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EDITORIAL



From the Desk of the Chairman Editorial board :

Chairman editorial board

EDITORIAL

You will be pleased to see the latest issue of the official Journal of UPASI (Surgery). The editorial team after taking a lot of pain has finalized the scientific papers. The quality of any scientific journal depends on the articles published in the journal. At each level we tried our best not to compromise on quality. The members of the UPASI are requested to send case reports and scientific papers to be included in the forth coming issue of the journal. This year we also tried to have the journal online so that members can have access to the journal by clicking at the UPASI Website . (www.upchapterasi.com)

I am specially thankful to Dr. M.H.Raza, Editorial Secretary for his hard work in giving the final shape to the journal, I also thank the other members of the editorial team for their positive suggestions.

“Day Care Surgery”

M. H. Raza

From: Department of Surgery, J.N. Medical College, A.M.U. Aligarh. U.P. India.



Editorial Secretary

Introduction:

Day care surgery has become increasingly popular in most parts the world. However, it is still in its infancy in india and other devaloping nations. The reasons for increasing popularity of day care surgery are : **(a)** Many surgeons have started performing minimally invasive surgery which use a variety of highly sophisticated equipments such as Laparoscopes, endoscopes, robots etc. which require very small incision or no incision at all, so the risks involved in conventional major surgery are avoided. **(b)** Newer drugs used for anaesthesia allow patients to regain consciousness very quickly, so that they can go home soon after the surgery. **(c)** Modern painkillers are very potent, hence patients have much less pain after surgery . **(d)** The development of communication devices such as mobile telephones, fax, internet etc. helps in being in contact with the doctor round the clock. **(e)** The improvement in the infrastructure such as roads, railways and rapid transport facilities has further boosted the development of this short hospital stay concept.

History:

The earliest reference of day care Surgery is at the beginning of 19th century by James Nicoll and later by Ralph Waters in 1912, who described “The DownTown Anaesthesia Clinic”, Sioux city, Iowa, USA,⁽¹⁾ where he

gave anaesthesia for minor out patient surgery. The first modern day unit was established in 1969, in Phoenix, Arizona, USA. The ‘Surgicenter’ was the prototype of a free standing unit on which are based centres all over the USA⁽²⁾. Today almost five million surgeries are performed each year in more than 2400 Surgicenters across the United States.

(a) Day care Surgery / Ambulatory Surgery – A patient recovers from Surgery and is fit to return home within a day (24 hours).

(b) Office Surgery - A patient recovers from Surgery and is fit to return home with in a couple of hours.

Studies world wide have shown that ambulatory surgery delivers the same quality of care as that given to hospital patients. While day care surgery is still a new concept in India, it is heartening to observe that it is becoming increasingly popular day by day.

Advantages of day care Surgery -

A day procedure, which does not entail overnight admission, makes it look like a ‘Minor’ Surgery.

(1) It reduces the hospital stay, thus reducing the chance of hospital acquired infection.

(2) Since most surgeries are done under regional or local anesthesia the side effects associated with general anaesthesia are considerably reduced.

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- (3) The recovery is faster and in familiar surroundings.
- (4) An early resumption of day to day activity along with the other benefits makes it cost effective.
- (5) Day procedures help in making indoor beds free for admission of other patients who need to be hospitalized.
- (6) A separate Daysurgery theatre will reduce the wait list and decrease the load of any regular theatre complex.

Disadvantages of Day Care Surgery:

- (1) The patient is given instructions with regards to pre-operative preparation such as overnight fasting, anti-hypertensive medication etc. which they fail to follow resulting in poor preparation or delay in surgery. (This is avoided if instructions are written down and repeated verbally to the patient and attendant).
- (2) Certain positions like, Jack-Knife, lithotomy or lateral positions may be found to be uncomfortable as most of the day procedures are performed under local anaesthesia or conscious sedation.
- (3) Failure of local blocks due to technical reasons, can lead to substitution of deeper form of anaesthesia.
- (4) The idea of being discharged on the same day after surgery are not acceptable to many patients.
- (5) Lack of facilities at home, in the form of absence of a responsible person to take care of the patient.
- (6) Patient living in remote areas.
- (7) lack of transport facilities may create problem for the patients in case of complication.

Patients Selection:

- 1. Medically fit falling within the recommendation of American Society of Anaesthesia (ASA) I, II and III (well controlled).
- 2. Patients should be well motivated for day care surgery.
- 3. Mentally and psychologically stable.
- 4. A responsible attendant to take care of the patient at home is a must.
- 5. The patient should have toilet, transport and telephone facility at home or nearby.

Contraindication to day Surgery:

- (1) Angina at rest, myocardial infarct in last six months.
- (2) Hypertensive – diastolic greater than 105 mm Hg
- (3) Cardiac failure
- (4) Acute respiratory infection, asthma, chronic bronchitis, emphysema.
- (5) Gross obesity ; Body mass index >35.
- (6) Insulin dependent diabetes mellitus.
- (7) Coagulation disorders
- (8) Hepatic and renal failure
- (9) Patients on anticoagulants.

Selection of procedures: The procedures that can be undertaken as day care surgical procedures are as per the BADS (British Association of Day Surgery) or Audit Commission of UK which came up with ‘Basket of 20’ surgical procedures to provide a more consistent measure of performance.

The 25 procedures included as found updated in the report of the Audit commission of UK, 2000 are as follows: (Updated report 2001)⁽³⁾.

- (1) Orchidopexy (2) Circumcision (3) Inguinal hernia repair (4) Excision of breast lump (5) Anal fissure dilatation or excision (6) Haemorrhoidectomy (7) Laparoscopic Cholecystectomy (8) Varicose vein Stripping or ligation (9) Transurethral resection of bladder tumor (10) Excision of dupuytren’s contracture (11) Carpal tunnel decompression (12) Excision of ganglion (13) Arthroscopy (14) Bunion operation (15) Removal of metalware (16) Extraction of cataract (17) Correction of squint (19) Myringotomy (19) Tonsillectomy (20) Sub mucous resection (21) Reduction of Nasal fracture (22) Operation for bat ears (23) Dilatation & Curettage , hysteroscopy (24) Diagnostic Laparoscopy (25) Termination of pregnancy.

The British Association of Day Surgery (BADS) has recommended inclusion of another fifty procedures under the name of ‘trolley of procedures’.

Policies and Procedures.

Timings: The day care ward complex would function from 7 AM to 5 PM daily on working days or till the last patient recovers from the effect of anaesthesia/ declared fit for discharge by the attending surgeon.

Pre- operative workup-

The patients should be worked up for the Surgery pre-operatively in the respective OPD's of the specialty departments. The day care Surgery procedure, admission and discharge criteria, post-operative care at home by the relative and possibility of admission due to complication, if any should be discussed with the patient and instruction should be given in writing.

Admission and discharge:

The reception of the Day care surgical centre should be responsible for maintaining the admission records. The same desk will issue discharges of the patient once it is concurred by the operating team at the end of each day, duly approved by the respective unit chief.

Training:

Training of medical staff, surgical residents and nursing personnel will go a long way in promoting the concept of day care surgery, and improve the quality of the care provided to the patients.

Types of Day Care Surgical Centres:

James E Davis and Wallace A Reed described four types in use³:

- a) Hospital Integrated Unit
- b) Hospital Autonomous Unit
- c) Hospital Satellite Unit
- d) Free Standing Unit

Discussion:

The potential for day care surgery has increased over the last few years. The Royal College of England in its 'Guidelines for Day care surgery (1992) state that "Day care surgery is now considered the best option for 50% of all patients undergoing elective Surgery procedures, though the population will vary between Specialties" The past decade has seen renewed interest in the concept of Day care surgery. Apart from cost containment; the other benefits received are decompression of busy hospital bed, less nosocomial infection and early recovery in home environment with the family.

The concept of Day care surgery in India is still in its infancy. The Day Care centers are few and

located in Metropolitan Cities. There is an urgent need to increase the awareness of this concept amongst the surgical community. In a Country like India where the General Hospitals are over crowded and have long waiting list for common operations. The adoption of this concept will bring down the waiting list of the operations drastically. This will also lessen the financial burden on the patient. The in patient hospital admissions will be reduced as common surgical procedures will be dealt with on Day care basis.

The historic standard "Is this patient suitable for Day surgery" should be replaced by "Is there any justification for admitting this case as an inpatient?"⁽⁴⁾.

We feel that it is high time some policy decisions are taken by the government and the surgical community for the full scale adoption of this concept (Day Care Surgery) in the larger interest of the patient and the country.

References:

1. Bapat R, Kantharia CV, Rankas, Bakshi G. Iyear A, Day Care Surgery in a public Hospital set up. <http://www.bhj.org/Journal/2001-4302> apr.
2. Ford F, Reed W: The Surgicenter – innovation in the delivery and cost of Medical Care. Ariz Med, 1969, 26:80L.
3. Dayanand M, Planning a day care surgery unit: Day Care Surgery – www.expresshelthcaremgmt.com/20040831/planning0.1.shtml – 28k.
4. Van Heerden Jon A, Farley Devid R., Preface, Operation Techniques in General Surgery: Minor office and outpatient procedures: Sept 2002, Vol.4, No.3.

Presidential Oration

A. K. Khanna

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I welcome you all to the oldest living city in the world. Visiting the sacred land of Lord Vishwanath is a pilgrimage. With magnificent aera of mystic beauty, all along the mystic ghats of holy Ganges, Varanasi is the center of our Indian culture where knowledge, education, research, art, literature, science have flourished over centuries. Sushruta suppose to be the father of Indian Surgery practiced in Kashi.

There is an explosion of scientific knowledge in the field of surgery over the last several years. There are different specialties and super specialties. We must recognize the fundamental oneness of surgery as a total discipline. Specialization and sections must add to our strength and not shrink our concept. It has been a long journey but what lies ahead is even more interesting and challenging. By applying thought, one can together bring good things to life. If your today is brighter than yesterday, your tomorrow will be still brighter. The concept of level of evidence dictated evidence based medicine enforces that meta analysis proven facts will over take experience driven myths. There is no alternative to honesty. Role of education in the progress of nation can never be over emphasized. Through right kind of education, we can get citizenship values, literate people from ignorance, empower them with knowledge, information and skills to know about their right and entitlements. We are living in stirring times of globalization. The information age is impact-

ing the lives of individuals and reshaping the society. "Each year MEDLINE indexes over 560,000 new articles and Cochrane Central adds about 20,000 new randomized controlled trials. This is about 1500 new articles and 55 trials per day".

The practice of medicine has been characterized by difficult and seemingly unsolvable problems throughout the ages. The kinds of men and women who become physicians, and surgeons in particular, are invariably activists by nature, people who regularly and aggressively confront and solve even the most tenacious problems. To do so durably and effectively, however, our methods must remain consistent with the ideals that underpin all that we do to relieve human suffering. If we are to maintain the special social relationship that enables so much of what we do, the suffering of our patients must never be accepted as the proper battleground upon which to act out our displeasure with poorly conceived public policies.

Several times each day busy practitioners face the challenge of making clinical decisions to optimize patient care and which, in a perfect world, reflect the newest advances in medical science. Given the overwhelming production of the world's medical literature there is an inescapable mandate to seek a mechanism for translating research to the point of care. There must be a shared logic for truth finding and evidence - based medicine (EBM) provides the link. Evidence - based medicine is a new paradigm which presents an integrated logic for the practice of medicine. Developed by a team of Canadian physicians at McMaster University in Hamilton, Ontario, EBM

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was formulated after recognition of the collision between a voluminous literature, time constraints and the need for practitioners to properly appraise new clinical research. Evidence - based medicine is defined as "the integration of the best research evidence with our clinical experience and our patient's unique values and circumstances. Evidence - based medicine has attracted huge interest. Various groups within the health care 'industry' have taken it up with great enthusiasm, often because they see in it a means of furthering a personal, political or factional agenda.

The principle of using good, contemporary scientific evidence rather than instinct, tradition or outdated evidence in making clinical decisions is hard to dispute. However, the objection is often raised that in practice such reliance on external evidence may lead to formulate 'cook book' medicine, and may encourage the adoption of rigid protocols for every aspect of disease management. 'Good doctors use both individual clinical expertise and the best available external evidence, and neither on its own is enough.

Where there is no reliable randomized controlled trial evidence, however, evidence-based medicine still allows us to evaluate the evidence that does exist, and decide how much confidence we should have in it. Also, the humility engendered by an understanding of how easily we may mislead ourselves in poorly designed studies is useful defence against future error. Surgeons have been severely criticized for their failure to apply evidence-based medicine in the past, particularly their inability to conduct randomized controlled trials for many widely practised surgical treatments. This has led to a debate that has sometimes become heated and polarized. The question is whether the nature of surgery makes randomized controlled trials more difficult to conduct than in other specialist areas of medicine.

You and I have the obligation of discerning and learning the clinical truth and applying it in a competent and compassionate manner. I implore you to also recognize that there is compassionate care without the prerequisite competence.

Surgeons are a unique breed. I believe that particular medical students become surgeons because they uniquely crave feedback from their actions in car-

ing for patients. Surgery by its nature is visible. It is surrounded by an expectation of success; we immediately know our patients' outcome.

Our missions are to care, to learn, to teach others, and to advance our state of the art. How do we improve? How do we look inwardly and decide about going about advancing the state of the art? Change first requires dissatisfaction with the current standard. I submit that "satisfaction with mediocrity is a cancer that invades the mind and destroys the pursuit of excellence. Modern medicine is an altruistic business with a complex organizational structure, inviting a tangle of knotty financial conflicts.

Inefficient medical practices like redundant laboratory tests and lengthy inpatient stays were once gold mines for hospitals, but they have become intolerable liabilities. Quality of care, once measured only by clinical outcome, began to be evaluated by financial variables like average hospital or intensive care unit days, operating room cost, total cost of hospitalization by diagnosis, or even the time it takes a particular surgeon to do a procedure. Rightly or wrongly, physicians have been made to feel unmistakable and ever-increasing pressure from cost-conscious hospital administration to reduce expenses by closely monitoring resource utilization.

There is a significant difference between the ethical standards required of a medical professional and those expected of an honest businessman. The virtues, values, goals, and their applications are distinct; the physician's interests are voluntarily subordinated to the patient's best interest. Fundamentally, decisions are made with the consideration of who will benefit most; fiduciary decisions assure that patients will be the beneficiaries. Commercial ethics, by contrast, promote the concept that each party is justified in acting to protect and advance self-interest.

Medicine nowadays commingles professional and commercial ethics. The activities required in managing an office, negotiating with third party payers, teaching trainees, and interacting with hospital administrations reflect both value systems, but the physician's primary responsibility is always to care for the sick, the injured, and the helpless. How should a conscientious physician determine which element

of a given relationship should be governed by a professional medical ethic that sublimates self-interest, and which by the business ethic that places primary value on self-interest? The test to be applied is straightforward. The professional fiduciary role applies to all decisions that affect patient care of the medical "community" served, directly or indirectly. The ethical constructs of business apply to wholly financial decisions that do not affect the quality of patient care.

Recent astonishing advances in medical technology have opened up new frontiers and created options for surgical treatment that have often led to vigorous debate about what constitutes right and wrong. What is achievable has to be limited by what is acceptable.

Surgeons have always tried to limit the harm that they do to their patients in extending the healing power of their craft, but historically they have commonly taken unilateral decisions on the acceptability of risks, and patient choices. Current practice must entail sharing the right to make clinical choices with patients, with families, with other physicians, and with the managers of necessary resources. Surgeons, surgical trainees, and medical students in a changing world need a reliable scholarly source to help them chart the shifting terrain of surgical ethics so that they can conduct themselves in a morally responsible fashion in patient care, surgical research, and education.

The bitterness between the medical and legal professions remains unresolved. Not surprisingly, all parties in the dispute - the physicians, the patients, the insurers, the attorneys, and the legislators - blame everyone but themselves for a problem with no easy solution on the horizon.

In a little over a decade from now, chronic diseases like diabetes, hypertension, cancer and AIDS would account for over 65% of deaths in India compared to 53% in 2005. By 2020, chronic diseases are expected to claim 7.63 million lives in India, compared to 3.78 million in 1990. While ailments like leprosy, poliomyelitis and tetanus has been declining due to concerted government efforts and higher awareness, there has been an increase in lifestyle chronic diseases like hypertension, cancer, AIDS and diabetes. The shift

in the profile of killer diseases is also a result of marked changes in demographics.

India that is already home to the largest number of diabetes patients is projected to have 30 million diabetics by 2020, of which 6.6 million or 22% would suffer from complications. Doctors blame sedentary lifestyle, lack of physical activity, obesity, stress and consumption of a diet rich in fat and sugar for the high incidence.

Similarly, stress both at work and at home is going to take a further toll with the number of people suffering from hypertension estimated to rise 213.5 million in 2025, compared to 118.2 million in 2000 representing an 80% rise in a span of a quarter century. A recent study had estimated that nearly 11% of India's urban population and 3% of rural population above the age of 15 have diabetes.

A small truth to make our Life's 100% successful

If A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Is equal to 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Then $H+A+R+D+W+O+R+K = 8+1+18+4+23+15+18+11 = 98\%$

$K+N+O+W+L+E+D+G+E = 11+14+15+23+12+5+4+7+5 = 96\%$

$L+O+V+E = 12+15+22+5 = 54\%$

$L+U+C+K = 12+21+3+11 = 47\%$
(None of them makes 100%)
.....

Then what makes 100%
Is it Money ? No !!!!!

Leadership ? No !!!!!
Every problem has a solution

It is OUR ATTITUDE towards Life and Work that makes

OUR Life 100% Successful..

$A+T+T+I+T+U+D+E = 1+20+20+9+20+21+4+5 = 100\%$

With such a high prevalence of life style diseases, we have to modify the things in our life and the most important for tackling, this is attitude. The 'Attitude' is the only word which is 100% and this attitude is not only for you but for your family, society, patients,

colleagues, diseases and if one can change the attitude in a positive manner, one can conquer the life.

He is a good surgeon who possesses courage and presence of mind, a hand free from perspiration, tremorless grip of sharp and good instruments, and who carries his operation to success and to the advantage of his patient, who has entrusted his life to the surgeon. The surgeon should respect the absolute surrender and treat his patient as his own son.

Susrata, recognized as the Father of Indian Surgery, who wrote his treatise 2500 years ago.

Once again I thank every one for coming to Varanasi and especially my Executive Member Dr. Rajan Luthra, the Secretary; Dr. Rahul Khanna, the Vice President and all my colleague who have given me

full support as a President of U.P. Chapter of ASI and I greet and give my all best wishes to the new incoming President Dr. V.S. Tiwari and the new Executive.

Thank you.

Prof. S.P. Srivastava Memorial Oncology Oration

SMALL BOWEL MALIGNANCIES

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ORATION

The small intestine constitutes 75% of the length and 90% of the surface area of the gastrointestinal tract. Yet it accounts for only 1% of all GI neoplasms. The common varieties of GI malignancies are adenocarcinoma, carcinoid, lymphoma, sarcoma and gastro-intestinal stromal tumors (GIST). Synchronous malignancies including those of the colon, endometrium, breast and prostate gland may be seen in 25% of small bowel malignancies.

Why small intestine is a privileged site

There are several reasons for the small bowel being relatively spared from malignancy. (1) The small intestine mucosa contains the enzyme benzopyrene hydroxylase, which converts benzopyrene into a less carcinogenic metabolite. (2) The small intestine lacks anaerobic bacteria, which converts primary bile acids into secondary bile acids, which are strong carcinogens. (3) The small intestine is spared from the irritating effects of the acids found in the stomach. (4) The transit time of liquid succus entericus through small intestine is very short and hence the contact time between the small intestinal mucosa and carcinogenic compounds is short. (5) The small intestine is rich in secretory IgA immunoglobulins that have a protective effect against oncogenic bacteria and virus.

Predisposing conditions

Although there are no definite premalignant conditions of the small bowel yet a number of conditions may predispose to the development of a neoplasm. They are GI dysfunction, stasis secondary to partial obstruction or bind loop syndrome. Associated conditions include familial polyposis, Gardner's syndrome, Peutz-Jeghers syndrome, celiac disease, sprue van Recklinghausen neurofibromatosis and Crohn's disease.

Small bowel adenocarcinoma

The diagnosis is frequently delayed because of nonspecific symptoms. We found in our experience of 24 patients of small bowel adenocarcinoma, the common symptoms were intermittent, dull and crampy pain (60%), small bowel obstruction (25%) and bowel perforation (10%). The diagnostic investigations are upper GI barium series and enteroclysis. CT scan is not of much help but angiography may be able to demonstrate a tumor blush. Recently push enteroscopy and small bowel enteroscopy facilities have become available and can demonstrate lesions in the terminal ileum as well. We found that all our patients who had an emergency presentation were diagnosed post operatively after an exploratory laparotomy. A high index of suspicion is required for an early diagnosis and diagnostic laparoscopy should be considered in all patients with non-specific abdominal pain. The commonest site of small bowel adenocarcinoma is the duodenum and 65% cluster in the periampullary region.

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The main stay of treatment is wide excision of the malignancy and the surrounding areas of contiguous spread. Duodenal tumors should be treated by pancreaticoduodenectomy. The 5 years local control rate after segmental resection is 49% compared to 76% for pancreatico-duodenectomy. Chemotherapy based on 5-fluorouracil and nitrosoureas can be used as adjunct to surgery.

Sarcomas

Small intestinal sarcomas are slow growing lesions, which metastasize via the hematogenous route. Their growth is extraluminal rather than intraluminal or intramural. That is why intestinal obstruction is rare and the common clinical presentations are pain, abdominal mass and bleeding. The common histological types are leiomyosarcoma and gastrointestinal stromal tumor (GIST), which account for 75% of sarcomas while the less frequent varieties are fibrosarcoma, liposarcoma and angiosarcoma.

The primary treatment modality for small bowel sarcomas is surgical resection. Unlike adenocarcinoma extensive mesenteric lymphadenectomy is unnecessary because mesenteric lymph nodes are rarely involved. Chemoembolization with cisplatin can be considered for liver metastasis.

Gastrointestinal stromal tumors (GIST)

Approximately 20-25% of GIST arise in the small bowel and they are the commonest mesenchymal tumor involving the gastrointestinal tract. The clinical presentation depends on the anatomical location and size and includes pain and gastrointestinal bleeding. An abdominal mass is a frequent finding. Many GISTs are diagnosed incidentally during endoscopy or radiological imaging.

Gastrointestinal stromal tumors arise from intestinal pacemaker cells (the interstitial cells of Cajal) and have distinctive immunohistochemical and genetic

features. They express CD₁₁₇ a tyrosine kinase receptor that is a product of C-KIT proto-oncogene.

Treatment of choice for GIST is wide surgical excision but local recurrence is found in 76% of patients. A selective tyrosine kinase inhibitor of C-KIT, imatinib mesylate has shown promising results. A 400 mg per day dose will produce a response in 54% patients. The optimal length of treatment and drug related toxicity is still unclear. Imatinib mesylate is being investigated for its role in recurrence and also for preventing recurrences after surgery for GIST.

Carcinoid tumors

Carcinoids are the commonest endocrine tumor of the GIT. They arise from enterochromaffin cells and secrete serotonin. Besides they also secrete a number of biologically active substances such as amines, tachykinins, peptides and prostaglandins. Small intestine has 27% of all carcinoids, which occur mostly in the terminal ileum. Multiple synchronous nodules may be found in 30% of patients. Distant metastasis can occur to the liver, lung and bones.

The symptoms of carcinoid tumor depend on their location, size and whether they are producing hormonally active substance. Carcinoids of the jejunum, ileum and appendix, which are classified as midgut carcinoids, produce endocrine symptoms only when bulky or metastatic. Carcinoid syndrome seen in only 10% of patients occurs when the secretory products gain direct access to the systemic circulation avoiding metabolism in the liver. This can occur with hepatic metastasis or retroperitoneal extension with venous drainage directly into paravertebral veins. The symptoms of carcinoid syndrome are watery diarrhea, flushing, sweating, wheezing, dyspnea, abdominal pain, hypotension or right heart failure. The commonest symptoms of carcinoid tumor however are because of mesenteric fibrosis, which can lead to intestinal obstruction and varying degrees of mesenteric ischemia.

Approximately 50% of patients with carcinoids will have an elevated urinary level of 5-HIAA. When urinary 5-HIAA levels are equivocal other metabolic products such as 5-HT, 5-HPT, platelet 5-HT and serum levels of chromogranin A, neuron specific enolase, substance P and neuropeptide K should be measured. Chromogranin A levels can be used to differentiate functional and nonfunctional tumors.

Localization of small bowel carcinoids is difficult. Enteroscopy if available is a useful modality. Abdominal CT scan demonstrates a typical spoke wheel appearance in small bowel carcinoids due to extensive mesenteric fibrosis. Nuclear scans such as Indium III – pentetreotide or MIBG labeled with IBI can identify primary or metastatic carcinoid tumor in 70% of patients. If other measures fail, some patients may benefit from angiography or selective venous sampling.

Wide local surgical excision is the primary treatment for localized carcinoid tumors. The adjacent mesentery and lymph nodes should be included in the en bloc resection, which may be difficult to achieve because of fibrosis and shortening of the mesentery. Patients with metastatic disease should be started on octreotide to avoid an intraoperative carcinoid crisis. The symptoms of carcinoid syndrome can be treated medically such as loperamide for diarrhea, clonidine for flushing, aminophylline for bronchospasm and wheezing. If these measures fail then somatostatin or its analog octreotide can control the symptoms. Octreotide has also been shown to slow tumor growth in 50% and cause tumor regression 20% of patients. The long acting somatostatin analog lanreotide can be administered once in 10-14 days and is as effective as daily octreotide. Hepatic artery chemoembolization and interferon therapy are employed only in patients unresponsive to octreotide.

Chemotherapeutic agents such as doxorubicin, dacarbazine and streptozotocin have been found to be disappointing. Percutaneous or laparoscopic RFA (Radio Frequency Ablation) is a management option for liver secondaries. The overall prognosis is good with 5-year survival for localized disease approaching 100% after complete resection and 68% for metastatic disease.

Lymphoma

Lymphomas of the small bowel arise from lymphoid aggregates in the submucosa, which are most commonly found in the ileum. The lymphoma may be primary in the small bowel or secondary to systemic disease with GI involvement. Bulky disease is fairly common and can produce intestinal obstruction. Perforation can be a presenting feature in as many as 25% patients.

The mainstay of treatment is chemotherapy but it is associated with significant major complications such as perforation and obstruction. To prevent chemotherapy-induced perforation, extended surgical resection of the primary lesion should be considered before initiating chemotherapy. Mesenteric Lymphnode metastasis is frequent and is dealt with postoperative chemotherapy. Chemoradiation is an option for nodal metastasis, positive resection margins and unresectable disease. Radiation should also be considered in the elderly who are unable to tolerate chemotherapy.

Metastatic malignancies

Primary tumors most commonly metastasizing to the small bowel are ovarian, colon, lung and melanoma. The commonest presentation is obstruction followed by perforation. Melanoma metastasis is known to produce intussusception. A segmental bowel resection for palliation of symptoms should be offered when ever possible.

References:

1. Ashley SW, Wells SA. Tumors of the small intestine. *Semin Oncol* 1988; 15: 116.
2. Bernstein D, Rogers A. Malignancy in Crohn's disease. *Am J Gastroenterol* 1996; 91: 3.
3. Dabaja BS, Suki D, Pro B, Bonnen M, Ajani J. Adenocarcinoma of the small bowel. *Cancer* 2004; 101: 518.
4. Graadt van Roggen JF, van Velthuysen MLF, Hogendoorn PCW. The histopathological differential diagnosis of gastrointestinal stromal tumors. *J Clin Pathol* 2001; 54: 96.
5. Martin RG. Malignant tumors of the small intestine. *Surg Clin North Am.* 1986; 66: 779.
6. Nove H, Mossinger E, Feist H et al. Surgery as primary treatment in patients with liver metastasis from carcinoid tumors: a retrospective unicentric study over 13 years. *Surgery* 2001; 129: 170.
7. Oberg K. Carcinoid tumors: Current concepts in diagnosis and treatment. *Oncologist* 1998; 3: 339.
8. Pidhorecky I, Cheney RT, Kraybill WG et al. Gastrointestinal stromal tumors: Current diagnosis biologic behaviour and management. *Ann Surg Oncol* 2000; 7: 705.
9. Zuetenhorst JM. Taal BG. Metastatic carcinoid tumors: a clinical review *Oncologist* 2005; 10: 123.

An experience with 1000 appendicectomies at King Faisal Hospital, Taif, Kingdom of Saudi Arabia.

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ABSTRACT

Background- A retrospective study of 1 year duration was conducted on 1000 appendectomy specimens in the department of Pathology of King Faisal Hospital, Taif (Kingdom of Saudi Arabia).

Patients- The mean age of presentation was 20.15 years and the peak age of presentation was 2nd - 3rd decade of life; males outnumbered females with male to female ratio being 1.6:1.

Methods-the specimens received were formalin fixed and stained with hematoxylin and eosin

Results- The pathological examination of appendectomy specimen showed that maximum number of patients were of Acute Suppurative Appendicitis (47.6%)

(47.6 %). The other lesions in the decreasing order of frequency were- acute suppurative appendicitis, acute focal appendicitis, acute on chronic appendicitis, acute gangrenous appendicitis, acute perforated appendicitis, chronic appendicitis, fibrosed appendix, subacute appendicitis, acute hemorrhagic appendicitis and acute resolving appendicitis. The other findings were presence of parasite schistosoma in 8 cases (0.8%) and carcinoid tumour in 3 cases (0.3%). Some unusual and coexisting pathologies were also seen in a few cases.

Conclusions- Acute appendicitis is easy to diagnose clinically on the basis of typical signs and symptoms. However similar symptomatology may be seen in other appendiceal (parasitic or neoplastic) lesions and in certain co-existing pathologies Therefore a meticulous surgical exploration and thorough histologic evaluation should be done in each case.

Key words- appendix, appendicitis, carcinoid, schistosomiasis.

INTRODUCTION:

Inflammation in the right lower quadrant was considered a non-surgical disease of cecum (typhlitis or perityphlitis) until Fitz¹ recognized acute appendicitis as a distinct entity in 1886. Acute appendicitis is the most common acute surgical condition of the abdomen, however at times the diagnosis can be extremely difficult. It is therefore important to remember the many conditions which mimic acute appendicitis. The presenting

clinical features and laboratory examinations lead to the diagnosis of appendicitis; however it was only after histopathological examination that a definitive diagnosis was made. Although unusual or coexisting pathologies are rare, they can nonetheless be seen in a few cases, and this may guide the surgeon for an appropriate intervention.

MATERIALS AND METHODS:

A retrospective study of 1 year duration was conducted in the department of Pathology of King Faisal Hospital, Taif (Kingdom of Saudi Arabia). It included

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1000 patients, who were diagnosed clinically as acute appendicitis and underwent appendectomy as treatment. The patients were reviewed with reference to age, sex and histopathological findings. A careful histopathological evaluation was performed to look for any unusual or coexisting histopathological finding in these cases.

RESULTS:

In the year of study, 2853 specimens were received for histopathologic evaluation out of which 1000 were appendectomy specimens, so 35% of times we were dealing with appendiceal pathology. Of the 1000 cases; males (617 cases) outnumbered females (383 cases) with male to female ratio being 1.6:1. The mean age of presentation was 20.15 years, with a wide age range - the youngest case being 3 years old and the oldest 75 years old. The peak age of presentation was 2nd - 3rd decade of life (Table-I). All the cases were diagnosed as acute appendicitis based on clinical and laboratory examinations. The pathological examination of appendectomy specimen showed that maximum number of patients were of Acute Suppurative Appendicitis 476 (47.6%); the other lesions in the decreasing order of frequency are shown in Table II. . The other findings were presence of parasite schistosoma in 8 cases (0.8%) -three of which were associated with acute suppurative appendicitis (fig-1); and carcinoid tumour in 3 cases (0.3%) - one case was associated with acute suppurative appendicitis and one case with acute on chronic appendicitis.

On the whole 23 cases showed reactive lymph node hyperplasia, 1 case (0.1%) of which was not associated with appendicitis. Amongst these 14 cases were in children and young adults.

The presence of other coexisting pathologies was not an uncommon phenomenon and was seen in 22 cases (2.2%). These included hemorrhagic corpus luteal cyst, hemorrhagic follicular ovarian cyst, serous ovarian cystadenoma, periappendicitis, omental abscess, paratubal cysts, fallopian tube cyst (left side), mesenteric cyst, fat necrosis, small bowel gangrene and duodenal ulcer.

Gross features:

The serosal surface of the appendix was dull, granular

and covered with fibrinous or purulent exudate. The mucosa showed minute to large areas of hemorrhage and ulceration. In acute gangrenous appendicitis the entire wall showed foul smelling blackish brown gangrenous necrosis. Acute perforated appendicitis was reported only when a perforation was seen on gross examination. 3 sections - 1 longitudinal section from tip and two transverse sections one from the middle and other from the base. Base was recognized by forceps mark. Retrospective gross findings of carcinoid were seen when the section showed carcinoid tumour. It presented as a yellowish area, all were <1 cm and located at the tip. Base was uninvolved in all cases.

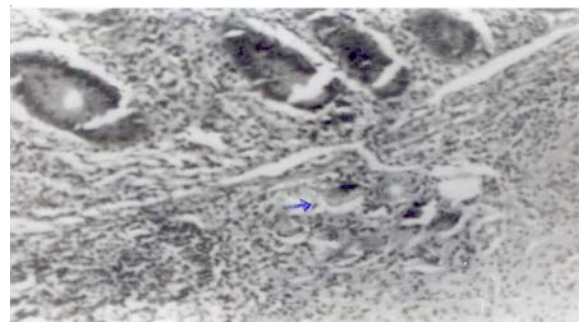


Figure1:

Schistomiasis: showing calcified ova in the submucosa (1) accompanied by inflammation and granuloma. H&E x 125.

Microscopic features:

The changes ranged from mild focal inflammation to total necrosis of appendiceal wall. The various stages of appendicitis observed were (1) acute suppurative appendicitis, (2) acute focal appendicitis, (3) acute on chronic appendicitis, (4) acute gangrenous appendicitis, (5) acute perforated appendicitis, (6) chronic appendicitis, (7) fibrosed appendix, (8) subacute appendicitis, (9) acute hemorrhagic appendicitis, and (10) acute resolving appendicitis.

In the acute focal appendicitis, neutrophils appear within the lumen and lamina propria of appendix. In acute suppurative appendicitis, inflammatory changes become transmural with ulceration, foci of suppurative necrosis in the mucosa and even abscess formation. A step further in this damaging process resulted in total loss of

mucosa and necrosis of the wall leading to acute gangrenous appendicitis. In fibrosed appendicitis the lumen of appendix was replaced by fibrous tissue and chronic inflammatory cells. No carcinoid tumour/neuroendocrine cells were found in chronic appendicitis. Prominent fibrosis and marked chronic inflammatory cell infiltration within wall, and presence of granulation tissue indicates organizing appendicitis.

In resolving appendicitis there is eosinophilic infiltrate in the wall with no other abnormality. In our study the only neoplastic lesion of appendix seen was carcinoid tumour (Fig-2). All the 3 were young females and the mean age of presentation was

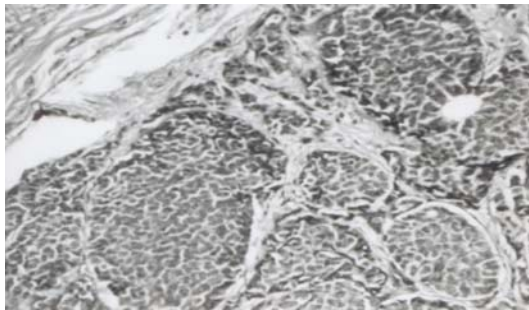


Figure2:

Carcinoid appendix: showing solid sheets and nests of monotonous small round cells with neuroendocrine appearance in the submucosa. H&E x 125.

23 years. One case was associated with acute suppurative appendicitis and one with acute on chronic appendicitis. All presented as small growth of less than 1 cm in diameter at the tip of appendix. Base and middle portions were not involved; and the diagnosis was not suspected clinically in these patients.

DISCUSSION:

Acute appendicitis is the most common acute surgical situation seen in emergency department. Obstruction of the appendiceal lumen seems to be essential for development of acute appendicitis. Appendiceal inflammation is associated with obstruction in 50% to 80% of cases, usually in the form of faecolith and, less com-

monly, a gall stone, tumor, or ball of worms (*Oxyuriasis vermicularis*)². Yet, in many cases of early appendicitis the lumen is intact despite the presence of mucosal inflammation and lymphoid hyperplasia. Occasional clustering of cases in children and young adults suggests a viral etiology. Once obstruction occurs, continued mucus secretion and inflammatory exudate increases intraluminal pressure, obstructing lymphatic drainage. Oedema and mucosal ulceration develop with bacterial translocation to the submucosa. Resolution may occur at this point or in response to antibiotic therapy. Where the condition progresses, further distention of appendix may cause venous obstruction and ischemia of the appendix wall. This leads to bacterial invasion in the submucosa and muscularis propria producing acute appendicitis. Finally, ischemic necrosis of appendiceal wall produces gangrenous appendicitis. Rarely, inflammation resolves leaving a distended mucus filled organ termed mucocele of appendix³.

The mean (range) age of presentation in our study was 20.15 (3 -75) years and male to female ratio was 1.6:1. In the study by Duzgun et al⁴ the mean age was 27 years with a range of 4 to 85 years and male to female ratio was 1.9:1.

Schistosomiasis, a trematode infestation, caused by *Schistosoma hematobium*, can involve appendix, but its possible role in pathogenesis of acute appendicitis is controversial⁵. In the present study we saw 8 cases (0.8%) of schistosomiasis- 3 of which were associated with acute suppurative appendicitis. 3 Three patients were Egyptians, 3 were Yemeni and 2 were Saudi natives who had visited Egypt and suffered from high grade fever on subsequent return from Egypt. The actual incidence is not much studied, however in a similar study on appendicectomy specimens the incidence was found to be 0.05% by Duzgun et al⁴. The incidence in our study is high as schistosomiasis is maximally entrenched in Nile valley⁶. No case of *Enterobius vermicularis* is reported in our study. It is far more common in the affluent nations in the cold and temperate regions. *Oxyuriasis* is most often found in appendices of children between ages of 7 years and 11 years⁷. *Enterobius* is less common in tropics probably because children there

often wear fewer underclothings and wash more frequently⁶.

Whether acute appendicitis becomes chronic or whether it can be recognized in a chronic state has been long debated⁸. The diagnosis is made only after histological analysis. Subacute appendicitis, acute on chronic appendicitis and chronic appendicitis can be classified together at one end of spectrum of appendicitis. The incidence of these lesions is very high in our study (53.5%) as compared to other authors. The incidence reported by other authors is 14.1%⁹, 26.7 %¹⁰, 38 %¹¹, and 14.59%¹². All the patients presented with recurrent abdominal pain and diagnosed on histopathology. A study by Giuliano V et al¹³ suggests that this may be a phenomenon unique to adults and should be included in the differential diagnosis of chronic right lower quadrant pain in patients seen in emergency room settings. Another study on appendicectomy cases concluded that three-quarters of all patients with pain in the right lower quadrant but no significant signs of inflammation showed the histological criteria for chronic appendicitis. An optional cut off value of 7 days preoperative period of pain was able to suggest a histologically non-acute appendicitis with a high specificity and positive predictive value. Chronic appendicitis must be assumed in cases of recurrent or persistent pain longer than 7 days and an elective appendicectomy is recommended¹⁴.

Leardi et al¹¹ in another study confirms the presence of a clinicopathological condition that can be defined as chronic appendicitis and resolvable with appendicectomy. The diagnosis was made when two typical histological features were present and these features correlated with the clinical features (recurrent abdominal pain and normal leukocyte count). Peitz and Malfertheiner¹⁵ (1999) in an article stated that there is no clear scientific evidence for a clinically relevant chronic form of chronic appendicitis in absence of acute flare ups. They stated that pain in the right lower quadrant is often of functional origin and may be part of inflammatory bowel syndrome or functional abdominal pain syndrome.

Fibrous obliteration/appendiceal neuroma of the vermiform appendix is a common finding in resection specimens, with a reported prevalence of nearly

30%¹⁶. The incidence is low in our study with only 15 cases (1.5%). The process characteristically involves the distal tip, may progress for a variable length along the appendiceal lumen, and in some instance may obliterate the entire organ. The pathogenesis of the process remains unknown. Some authors believe that fibrous obliteration may be secondary to the hyperplasia of neuroendocrine cells¹⁷.

We saw 4 cases (0.4%) of periappendicitis. The incidence reported by Dugzun et al⁴ is 0.3%. Periappendicitis is invariably present in advanced stages of appendicitis, but can also be seen in the absence of primary inflammation of this organ, as a result of spread of an inflammatory process from another site⁷. In our cases there was inflammatory infiltrate in all layers of appendix including serosa indicating that periappendicitis was secondary to appendicitis.

We found 23 cases (2.3%) of lymph node hyperplasia, one case was not associated with appendicitis and 14 cases (1.4%) were seen in children and young adults below 20 years of age. In a study by Duzgun et al⁴ total 14% cases showed lymph node hyperplasia and 5.3% were younger than 20 years. As lymphoid hyperplasia is common below 20 years of age⁴, patients with lymphnode hyperplasia were divided in two groups and those below 20 years (14 cases) were accepted as normal.

Carcinoid tumour was the only neoplasm present in our study. Some authors¹⁸ have strict criteria for the diagnosis of carcinoid tumors in the vermiform appendix- which requires - (1) collections of cells demonstrating a definite insular pattern of growth with extension of cells into or through the appendiceal muscular wall or (2) proliferations of neuroendocrine cells associated with a gross nodule or an expansion of the appendix. In our study it constituted 0.3% of all the lesions. The incidence of carcinoid reported by Guraya et al¹⁹ and Machado et al²⁰ is 0.6% and 0.48% respectively. Appendix is the most common site for colorectal carcinoid tumors with female to male ratio of 4:1 and the mean age of presentation at the time of diagnosis was 38.4 years²¹ as against 23 years in our study. Guraya et al¹⁹ has reported female preponderance similar to our observations were

all three cases were females. However, Prommeger et al²² has retrospectively evaluated carcinoid tumour of appendix in children and found that the median age of presentation was 12.3 years with female preponderance. In the study by Machado et al²⁰ all the patients of carcinoid tumour presented as acute appendicitis and were diagnosed post-operatively following formal histology. In our study, all patients of carcinoid tumours had undergone appendicectomy and required no further intervention as all were located at tip and were less than 1

cm in diameter. Appendicectomy is sufficient treatment, unless the caecal wall is involved, the tumour is 2 cm or more in diameter or there is involvement of lymph nodes. In such cases right hemicolectomy is indicated³. Despite an excellent prognosis all patients should be followed up with 5-hydroxy indole acetic acid and abdominal ultrasonography¹⁹.

Malignant lesions such as mucocele and adenocarcinoma; and benign lesions as lipoma, leiomyoma and neuroma may involve appendix^{4, 20}.

Table I-
Incidence of Primary Appendicular and coexisting lesions

LESION	NUMBER OF CASES (%)	CO-EXISTING PATHOLOGIES*
Acute suppurative appendicitis	476 (47.6)	a(3), c(2), d(2), e(2)
Acute focal appendicitis	163 (16.3)	a(2), d(2), k(1)
Acute on chronic appendicitis	117 (11.7)	b(1), i(1)
Acute gangrenous appendicitis	76 (7.6)	-
Acute perforated appendicitis	59 (5.9)	j(1)
Chronic appendicitis	49 (4.9)	b(1), f(2), h(1)
Fibrosed appendicitis	24 (2.4)	g(1)
Subacute appendicitis	15 (1.5)	-
Acute haemorrhagic appendicitis	6 (0.6)	-
Acute resolving appendicitis	4 (0.4)	-
Schistomiasis	8 (0.8)	-
Carcinoid tumors	3 (0.3)	-

*Co-existing pathologies; figure in bracket indicates number of cases of that lesion:

- a) Hemorrhagic corpus luteal cyst
- b) Hemorrhagic follicular ovarian cyst
- c) Serous ovarian cystadenoma
- d) Periappendicitis
- e) Omental abscess

- f) Paratubal cysts
- g) Fallopian tube cyst
- h) Mesenteric cyst
- i) Fat necrosis
- j) Small bowel gangrene
- k) Duodenal ulcer

Table II-
Age-wise distribution of cases

AGE GROUP(YEARS)	NUMBER OF CASES	PERCENTAGE OF CASES
0-10	123	12.30
11-20	458	45.80
21-30	275	27.50
31-40	93	9.30
41-50	32	3.20
51-60	13	1.30
61-70	05	0.50
71-80	01	0.10

CONCLUSION:

Acute appendicitis is a very common surgical entity and easy to diagnose clinically on the basis of typical signs and symptoms. However similar symptomatology may be seen in other appendiceal (parasitic or neoplastic) lesions and in certain co-existing pathologies, more often than not a few cases may require additional intervention. Therefore a meticulous surgical exploration and thorough histological evaluation should be done in each case.

References:

1. Fitz RH. Perforating lesion of the vermiform appendix: with special reference to its early diagnosis and treatment. *Am J Med* 1886; 92:321.
2. James MC. The gastrointestinal tract. In: Cotran RS, Kumar V, Collins T, eds. *Robbins pathologic basis of disease*. 6th ed. Singapore: WB Saunders Company, 1999:838-40.
3. Russell RC, Williams NS, Bulstrode CJ. The vermiform appendix. In: Russell RC, Williams NS, Bulstrode CJ, eds. *Bailey and Love's short practice of surgery*. 23rd ed. London: Arnold Publishers 2000; 1076-92.
4. Duzgun A, Moran M, Uzun S et al. Unusual findings in appendectomy specimens: evaluation of 2458 cases and review of literature. *Indian J Surg* 2004; 66:221-26.
5. Collins DC. 71,000 human appendix specimens. A final report, summarizing forty years' study. *Am J Proctol* 1963; 14:265-81.
6. Paniker CKJ. *Textbook of medical parasitology*. 3rd ed. Calcutta: Jaypee Brothers Medical Publishers(P) Ltd, 1993.
7. Juan Rosai. *Gastrointestinal tract*. In: Juan Rosai, eds. *Rosai and Ackerman's Surgical pathology*. 9th ed. India: Elsevier 2004; 757-75.
8. Morson BC, Dawson IMP, Day DW, Jass JR, Price AB, Williams GT. *Morson and Dawson's gastrointestinal pathology*. Oxford: Blackwell, 1990.
9. Citone G, Perri S, Pugno V et al. Laparoscopic appendectomy: an 8-year clinical experience. *Minerva Chir* 2001; 56:13-21.
10. Mbembati NA, Lema LE, Mwakyoma HA, Ussiri EV. Appendicitis in Dar es Salaam, histological pattern. *Cent Afr J Med* 1996; 42:68-70.
11. Leardi S, Delmonaco S, Ventura T, Chiominto A, De Rubeis G, Simi M. Recurrent abdominal pain and "chronic appendicitis". *Minerva Chir* 2000; 55:39-44.
12. Becker K, Hofler H. Pathology of appendicitis. *Chirurg* 2000; 73:777-81.
13. Giuliano V, Giuliano C, Pinto F, Scaglione M. Chronic appendicitis 'syndrome' manifested by an appendicolith and thickened appendix presenting as chronic right lower abdominal pain in adults. *Emerg Radiol* 2006; 12:96-8.
14. Mussack T, Schmidbauer S, Nerlich AS, Schmidt W, Hallfeldt KK. Chronic appendicitis as an independent clinical entity. *Chirurg* 2002; 73:7105.
15. Peitz U, Malfertheiner P. Chronic appendicitis. Recurrent abdominal pain in the right lower quadrant from the view point of the internist. *Zentrabl Chir* 1999; 124:1103-8.
16. Gray GF Jr, Wackym PA. Surgical pathology of the vermiform appendix. In: Sommers SC, Rosen PP, Fechner RE, eds. *Pathology annual*. Norwalk: CT: Appleton-Century-Croft, 1986; 111-44.
17. Stanley MW, Cherwitz D, Hagen K, Snover DC. Neuromas of the appendix. A light-microscopic, immunohistochemical and electron microscopic study of 20 cases. *Am J Surg Pathol* 1986; 10:801-15.
18. Stephen SS. *Diagnostic surgical pathology*. 3rd ed. Philadelphia: Lippincott, Williams and Wilkins, 2004.
19. Guraya SY, Khairy GA, Ghallab A, Al-Saigh A. Carcinoid tumors of appendix- Our experience in a university hospital. *Saudi Med J* 2005; 26:434-7.
20. Machado NO, Chopra P, Pande G. Appendiceal tumour-retrospective clinicopathological analysis. *Trop Gastroentrol* 2004; 25:36-9.
21. Bartos M, Narebski JM, Kaczka K, Pomorski L. Colorectal carcinoid tumors-own experience. *Neoplasma* 2000; 47:409-12.
22. Prommegger R, Obrist P, Ensinger C, Profanter C, Mittermair R, Hager J. Retrospective evaluation of carcinoid tumors of appendix in children. *World J Surg* 2002; 26:1489-92.

Role of Laparoscopy in Trauma and a Glimpse into Future

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Abstract

The current approach to abdominal trauma in the hemodynamically stable patient is a judicious use of available investigative technique to determine the need for operation. This selective management has the objective to maximize the value of surgical intervention and to minimize the rate of negative exploration. The role of laparoscopy in this selective approach to trauma patients is now being studied in details.

Key Word : Laparoscopy, Blunt trauma, Gunshot injury.

Diagnostic Laparoscopy & Blunt Trauma

Laparoscopy appears to have a very important role in the evaluation of blunt trauma. However, it may have a role as an adjunct to CT in non-operative management of blunt abdominal trauma and upgrades CT findings of solid organ injuries and occult bowel injuries^{1,2,3}.

Penetrating Trauma

Laparoscopy appears to play a greater role for penetrating injuries.

a. Stab wounds:

A majority of trauma centres perform local wound exploration to confirm peritoneal penetration by stab wounds⁴.

This however, may be difficult in the intercostal spaces and in the back in muscular patients who are uncooperative. Studies show one third to half of patients with stab wounds will not have peritoneal violation and they can be identified with certainty by laparoscopy⁵.

b. Gunshot wounds:

Most trauma centres recommend mandatory exploratory laparoscopy for gunshot wound that had penetrated the peritoneal cavity. The difficulty is to establish peritoneal penetration in patients with wound

of exit and entry but with out diffuse peritoneal sign or hemodynamic instability. Laparoscopy is found to be of value in identifying these patients with an extra peritoneal missiles trajectory^{6,7}.

2. Laparoscopy In The Evaluation of The Diaphragmatic injury

Isolated penetrating diaphragmatic injury is an extremely difficult lesion to detect. Associated haemoperitoneum may be minimal and the associated physical signs may be completely non specific. If the lesion is missed may lead to the subsequent development of a diaphragmatic hernia which is associated with significant mortality and morbidity. Laparoscopy and thoracoscopy for the detection of diaphragmatic laceration is the most specific available diagnostic options⁸

3.Laparoscopy in avoiding a Negative Exploratory Laparotomy

There is a significant incidence of negative exploratory laparotomy in low grade lacerations of the liver and spleen with positive peritoneal lavage but have stopped bleeding³. The best indications for laparoscopy are haemodynamically stable patients with lower chest penetration and patients with gunshot wounds of the abdomen, where peritoneal penetration is doubtful⁹. But there is caution against relying on laparoscopy to exclude bowel or retroperitoneal injuries^(10,11,12,13).

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Therapeutic Laparoscopy

Therapeutic laparoscopy for trauma patients offer an exciting potential in the repair of diaphragmatic laceration with suture, staples or by the application of prosthetic mesh, suturing of gastrointestinal perforations and hemostasis in low grade liver and spleen laceration^(14,15). In minor lacerations of solid organs application of haemostatic agents like gel foam soaked in Thrombin solution or sheets of oxycel may be introduced through the accessory ports. Minor lacerations of the liver and spleen lend themselves to laparoscopic suture. Auto transfusion of collected blood from the hemoperitoneum is another potential application¹⁶. Diaphragmatic laceration from penetrating trauma is usually small and may be repaired by laparoscopic suturing. Successful laparoscopic repair of hollow viscus lacerations have been tried. Laproscopic repair of small gastric stab wound using hernia stapler has been reported recently.¹⁷

Laparoscopy in this Century

Several factors make it highly likely that minimally invasive surgery will have an increasing role in abdominal surgery in general and trauma in particular. The demand for Laparoscopic surgery from patient as well as third party payers is increasing because of well known factors. The explosion of technology and the healthy market competition for better and more efficient instrument and innovative ideas are setting the stage for new developments concepts and techniques.

Diagnostic

Ultrasonography & CT Scan will conceivably become more advanced in future and we will get three dimensional view of entire body on wall mounted screens. Artificial intelligence and neural network may advance the craft of critical pathways to enable rapid, safe and cost efficient plan of management. Laparoscopy will be combined with these technologic advancements to diagnose and intervene. Even today “Miniscope” are available with excellent optical resolution at a size of 3

mm. These will be constantly refined and may facilitate a complete evaluation of thoracic and abdominal cavities in the emergency department with minimal sedation. Such rapid and facile screening may select patients for more detailed examination with larger scopes or therapeutic procedures in the operating room.

Therapy

Microinstruments already available may become the norm. While there is some controversy now whether “Smaller is better” in the near future micro instruments may achieve the desired therapeutic effect with better cosmetic and less of tissue damage. Better depth perception with a more refined three-dimensional imaging may become the preferred mode, thus allowing more precise surgery with less operative time. It is more likely that the new millennium will see the advent of better instruments to repair or resect bowel (abdominal staplers), control solid organ bleeding (better diathermy, vascular clips and staples, suction-irrigation dissection system, injectable hemostatic agents, laparoscopically applicable Argon beam, Laser etc. or even partial or total removal of injured solid organs. Hepatectomy, splenectomy, pancreatectomy or nephrectomy as well as repair of organs will be with in the realm of Laparoscopic Surgery.¹⁴ Approaches to the retroperitoneum, the spine or the pelvis is being facilitated by minimal invasive approach. Even the major vascular injuries may not be beyond the reach of laparoscopy or thoracoscopy by better pneumoperitoneum or abdominal retraction system which will facilitate better exposure and improved hemostatic clamps and techniques may actually achieve bleeding control with less extensive dissection than open procedures and may help to minimize blood loss. The developments of microcameras, microinstruments, 3-D image and advanced and improved methods of delivering pneumoperitoneum may make minimally invasive truly portable.

Surgeon and resident training

Exciting projects are underway to devise innovative techniques to improve minimal access surgical techniques. Virtual reality and robotics are some of the examples. These methods will permit better training, objective assessment of competence and refinement of technique learned by constant repetitive application all at a vastly reduced cost with a highly skilled operator trained by virtual reality, a complete exploration and management of bowel injuries may not be the realm of fantasy. Telemonitoring, telemedicine and use of internet where by surgeon remotely located can monitor and supervise an inexperienced surgeon by means of real time video images two way audio communication a robotic arm and telestrator has been successfully accomplished.

Summary

Laparoscopy has already established itself as a useful tool in management of trauma. The future holds exciting scope for this field, born and fostered by innovative developments in imaging, computer technology and artificial intelligence. This millennium may well witness the extinction of surgery as we know it today.

References :

1. Gazzaniga Ab, Slanton WW, Bartlett Rh (1996) Laparoscopy in the diagnosis of blunt and penetrating injuries to abdomen. Am j Surg 131 : 315-318
2. Renz BM, Feliciano DV (1996). The length of hospital stay after an unnecessary laprotomy for trauma a prospective study. J Trauma 40 : 187-190
3. Berci G, Sackier JM , Paz-Parlow M (1991) Emergency laparoscopy. Am J Surg 161:332-335
4. Enderson BL, Maull KI (1991) Missed injuries: the trauma surgeons nemesis. Surgclin North Am 71/2:399-417
5. Chol YB, Lim KS. Therapeutic laparoscopy for abdominal trauma. Surg Endosc 2002; 17(3):421-7
6. Fabian TC, Croce MA. Abdominal trauma, including indications for celiotomy. in : Mattox KL, Feliciano DV , Moore EE, editors. Trauma New York : McGraw-Hill Companies; 2000.p.1583-602
7. Swan K, Swan R. Principles of ballistics applicable to the treatment of gunshot wounds . Surg Clin North Am 1991; 71(2) : 221 -39.
8. Ivatury RR, Simon RJ , Weksler B , et al. Laparoscopy in the evaluation of the intrathoracic abdomen after penetrating injury. J Trauma. 1992 ; 33:101-109.
9. Sosa JL , Arrillaga A, Punete I , Sleeman D, Ginzburg E, Martin L (1995) Laparoscopy in 121 consecutive patients with abdominal gunshot wounds. J Trauma 39:501-506.
10. Brandt CP, Piebe PP, Jacobs DG (1994) Potential of laparoscopy to reduce nontherapeutic trauma laparotomies . Ann Surg 60:416-420
11. Rossi P, Mullins D, Thai E (1993) Role of laparoscopy in the evaluation of abdominal trauma. Am J Surg 166:707-711
12. Mazuski JE, Shapiro MJ , Kaminski DL (1997) Diagnostic laparoscopy for evaluation of penetrating abdominal trauma. J trauma 42 :163
13. Bandt CP , Priebe PP , Jacobs DG (1994) Potential of laparoscopy to reduce non therapeutic trauma laparotomies . Am Surg 60: 416 - 420
14. Zantut LF , Ivatury RR ,Smith RS , Kawahara NT , Porter JM , Fry Wr , Poggetti R , Birolini D , Organ CH (1997) Diagnostic and therapeutic laparoscopy for penetrating abdominal trauma : a multicenter experience. J trauma 42: 825-831
15. Fabian TC , Croce MA , Stewart RM (1993) A prospective analysis of diagnostic laparoscopy in trauma. AM Surg 217:557-565
16. Zantut LFC , Machado MAC , Volpe P , Poggetti RS , Birolini D (1996) Autotransfusion with laparoscopy salvaged blood in trauma : report on 21 cases. Surg Laparosc Endosc 6:46-48427
17. Gandhi RR, Stringel G (1997) Laparoscopy in pediatric abdominal trauma . JSLS 1 :349- 351

Changing Pattern of Bacterial Flora and antimicrobial resistance in patients with extensive burns

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ABSTRACT

Infection is one of the most frequent and severe complication in patients with extensive burns. Periodic monitoring of the microbial species and their respective susceptibility to an antibiotic is important in choosing effective empiric antimicrobial therapy against bacteria isolated from these patients.

KEY WORDS: Burns, Infection, Bacterial flora , antibacterial resistance

INTRODUCTION

The burn wound has been considered one of the major health problems in the world. Poor standard of living, overcrowding, use of inflammable oil for cooking and other domestic purposes and dowry system has raised the incidence of burns in our country. Recent improvement in the knowledge of burn pathophysiology and treatment of burn has reduced mortality rate but still it is quite high. The initial mortality due to shock has come down (Shuck 1972). At present infection with virulent and resistant microbial agents leading to septicemia and toxemia is one of the major causes of mortality in severely burned patients particularly burns exceeding 30% of the total body surface area (TBSA). 75% of deaths following burn injury are usually related to infection.

In recent decades, the antimicrobial resistance of bacteria isolated from burn patients has increased. The organisms that predominate as causative agents of burn wound infection in any burn treatment facility change overtime, therefore periodic monitoring of the microbial species

and their respective susceptibility to an antibiotic is important in choosing effective empiric antimicrobial therapy against bacteria isolated from the patients.

MATERIALS AND METHODS

A total of 100 patients of burn injuries, admitted from the Casualty, J. N. Medical College Hospital, AMU, Aligarh, on their 1st day of burn injuries were selected for study during the period from November 2004 till December 2007. Patients transferred from another health care facility, or admitted after 12 hr after burn injury were excluded from the study.

Sterile cotton wool swabs pre-moistened with sterile normal saline were used to collect the material from burn wounds on 1st, 7th and 21st post- burn days before cleansing and applying of the topical antimicrobial agent on admission. Later samples were taken after scraping away of the residue of topical agent. The swabs thus collected were inoculated on blood agar and Teepol lactose agar plates and nutrient broth. The plates were incubated at 37°C for 24-48 hrs and were examined for the growth of bacteria. Bacterial colonies were isolated and identified using conventional bacteriological methods. If no growth was observed on plates after 24 hours, a subculture from nutrient broth were made on blood agar and Teepol lactose agar plates and incubated for 24 hours

ORIGINAL ARTICLE

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at 37°C. The culture was reported as negative if no growth was seen after 24 hrs.

Antibacterial sensitivity of the isolates was done by disc diffusion method using standard technique. Gram positive isolates were tested with Ampicillin, Cotrimoxazole, Ciprofloxacin, Gatifloxacin, Ofloxacin, Erythromycin, Cefuroxime, Cefotaxime and Vancomycin for methicillin resistant staphylococcus aureus. Gram negative isolates were tested with Amikacin, Gentamycin, Ciprofloxacin, Gatifloxacin, Ofloxacin, Ceftriaxone, Ceftazidime, Cefoperazone-Sulbactam, Imipenem and Piperacillin for Pseudomonas aeruginosa.

OBSERVATION

The present study included 100 patients of burns treated in our hospital. Incidence of burn was found more in

females, male to female ratio being 1:1.5. It was more common in married persons (71.0%) as compared to unmarried persons (29.0%). The commonest cause of burn injury was thermal, 88 cases (88.0%), followed by electrical burn, 8 cases (8.0%), and chemical burn, 4 cases (4.0%). The maximum number of patients (71.0%) belonged to third decade of life followed by 14.0% in fourth decade, 11.0% in second decade, 2.0% in first decade and 1.0% in sixth decade. Most of the thermal burn cases (94.3%) were found to be having accidental burn injury. A mortality of 20% was noted as 12 patients were expired during treatment in the hospital. Bacteriological profile and resistance pattern of isolates infecting burn wounds is shown in subsequent tables and figures.

Table 1
BURNS IN RELATION TO DIFFERENT AGE GROUPS

Age gps. (yrs.)	Thermal burns	Electrical burns	Chemical burns	Total no. of cases	%
0-5	2	-	-	2	2.0
6-10	-	-	-	-	-
11-15	3	-	-	3	3.0
16-20	8	-	-	8	8.0
21-25	24	2	-	26	26.0
26-30	39	4	2	45	45.0
31-35	8	2	2	12	12.0
36-40	3	-	-	3	3.0
41-45	-	-	-	-	-
46-50	-	-	-	-	-
51-55	1	-	-	1	1.0
Total	88	8	4	100	100.0
Mean +/- SD	25.7 +/- 6.8	28 +/- 3.8	30.5 +/- 2.9	26.1 +/- 6.6	

Table-2
MICROORGANISMS ISOLATED FROM WOUND CULTURE
ON DIFFERENT POST BURN DAYS

POST BURN DAY	1st day (%)	7th day (%)	21st day (%)
No growth	83	3	1
GRAM POSITIVE			
Staphylococcus aureus	8 (47.1)	31 (23.21)	24 (25.8)
Coagulase negative Staphylococci	8 (47.1)	11 (7.14)	9 (9.7)
MR Staphylococcus aureus	-	-	2 (2.2)
Streptococcus haemolyticus	1 (5.8)	-	-
GRAM NEGATIVE			
Pseudomonas aeruginosa	-	33 (25)	34 (36.6)
Klebsiella spp.	-	23 (20.54)	14 (15.1)
E. coli spp.	-	16 (14.29)	5 (5.4)
Proteus spp.	-	10 (8.93)	2 (2.1)
Acinetobacter spp.	-	1 (0.89)	2 (2.1)
Citrobacter spp.	-	-	1 (1.1)
Total no. of positive cultures	17	125*	93*

*mixed colonization/ infection found

Figure -1

Resistance of Staphylococcus aureus strains to antimicrobial agents & time related change

Figure -2

Resistance of Pseudomonas aeruginosa strains to antimicrobial agents & time related change

DISCUSSION

Following burn injury the normal skin barrier is broken and it gives free access to all sorts of pathological microorganisms after few hours of burn. Initially the gram positive organism comes to invade the denuded skin because they reside deep in the sweat glands and hair follicles. Usually they colonize the burn wound in the first 48 hours of burn.

In the present study, the first day swab culture following burn injury showed no growth in 83 swab cultures (83.0%). Staphylococcus was present in 8 cultures (47.1%) and Coagulase negative staphylococci were present in 8 cultures (47.1%). Streptococcus haemolyticus was present in 1 culture (5.8%). de Macedo JL, et al¹, also reported that Staphylococcus aureus (28.4%) was the most prevalent organism in the first week. On the 7th post burn day, from 84 patients 128 cultures swabs were sent, out of which 125 bacterial cultures were obtained. Only 3 swabs showed no growth. Out of 125 bacterial cultures, 42 (33.6%) grew gram positive organisms. In rest of cultures gram negative organisms were grown. Gram positive organisms included mainly Staphylococcus aureus in 31 cultures (24.8%) and Coagulase negative staphylococci in 11 cultures (8.8%). Among the gram negative organisms, Pseudomonas aeruginosa was present in 33 cultures (26.4%), Klebsiella spp. in 23 cultures (18.4%), Escherichia coli in 16 cultures (12.8%), Proteus spp. in 10 cultures (8.0%) and Acinetobacter spp. in 1 culture (0.8%). Vindenes and Bjerknes², reported that after the first week the commonly isolated bacteria were enterococci, gram negative opportunists (mainly Pseudomonas aeruginosa, Acinetobacter coaloaceticus and Escherichia coli). According to Erol S, et al³, coagulase negative staphylococci continued to become the most frequently isolated microorganism at the 7th day and Staphylococcus aureus was second.

On the twenty first post burn day, from 45 burn patients, 81 swabs were sent for culture. Out of 81 swabs, 93 bacteria were isolated. 1 swab culture showed no growth. Out of 93 positive bacterial cultures, gram positive organisms were present in 35 cultures (37.6%). Rest of cultures grew gram negative bacteria. Gram positive organisms included Staphylococcus aureus in 24 cultures (25.8%),

Coagulase-negative staphylococci in 9 cultures (9.7%), and methicillin-resistant staphylococcus aureus in 2 cultures (2.2%). Gram negative organisms included Pseudomonas aeruginosa in 34 cultures (36.6%), Klebsiella spp. in 14 cultures (15.1%), Escherichia coli in 5 cultures (5.4%), Proteus spp. in 2 cultures (2.2%), Acinetobacter spp. in 2 cultures (2.2%) and Citrobacter in 1 culture (1.1%). Thus, the most prevalent colonizing bacteria on 21st day was Pseudomonas aeruginosa in burn wounds, followed by Staphylococcus aureus and Klebsiella spp. Erol S, et al, observed that at the 21st day most prevalent colonizing bacteria was Pseudomonas aeruginosa while in study of de Macedo JL, et al, Staphylococcus aureus (28.4%) was the most prevalent organism in the first week. It was however surpassed by Pseudomonas aeruginosa from third week onwards. Revathi G, Puri J, Jain BK⁴, reported that Pseudomonas species was most common (36%) followed by Staphylococcus aureus (19%), Klebsiella species (15.54%), Proteus species (11.19%), Enterococcus fecalis (8.5%) and E. coli (5.10%). In the series of Singh NP, et al⁵, Pseudomonas species (31%) and Staphylococcus aureus (22%) were the most common pathogens isolated from burn wounds followed by Klebsiella species (19%). Nasser S, et al⁶, found high frequency of Pseudomonas aeruginosa (21.6%) among organisms isolated from burn wounds followed by Klebsiella pneumoniae (15.2%) and Escherichia coli (13.6%). In the series of Ahmad M, et al⁷, the most common bacteria isolated was Staphylococcus aureus (24.4%) followed by

Pseudomonas aeruginosa (27.3%). Agnihotri N, et al⁸, reported that Pseudomonas was the most commonly cultured organism from burn wounds followed by Staphylococcus aureus.

The pattern of bacterial resistance is subject to frequent modifications. According to our study, Pseudomonas aeruginosa was found to be most resistant to ciprofloxacin (65.7% isolates), followed by ofloxacin (59.7% isolates) and gatifloxacin (55.2% isolates), and least resistant to imipenem (none) followed by piperacillin (17.9% isolates), cefoperazone + sulbactam (37.3% isolates) and amikacin (41.8% isolates). Staphylococcus aureus was found to be most resistant to cotrimoxazole (53.9%

isolates), followed by ampicillin (50.8% isolates) and ofloxacin (44.6% isolates), and least resistant to oxacillin (3.1% isolates- Methicillin resistant *Staphylococcus aureus*) and Vancomycin (none). *Klebsiella* spp. were found to be most resistant to ciprofloxacin (37.8% isolates), followed by ofloxacin (35.1% isolates), and least resistant to imipenem (none) followed by cefoperazone + sulbactam (21.6% isolates) and ceftriaxone (27.0% isolates). Coagulase –ve staphylococci was found to be most resistant to ampicillin (46.4% isolates), followed by cotrimoxazole (42.9% isolates) and erythromycin (42.9% isolates), and least resistant to gatifloxacin (25.0% isolates) followed by ciprofloxacin and cefotaxime (28.6% isolates each). *Escherichia coli* was found to be most resistant to ciprofloxacin and ofloxacin (33.3% isolates each), and least resistant to imipenem (none), followed by cefoperazone + sulbactam (19.1% isolates) and gatifloxacin (23.8% isolates). *Proteus* spp. were found to be most resistant to gentamycin, ciprofloxacin, ceftriaxone and ceftazidime (41.7% isolates each), and least resistant to imipenem (none) followed by amikacin, gatifloxacin and cefoperazone + sulbactam (25.0% isolates each).

Revathi G, Puri J, Jain BK , observed that *Pseudomonas* spp. was the most susceptible to ceftazidime (83% susceptible) and cefoperazone (82%), whereas **Singh NP, et al**, reported that most of the gram-negative isolates obtained were found to be multi-drug resistant and 61% of the tested isolates were extended spectrum beta-lactamase (ESBL) producers.

CONCLUSION:

In our study, *Staphylococcus aureus* was the most commonly isolated bacteria from burn wound on first day. On the 7th and 21st post burn days, increasing incidence of gram negative bacterial infection was seen. *Pseudomonas aeruginosa* was isolated in maximum cultures followed by *Klebsiella* spp. and 21st day. *Pseudomonas aeruginosa* was found to be most resistant

to ciprofloxacin (65.7% isolates), coli. resistance of an organism to a to followed by ofloxacin (59.7% isolates) and gatifloxacin (55.2% isolates), and least resistant to imipenem (none) followed by piperacillin (17.9% isolates), cefoperazone + sulbactam(37.3% isolates) and amikacin (41.8% isolates). *Staphylococcus aureus* was found to be most resistant to cotrimoxazole (53.9% isolates), followed by ampicillin (50.8% isolates) and ofloxacin (44.6% isolates), and least resistant to oxacillin (3.1% isolates- Methicillin resistant *Staphylococcus aureus*) and Vancomycin (none).

Regrences :

- 1.de Macedo JL, Santos JB. Bacterial and fungal colonization of burn wounds. Mem Inst Oswaldo Cruz. 2005 Aug;100(5):535-9. Epub 2005 Sep 15.
- 2.Vindenes H, Bjercknes R. Microbial colonization of large wounds. Burns 1995; 21:575-9.
- 3.Erol S, Altoparlak U, Akcay MN, Celebi F, Parlak M. Changes of microbial flora and wound colonization in burn patients. Burns 2004; 30:357-61.
- 4.Nasser S, Mabrouk A, Maher A. Colonization of burn wounds in Aims Shams University Burn unit. Burns 2003; 29:229-33.
- 5.Revathi G, Puri J, Jain BK. Bacteriology of burns. Burns 1998; 24:347-9.
- 6.Singh NP, Goyal R, Manchanda V, Das S, Kaur I, Talwar V. Changing trends in bacteriology of burns in the burns unit, Delhi, India. Burns. 2003 Mar; 29(2):129-32.
- 7.Ahmad M, Shahid Hussain S, Ibrahim Khan M, Malik SA. Pattern of bacterial invasion in burn patients at the Pakistan institute of medical sciences, Islamabad. Annals of Burns and Fire Disasters (ISSN1592-9566).
- 8.Agnihotri N, Gupta V, Joshi RM. Aerobic bacterial isolates from burn wound infections and their antibiograms—a five-year study. Burns. 2004 May; 30(3):241-3.

Temporo- mandibular joint ankylosis

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ABSTRACT

Temporomandibular joint (TMJ) ankylosis is characterized by the formation of bony or fibrous mass, which replaces the normal structure of the joint and causes limitation of mouth opening. Our management protocol for unilateral and bilateral TMJ ankylosis involves resection of ankylotic mass, lining the temporal surface with temporoparietal fascia flap, and interpositional arthroplasty using costo-chondral graft, early mobilization and aggressive physiotherapy. An easy to use jaw exerciser and strict follow-up play an important role in preventing postoperative adhesions. If desired occlusal aesthetic parameters are not met on skeletal maturity orthognathic surgery and gnioplasty may be added later.

Key word: Needle Puncture, Aspiration biopsy cytology, Breast diseases, Modern Modalities.

INTRODUCTION

Fifty Six (56) patients of TMJ ankylosis were diagnosed clinically and radiologically and subjected to excision of the bony block / condylectomy, lining of the temporal side of the gap by a temporoparietal fascial flap and replacement of the lost ramal height by a costo-chondral graft interpositional arthroplasty. Very rigorous post operative physiotherapy using custom-made jaw exercisers and a prolong follow-up of 1 to 18 years exhibited the utility of the regimen.

MATERIAL & METHOD

We present a series of 56 cases of TMJ ankylosis in which we have followed the same protocol of treatment. 32 patients were treated before they attained skeletal maturity and the remaining 24 were adults. Diagnosis was performed by physical examination and proper radiological examination. The patients had difficulty in opening the

mouth and the degree of limitation in mandibular motion varied considerably and depended on the type and amount of tissue ankylosing the mandible to the skull base. Measurement of the interincisal opening distance using a caliper were our most objective criterion for diagnosis and follow-up. Values ranging from 0 to 30 mm were considered abnormal (Fig.1). A skull X ray was useful but a coronal CT scan was far more suggestive of the extent of the bony block (Fig.2).

All patients in this series were treated by the same protocol of excision of the bony block / condylectomy, lining of the temporal side of the gap by a temporoparietal fascial flap and replacement of the lost ramal height by a costo-chondral graft interpositional arthroplasty. If there was a variance in the protocol like use of costochondral graft without a temporoparietal fascia, or use of distraction histiogenesis to increase the ramal height, such cases were not included in this series.

Patients were operated in general anaesthesia and 7 of them required a pre-operative tracheostomy when closed nasal intubation was deemed difficult

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preoperatively by the anaesthetist. Doppler ultrasonography was used preoperatively to determine the reliability of the superficial temporal artery and to map the course of the main pedicle, frontal branch, and parietal branch. With the nerve stimulator on 10, we identified the approximate course of the frontal branch of the facial nerve transcutaneously.

Excision of the bony block:

The incision was marked as a vertical incision from the root of the helix to the superior temporal line. The lower half of this incision was deepened preserving the superficial temporal vessels. The bony block was identified and a generous excision of the bony block was done creating a gap of 1.5 to 2cm between the remaining vertical ramus and the temporal bone (Fig. 3). Full mouth opening was achieved and in bilateral cases the same procedure was done on the contralateral side as well.

Harvesting of Temporo-parietal fascia:

The cranial part of the incision was deepened to subcutaneous level, and this incision could be extended as a V superiorly to gain additional access to the galea. The anterior and posterior scalp flaps were elevated in the subcutaneous plane immediately deep to the hair follicles. The temporo-parietal fascia adheres to this subcutaneous tissue, and meticulous sharp dissection is necessary to avoid injuring either the vascular supply of the flap or the hair follicles. The frontal branch of the superficial temporal artery was ligated at the anterior edge of the flap. The frontal branch of Facial nerve was identified and carefully preserved.

After elevation of the skin flaps, the superior, posterior, and anterior edges of the fascial flap were divided. The flap could now be harvested by dissecting the loose areolar tissue avascular plane between the 2 layers of fascia. At the root of the helix, dissection must proceed carefully to avoid injury to the vascular pedicle. The flap was now flipped over the zygomatic arch into the condylectomy gap and stitched by 2 or 3 stitches to the medial pterygoid muscle which was forming the floor of this gap (Fig.4).

Interpositional arthroplasty using Costo-chondral graft:

6th rib in unilateral cases and 6th and 7th ribs in bilateral cases were harvested from the right side with 1 cm of cartilage and 4-5 cm of bone. A subperiosteal pocket was created along the outer surface of the remaining vertical ramus and a Risdon's incision was made to expose the angle of mandible which was held down by a wire traction suture passing through the bony angle. The two jaws were put in occlusion and intermaxillary fixation using islet wires to assess the correct ramal height. The costo-chondral graft was slipped into the subperiosteal pocket and held in place by 3 inter-osseous screw fixation over a 3 hole plate, used as washers to prevent the screws from piercing the brittle rib surface (Fig.5). All incisions were closed in layers after ensuring haemostasis. The intermaxillary fixation and the islet wires were removed.

Physiotherapy with custom made jaw exercisers (Fig.6), which provided dynamics to the newly reconstructed joint was initiated after 2 weeks and continued for 2 years. The patients were told that if they could not negotiate 3 fingers tiled up side to side, they will have to go back to their exercise schedule.

OBSERVATIONS

We have followed all these cases for 1 - 18 years and have encountered micrognathia / retrognathia in 8 patients, shift of chin point towards the operated side in 11 cases, suggesting that with time the costo-chondral graft grew but could not keep pace with the normal condyle, and shift of chin point to the normal side in 1 case suggesting that the costo-chondral graft grew more than what was desired. Considering that we had 32 patients who were treated before they had attained skeletal maturity then the costo-chondral graft surely lived up to our expectation of growth at par with the normal side in 20 cases. 3 patients were treated by orthognathic surgery and 3 were offered augmentation genioplasty but we are not including their details as that is not a part of the protocol we are offering.

DISCUSSION

Temporomandibular joint is a complex and precisely

integrated bilateral joint structure. It is a synovial, bicondylar, diarthrodial joint. It is further classified as ginglymus or ginglymoarthrodial joint, that shows both sliding and hinge movements. The two condylar joints on each side act independently or synchronously.

Anatomy:

The temporomandibular joint consists of the mobile condyloid process of the mandible which articulates with the glenoid fossa of the temporal bone. The anterior portion of the glenoid fossa is the articular eminence. Posteriorly lies the external auditory canal. Laterally is the zygomatic process, and medially is the styloid process. The surfaces of the condylar and glenoid fossae are lined with fibrous connective tissue which is primarily a layer of hyaline cartilage. This thin, unprotected cartilage, particularly on the condylar process, is an important growth center. Damage to this cartilage can result in dysmorphic growth of the mandible and, by extension, the maxilla. Therefore, any alteration in the cartilaginous layers in a child is a cause for great concern regarding facial growth.

Between the condylar process and the glenoid fossa lies an interposed cartilaginous disc. The disc provides a stable platform for the rotational and gliding movements of the joint. It also acts as a shock absorber. An alteration in the normal position of the disc is known as an internal derangement. The mandible is held in position by a set of several ligaments. Medially and laterally are the capsular ligaments, and posteriorly is the meniscotemporomandibular frenum (retrodiscal pad). More posteriorly and medially are the stylo- and sphenomandibular ligaments. Finally, the tendons of the muscles of mastication also suspend the mandible. The disk divides the temporomandibular joint into an upper temporodiskal and a lower condylodiskal compartments. The condylodiskal compartment is associated with Rotation or Hinge movement. The forward translation movement takes place in the upper temporodiskal compartment in which the condyle moves downwards and forwards towards and over the articular eminence. During jaw opening the condyle first ro-

tates, which is followed by downward and forward translocation of condyle. During sideways movement, the condyle towards the movement rotates with slight lateral shift - Bennett Shift. The contralateral condyle shows corresponding forward translation and rotation movements.

Temporomandibular (TM) ankylosis refers to bone or fibrous adhesion of the anatomic joint components and the ensuing loss of their function¹. It can be classified into true ankylosis (intracapsular) and pseudoankylosis (extracapsular). True ankylosis of the TMJ is defined as any condition that produces fibrous or bony adhesions between the articular surfaces of the TMJ. True ankylosis of the TMJ results from infection, trauma, rheumatoid arthritis, neoplasm, local surgical complications, chemical burns, and extension of intracapsular ankylosis. Traumas and particularly mandibular condyle fracture represent the most frequent cause of TMJ ankylosis, with a frequency reported between 29 and 100%.⁶ Pseudoankylosis results from muscular, osseous, neurological, or psychiatric disorders.²

TM joint (TMJ) ankylosis is a very distressing condition that alters the patient's eating habits and speech ability. It also causes severe facial disfigurement that aggravates psychological stress. TMJ ankylosis occurs in children and adults. Early ankylosis of TMJ in children can be a deterrent to normal mandibular growth. Therefore, early diagnosis of TMJ ankylosis and early surgical intervention are important. Ankylosis infers minimal, if any joint function and restoration of joint function at an early age is necessary to activate as much growth potential as possible. Laboratory and clinical studies have supported the theory that the mandibular condyle is adaptable under function and perhaps even the most deformed condylar head may exhibit growth when released and placed in function.

Management of TMJ ankylosis is mainly performed through surgical intervention.² Various techniques for the management of TM ankylosis have been described. However, no single technique has proved

entirely satisfactory. The characteristic pathology of ankylosis is the formation of a bony mass, which replaces the articulation, resulting in restriction of mandibular movements.³ For this reason, treatment of TMJ ankylosis requires removal of a sufficient amount of bone to allow for free movement of the mandibular stump and interposition of some material between the remaining ramus and skull base.^{4,5} It is necessary to use an interpositional material to prevent TMJ re-ankylosis after arthroplasty (or condylectomy), and this particular aspect of the treatment has been the subject of numerous discussions.² The use of various allogenic interpositional materials has led to serious complications, including foreign body reaction and migration. Homografts, such as skin, temporalis muscle, or fascia lata, are presently considered the material of choice for interposition.⁴ In more recent years, a pedicled temporalis myofascial or temporalis fascia flap has been advocated in TMJ surgery to treat the TMJ ankylosis.

Various interposition materials have been used, including autogenous materials (temporalis muscle and fascia, dermis, auricular cartilage, fascia lata, fat, and lyodura) and alloplastic materials (silastic, silicone, and various metals).² Valentini et al.¹ evaluated the use of silastic as an interpositional material and reported that the relapse was favored by silastic inducement of foreign body granuloma. This material, first used in arthroplasty by Hansen and Deshazo,⁶ witnessed a widespread diffusion because of its large availability, ease of handling, and low cost.⁷ Although complications from the use of silastic are infrequently reported, it has been ascertained that in some patients, such an alloplastic material can induce foreign body reactions. In 1995, Kearns et al.⁸ suggested a protocol for the management of failed alloplastic TMJ implants. Failure of the implant was defined by clinical evidence of pain, changes in occlusion, decreased movement, or radiographic demonstration of joint disease.⁹

Our Approach of using a costo-chondral graft not only addresses the vertical height loss of the ramus after condylectomy but also provide a source of continued growth to the ramus, once it has lost its normal growth centre located in the destroyed and

osteotomised condyle. This is of vital importance in children and in 20 out of 32 such cases in our series we found that the costo-chondral graft matched the normal condyle in growth and prevented the chin point from leaving the midline.

The utility of the temporo-parietal fascia flap in lining the glenoid fossa before doing the interpositional arthroplasty using a costo-chondral graft and at times wrapping a part of it around the devascularized costo-chondral graft itself is enormous. We are of the opinion that its advantages are:

- It can be harvested through the same incision used for the TMJ procedure.
- It brings well vascularized tissue to a site which will harbour a non vascularized costo-chondral graft
- Morbidity at the donor site is minimal.
- The presence of vascularized tissue in an area of chronic inflammation has been shown to promote wound healing in other sites, and it has been postulated that the this flap, because of their vascularity, may be responsible for healing in the multiply operated TMJ, particularly those associated with foreign body reactions.

The earliest description of the role of the temporalis muscle and/or fascia flap in TMJ ankylosis was presented in Smith et al's.⁹ paper in which they mentioned that the first available report was written by Verneuil in 1872, who used the temporalis muscle and fascia flap as an interpositional material after ankylosis release. Progel et al.¹⁰ further substantiated its usage in TMJ surgeries.

Umeda et al.¹¹ used temporalis muscle and fascia axial flaps on 81 patients (115 TMJs) to correct ankylosis, traumatic defects, congenital anomalies, and defects resulting from tumour resection, degenerative joint disease, autoimmune arthritis, and lateral capsule flaccidity. Clauser et al.¹² carried out reconstruction with the temporalis myofascial flap in 182 cases specifically for reconstructive craniomaxillofacial surgery: trauma, deformities, tumours, TMJ ankylosis, and facial paralysis. No

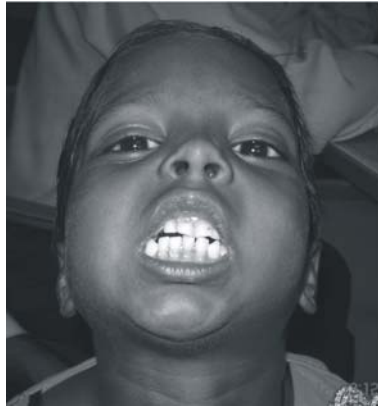


Fig.1. Diagnosing TMJ ankylosis clinically

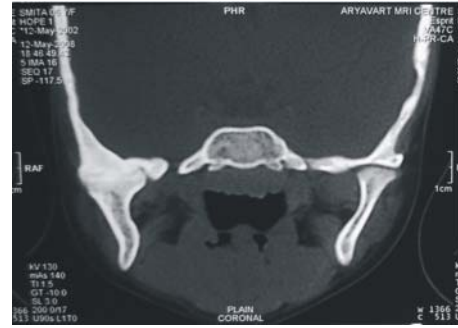


Fig.2 A coronal CT scan showing ankylosis of Rt. TM joint

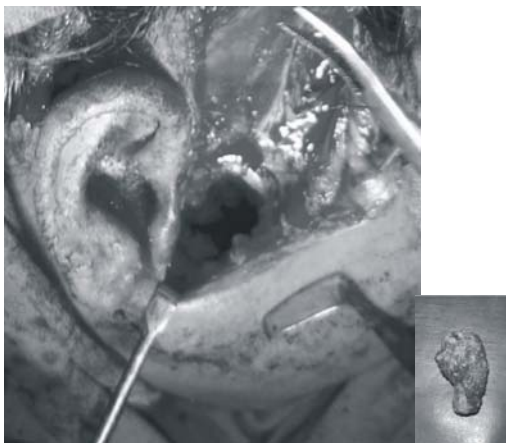


Fig.3 A large bony gap created after condylectomy



Fig.4 Temporoparietal flap flipped over the zygomatic arch to line the temporal rough bony surface

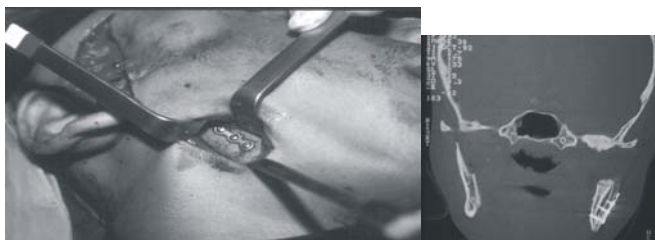


Fig.5 Interosseous fixation of Costochondral graft

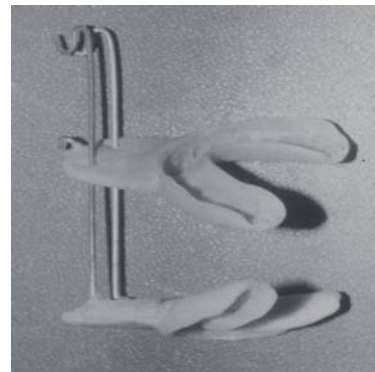


Fig.6: Custom made jaw exerciser

major complications were observed. The use of this flap constitutes a quick, reproducible method of reconstruction associated with minimal morbidity.

We have however harvested only the temporoparietal fascia and have never required the muscle. The fascia is thin and pliable and can form a close lining over all concavities and convexities of the arthroplasty gap and yet leave enough room for the costochondral graft to act as a condyle.

BIBLIOGRAPHY

1. Valentini V, Vetrano S, Agrillo A, Torroni A, Fabiani F, Iannetti G: Surgical treatment of TMJ ankylosis. *J Craniofac Surg* 2002; 13: 59-62.
2. Su-Gwan K: Treatment of temporomandibular joint ankylosis with temporalis muscle and fascia flap. *Int J Oral Maxillofac Surg* 2001; 30: 189-93.
3. Salins PC: New perspectives in the management of cranio-mandibular ankylosis. *Int J Oral Maxillofac Surg* 2000; 29: 337-40.
4. Chossegros C, Guyot L, Cheynet F, Blanc JL, Cannoni P: Full-thickness skin graft interposition after temporomandibular joint ankylosis surgery. *Int J Oral Maxillofac Surg* 1999; 28: 330-4.
5. Miyamoto H, Kurlta K, Ogi N, Ishimaru J, Goss AN: The effect of an intra-articular bone fragment in the genesis of temporomandibular joint ankylosis. *Int J Oral Maxillofac Surg* 2000; 29: 290-5.
6. Hansen WC, Deshazo BW: Silicone reconstruction of temporomandibular joint meniscus. *Plast Reconstr Surg* 1969; 43: 388-91.
7. Kalamchi S: Silastik implant as a part of temporomandibular joint arthroplasty: evaluation of its efficacy. *Br J Oral Maxillofac Surg* 1987; 25: 227-36.
8. Kearns GJ, Perrott DH, Kaban LB: A protocol for the management of failed alloplastic temporomandibular joint disc implants. *J Oral Maxillofac Surg* 1995; 53: 1240.
9. Smith JA, Sandier NA, Ozakl WH, Braun TW: Subjective and objective assessment of the temporalis myofascial flap in previously operated temporomandibular joints. *J Oral Maxillofac Surg* 1999; 57: 1058-67.
10. Pogrel MA, Kaban LB: The role of a temporalis fascia and muscle flap in temporomandibular joint surgery. *J Oral Maxillofac Surg* 1990; 48: 14.
11. Umeda H, Kaban LB, Pogrel MA, Stern M: Long term viability of the temporalis muscle/fascia flap used for temporomandibular joint reconstruction. *J Oral Maxillofac Surg* 1993; 51: 530-4.
12. Clauser L, Curioni C, Spanio S: The use of the temporalis muscle flap in facial and craniofacial reconstructive surgery. A review of 182 cases. *J Craniomaxillofac Surg* 1995; 23: 203-14.

Septic Shock and the surgeons

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ORIGINAL ARTICLE

ABSTRACT

Septic shock is the commonest cause of in-hospital deaths in the surgical wards. Sepsis is clinical or culture-proven infection. Severe sepsis is defined as sepsis with organ system dysfunction. Septic shock is sepsis associated with a systolic blood pressure below 90 mm Hg.

Demographic profile:

The incidence of sepsis and its complications is high in infants, low in children and young adults and highest in the elderly. Patients over the age of 65 years account for 50% of sepsis cases. In the United States of America, the incidence of sepsis is 240 per 100,000 population and that of severe sepsis 3 per 100,000 population. ⁽¹⁾ The overall mortality in severe sepsis is 28.6% and is higher in the elderly and those with co morbid illnesses. Patients who have preexisting cardiovascular, pulmonary, hepatic, renal or neurological disease at the time of their surgery are at the highest risk of developing severe sepsis.

Initial management:

The aim of resuscitation in a patient with septic shock is to restore tissue perfusion and oxygen delivery at the cellular level. Resuscitation should be started at the earliest and should be goal directed. The target of fluid resuscitation should be to

achieve a central venous pressure of 8 to 12 mmHg.

⁽²⁾ Intensive monitoring of central venous pressure, mean arterial pressure and peripheral oxygen saturation will help in directing therapy. Patients who remain hypoxic after fluid resuscitation will require mechanical ventilatory support.

Intravenous fluid therapy:

Septic shock patients may require large amounts of intravenous fluids to make up for the vasodilation. Boluses of 500 ml to 1000 ml of crystalloids are more effective than increasing the rate of infusion. Signs of over perfusion like pulmonary edema and congestive heart failure need to be clinically monitored. Peripheral edema may occur because of capillary leak seen in systemic inflammation and may not necessarily be a sign of over perfusion.

The resuscitation fluid of choice is crystalloids. Infusion of large volumes of salines may lead to hyperchloremic metabolic acidosis and Ringer's lactated solution can be used to avoid this. The use of intravenous albumin for resuscitation has not been shown to be of significant benefit and is extremely costly. A study on 7000 patients of septic shock

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showed a reduction in mortality from 35% to 31% (p=0.09) when they were resuscitated with albumin instead of crystalloids.⁽³⁾

Metabolic acidosis:

One of the common complications of septic shock is metabolic acidosis especially lactic acidosis. There is a tendency to correct a low pH with infusion of bicarbonates. Recent evidence suggests that patients can tolerate a pH of 7.20.⁽⁴⁾ Acidosis also limits cell death in anoxic hepatocytes and limits the size of infarcted myocardium,

Intravenous bicarbonate promotes lactic acid production and raises the PCO₂ levels. Thus it might actually lead to a drop in intracellular space and cerebrospinal fluid pH. This could result in increase in intracranial pressure. Bicarbonate should be used judiciously for pH less than 7.15 and is only recommended for renal tubular acidosis, which is associated with bicarbonate loss.

Vasopressor therapy:

The two main situations in which vasopressor usage is warranted are (1) Persistent hypotension in spite of adequate fluid resuscitation (2) Severe hypotension where vasopressors might be initiated along with fluid resuscitation. The target is to achieve adequate organ perfusion as evidenced by peripheral oxygen saturation, urine output, mean arterial blood pressure and lactate levels.

The commonly used vasopressors are norepinephrine and dopamine. In situations where augmentation of cardiac output is needed, dobutamine can be used. In refractory situation, vasopressin at the dose of 0.04 units / minute may be added. Vasopressin should be used cautiously as higher doses can depress cardiac output and produce myocardial ischemia.⁽⁵⁾ At present the clinical situations where either norepinephrine or dopamine should be preferred are not well defined. Phenylephrine can decrease stroke volume and epinephrine can impair splanchnic circulation and should not be used as first-line agents.

Corticosteroids :

High doses of corticosteroids over short periods have been used to counter the systemic inflammatory response. Several studies have shown this to be deleterious because of several reasons (1) Corticosteroids have an immunosuppressive effect which can impair the body's ability to clear infection (2) Corticosteroids can produce hyperglycemia which can adversely affect the sepsis. (3) Short duration therapy is unable to counter the inflammatory response.⁽⁶⁾

Recent studies have identified patients of septic shock with adrenal insufficiency for receiving low dose corticosteroids for prolonged periods. Randomized controlled trials have shown 50 mg hydrocortisone given every 6 hours leads to reduction in mortality and faster recovery from septic shock.⁽⁷⁾ Thus the current recommendation is that patients of septic shock who require vasopressor support should have a cortisol stimulation test. Patients with an inadequate response should receive corticosteroids. There is no need to taper the dose when stopping steroid therapy.

Blood transfusion:

There are several mechanisms by which sepsis patients might become anemic (1) Preexisting anemia because of a medical cause or recent surgery (2) An average of 40 ml per day of blood loss for laboratory tests (3) Suppressed ability to replace red blood cells due to sepsis (4) Impaired erythropoietin response to anemia due to inhibitory effect of proinflammatory cytokines such as interleukins and Tumor Necrosis Factor – α (5) Concomitant acute renal failure (6) Alterations in iron metabolism due to sepsis.⁽⁸⁾

Recent years have seen a decrease in blood transfusion threshold from 10-gm/dL hemoglobin to 7 gm/dL. This is because of the deleterious effects of blood transfusion which include disease transmission, transfusion reactions, immunosuppression, limited availability and cost. Patients who have a history of myocardial ischemia

may require transfusion at higher than 7 gm/dL of hemoglobin. Blood transfusion has not been shown to be of benefit for improving low peripheral oxygen saturation.

An alternative to blood transfusion in patients who have chronic renal failure is recombinant human erythropoietin. Studies on patients with systemic inflammatory response syndrome (SIRS) have shown a reduction in the need for transfusion after erythropoietin therapy.⁽⁹⁾ The effect of erythropoietin starts becoming evident by one week and therefore it should be started early in the course of illness.

Pain relief:

All patients with sepsis require analgesia and sedation especially if they are on mechanical ventilation. Benzodiazepines like midazolam, lorazepam and diazepam are most frequently used Propofol is preferred in patients who require frequent neurological assessment because of its short half life but may worsen hypotension because of its depressive effect on the myocardium. The effect of these agents can be considerably prolonged in patients with hepatic dysfunction. Analgesic can be provided by opioids like fentanyl and morphine or by non-steroidal anti-inflammatory agents like acetaminophen.

Analgesia and sedation should be administered as bolus injections rather than continuous infusions. A daily sedation break should be built into the schedule for neurological assessment of the patient. This practice has also been shown to reduce the period of mechanical ventilation and ICU stay.⁽¹⁰⁾ Similarly neuromuscular blockade should be kept to a minimal and should be reserved for patients on mechanical ventilation who show severe patient – ventilator in coordination.

Glycemic control:

Increase in circulatory levels of stress hormones, peripheral insulin resistance, steroid administration and exogenous dextrose infusion leads to hyperglycemia in 95% of ICU patients on mechanical

ventilation.⁽¹¹⁾ Hyperglycemia increases leukocyte adhesion to vascular endothelium, impairs neutrophil chemotaxis and phagocytosis and enhances the procoagulant state of these patients.

Tight glycemic control, maintaining the blood glucose levels between 80 and 110 mg/dL has been shown to reduce ICU mortality from 8.0% to 4.3%.⁽¹¹⁾ Besides, these patients also had shorter ICU stay, decreased mechanical ventilation, attenuated inflammatory response and less severe polyneuropathy.

Renal Failure:

Among severe sepsis patients, the incidence of acute renal failure in 19 to 50% and the associated mortality is 70%.⁽¹²⁾ The main etiological factors are Tumor Necrosis Factor causing direct renal injury, hypovolemia, nephrotoxic drugs and iodinated contrasts used for various radiological studies. The mainstay of prevention of ARF is good hydration and avoidance of hypotension. Administration of norepinephrine and vasopressin can improve the glomerular filtration rate and urine output, but low dose dopamine has not shown any beneficial effect with regards to serum creatinine levels or need for renal replacement therapy.

Bicarbonate infusion given just prior to iodinated intravenous contrast has a protective role against contrast induced nephropathy. Administration of N-acetylcysteine for the prophylaxis of contrast-induced nephropathy has shown conflicting results and is still experimental.

If renal replacement therapy is required continuous renal replacement therapy (CRRT) is preferred over intermittent hemodialysis. This is because these patients are hemodynamically unstable and the fluid removal rate in cRRT is slower and better tolerated.

Prevention of stress ulcers :

Patients with septic shock have a 2% incidence of significant gastrointestinal hemorrhage. This is treated variously by proton pump inhibitors, H₂

receptor antagonists and sucralfate. The efficacy of one therapy over the other is not proven. There is concern that proton pump inhibitors and H₂ receptor antagonists may raise the gastric pH and inhibit the natural mechanisms against bacterial colonization. This can lead to aspiration pneumonia due to microaspiration of infected gastric secretions. The risk of ventilator-associated pneumonia is lesser with sucralfate compared to proton pump inhibitors and H₂ receptor antagonists.⁽¹³⁾ If the patients are not receiving steroids, stress ulcer prophylaxis should be stopped on commencement of oral feeding.

References:

1. Martin GS, Mannino DM, Eaton S et al. The epidemiology of sepsis in the United States from 1979 through 2000. *N Engl J Med* 2003; 348: 1546 – 54.
2. Rivers E, Nguyen B, Maustad S et al. Early goal directed therapy in the treatment of severe sepsis and septic shock. *N Engl J Med* 2001; 35: 1368 – 77.
3. The SAFE Study Investigators. A comparison of albumin and saline for fluid resuscitation in the intensive care unit. *N Engl J Med* 2004; 350: 2247 – 56.
4. Forsythe SM, Schmidt GA. Sodium bicarbonate for the treatment of lactic acidosis. *Chest* 2000; 117; 260 – 7.
5. den Ouden DT, Meinders AE. Vasopressin: physiology and clinical use in patients with vaso-dilatory shock. *Neth J Med* 2005; 63: 4-13.
6. Annane D, Bellissant E, Bollaert PE et al. Corticosteroids for severe sepsis and septic shock: a systematic review and metaanalysis. *BMJ* 2004; 329: 480 – 8.
7. Annane D, Sebille V, Charpentier G et al. Effect of treatment with low doses of hydrocortisone and fludrocortisone on mortality in patients with septic shock. *JAMA* 2002; 288: 862 – 7.
8. Scharte M, Fink MP. Red blood cell physiology in critical illness. *Crit Care Med* 2003; 31 (Suppl) : S 651 - 7.
9. Coreirn HL, Gettinger A, Pearl RG et al. Efficacy of recombinant human erythropoietin in critically ill patients. A randomized controlled trial. *JAMA* 2002; 288: 2827 – 35.
10. Kress JP, Pohlman AS, O'Connor MF et al. Daily interruption of sedative infusions in critically ill patients undergoing mechanical ventilation. *N Engl J Med* 2000; 324: 1471 – 7.
11. Van den Berghe G, Wouters P, Weekers F et al. Intensive insulin therapy in critically ill patients. *N Engl J Med* 2001; 345: 1359 – 67.
12. Schrier RW, Wang W. Acute renal failure and sepsis. *N Engl J Med* 2004; 351: 159 – 69.
13. Kantrova I, Svoboda P, Scheer P. Stress ulcer prophylaxis in critically ill patients: a randomized controlled trial. *Hepatology* 2004; 51: 757 – 61.

Buerger's disease in a female patient.

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ABSTRACT

Buerger's disease (thromboangiitis obliterans) is a nonnecrotizing vasculitis affecting small and medium-sized arteries, typically in young male smokers. The diagnosis can often be made on the basis of a careful history and physical examination, together with ancillary laboratory studies. Occasionally arteriography is warranted to confirm the diagnosis. The pathological findings are distinctive and distinguish this disorder from other arterial occlusive diseases. Successful therapy is possible only with absolute abstinence from tobacco. We report a case of buergers disease in females who was a chronic smoker.

KEYWORDS : Buerger's disease(TAO) , Foot ulcer, Gangrenous toes.

Introduction

Thromboangiitis obliterans (Buerger's disease) is a Nonatherosclerotic, segmental, inflammatory disease that most commonly affects the small and medium-sized arteries, veins, and nerves of the extremities.¹ Buerger's disease is characterized by highly cellular and inflammatory occlusive thrombus with relative sparing of the blood vessel wall.^{1,2} Patients are mostly young tobacco smokers who present with distal extremity ischemia, ischemic ulcers or gangrene.³

CASE REPORT .

A 32 yrs female patient presented with complaints of :

- {1} Gradually developing gangrene of the right foot from 3months.
- {2} Claudication of both lower limbs for past 2 yrs.
- {3} Rest pain in the right lower limb for past 6 months.

Patient gives history of chewing tobacco from 15 yrs (20-25 packets per day) and history of smoking from past 15 yrs (30-35 beedis per day)

History of superficial phlebitis and paresthesia in both lower limbs present .

No history of fainting, black out, chest pain, abdominal pain , blurred vision or trauma to the foot .

No history suggestive of atherosclerosis , Diabetes mellitus , hypertension, tuberculosis , drug intake and no family history of similar complaints.

PHYSICAL EXAMINATION

Patient was average built female, mild anemic, afebrile and acyanotic.

On inspection right lower limb had an ulcer present over the dorsum of the foot distal to the ankle joint and extending to the sole of the foot ,margins of the ulcer were not well defined , the floor of the ulcer shows slough and the tendons were exposed. Gangrenous changes were present over 4th and 5th toes and also over the tip of other toes. Base of the ulcer was indurated.

Proximal part of the affected limb was dry and shiny with diminished hair growth, loss of subcutaneous tissue and brittle nails.

The left lower limb was also anhidrotic and nails were brittle. Calf muscles were atrophic on both sides and paresthesia was present on both lower limbs. Prop-

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rioceptive and vibratory sensations were normal. Pedal edema and superficial thrombophlebitis were absent.

Complete haemogram showed Hb. - 8.4 % with polymorphonuclear leucocytosis. Coagulation profile, renal function, liver function tests and blood sugar were all within normal limits. ECG and chest X-Ray were normal. ESR was normal.

Color Doppler study of the left lower limb revealed - Diffuse intimal thickening with narrowing of the lumen extending from the level of Right popliteal artery along with significant luminal narrowing of the anterior and posterior tibial arteries with dampened systolic and increased diastolic flow.

Lumbar sympathectomy was done on the right side following which rest pain and limb temperature improved. Transmetatarsal amputation was done 2 weeks later on the right side. The patient improved and discharged with proper advice.

DISCUSSION.

Thromboangiitis obliterans (TAO) is an inflammatory, nonatherosclerotic, occlusive disease of small and Medium-sized arteries and veins that involves distal vessels of the extremities. Buerger's disease primarily affects young male Smokers, in the past, they represented over 90% of affected people. Recently, however, women have made up an increasing percentage of affected people - more than 20% in some studies.^{2,3}

While the etiology of TAO is not known, there is a strong association between the use of tobacco and Buerger's disease.

Most patients are heavy cigarette smokers, but TAO has also been reported in cigar smokers and in users of smokeless tobacco such as chewing tobacco and snuff⁴, other etiologic factors such as immunologic mechanisms⁵ and abnormalities in coagulation may play a supporting role in some patients.

Typically, Buerger's disease occurs in young smokers with the onset of symptoms before the age of 40-45 years. While originally thought to only occur in men, there are increased reports of women with TAO, possibly due to the increasing use of cigarettes among women in the twentieth century.^{6,7,8.}

Buerger's disease usually begins with involvement of the distal small arteries and veins. As the disease progresses, it may involve more proximal arteries.

Patients may present with claudication of foot, legs and occasionally the arms and hands. Foot or arch claudication may be the presenting manifestation. Later in the course of the disease patients may develop ischemic ulcerations in the distal portion of the toes or fingers.

Patients with Buerger's disease are severely addicted to cigarette smoking and most continue to smoke despite their recognition that continued tobacco use will result in severe medical problems and disabilities.

REFERENCES

- 1.Olin JW. Thromboangiitis obliterans (Buerger's disease). *N Engl J Med* 2000;343:864-869.
- 2.Olin JW, Young JR, Graor RA, et al. The changing clinical spectrum of Thromboangiitis obliterans (Buerger's disease). *Circulation* 1990; 82 (5 Suppl):IV3-IV8.
- 3.Mills JL Sr. Buerger's disease in the 21st century: diagnosis, clinical features and therapy. *Semin Vasc Surg* 2003; 16:179-189.
- 4.Joyce JW. Buerger's disease (Thromboangiitis obliterans). *Rheum Dis Clin North Am* 1990; 16:463-470.
- 5.Lee T, Seo JW, Sumpio BE, Kim SJ. Immunobiologic analysis of arterial tissue in Buerger's disease. *Eur J Vasc Endovasc Surg* 2003; 25:451-457.
- 6.Ehrenfeld M, Adar R. Rheumatic manifestations in patients with Thromboangiitis obliterans (Buerger's disease). *J Rheumatol* 2000; 27:1818-1819.
- 7.Lie JT. Thromboangiitis obliterans (Buerger's disease) in women. *Medicine (Baltimore)* 1987; 66:65-72.
- 8.Mills JL, Taylor LM Jr, Porter JM. Buerger's disease in the modern era. *Am J Surg* 1987; 154:123-129.

Amelia: a rare anomaly

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ABSTRACT

Amelia is an extremely rare birth defect marked by the absence of one or more limbs. The rarity of this anomaly has prompted reports of individual cases rather than publication of large series. The aim of this study is to collect information regarding the anomaly and make the expecting and high risk pregnant women aware of the anomaly and its severity.

Key words: Amelia, tetra-amelia, meromelia, phocomelia.

Introduction

Amelia is an extremely rare birth defect characterized by the absence of one or more limbs. It has a prevalence of 0.04 to 0.15 per 10,000 live birth¹. There is no significant difference between numbers of male and female affected except in extremely rare cases of X-linked amelia, which are all males. This condition is probably under reported due to lack of documentation of miscarriages, still births and neonatal deaths. The term may be modified to indicate the number of legs or arms missing at birth, such as tetra-amelia for the absence of all for limbs¹. A related term is meromelia, which is the partial absence of a limb(s)¹.

This malformation generally is a random event, but is occasionally seen in specific syndromes associated with other congenital anomalies^{1,2}.

CASE REPORTS:

Case 1:

A one and half year old male child was brought to OPD with the complaint of absence of limbs on left side of the body. He was delivered at home full term. No significant history found in antenatal period. Mother did not receive Tetanus toxoid. Clinically the child

was active and no associated anomaly detected. There was absence of upper and lower limbs along with absent testis and half pelvis on left side of the body (Fig: 1 & 2). Radiology revealed cardiomegaly (X-ray chest PA view) with absent upper limb, hypo plastic sacrum and without iliac bone and hip joint on left side. was suggestive of (Fig: 3). Ultrasound abdomen revealed no abnormality.

Case 2:

A 9-months old active and alert male baby was brought to OPD with bilateral upper limb showing normal length of arm, absent forearm, hypo-plastic hands having one digit in each hand (Fig: 4 & 5). Both the lower limbs were normal. He was born at home full term. No significant finding in the antenatal period recorded.

Bilateral humerus length appeared small. Both hands had proximal, middle & distal phalanges in the digit. A chest X-rays with upper limb was suggestive of normal cardiac shadow and single digit in the hands (Fig: 6 & 7). Ultrasound abdomen revealed normal scan.

Child was able to move his limbs to mouth. Rest of the systems was normal.

Discussion

Amelia can be a sporadic event with little risk of recurrence or can have genetic origin. The complete absence of an arm or leg in amelia occurs when the limb formation process is either prevented or interrupted very

ORIGINAL ARTICLE

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early in the developing embryo between 24 and 36 days following fertilization¹. The cause may be genetic, teratogenic, mechanical or vascular accidents^{3,4}.

A very small group of genetically based amelia is referred to as “autosomal recessive tetramelia” which consists of an absence of all four limbs, with small or absent lungs, cleft lip or palate, malformed head and other anomalies. Nearly 20% of amelia cases are of genetic origin⁶ and they can be seen in families⁷.

Mechanical disruption can be seen following rupture of the amnion due to infection, direct trauma such as attempted abortion or removal of intra uterine devices, or familial predisposition to rupture. Stands of collapsed amnion and adhesions may entangle and amputate developing limb.

Although the teratogenic potential of Thalidomide[®] has been well documented, the spontaneous occurrence of Amelia and limb reduction defects in the general population is rare^{2,5}. Thalidomide[®] was used by pregnant women from 1958-1963 as sedative and anti nausea. It was found to cause a wide variety of limb deficiencies. Alcohol, methotrexate and other chemotherapeutic agents, epinephrine and ergotamine are examples of teratogen associated with high risk of amelia. Diabetic mothers have 2-3 times higher risk of producing children with congenital anomalies.

The first patient in our report was a case of Amelia while the second was a case of meromelia. The absence of forearm resembles with Phocomelia type 3 variant characterized by deficiency of forearm and hand element with 1-3 digit.

Absent limb is an obvious sign present in newborn but in pregnant mother certain signs may indicate a greater likelihood of amelia such as abnormal vaginal bleeding, diabetes mellitus, toxemia. Alfa fetoprotein level is increased in the maternal blood and it indicates neural tube defects that may accompany limb defects. Besides seeing missing limb by ultrasound, signs in fetus include breech and other non-cephalic presentation at birth. Kyphoscoliosis and rib fusion can also be seen in amelia⁸⁻¹⁰.

Amelia is a random event but it may be seen in association with specific anomalies^{1,2} such as Roberts SC Phocomelia (Pseudo thalidomide syndrome caused by an autosomal recessive mutation of unknown

location), Baller-Gerold syndrome and Holt-Oram syndrome (Autosomal dominant condition).

Multiple organs systems defects have been associated with Amelia including cleft lip / palate, cardiovascular, gastrointestinal, urogenital, skeletal, neural tube and respiratory^{1,2} systems.

Preventive measures to avoid serious defects such as amelia include avoidance of chemotherapeutic agents or teratogens, and a comprehensive management of diabetes mellitus. Management is based on the gestational age at the time of diagnosis with pregnancy termination being an option prior to viability. A prenatal ultrasound that detects an absence of limbs can be followed by chromosomal analysis and genetic counseling to make informed decision regarding termination. Caesarean section should be performed only for obstetrical indications. Children with amelia can be fitted with prosthesis to substitute for the missing limb. Surgery is often needed to repair craniofacial defects. Mental retardation is taken care of.

Prognosis is dependent on the presence or absence of other associated anomalies. When amelia occurs as an isolated abnormality, prognosis is good. The prognosis is grim, when it is combined with multiple anomalies. Many infants die prior to birth. 60% of new born die within the first year¹ and half of them not surviving even the first day of life.

References:

1. Froster - Iskenius UG, Baird PA. Amelia: Incidence and associated defects in a large population. *Teratology* 41: 23 – 31, 1990
2. Ohdo – S ; Madokoro –H; Sonoda – T; et al. Association of tetra – Amelia, ectodermal dysplasia, hypoplastic lacrimal ducts and sacs opening towards the exterior, peculiar face, and developmental retardation. *J Med Genet.* 24: 609 – 12, 1987
3. Pauli–RM; Feldman–PF; Major limb malformations following intrauterine exposure to ethanol: two additional cases and literature review. *Teratology.* 33:273-80, 1986.
4. Milaire J ; Histological changes induced in developing limb buds of C57BL mouse embryos

submitted in utero to the combined influence of acetazolamide and cadmium sulphate. *Teratology* 32:433-51, 1985

5. Mastroiacovo P, Kallan B , Knudsen LB, Lancaster PA, Castilla EE , Mutchinick O, Robert E. Absence of limbs and gross body wall defects: An epidemiological study of related rare malformation conditions. *Teratology* 46:455-64, 1992
6. Gershoni-Baruch R, Drugan A, Bronshtein M, Zimmer Z. Roberts syndrome or “X- linked Amelia”? *Am J Med Genet* 37:569-72, 1990.

7. Zimmer-EZ; Taub E; Sova –Y; Divon-MY; Pery-M; Peretz-BA; Tetra-amelia with multiple malformations in six male fetuses of one kindred. *Eur J Pediatr.* 144:412-4, 1985
8. Herring-JA; Goldberg-MJ; Amelia and scoliosis. *J Pediatr Orthop.* 5:605-9, 1985
9. Powers –TA; Haheer –TR; Devlin –VJ; Spencer- D; Milar EA; Abnormalities of the spine in relation to congenital upper limb deficiencies. *J Pediatr Ortho* 3:471-4, 1983
10. Nel-G; Du-Toit-g; Congenital upper limb anomalies and scoliosis .*S Afr Med J* 63:893-5, 1983



Figure 1
Amelia with absent limbs on left side along with hemipelvis and absent testis.



Figure 2
X-ray chest PA view suggestive of cardiomegaly



Figure 3
Meromelia with short forearm and single digit on each upper limbs.



Figure 4
X-ray chest of the same patient

FORTHCOMING EVENTS

UPASICON 2008

34th Annual Conference Association of Surgeons of India, UP Chapter

Venue : Bareilly, Uttar Pradesh

Contact : Prof . R C Kesarwani

UPASICON 08

Rohilkhand Medical College and Hospitals

Bareilly - 243006

ASICON 2008

68th Annual conference of Association surgeons of India

Date: 25th-30th December 2008

Venue: Dayanand Medical College & Hospital, Ludhiana (Workshop)

Punjab Agricultural University, Ludhiana (Conference)

Ludhiana, Punjab

Contact: Dr. Kuldip Singh, Organizing Secretary

508-L, Model Town,

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Ph: +91 / 161 / 2433713, FAX: +91 / 161 / 2423552

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e-mail: info@asicon2008.com;drkkanda@rediffmail.com;drks508@yahoo.co.in

Website: <http://www.asicon2008.com>

7th APBC & 17th NABICON 2009

7th Asia Pacific Burns Congress (APBC) & 17th Annual Conference of National Academy of Burns-India (NABICON)

Dates: 18th-20th January 2009

Venue: India Hospital Centre, New Delhi, India.

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