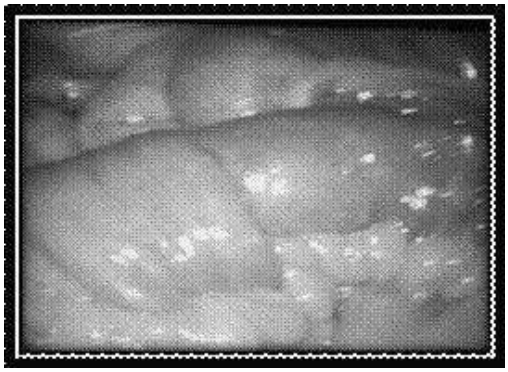

Fig 3: Intra-operative image showing the ileo-ileal intussusception.

An intraluminal lump could be felt within the reduced segment. We palpated the remaining small bowel to the terminal ileum using laparoscopic bowel graspers. No other masses or abnormalities were detected. Later, a 5 cm extension of the vertical incision was made along the infraumbilical port site, through which the small bowel segment was exteriorized. Through an incision on the convex surface of the exteriorized bowel, the suspected intraluminal benign-looking soft-to-firm mass of roughly 2.5 by 3.5 cm was visualised. A decision to resect the mass was taken. A margin of 3 cms of uninvolved bowel was resected along with the mass on either side. An end-to-end anastomosis was created by the hand-sewn method. The anastomosed ileum was placed back into the peritoneal cavity. The extensional incision site was closed. A drain was inserted near the anastomosis site in the pelvic cavity. The total operation time was 120 minutes.

Fig 4: Intra-op image showing the intraluminal submucosal mass within the exteriorized segment of small bowel. Later, histopathology reports confirmed the mass to be a lipoma.

Patient recovery was adequate. Post-operative period was uneventful. Patient was discharged on the 7th post-operative day. Histopathological report confirmed the presence of a submucosal lipoma with no evidence of malignancy.

Discussion

Intussusception in adults is an infrequent problem. Nevertheless, it is a challenging condition that requires the surgeon to understand its epidemiology, anomalous clinical presentation and treatment options. A strong pillar towards correct management is having a high index of suspicion. The continuously increasing variety of possible aetiological lesions, evidenced by the high case report numbers, means we can never be sure of the pathology for the next case till after surgery.

Diagnosis can be puzzling because of non-specific and often subacute symptoms with no out right pathognomonic clinical signs. The classic triad of crampy abdominal pain, bloody ('currant jelly') stool and a palpable mass of acute intussusception in paediatric presentation is rare[7]. The predominant symptoms are those associated with some form of bowel obstruction and most times still described non-specifically. These are abdominal pain and distension, nausea, vomiting, gastrointestinal bleeding, constipation and changes in bowel habits. The clinical features also have an association with the underlying pathological lesion's nature and site, and the presence or absence of a lead point. A transient non-obstructing intussusception without a lead point is frequently idiopathic and, in the past, has been described as occasionally spontaneously resolving without any specific treatment. Contrastingly, intussusception with an organic lesion as the lead point usually presents as a bowel obstruction, acute, persistent or relapsing. Patients with benign enteric lesions have been said to have a higher frequency of nausea, vomiting and abdominal pain. Those with colonic malignancies tend to present more with bloody or melaena stools. The mean duration of symptoms appears not to be of clinically practicable value, considering the variation in symptomatology.

Imaging studies in adult intussusceptions may give variable findings. Matching the clinical presentation and imaging characteristics to make a preoperative diagnosis is challenging. Over the years, numerous radiological signs have been described.

Upper gastrointestinal contrast radiography:
Stacked-coin sign (Fig 5a)
Coil-spring sign (Fig 5b)
Lower intestinal contrast (barium) radiography:
Cup-shaped defect
Spiral sign
Coil-spring sign
Ultrasonography:
Transverse view—'target' or 'doughnut' sign; ''crescent-in-a-doughnut sign (Fig 5c)
Longitudinal view—' pseudo-kidney' or 'hay-fork' sign
Computerised tomography:
'Target' sign
'Sausage-shaped' sign

Table 1: Radiological signs of intussusception

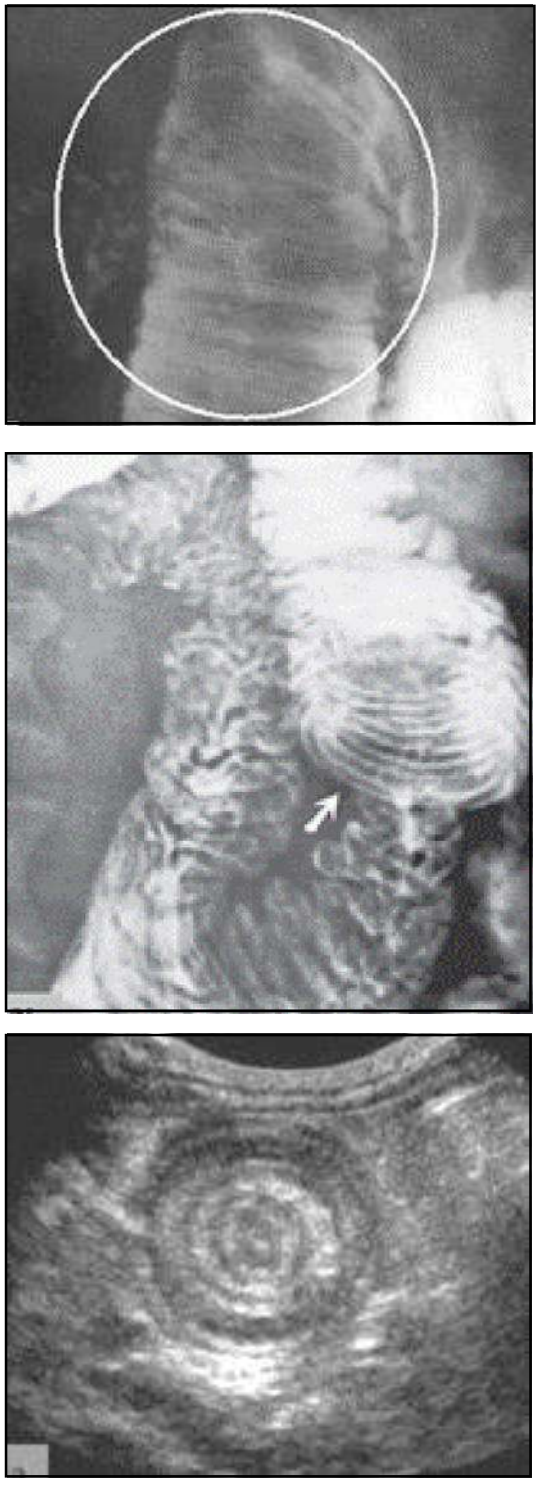

Figure 5: A few classical radiological signs of intussusception a) stacked coin sign, b) coiled spring sign, and c) target sign7.

Abdominal computed tomography (CT) is currently considered as the most sensitive radiological method to confirm intussusception, with a reported diagnostic accuracy ranging from 58% to 100%. The characteristic features include a heterogeneous 'target' or 'sausage-shaped' soft-tissue mass with a layering effect. Mesenteric vessels within the bowel lumen are also typical. A CT scan may define the location and nature of the mass, its relationship to surrounding tissues and may contribute to staging of a tumour for a suspected malignant cause. It facilitates distinguishing between intussusception without a lead point from that with a lead point[7].

Flexible endoscopy of the lower gastrointestinal tract is very valuable in evaluating the cases of intussusception presenting with subacute or chronic large bowel obstruction. Its main benefits are confirmation of the intussusception, its localisation, demonstration of the underlying organic lesion serving as a lead point and possible treatment[7]. Snare polypectomy has been used to treat polypoid causes, though it is considered unsafe for chronic intussusception considering the background of chronic tissue ischaemia and possible necrosis of the intussuscepted bowel segment's wall. However, it has limited use for large lead points such as 'giant' lipomas. Colonoscopy has been successfully used to reduce intussusceptions.

Surgical resection of the involved bowel is regarded as the treatment of choice in adult intussusception, because most cases involve a leading point containing a potential malignancy.5 Although "en-bloc" resection without reduction of the involved bowel has been recommended to avoid bowel perforation and seeding of potential cancer cells to other sites, with adequate and successful reduction and accurate diagnosis to rule out the possibility of malignancy, surgeons can minimize the range of resected bowel.

Recently, minimally invasive techniques have been applied to the treatment of small bowel obstructions, specifically to the diagnosis and treatment of adult intussusception. Both laparoscopic and laparoscopic-assisted small bowel and colonic resections have been reported for both benign and malignant disease.5,6,8-10 Our case highlights diagnostic laparoscopy and laparoscopic-assisted bowel resection as a potential and feasible tool in the treatment of small bowel intussusception. The ability to confirm diagnosis and plan targeted small incisions for treatment make laparoscopy a viable treatment option in patients suspected of having intussusceptions.

References

1. Paskauskas S, Pavalkis D. Adult Intussusception. Current Concepts in Colonic Disorders 2012; Dr. Godfrey Lule (Ed.), ISBN: 978-953-307-957-8, InTech, Available from: http://www.intechopen.com/books/current-concepts-in-colonic-disorders/adult-intussusception
2. Agha FP. Intussusception in adults. AJR Am J Roentgenol 1986; 146(3):527-31. PMID:3484870
3. Eisen LK, Cunningham JD, Aufses AH Jr. Intussusception in adults: institutional review. J Am Coll Surg 1999;188(4):390-5. PMID:10195723
4. Begos DG, Sandor A, Modlin IM. The diagnosis and management of adult intussusception. Am J Surg 1997; 173(2):88-94.
5. Kang SI, Kang J, Kim MJ, Kim I, Lee J, Lee KL, Sohn S. Laparoscopic-Assisted Resection of Jejunojejunal Intussusception Caused by a Juvenile Polyp in an Adult. Case Reports in Surgery; Volume 2014, Article ID 856765, 4 pages. http://dx.doi.org/10.1155/2014/856765.
6. Stewart D, Hughes M and Hope WW. Laparoscopic-assisted small bowel resection for treatment of adult small bowel intussusception: a Case Report. Cases Journal 2008, 1:432. Available from: http://www.casesjournal.com/content/1/1/432
7. Ongom PA, Kijjambu SC. Adult intussusception: a continuously unveiling clinical complex illustrating both acute (emergency) and chronic disease management. OA Emergency Medicine 2013;1:1-3.
8. M Solazzo, C S., F Puccio. Laparoscopic Surgery For Adult Bowel Intussusception: Report Of A Case. The Internet Journal of Surgery 2004;6:2.
9. Ishibashi Y, Yamamoto S, Yamada Y, Fujita S, Akasu T, Moriya Y: Laparoscopic resection for malignant lymphoma of the ileum causing ileocecal intussusception. Surg Laparosc Endosc Percutan Tech 2007, 17(5):444-6.
10. Lin MW, Chen KH, Lin HF, Chen HA, Wu JM, Huang SH: Laparoscopy-assisted resection of ileoileal intussusception caused by intestinal lipoma. J Laparoendosc Adv Surg Tech A 2007; 17(6):789-92.

Case Report

INTERNAL HERNIA THROUGH THE MESENTERY OF A MECKEL'S DIVERTICULUM

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ABSTRACT:
Meckel's diverticulum is the most common congenital gastrointestinal anomaly. However, only 2% of cases are symptomatic.Internal hernia is one of the rare causes of small bowel obstruction, herniation through the mesentry of Meckel's diverticulum is even rare. We report a case of internal herniation caused by Meckel's diverticulum in a 3 year-old boy who presented with generalized abdominal pain. Surgical intervention with reduction of internal hernia and resection of the diverticulum with gangrenous bowel was performed with a satisfactory outcome. Meckel's diverticulum should be considered as one of the differential diagnoses whenever a young child presents with bowel obstruction.

Key words : *Meckel's diverticulum; internal hernia; small bowel obstruction.*

INTRODUCTION :

Meckel's diverticulum (MD) is a common congenital anomaly of the gastrointestinal tract that occurs in about 2 % of the general population [1]. MD is a true diverticulum, containing all layers of the ileal wall, where heterotrophic tissue is present. Gastric mucosa is the most common heterotrophic tissue, followed by pancreatic tissue, then mixed pancreatic tissue and gastric mucosa [2]. The majority of the patients are asymptomatic, but 17-22% may manifest symptoms of bleeding, abdominal pain and intestinal obstruction [3,4]. In adults, small bowel obstruction (SBO) is predominant presentation and is frequently due to intussusceptions, volvulus around an associated fibrous or omphalo-mesentric band, adhesion from an inflammatory process, or incarceration within a hernia sac. We describe a child who presents with generalized abdominal pain as the initial symptom caused by internal herniation due to band of MD.

CASE REPORT

A 3 years old boy was brought to the emergency department with history of sudden onset lower abdominal pain and vomiting. The patient had experienced persistent generalized abdominal pain associated with several episodes of vomiting and abdominal distension of 2 days duration. He had no fever, no history of previous abdominal surgery, or other co-morbid conditions and no history of trauma. His medical or surgical history was otherwise unremarkable.

Physical examinations revealed generalized tenderness over the whole abdomen with rebound tenderness and decreased bowel sound. Rectal

examination was normal.

Laboratory investigations were normal, except for an elevated white blood cell count of 13 000/mm3. X-ray abdomen showed dilated small bowel loops. Ultrasound abdomen and pelvis revealed edematous gallbladder wall with moderate amount of free fluid in peritoneal cavity.

The patient was resuscitated and then planned for emergency surgery. The intraoperative findings revealed strangulated loop of small bowel herniating through a narrow mesentery of the MD (Figs 1 & 2). The internal hernia was reduced, gangrenous segment of ileum with the diverticulum was resected and end to end ileo-ieal anastomosis was done (Fig. 3). Histopathology of the resected diverticulum was compatible with MD. The postoperative course was uneventful.

Fig. 1: Internal Herniation of segment of small bowel

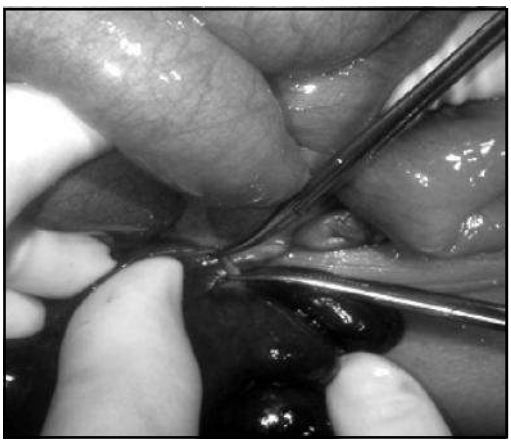

Fig. 2: Releasing the strangulated loops of small bowel which have herniated via the mesentry

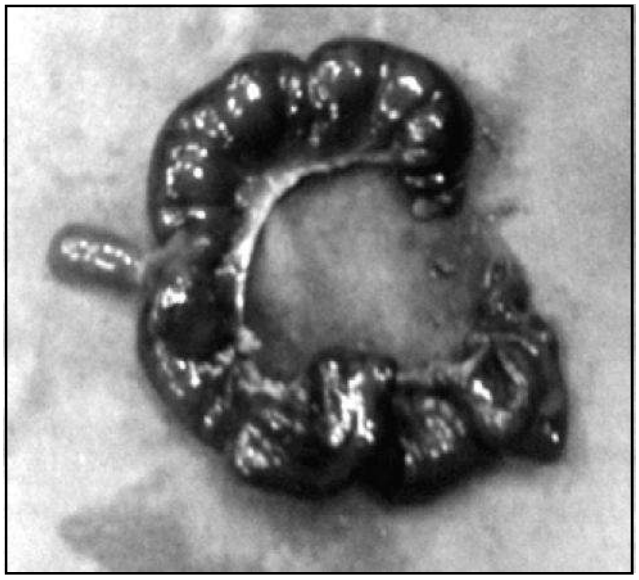

Fig.3: gangrenous segment of the small bowel with the Meckel's Diverticulum.

DISCUSSION

MD is the most common congenital gastrointestinal anomaly [1]. MD was named after Johann ForiedrichMekel, who described its anatomy and embryology in 1809 [5]. MD is present in approximately 2% of the population and only 2% of cases are symptomatic [1,3]. It is a true diverticulum containing all layers of the small intestine, arising from the anti-mesenteric border of the ileum and receiving its blood supply from a remnant of the vitelline artery, which emanates from the superior mesenteric artery [4]. The cause of MD is an incomplete closure of the omphalomesenteric duct [1,4]. The most common complication to arise is haemorrhage, other complications include diverticulitis and SBO.

Internal hernia caused by entrapment of the small intestine is extremely rare and only 0.5% to 4.1% of intestinal obstruction cases have been reported [6]. SBO is usually presenting as abdominal pain and distension. Intestinal obstruction is a common complication in young patients with MD. The causes of obstruction include intussusception with MD being the lead point, volvulus, in?ammatory adhesions and diverticular structures [3]. Internal herniation by MD leading to SBO is an extremely rare complication. The mechanism of SBO may also be loop formation with the tip of MD and adjacent mesentery incarcerating the distal ileum [3,6].

Although internal hernias are uncommon as the

primary etiology of mechanical SBO, they should be considered in patients with obstructive symptoms, especially in younger people without previous abdominal surgery. Radiological signs of SBO are well established, but recognizing MD as the cause is very difficult pre-operatively.

Ultrasonograms may suggest MD if there is evidence of a round or tubular cystic lesion, however, this can often mimic a dilated bowel loop or duplication cyst, and more commonly visualization is difficult due to overlying bowel loops [3].

The role of barium studies is limited, due to poor barium filling of the obstructed bowel and their time consuming nature. However, they can show MD as a blind-ended saccular or tubular lesion on the antimesenteric site of the ileum or as a triradiate fold pattern at the junction of the diverticulum and the ileum [7].

On Computed tomography (CT), MD is difficult to distinguish from normal small bowel in uncomplicated cases. However, a blind ending fluid or gas- filled structure in continuity with small bowel may be seen. CT may also show enteroliths, intussusceptions, diverticulitis and SBO. A recent innovation of CT enterography has resulted in better visualization of small bowel and consequent higher sensitivity in the diagnosis of MD [8].

The treatment option for internal herniation by MD is surgical resection with diverticulectomy and reduction of internal herniation. Early diagnosis and prompt treatment prevent further complications and prolonged hospitalization.

CONCLUSION

Intestinal obstruction caused by internal herniation is rare. MD related internal herniation is seldom considered in differential diagnosis of intestinal obstruction. This case demonstrates the importance of early surgical intervention in mechanical SBO of unknown etiology. Moreover, internal herniation caused by band of MD should be kept in mind especially in patients without previous abdominal surgery.

REFERENCES

1. Dumper J, Mackenzie S, Mitchell Pe, et al. Quan ML, Mew D. Complications of Meckel's diverticula in adults. Can J Surg. 2006;49:353-7.
2. Jain V, Sahi S. A rare fatal case of internal hernia caused by Meckel's diverticulum in a paediatricpatient.OJPed. 2011;1:17-9.
3. Ko SF, Tiao MM, Huang FC,et al. Internal hernia associated with Meckel's diverticulum in 2 pediatric patients. Am J Emerg Med. 2008;26:86-90.
4. Sagar J, Kumar V, Shah DK. Meckel's diverticulum: a systematic review. J R Soc Med. 2006;99:501-5.
5. Opitz JM, SchultkaR,Gobbel L. Meckel on developmental pathology.Am J Med Genet A 2006;140:115-8.
6. Prall RT, Bannon MP, Bharucha AE. Meckel's diverticulum causing intestinal obstruction. Am J Gastroenterol. 2001;96:3426-7.
7. Levy AD, Hobbs CM. From the archives of the the AFIP. Meckel diverticulum: radiologic features with pathologic correlation. RadioGraphics 2004;24:565-87.
8. Paulsen SR, Huprich JE, Fletcher JG, et al. CT enterography as a diagnostic tool in evaluating small bowel disorder: review of clinical experience with over 700 cases. RadioGraphics 2006;26:641-57.

Case Report

LAPAROSCOPIC ASSISTED PERCUTANEOUS NEPHROLITHOTOMY (PCNL) IN ECTOPIC PELVIC KIDNEY

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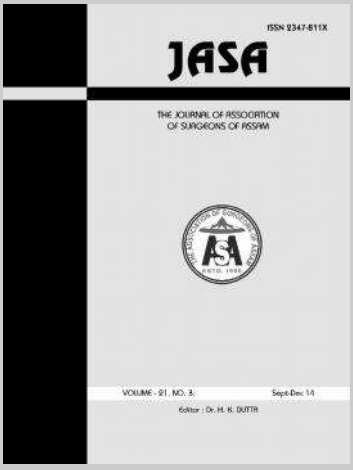

ABSTRACT:
We report the case of a patient presented with flank pain and an abdominal palpable mass whose tests revealed a right pelvic kidney with two stones (2.5 and 2 cm) in the renal pelvis. We describe the successful management through laparoscopic assisted percutaneous nephrolithotomy (PCNL) in ectopic pelvic kidney, stressing that this method is a minimally invasive therapeutic option in such cases.

Key words : *ectopic kidney; nephrolithiasis; pcnl; laparoscopy.*

INTRODUCTION :

The urinary system can suffer from different congenital anomalies like renal agenesis, multiple kidneys, renal ectopia, and fusion defects. Procedural difficulty and compromised safety are expected when surgical intervention is indicated in patients with anomalous kidneys. The abnormal renal anatomy may contraindicate certain interventions or require modification of their classical procedural aspects. Percutaneous nephrolithotripsy (PCNL) is a well established technique in the surgical management of nephrolithiasis. The conventional fluoroscopic guidance of PCNL will be of limited value in pelvic kidney due to aberrant location, vascular anomalies, and proximity to the peritoneal cavity, sigmoid colon and iliac vessels. Computed tomography, ultrasound and laparoscopic assisted approaches are described. We describe the successful management in a right ectopic pelvic kidney stones through laparoscopic assisted PCNL.

CASE REPORT

A 15years old male presented with right sided abdominal pain and palpable abdominal mass in the right iliac fossa for 1 year. Ultrasonography showed right pelvic kidney with two stones (2.5 and 2 cm) in renal pelvis. Excretory urography demonstrated a functional right pelvic ectopic kidney with normal contralateral kidney (Fig: 1 and 2). The anatomic abnormality of the ectopic kidney was explained to the patient in addition to the technical difficulty imposed by it. A plan was formulated to use laparoscopic assistance during the insertion of the PCNL access needle. The patient's consent was obtained and he was admitted for the procedure.

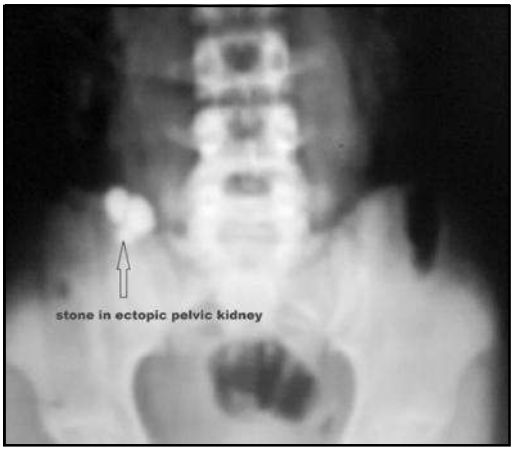

Fig 1 plain X-Ray KUB- showing renal stone in ectopic pelvic kidney (1)

Fig 2 IVP- showing functional hydronephrotic ectopic pelvic kidney with stone (1)

He received preoperative antibiotics and mechanical bowel preparation. General anesthesia was administered and the patient was placed in the lithotomy position and a 6F open-ended ureteral catheter was introduced retrograde into the kidney. The procedure was performed with the patient in a supine position and under general anesthesia A10mm laproscopy port was introduced in the umbilical region. Kidney was identified and initial puncture was done guided by the video laparoscopy and fluoroscopy (Fig: 3). Dilatation done upto 28 Fr and the renal puncture site was constantly monitored by the laparoscope (Fig: 4 and 5). After performing nephroscopy, the stones were identified and fragmented using pneumatic lithoclast. Finally the kidney was inspected for residual stones by direct nephroscopy aided by fluoroscopy (Fig 6). The tract was drained using a nephrostomy tube. The total surgical time was 90 minutes with duration of nephrolithotripsy of 60 minutes. After 48 hrs nephrostomy tube was removed. The patient was discharged subsequently on 4th postoperative day.

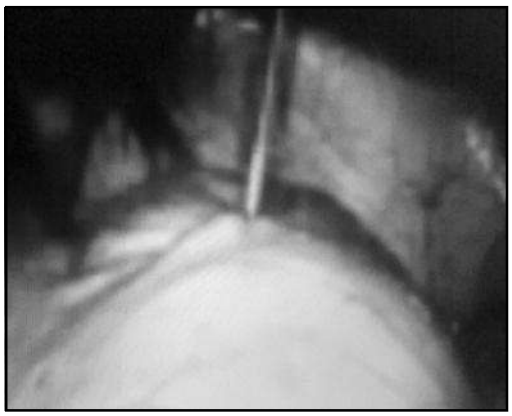

Fig 3 Lap assisted initial puncture needle insertion

Fig 4 Lap assisted ampltz sheath and obturator insertion

Fig 5 Lap assisted ampltz sheath insertion

Fig 6 100% stone clearence after PCNL in fluoroscopy

DISCUSSION

The treatment of renal lithiasis has undergone a great advance with the adventment of extracorporeal shock wave lithotripsy (ESWL) and endourology. The presence of anatomical anomalies, such as the pelvic kidney, imposes limitations to such therapeutic procedures[1]. The pelvic kidney is the most common form of renal ectopy. Its incidence is estimated from 1 in 2,200 to 1 in 3,000 from necropsies. The association with lithiasis is small when there is no impairment of urinary drainage[2]. Renal lithiasis in pelvic kidney can be managed by means of open surgery, ESWL or percutaneous nephrolithotomy. Open surgery presents higher morbidity, is less aesthetic due to the incision, and causes more pain post-operatively. Extracorporeal lithotripsy results in only 54% stone clearance in such cases[2]. Percutaneous surgery has also been proposed, but it is not conducted in a conventional way. It must be performed by anterior abdominal approach because the pelvic bone structures hinder the posterior access. PCNL is a challenging technique in pelvic kidneys. The abnormal renal orientation, the unusual and unpredictable blood supply and the overlying loops of intestine are significant difficulties. The best treatment for stones in pelvic ectopic kidney has not yet been clearly established. Videolaparoscopy, as in the case described above, enabled percutaneous surgery avoiding the risk of damage to the intestine that could be in the line of the percutaneous tract. Eshghi and colleagues described laparoscopically assisted PCNL in 1985 to deal with the frequent problems encountered by retrorenal intestines[3]. Maheshwari et al have described three patients with large calculi in pelvic ectopic kidneys who subsequently underwent laparoscopically guided transperitoneal percutaneous nephrolithotomy, with successful outcome[4]. In all patients. Complete stone clearance was achieved in a single operation with no intraoperative or postoperative morbidity. Holman and Toth reported good results and no major complications in 15 patients treated by laparoscopically assisted PCNL.(5) El-Kappany and associates presented the combination of laparoscopy and nephroscopy for treatment of ectopic pelvic kidney stones in 11 patients and concluded that this combination is feasible, safe, and effective for treatment of such stones[6]. Aron and coworkers reported laparoscopically assisted percutaneous nephrolithotomy in a patient with history of previous open pyelolithotomy[7].

In PCNL, the tract traverses renal parenchyma, and obtaining a suboptimal non trans papillary route is common. The latter plus exaggerated angulation required to access middle and lower calyces in many pelvic kidneys can be associated with high probability of bleeding from infundibular or more extensive parenchymal laceration. This explains the frequent occurrence of bleeding that sometimes requires blood transfusion.

Although percutaneous nephrolithotomy is a well-established endourological modality, it is not easy to apply in the management of calculi in pelvic ectopic kidneys. The combination of laparoscopy and nephroscopy is feasible, safe, and effective for the treatment of stones in pelvic kidneys.

REFERENCES

1. Matlaga BR, Assimos DG. The role of open stone surgery in 2002. Int Braz J Urol 2002; 28: 87-92.
2. Paterson RF, Lifshitz DA, Kuo RL, Siqueira Jr TM, Lingeman JE. Shock wave lithotripsy monotherapy for renal calculi. Int Braz J Urol 2002; 28: 291-301.

3. Eshghi AM, Roth JS, Smith AD. Percutaneous transperitoneal approach to a pelvic kidney for endourological removal of staghorn calculus. J Urol. 1985;134:525-7.

4. Maheshwari PN, Bhandarkar DS, Andankar MG, Shah RS. Laparoscopically guided transperitoneal percutaneous nephrolithotomy for calculi in pelvic ectopic kidneys. Surg Endosc 2004;18:1151.

5. Holman E, Toth C. Laparoscopically assisted percutaneous transperitoneal nephrolithotomy in pelvic dystopic kidneys: experience in 15 successful cases. J Laparoendosc Adv Surg Tech A. 1998;8:431-5.

6. El-Kappany HA, El-Nahas AR, Shoma AM, El- Tabey NA, Eraky I, El-Kenawy MR. Combination of laparoscopy and nephroscopy for treatment of stones in pelvic ectopic kidneys. J Endourol. 2007;21:1131-6.

7. Aron M, Gupta NP, Goel R, Ansari MS. Laparoscopyassisted percutaneous nephrolithotomy (PCNL) in previously operated ectopic pelvic kidney. Surg Laparosc Endosc Percutan Tech. 2005;15:41-3.

Case Report

FIBROSARCOMA OF THE NECK: (A CASE REPORT)

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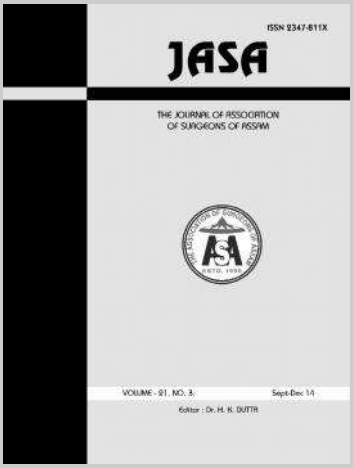

ABSTRACT:
A case of low grade Fibrasarcoma of the neck in a 30 years old lady is described. Radical tumour resection taking a wide margin and primary closure of the defect was performed immediately after diagnosis. No adjuvant therapy was given and lymph node dissection was not performed. No signs of recurrences or metastasis have been observed after a follow up time of 1 year so far.

Key words : *Fibrosarcoma; malignant tumour; neck mass; mesenchymal.*

Introduction :

Fibrosarcoma is a malignant neoplasm of mesenchymal origin. Its occurrence in the jaw and neck especially in childhood is rare.

An infantile and an adult form are described showing identical histopathological features but differing in survival prognosis. The presented report describes a fibrosarcoma originating in the soft tissues of the neck of a young lady, which was successfully managed.

Case report:

A 30 years old female house wife hailing from Boko Assam presented to Lower Assam Hospital, Bongaigaon with a huge lobulated growth on the right side of the neck of 7 years duration. The growth was gradually increasing in size and had reached a stage causing bending of the neck on the side of the tumour. The patient had no problem in swallowing food.

Examination of the anemic and poorly nourished lady revealed a huge soft tissue tumour on the right side of the neck which was fixed to the underlying soft tissue of the neck and ulcerated at several points. The weight of the tumour was causing slight bending of the neck on the affected side. Except for anemia routine blood examination were normal.

X- Ray showed a huge soft tissue mass in the right side of the neck. Underlying bones were normal. CT-Scan of the swelling showed a huge soft tissue growth in the right side of the neck. Underlying vessels and bones were not involved. No metastasis was noted on chest x-ray.

Fine needle aspiration cytology was suggestive of Fibrosarcoma of the neck.

Based on these findings surgical excision was considered. The Patient

was operated under general anaesthesia oral intubation was done. Wide excision of the whole growth was done using electrocautery taking a wide healthy margin. Bleeding was minimal. The whole growth was removed in one piece (Fig.1-3). Post operative period was uneventful. She received intravenous antibiotics with chlorhexidine mouth wash. Stitches were removed on the 10th post operative day and skin grafting of the operated site was done on the 12th post operative day to cover the raw area. She was discharged from the hospital on 21th day of operation. 3 units of blood transfusion was given after operation. The resected growth was sent for histopathology.

Histopathology Interpretation:

Microscopic picture shows highly cellular proliferation of fibroblast in herringbone pattern. Cells have scant cytoplasm, tapering elongated dark nuclei with increased granular chromatin, variable nucleoli. Mitotic activities are present with variable collagen (Fig.4).

Discussion:

Fibrosarcoma is a very rare malignancy with possible occurrence in the whole head and neck region[1]. It accounts for only one percent of all tumours in this region[2-4]. Due to location the more frequently seen-periostal form is differentiated from the intraosseous Fibrosarcoma. The periostal form shows a better overall 5 year survival rate of 75% [5]. The intraosseous form in the head and neck region mainly occurs in the mandible [3]. The WHO reports an overall 10 years survival of 83% in low grade and 34% in high grade sarcoma of the bone [6].

The mean age for the occurrence of Fibrosarcoma is between 2nd and 6th decade with equal gender distribution [6] .Fibrosarcoma rarely occurs before the 3rd decade [7]. The adult Fibrosarcoma is differentiated from the infantile type which occurs according to WHO definition before the 3rd year of age.

Although infantile and adult Fibrosarcoma are histologically identical, the infantile form carries a much more favourable prognosis. The infantile form metastizes rarely and has a natural history similar to that of Fibromatosis [4,6].

Typically the tumour presents with swelling, associated with pain and peresthesia[1,3,8]. Radiological imaging of Fibrosarcoma reveals radiolucent lesions with a geographical, moth eaten or permeative pattern of bone destruction [5,6,9]. The absence of tumoural calcification or ossification can be of importance in differentiating fibrosarcoma from other malignancies such as chondrosarcomas and osteosarcomas.

Fibrosarcoma are graded from low to high malignancy after FNCLCC grading system depending on the number of mitotic figures, tumour differentiation and the presence of tumour necrosis [6,9,10].

The prognosis is highly dependent on the tumour grading and the success of complete resection[1,2,4,6,11]. The need for adjuvant radiotherapy and or chemotherapy is still unclear but there is

Histopathology

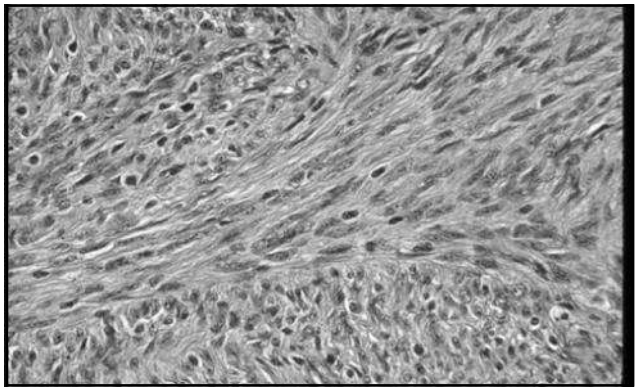

Fig.1: Photomicrograph showing highly cellular proliferation of fibroblast in herringbone pattern. Cells with scant cytoplasm, tapering elongated dark nuclei with increased granular chromatin and variable nucleoli. Mitotic activities are present with variable collagen

normally an indication in high grade tumour because these tumour may present with sub clinical or microscopic metastasis at the time of dignosis. The need for prophylactic neck dissection is controversially discussed and it is not performed in all cases [3,12,13].

In the present case, considering the histological grade of the tumour and the absence of metastasis, it was decided that neither adjuvant therapy nor prophylactic neck dissection were indicated.

Conclusion:

Fibrosarcoma of head and neck is a rare malignancy and can affect any person irrespective of age and sex. Wide surgical excision with an adequate margin of normal tissue offered the best means of local control. The addition of post operative radiotherapy may be utilized for patients with positive margins or high grade aggressive sarcomas. Finally, despite multimodality therapy, achieving local control and prevention of distant metastasis in high grade sarcomas remains a major therapeutic challenge.

References:

1. Soares AB, Lins LHS, Mazedo AP, Neto JSP, Vargas PA. Fibrosarcoma originating in the mandible. Med Oral Patol Oral Cir Bucal 2006;11(3):E243-6.
2. Leitner C, Hoffmann J, Krober S, Reinert S. Low- grade malignant Fibrosarcoma of the dental follicle of an unerupted third molar without clinical evidence of any follicular lesion. J Craniomaxillofac Surg 2007;35:48-51.
3. Pereira CM, Jorge J Jr, Di Hipolito O Jr, Kowalski LP, Lopes MA. Primary intraosseous Fibrosarcoma of the jaw. Int J Oral Maxillofac Surg 2005;34:579-81.
4. Wanebo HJ, Koness RJ, MacFarlane JK, Eilber FR, Byers RM, Elias EG, Spiro RH. Head and neck sarcoma: report of the head and neck sarcoma registry. Society of head and neck surgeons committee on research. Head Neck 1992;14:1-7.
5. Theodorou DJ, Theodoroou SJ, Sartoris DJ. Primary non-odontogenuc tumors of the jawbones. An overview of essential radiographic finding. J Clin Imag 2003;27:59-70.
6. Kahn LB,Vigorita V. Fibrosarcoma of bone. In World Health Organization Classification of Tumours. Pathology and Genetics of Tumours of Soft Tissue and Bone. Edited by Fletcher CDM,Unni KK, Mertens F.IARC Press, Lyon, France; 2002:289-90.
7. Gorsky M,Epstein JB: Head and neck intra- oral soft tissue sarcomas. Oral Oncol 1998;34(4):292-6.
8. Orhan K, Orhan AI,Oz U, Pekiner FN, Delibasi C. Misdiagnosed Fibrosarcoma of the mandible mimicking temporomandibular disorder: a rare condition. Oral Surg Oral Med oral Pathol Oral Radiol Endod 2007;104:26-9.
9. Rao BN, Santana VM, Fleming ID, Pratt CB, Shapiro D, Fontanesis J, et al. Management and prognosis of head and neck sarcomas. Am J Surg 1989;158:373-7. PubMed Abstract/ Publisher Full Text.
10. Fletcher CDM, Sudaram M, Rydholm A, Coindre JM, Singer S. Soft tissue tumours: Epidemiology,clinical features,histopathological typing and grading. In World Health Organization Classification of Tumours.In Pathology and Genetics of Tumours of Soft Tissue and Bone. Edited by Fletcher CDM, Unni KK, Mertens F.IARC Press, Lyon, France; 2002:14
11. Daw NC, Mahmoud HH, Meyer WH, Jenkins JJ, Kaste SC, Poquette CA, et al. Bone Sarcomas of the head and neck in children. Cancer 2000;88:2172-80.
12. Nagler RM, Malkin L, Ben-Arieh Y, Laufer D. Sarcoma of the maxillofacial region, follow-up of 25 cases. Anticancer Res 2000;20:3735-42.
13. Yamaguchi S, Nagasawa H, Suzuki T, Fuji E, Iwaki H, Takagi M, et al. Sarcomas of the oral and maxillofacial region: A review of 32 cases in 25 years. Clin Oral Investig 2004;8:52-5.

Case Report

GIANT EXOSTOSES OF THE SKULL BONE - A REPORT OF TWO CASES

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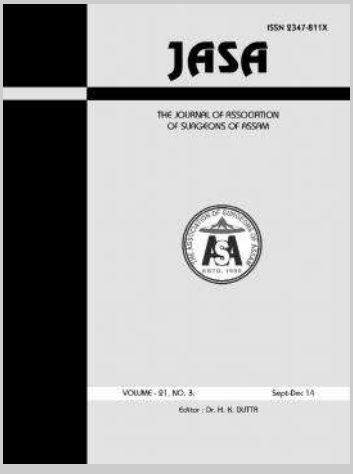

ABSTRACT:
Exostosis or osteoma is a benign tumor of the bone. We present 2 young male patients who presented with very large exostoses of the skull bones.

Key words : *Exostosis; osteoma; skull tumor.*

Introduction :

Osteomas are benign primary bone tumors [1]. When the tumor projects from the surface of a bone it is called an exostosis. We describe 2 young male patients who presented with unusually large exostoses of the skull bone.

Case reports

2 young male patients, aged 20 and 22, presented to the Neurosurgical Outpatient Department of Sanjivani Hospital, Dibrugarh with history of progressive painless hard swelling over the head of many years duration. The location of the swelling was typically on the skull just above the ears in each patient, and was well-concealed by long hair. Both were planning to get engaged in the near future, and so were seeking advice. Examination revealed the presence of a conical bony mass measuring 10 and 12 cms over the right temporal and left parietal bone (Fig 1). CT scan of the brain revealed an exostosis involving the outer table of the skull vault (Fig 2) in each patient. As both patients wanted the tumors removed for cosmetic reasons, the exostoses were excised under local anesthesia. At surgery, the diploe and inner table were found to be intact, and the tumors were excised with a1 mm margin of normal bone (Fig 3) using a high-speed drill.

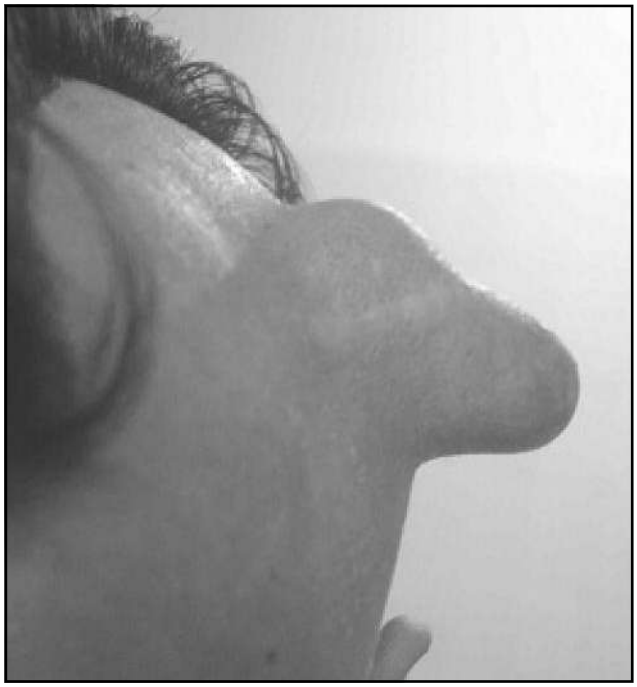

Fig. 1 : Photograph showing the exostosis arising from the left parietal bone of the patient

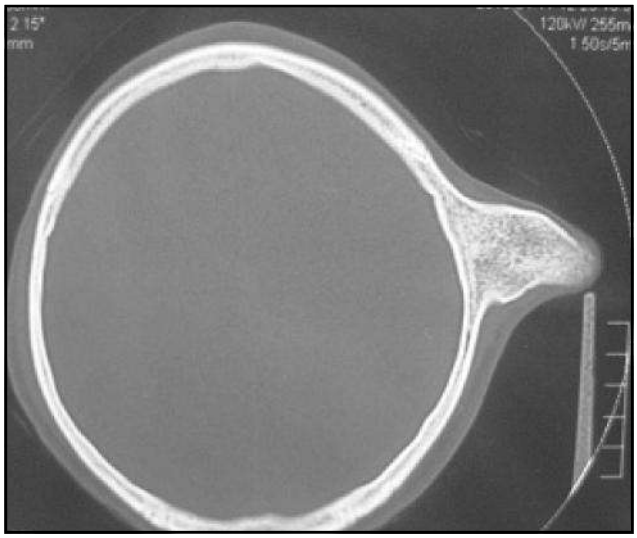

Fig. 2 : CT scan of the skull showing the bony tumor arising from the outer table of the skull vault

Fig. 3 : Photograph of the excised specimen

Discussion

Osteomas are benign tumors of the bone. When osteomas project outwards from the bones, they are commonly called exostosis. When growing from membranous bones, such as the flat bones of the skull, it is usually dense like ivory, and the term 'ivory exostosis' is employed [2]. When derived from hyaline cartilage, for example, at the ends of the long bones, it is known as a 'cartilaginous exostosis'.

An exostosis forms a rounded or mushroom-shaped tumor of limited size, which may be either sessile or pedunculated, and its surface is smooth or nodulated.

Both our patients managed to conceal the tumors till adulthood under a voluminous mass of hair, and that may be the reason they grew to such an unusual size. They also sought medical treatment as they were both planning to get married in the near future.

Conclusion

Osteomas of the skull are benign tumors, may lie concealed for a long-time and also attain unusually large dimensions if hidden by scalp hair. Excision for cosmetic purposes may be warranted.

References

1. Visot A, Boulin A. Osseous Tumors, In Winn HR (ed), Youman's Neurological Surgery. Volume 1. Philadelphia: WB Saunders, 2004: 1361- 9.
2. Bullough PG. Ivory exostosis of the skull, Post Grad Med Journal 1965;41:277-81.

Case Report

MANAGEMENT OF A 'VERY LARGE' HEAD - A CASE REPORT

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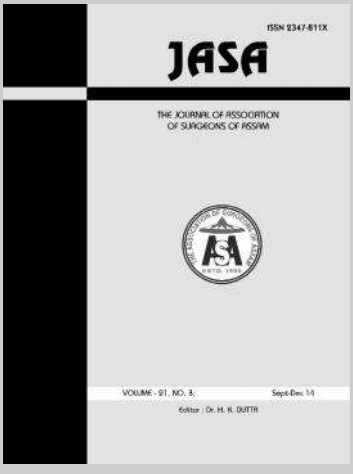

ABSTRACT:
We describe the successful management of a patient with a 'very large head' due to congenital hydrocephalus secondary to aqueductal stenosis, with endoscopic third ventriculostomy.

Key words : *Hydrocephalus; congenital hydrocephalus; aqueductal stenosis; endoscopic third ventriculostomy.*

Case reports

A 9 month old infant presented with a large head, poor cry and listlessness. He was born by Caesarian section to non-consanguineous parents, the first child, with a birth weight of 3.2 Kgs. He was first found to have a large head at 1 month of age, and the head-size kept on increasing at an alarming rate. CT scan of the brain had revealed aqueductal stenosis with hydrocephalus (Fig 1). At presentation, the child had a head circumference of 87.5 cms, menace reflex and startle responses were preserved, the anterior fontanelle was open and bulging, there was sutural diastasis, sunset sign was seen, and his limbs were spastic. The cry was feeble, but surprisingly the child was feeding well.

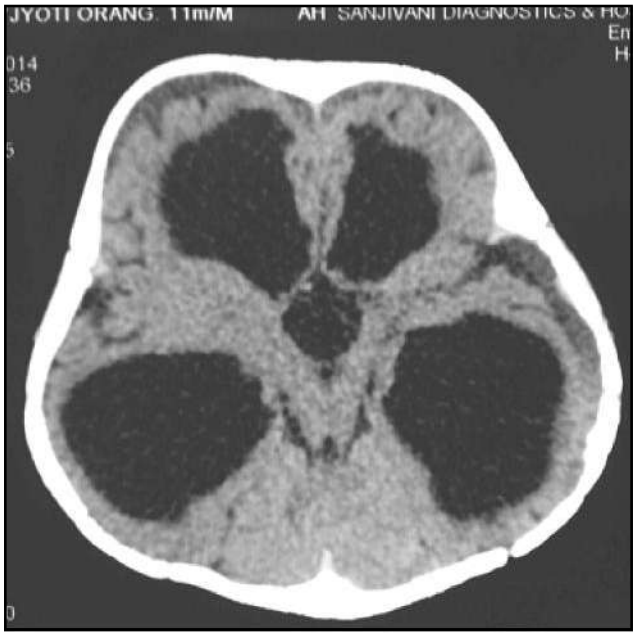

Fig 1: Intra-operative photograph showing the fenestrated floor of the third ventricle with the CSF flow into the pre-pontine cistern (arrow)

An endoscopic third ventriculostomy (Fig 2) was done under local analgesia and airway protection by

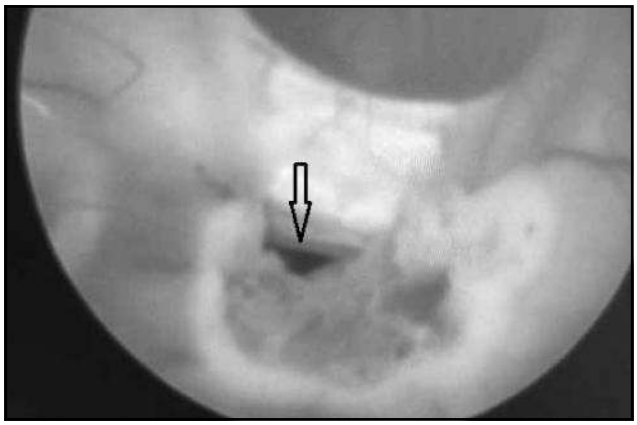

Fig 2: Pre-op CT scan of the brain showing massive hydrocephalus

the Anesthesiologist. The procedure lasted about 20 minutes. The child had a smooth post-operative period and was discharged after 2 days.

At follow-up after 1 month, the child was feeding normally, moving limbs well and the cry was good. The head circumference had come down to 62.5 cm, the anterior fontanelle was depressed, sutural diastasis had subsided, and the sunset sign had disappeared. Follow-up CT revealed reduction in the ventricular size, with some increase in the cerebral mantle (Fig 3).

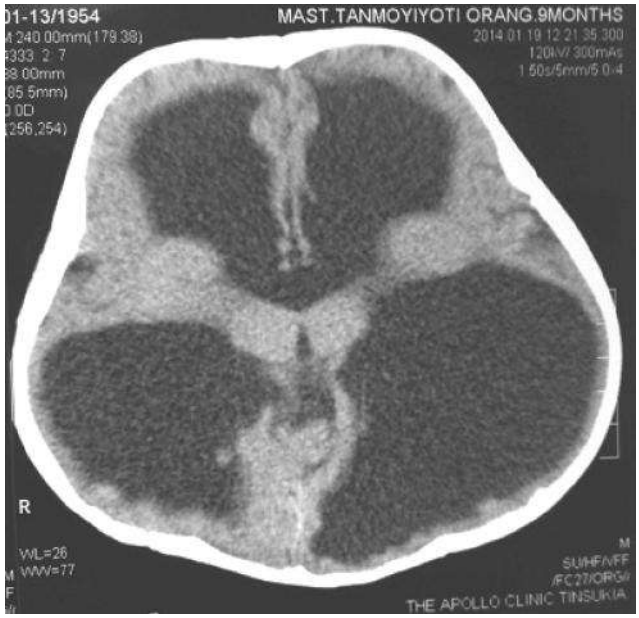

Fig 3: Post-operative CT scan of the brain after 1 month showing reduction in the ventricular size and increase in the cerebral mantle

Discussion

Shunting procedures in hydrocephalus are inherent with many complications, such as shunt block, infection, over-drainage of CSF with consequent subdural hematoma, over-distension of the abdomen with resultant cardiac and respiratory compromise, to name a few [1]. The problem is compounded when we have to deal with very large collections of CSF in the brain.

Endoscopic third ventriculostomy (ETV) has been found to be effective in only about 25% cases when performed in patients under 1 year of age [2]. According to Buxton et al, even though shunting may give better results in this age-group, but ETV gives rise to fewer complications.

In our patient, the head size was very large, and the neck very short. After consultation with the Anesthesiologist, ETV under local anesthesia was considered a safer procedure, with surprisingly good results at follow-up.

Conclusion

Endoscopic third ventriculostomy is a reasonably safe procedure in high-risk infants with a 'very large head' due to hydrocephalus secondary to aqueductal stenosis.

References

1. Rekate HL. Treatment of hydrocephalus. In Cheek W (ed). Pediatric Neurosurgery: Surgery of the Developing Nervous System. Philadelphia: WB Saunders, 1994: 362-77.
2. Buxton N, Maccarthur D, Malluci C, et al. Neuroendoscopic third ventriculostomy in patients less than 1 year old, Pediatr Neurosurg 1998;29:73-6.

Case Report

VENTRICULAR ANEURYSM IN A CASE OF CORONARY ARTERY DISEASE

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ABSTRACT:
Ventricular Aneurysm is usually found in those cases of Coronary Artery Disease(CAD), where in flow of blood to the heart muscle is jeopardized and usually found after myocardial infarction (MI) of a portion of a ventricular wall, where the muscle gets fibrosed to form scar. This leads to improper contraction of the ventricular muscle resulting in heart failure, thrombus formation with embolic episodes and arrythrmias. Here, we are discussing such a case which was not diagnosed preoperatively and had recent MI with low ejection fraction and moderate mitral regurgitation and was taken up for revascularization procedure via CABG.

Key words : *myocardial infarction; coronary artery bypass graft; mitral regurgitation; ventricular aneurysm.*

INTRODUCTION :

A ventricular aneurysm is a serious complication following myocardial infarction (MI) where the muscle becomes fibrotic with scar formation and it usually balloons out during ventricular contraction. This ultimately decreases the cardiac function resulting in heart failure. True aneurysms are to be differentiated from pseudo aneurysms in which case the muscle ruptures and the ruptured part is supported by pericardium getting acdherent to the defect. Usual symptoms are shortness of breath, chest pain and arrhythmias. It is treated conservatively with diuretics, after load reduction drugs, beta blockers and anti coagulants. It is diagnosed by ECG, Echocardiogarphy and Cardiac catheterization.

CASE REPORT :

Here we present this case as an exceptional one as it was not diagnosed pre operatively and was diagnosed intraoperatively during routine CABG procedure.

The patient had history of recent MI with hypokinetic anterior wall with akinesia of septal wall with moderate MR and low ejection fraction. ECG showed Q waves and ST elevation. This was confirmed by Trans esophageal echocardiography (TEE), which is done routinely before all open heart surgical procedures.

His coronary angiogram showed total cutoff at LAD (Left anterior descending artery) and 70% of OM1 (Obtuse Marginal) with diffuse disease of RCA (right coronary artery). After cannulations and heparinzation, patient was put on cardiopulmonary bypass (CPB) and heart arrested using cold

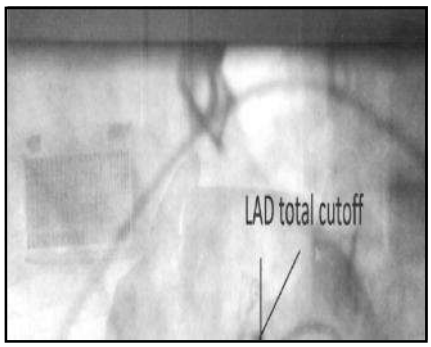


Fig 1 : Phograph showing coronary angiogram showing total occlusion of the LAD Branch of coronary artery

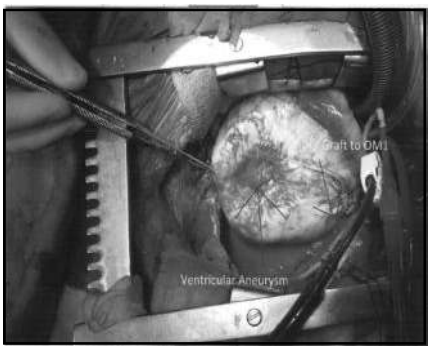


Fig 2 :Phograph showing depressed anterior ventricular wall (Aneurysm) & arrow shows venom graft to the OM_1 Branch of Cx coronary artery

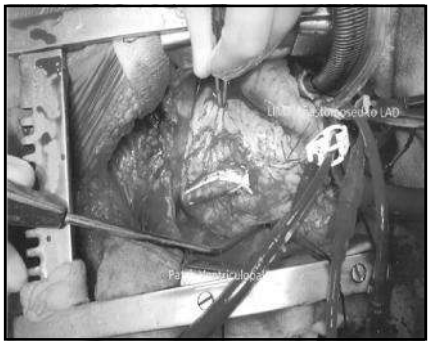


Fig 3 : Phograph showing aneurysm rapaired with Teflon patch (Ventriculoplasty) & LIMA anastomoses to the LAD branch of coronary artery

blood cardioplegia solution. After aortic cross clamping distal anastomoses to distal target vessels were done.

On CPB an area of scarred tissue was found in the anterior wall which sinked down in to the left ventricle. First, the left internal mammary artery which was harvested before putting the patient on CPB, was anastomosed to the LAD distal to the diseased and scarred tissue. Reversed saphenous vein graft (RSVG) was anastomosed to the OM1 (Obtuse Marginal).

The aneurismal area was plicated with 4-0 polypropylene sutures buttressed by two 2cm x 2cm PDFE patch, reducing the size of the non functioning wall of the ventricle. After surgery patient was weaned off CPB with moderate inotropic support. Patient was kept on overnight ventilation. Post operative recovery was uneventiful. At the time of discharge post op echo showed reduction of mitral regurgitation and improved left ventricular function.

DISCUSSION :

Left ventricular aneurysm with angina and heart failure is an indication for surgery (ventriculoplasty) with associated CABG. Currently the patch remodeling is most widely used.

The long term result are excellent with 92% survival at five years. Similar results have been reported by Di Donato et al and Battaglou et al [1, 2]. LV scars encountered during surgery may require excision if it contains little muscle and of an important size. Di Donato, Dor and colleagues have demonstrated comparable improvement in ejection fraction in patients with akinetic scars and those with dyskinetic scar (aneurysm) following patch platy repair. The authors and others have postulated that patients with heart failure, previous MI and LV dilatation or akinesia may benefit from this type of repair as well [3, 4].

Ventricular aneurysm should be differentiated from pseudo aneurysm where treatment option will very, when ventricular wall gets ruplured and adherent to the pericardium [5, 6]. However, most cases are treated conservatively and those that need surgery require a revascularization procedure as well.

REFERENCES

1. di Matta DG, di Biasi P et.al : Surgical treatment of left ventricular post infarction aneurysm with endoventriculoplasly - Late clinical and functional results. Euro. J. Cardiovasc Surgery. 1989; 15:413
2. Battaloglou B et.al : Left Ventricular aneurysm repairs within 30 days of Acute MI, early & mid term outcome. Tex. Heart Journal : 2007; 34:104-9.
3. Athamasuleas CL, Stanley AWJ, Buckberg GD. DOR V, di Donato et.al : Surgical anterior ventricular endocardial restoration (SAVER) in a dilated remodeled ventricle after anterior myocardial infarction. RESTORE group. Reconstructive Endoventricular Surgery, returning Torsion Original Radius Elliptical Shape to the LV. J Am Coll Cardiol : 2001. 37(5):1199-209.
4. Buckbeng G.D; Defining the relationship between akinesia and dyskinesia and the cause of left ventricular failure after aneterior infarction and reversal of remodeling to restoration. J. Thorac Cardiovasc Surg. 1998; 116:47-9.

Journal Review

Compiled by:
Editor

1. The tumor microenvironment is a critical determinant of cancer metastasis

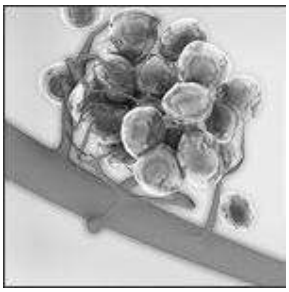
What is critical to angiogenesis?

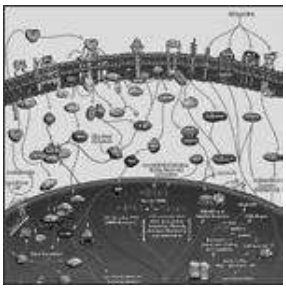
CCL2 has been implicated in various cancer types as a therapeutic target. However, endingCCL2 inhibition accelerates breast cancer metastasis by promoting angiogenesis. (2014 Nature, epublished ahead of print.)

"Endothelial FAK is required for tumor angiogenesis." (2010, EMBO Mol. Med. 2, 516.)

"Notch signaling promotes endothelial cell proliferation and vessel growth in postnatal long bone, which is the opposite of the well-established function of Notch and its ligand Dll4 in the endothelium of other organs and tumors." (2014, Nature 507, 376.)

"Here we identify a new capillary subtype in the murine skeletal system with distinct morphological, molecular, and functional properties. These vessels are found in specific locations, mediate growth of the bone vasculature, generate distinct metabolic and molecular microenvironments, maintain perivascular osteoprogenitors, and couple angiogenesis toosteogenesis." (2014 Nature 507, 323.)


Angiogenesis signaling and VEGF signaling


Endothelial cell biology


Cancer metastasis

2. Laparoscopic vertical sleeve gastrectomy significantly improves short term weight loss as compared to laparoscopic adjustable gastric band placement in morbidly obese adolescent patients

Journal of Pediatric Surgery, 10/28/2014 Clinical Article

Pedroso FE, et al. - The authors compared outcomes of laparoscopic adjustable gastric band (LAGB) to laparoscopic vertical sleeve gastrectomy (VSG). This study suggests that bariatric surgery is an effective treatment strategy in morbidly obese adolescents who have failed medical management. VSG results in greater short term weight and BMI loss when compared to LAGB. Longer follow up with more patients will be required to confirm the long term safety and efficacy of VSG in adolescent patients.

Methods

- A single institution, retrospective evaluation of a prospectively collected database of LAGB and VSG patients.

Results

- 174 morbidly obese patients underwent bariatric surgery at the institution between 2006 and 2013. 137 patients underwent LAGB and 37 underwent VSG.
- There were no significant differences between LAGB vs. VSG groups on day of surgery for age, gender, ethnicity, weight, and BMI.
- At 24-month follow up, patients who underwent VSG vs. LAGB displayed significantly greater percent excess weight loss (70.9 ± 20.7 vs. 35.5 ± 28.6, P = 0.004) and percent preoperative BMI loss (32.3 ± 11.0 vs. 16.4 ± 12.7, P = 0.004).
- Both VSG and LAGB significantly improved levels of HDL, HgA1c, and fasting glucose.
- LAGB patients had more complications than VSG patients.

3. Novel wound management system reduces surgical site morbidity after ventral hernia repairs: A critical analysis

The American Journal of Surgery, 10/28/2014 Clinical Article

Soares KC, et al. - Prophylactic incisional negative-pressure wound therapy use after ventral hernia repairs (VHRs) remains controversial. the authors assessed the impact of a modified negative-pressure wound therapy system (hybrid-VAC or HVAC) on outcomes of open VHR. This study suggests that the HVAC system is associated with optimized outcomes following open VHR. Prospective studies should validate these findings and define the economic implications of this intervention.

Methods

- A 5-year retrospective analysis of all VHRs performed by a single surgeon at a single institution compared outcomes after HVAC versus standard wound dressings.
- Multivariable logistic regression compared surgical site infections, surgical site occurrences, morbidity, and reoperation rates.

Results

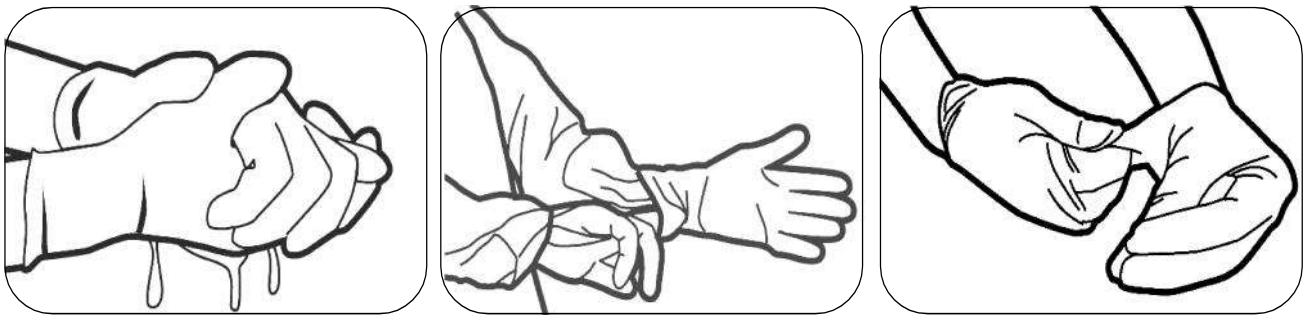
- The authors evaluated 199 patients (115 HVAC vs 84 standard wound dressing patients).
- Mean follow-up was 9 months.
- The HVAC cohort had lower surgical site infections (9% vs 32%, P < .001) and surgical site occurrences (17% vs 42%, P = .001) rates.
- Rates of major morbidity (19% vs 31%, P = .04) and 90-day reoperation (5% vs 14%, P = .02) were lower in the HVAC cohort.

4. Ebola armor: Protective gear for healthcare workers

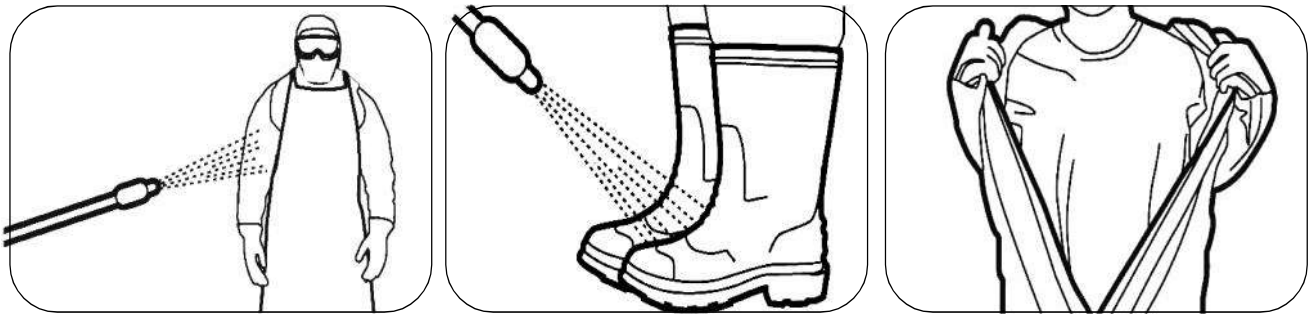
Lorena Iñiguez Elebee, Len de Groot

Protective suits shield healthcare workers from bacteria, viruses and other hazards. Users are most vulnerable to contamination when removing the gear. Here are the steps used by Doctors Without Borders, which has been responding to Ebola outbreaks in Africa for decades.

Personal protective equipment



Disinfect outer gloves with 0.5% chlorine solution.Remove outer gloves and put in a biohazard container



Spray front and back of apron and suit with chlorine disinfectant & and remove gowns

Association News

MESSAGE FROM THE SECRETARY, ASSOCIATION OF SURGEONS OF ASSAM (ASA)

Respected teachers, seniors and esteemed members,

Silver Jubilee greetings to you all. On behalf of Assam State Chapter of Association of Surgeons of India, I welcome you all to Silver Jubilee ASACON being held at GMC auditorium, Guwahati from 7th to 9th November, 2014.

At the outset I offer my sincere thanks to you all for giving me opportunities to serve as the secretary of the Association and being supportive all throughout. I am especially thankful to the Chairman of ASA Dr Subhash Khanna for his advice and guidance while carrying out the works of the association. I am also thankful to the treasurer Dr U.R.Das, editor of JASA Dr H.K.Dutta,scientific chairman Dr S.S.Bhattacharjee, social service in charge Dr Chaidul Islam, all the past chairman GC member and other executive members for their advice and cooperation.

Present executive committee led by pro-active chairman Dr Subhash Khanna made an attempt to bring several reforms in the functioning of the association so that we can keep pace with the changing scenario and make the association vibrant and attract newer surgeons to its fold. During the present tenure 35 new life members of ASA were inducted and another 15 members have applied for life members of Association of Surgeons of India. Some of the notable achievement of the present committee were, updating members directory, creating whatsapp group, bringing out Newsletter "Surgery Papyrus", getting ISSN number for JASA besides bringing out journal regularly, streamlining of bank accounts, fixed deposits, auditing and filing tax returns, working on association websites to make it user friendly, initiative to start training programs and fellowship for the rural and upcoming surgeons, conducting cme and workshops at regular interval to name a few. This year for the first time credit hours will be awarded to the registered delegates and speakers as per recommendation of the Assam Council of Medical Registrations during the ASACON.

On the social front ASA is also actively involved in providing free medicines and surgical care to the down trodden of the society by organizing free surgical camps across the state by the dedicated members. Moreover ASA have been organizing awareness programs on cancer and congenital birth defects from time to time for the benefit of the general masses, student communities and nursing students in particular. Another highlight during the ASACON will be ' Lifetime Achievement Award' instituted by ASA from last year, which will be conferred to the past chairman of ASA, former GC member of ASI, Retd. Professor of Surgery, Dr G.C. Jain from Guwahati for his contribution in the field of surgical education, for his organizational capabilities, active participation in the activities of surgeons association and for his dedicated social works. Executive committee of ASA in its meeting held during the mid term cme at Shillong also took a decision to confer Honorary life membership of ASA to Dr A.G.Ahangar, Director of Neighrms, Shillong and a noted Cardiothoracic surgeon for his immense contribution in the field of surgical education across the country, north eastern region in particular and supporting the cause of Association of Surgeons of Assam.

During the ASACON the prestigious Dr. J.Mahanta Oration will be delivered by the President of Association of Surgeons of India Dr Satish Shukla, Dr N.Zaman Oration by the eminent oncosurgeon from Tata Medical Center, Mumbai, Dr Shailesh V Srikhande and Dr G.P.Sarma oration by the Chairman of ASA Dr Subhash Khanna. Several eminent surgeons from various parts of the country namely Prof Arvind Kumar, Prof. Anurag Srivastava Head of Surgery, AIIMS New Delhi, Prof. G.Siddesh Head of Surgery, JSSMC Mysore, and others have confirmed

their participation. Besides orations there will be guest lectures, CME, panel discussions on surgeons and medicolegal aspect, quiz, poster, best paper competitions, master class and hands on training on suturing for the post graduate students.

Finally I congratulate organising chairman of ASACON 2014,Dr Kanakeswar Bhuyan, organising secretary Dr Siddhartha Phukan , treasurer Dr J.N. Buragohain, Dr S. N. Choudhury, Dr P.P Das, and all other members of organizing committee who have toiled hard to make the conference successful and memorable one.

Long Live ASI, Long Live ASA.

Thanking you,

Yours sincerely,
Dr Rocket C Brahma
Secretary , Assam State Chapter,
Association of Surgeons of India.
Mob: 9864051733
e-mail: drrcbrahma@yahoo.com

To,
The Association of Surgeons of Assam
Swagat Endo- laparoscopic Surgical Research Institute,
A T Road, Shantipur, Guwahati-781009, Assam
web :www.asiassam.org, E-mail- asaassam@gmail.com

Affix Stamp Size Photograph here

Membership No. :

Dear Sir,

I wish to join the Association of Surgeons of Assam as Life member and also enclose Cash/ Cheque/ Draft No. ..... dt..... for Rs. ..... on .....(Bank) towards life membership fees of the Association .

1. NAME (in BLOCK LETTERS) :
   (Specify how your name as it should appear in the list)

2. DATE OF BIRTH (in English Era) :

3. SEX : Male/ Female

4. QUALIFICATION :
   (With years of obtaining Degree/Post Graduate and the name of the University)

MBBS/MS/MCH	Year of Passing	University

5. PERMANENT RESIDENTIAL ADDRESS :
   (With Phone No.)

6. PRESENT ADDRESS :
   (Mobile No. & E-mail Mandatory)

7. REGISTRATION NO. :

8. WHETHER MEMBER OF A.S.I. : Yes/No Number.....(if Yes)

9. WHETHER ENGAGED IN TEACHING AND /OR RESEARCH OR PROFESSION :

I agree to able by the Rule and Regulations of the Association of Surgeons of Assam.
Mode of Payment
Cash/Demand Drafts / Cheque Payable to
"Association of Surgeons of Assam, Guwahati

Rates
Enrolment Fee Rs. 50/-
Life member Rs. 1000/-

Signature

Membership Accepted Signature of the President/ Secretary, ASA