FROM THE EDITOR’S DESK

Children are always special. New borns more so! Not all are lucky to be born free of a physical defect.

Thanks to the advances, we now have paediatric surgeons who can help. Congenital malformations are myriad; decisions are important, especially now that a large number can be diagnosed in utero.

Dr. Pankaj Shroff, our guest editor, and his colleagues address to these problems in this edition of Hinduja News Letter. I am sure our readers will find the issue informative.

Dr. V. R. Joshi

GUEST EDITORIAL

Paediatric surgery aims at restoring life and function to a child. Nothing can be more satisfying than achieving this goal.

The cost of paediatric surgery may be high because of the complex nature of diseases, longer period of care and different sizes of patients requiring different sizes of facilities and equipments.

Factors that have contributed to improvement in paediatric surgery in recent years are: availability of a wide spectrum of antibiotics, availability of hyperalimentation, technological advancements viz laparoscopes, lasers, ventilators, infusion pumps, various monitors, ECMOs etc. Better understanding of fetal physiology & realisation that the child is not a miniature adult, the child will not tolerate physiological insult, has added to improvement. The surgical management in a child must be supported by very good preoperative stabilisation, well administered anaesthesia, and very well balanced postoperative care. We must have a dedicated paediatric anaesthetist and a paediatric intensivist. An operation theatre and a paediatric ICU, equipped with proper monitoring equipment are essential. Our hospital excels in these areas.

Lord Shiva performed the first complex paediatric surgery by transplanting the head of an elephant to the torso of his son Ganesha. We may not be as perfect surgeons as Lord Shiva, but over a period of time we can improve our results. This improvement is possible if we keep the above in mind.

Dr. Pankaj Shroff

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Synergy Creations
Paediatric surgery has grown by leaps and bounds. Now we are talking of foetal surgery and foetal endoscopic surgeries. Similarly the concept of surgery has also changed, even in routine paediatric surgical problems. In some, surgery is recommended earlier as compared to what was recommended in the past e.g. undescended testis. In others the approach has become more conservative, e.g. haemangiomas and hydronephrosis. In the following article we shall illustrate the most common paediatric surgical problems, their diagnosis, and if and when they should be operated.

**Tongue tie**
- May lead to defective speech.
- No 100% relationship between speech and tied tongue.
- Release when diagnosed.

**Haemangioma**
- Natural history: Grows till 3 yrs. Involutes by 7 yrs of age.
- Investigations: X-ray skull for haemangiomas of head, platelet count to rule out platelet trapping.
- Sclerotherapy is useful in some.
- Steroids are indicated for lesion at obstructive site.
- Surgery for residual lesion after 7 years of age.

**BCG adenitis**
- LNs in Lt axilla and/or supraclavicular region.
- Result of hypersensitivity to BCG vaccine.
- Usually does not respond to anti-tuberculosis treatment.
- Treatment: excision of involved LNs under cover of rifampicin and isoniazid.
**Cystic hygroma**
- Does not regress naturally.
- May increase, get infected.
- Treatment: Excision.
- Injection of bleomycin into lesion has given encouraging results in diffuse lesions.

**Thyroglossal cyst**
- Remnant of thyrocervical trunk
- Moves up with deglutition and protrusion of tongue.
- USG and thyroid scan confirm the diagnosis.
- Treatment: Sistrunks operation (excision of cyst and track including central hyoid bone).

**Supernumerary digits**
- Surgery if hanging with a very narrow stalk.

**Sternomastoid tumour**
- Common with breach delivery.
- Solid tumour in sternomastoid muscle.
- May cause torticollis.
- Treatment: active physiotherapy, heparin cream.

**Thelarche**
- Early breast development in female.
- Usually unilateral.
- Variant of normal growth.
- USG to rule out oestrogen secreting tumour of ovary, adrenal.
- Do not excise.

**Gynaecomastia**
- Breast enlargement in male.
- Usually idiopathic.
- Rule out liver, testicular pathology.
- Surgery for cosmetic reason.

**Breast abscess in newborn**
- Usually develops when an attempt is made to express Witch’s milk from the nipple.
- Treatment: drainage.

**Alzihmers Disease Support Group**
An Alzheimer’s Disease Support Group initiative is being organised at the hospital on every 3rd Wednesday of every month. The group is co-ordinated by Dr Roop Gursahani-neurologist Hinduja Hospital. The programme is especially for the caregivers of those whose relatives, are suffering from the disease. The initiative was started on the 17th of September 03, for the Alzheimer week. The support group will include talks by doctors and an interactive session.
**Umbilical hernia**
- Failure of complete involution at the umbilicus at birth.
- May increase till 6-8 months of age.
- Does not rupture.
- Strapping/coin does not help, may be harmful.
- Assessment of the ring helps in deciding the timing of surgery.
- Surgery if ring size >3cms at 1 year, >2cms at 2 years, >1cm at 3 years, any size after 4 years.
- Surgery if history of obstruction.

**Congenital (Inguinal) hernia**
- Inguinoscrotal swelling, increases on straining.
- Treatment-surgery as early as possible once diagnosed, irrespective of age or maturity, as obstruction can not be predicted.
- Exploration of opposite inguinal canal in female or in very young infants.

**Obstructed hernia**
- Both intestine and the testis can loose their blood supply.
- Irreducible inguinoscrotal swelling, excessive crying, vomiting & distension of abdomen.
- Treatment-reduction with taxis, followed by surgery after 36 to 48 hours (to allow oedema to subside).
- Emergency surgery if taxis fails.

**Retractile testes**
- Due to hyper-reflexibility of cremaster.
- Testis is seen in scrotum in exaggerated squatting position.
- Treatment-observation regular follow up to detect ascent of testis.
- If found-operate

**Phimosis**
- All newborns have non retractile prepuce.
- Definition-Inability to see meatal opening through prepuelial opening.
- Symptoms-dysuria, ballooning of prepuce.
- MCU if urine shows plenty of pus cells.
- Circumcision for symptomatic phimosis.

**Congenital hydrocele**
- Fluid trickles from patent processus vaginalis.
- Changes in size-small in morning, big in evening.
- May resolve by 2 years.
- Surgery if persists after 2 years (not an emergency).

17th Annual Research Day was organised on 21st of February. Papers on research projects were presented. All papers were of high quality and well appreciated by one and all.
Undescended testis-unilateral

- Empty scrotum, undeveloped
- Testis at different positions (high scrotal, pubic tubercle, external ring, canalicular).
- May be associated with hernia.
- USG not necessary when testis palpable.
- Treatment-surgery-orchidopexy at 1 year of age.

Unilateral cryptorchidism

(Non-palpable testis)

- Testis at or above internal ring.
- USG-helpful investigation.
- Assess the opposite testicular size, if more than 1.8 cms, non-palpable testis may be atrophic. (Rt)
- Laparoscopy-diagnostic as well therapeutic.

Bilateral cryptorchidism

- Rule out intersex if phallus very small. (as on Rt)
- USG-useful.
- Human chorionic gonadotrophins (hCG.) may be useful.
- Laparoscopy-diagnostic as well as therapeutic.

Ectopic testis

- Not in scrotum.
- Not in line of descent.
- Can never come into scrotum.
- Operate when diagnosed.
**Torsion, testis**
- Difficult to differentiate from acute epididimo-orchitis.
- USG doppler may have false positive or false negative results.
- Treatment - exploration of scrotum. Testis, if black, should be removed.
- Fix opposite testis

**Hypospadias**
- Various types - Glandular coronal, mid shaft, penoscrotal
- Treatment-surgery after 15 months of age.
- Single or staged repair.
- All surgeries should be over in preschool age.
- Most can be managed in single stage repair; two stage for penoscrotal ones.
- Urethral fistula is common (15-20%)

**Rectal polyp**
- Presentation-bleeding PR, fresh, painless even when stools are loose. H/O something coming out per rectum.
- PR-polyp felt.
- Treatment-surgery when diagnosed.
- If histopathology-adenomatous, r/o multiple polyposis.

**Rectal prolapse**
- H/O loose motions, fever, malnutrition.
- Full rectum comes out on straining, goes in on its own; bleeding rare.
- Treatment - Initial conservative buttock strapping & dietary changes.
- Para-rectal injection of hypertonic saline may help.
- Surgery - Thierschs stitch/ Rectopexy (posterior sagital approach)

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Dr. Ashavaid has been invited to participate as a member of the International Advisory Board for the 9th International Congress of TDM & Toxicology 2005 to be held in April 05, at Kentucky, USA.

Dr. Anita Bhaduri was external examiner for postgraduate Diploma in Oncosurgical Pathology conducted by Indian College of Pathologists at Jivraj Mehta Trust Hospital & MRC., Ahmedabad
The real challenge to paediatric surgeon arises in treating surgical problems of the neonates. Besides the main problem, there may be associated anomalies. These may have important bearing on life & at times may be life threatening. They may also change the outcome of the present pathology e.g. sacral agenesis in anorectal malformations. In some there may be physiological deficiency related to primary pathology e.g. paraplegia in meningomyelocele, which will never recover even after surgery of the primary condition. All these must be discussed with the responsible guardians and a fair idea given about the ultimate outcome. We shall discuss a few of the most common neonatal surgical problems.

**Oesophageal atresia**
- **AD**-presence of polyhydramnios. In any child born to a polyhydramniotic mother, a 10 Fr rubber catheter must be passed through mouth. If the catheter gets obstructed at 10 cms, a diagnosis of oesophageal atresia is almost confirmed.
- **Presentation**-respiratory distress, cyanosis, rattling respiration, and excessive frothing at mouth.
- **X-ray chest** shows coiled catheter in upper pouch and pneumonitis.
- **USG** for renal anomalies;
- **Echocardiography** for cardiac anomalies.

**Diaphragmatic hernia**
- **AD**-intestines in chest cavity, (stomach in chest poor prognosis).
- **AA**-malrotation of the gut.
- **Presentation**-respiratory distress, cyanosis, scaphoid abdomen.
- **X-ray chest** confirmatory; **CT** rarely necessary.
- **Transport**-ideally intubated, avoid bagging or mask ventilation.
- **In PICU** stabilize, improve chest condition, antibiotics, intubation if required.
- **Surgery**-primary or delayed primary or staged repairs.
Spontaneous pneumothorax
- Most commonly encountered condition.
- Usually occurs during resuscitation.
- Variable compliance of the lung; following aspiration, leads to uneven transmission of intrapulmonary pressure leading to formation of bullae, which rupture leading to pneumothorax.
- Treatment-urgent ICD with underwater drainage.

Congenital cystic adenomatoid malformation
- Proliferation of bronchial tree at the expense of alveoli (Focal alveolar dysplasia).
- AD-cystic mass in chest, polyhydramnios.
- AA-uncommon.
- Presentation- respiratory distress, normal abdomen (not scaphoid as in Diaphragmatic Hernia).
- X-ray chest may resemble diaphragmatic hernia, dye study or CT differentiates.
- Treatment - lobectomy.

Lobar emphysema
- Results from bronchomalacia; deficient cartilage produces a ball valve obstruction causing over expansion of the lung.
- Presentation-progressive respiratory distress.
- Transport with intubation if needed.(avoid bagging & mask).
- X-ray chest-emphysema with collapsed normal lobe of lung (arrow).
- Treatment-lobectomy of the involved lobe.

Duodenal atresia
- AD-may have polyhydramnios.
- AA-TOF malformation
- May be associated with Down's syndrome, annular pancreas, malrotation.
- Presentation-early bilious vomiting, distension of upper abdomen; may pass meconium.
- X-ray-double bubble appearance.
- Treatment-duodenoduodenostomy.
Ileal atresia
- AD-not possible
- AA-rare.
- Presentation-late bilious vomiting, generalised distension of abdomen, may pass meconium.
- X-ray-multiple fluid levels, well distributed.
- Treatment-proximal resection or tapering and end to back anastomosis.

Jejunal atresia (commonest intestinal atresia).
- AD-may have polyhydramnios.
- AA-rare.
- Presentation-bilious vomiting slightly delayed; moderately distended abdomen.
- May pass some meconium.
- X-ray-few fluid levels.
- Treatment-proximal jejunal resection (to overcome physiological obstruction) and end to back anastomosis.

Hirschsprung’s disease-aganglionic, megacolon
- AD-antenatal USG shows dilated loops of intestine.
- Presentation-long segment ones present in neonatal period.
- Gross distension of abdomen, failure to pass meconium, late bilious vomiting.
- X-ray-distended loops of intestine without air fluid levels.
- Contrast study (dye enema) microcolon or coning.
- Treatment-colo-stomy in ganglionic segment. Definitive surgery in well thriving child.

Meconium ileus
- May be associated with cystic fibrosis of the pancreas. The thick viscous meconium obstructs the ileum.
- Presentation-distension of abdomen, right at the time of birth, bilious vomiting, may pass pallets.
- X-ray-distended loops of intestine without air fluid levels. Air trapping in meconium at RT iliac fossa.
- Treatment-conservative. Gastrografin enema under fluoroscopic control, to see that it reaches the Rt. iliac fossa.
- Surgery if above fails. Enterostomy, closure later.
**Gastroschisis**
- Defect on the side of umbilical cord, usually to the right, results in gastroschisis. There is no covering membrane (Intestine are exposed to the amniotic fluid. They become oedematous and short).
- AA-usually absent.
- AD-possible. Early induction of labor is advocated.
- Transport-cover the defect, gentle handling.
- Treatment-repair

**Imperforated anus**
- Absence of anal opening at its normal site. The child may not pass meconium. The abnormal anal opening could be in vulva, vagina or cloaca. It could also open in urethra, prostate or bladder. This anomaly could be picked up early if there is a habit of taking rectal temperature as the first temperature.
- AA-VATER complex (Vertebral, anal, tracheo-esophageal, radial or renal)
- Associated sacral defect can have important bearing on life due to incontinence

**Exomphalos (Omphalocele)**
- Hernia into the base of the umbilical cord.
- AD possible < 20 weeks. Termination of pregnancy is recommended because there is very high association of associated anomalies. Likely to be associated with (exophthalmos, macroglossia, gigantism); pancreatic gigantism may cause hypoglycaemia.
- Transport-cover the defect, prevent hypothermia, IV fluid-10% glucose.
- Treatment - Surgery
It is the natural wish of all parents that their baby be normal and healthy. One of their biggest nightmares is that the child would have a major anatomical abnormality requiring (emergency) surgery. The birth of a baby should be a time of joy and celebration - congratulations given to the proud parents and tender warnings of the tribulations to come! Serious congenital conditions change this moment to one of anxiety, fear and may be, even guilt.

Certain congenital anomalies like gastroschisis and exomphalos are dramatic. The problem is obvious for all to see. It is the role of the paediatric surgeon, together with the technicians, paediatricians, specialist nurses, general practitioners and parental support groups to ensure the best possible outcome for the child and to reduce the stress to the parents.

A number of advances have improved the service we can now give. Antenatal ultrasound scanning is able to identify congenital malformations early on in majority of pregnancies. This allows for counseling long before the child is due, such that the parents have a realistic knowledge of what is and what is not likely and possible. It also allows for the birth of the baby to be planned and have immediate postnatal management available.

Chorionic villus sampling in the first trimester or amniocentesis in the second trimester is indicated if there is advanced maternal age, known carrier state, or a previous child with a genetic disorder. If the problems are of such magnitude that survival is not possible, or the quality of life will be poor, parents may choose, after appropriate counseling, not to continue with the pregnancy. It is important that a paediatric/neonatal surgeon is consulted before making this drastic decision, since he has the first hand knowledge of managing these conditions in the newborn child. He is aware of the latest developments in neonatal surgical techniques and outcomes.

Defects usually managed by elective termination of pregnancy
Severe skull/brain defects (anencephaly, hydranencephaly; alobar holoprosencephaly, severe anomalies associated with chromosomal abnormalities, (e.g trisomy 13); bilateral renal agenesis; infantile polycystic kidney disease; severe, untreatable inherited metabolic disorders (e.g. Tay-Sachs disease), lethal bone dysplasias (e.g. thanatophoric dysplasia, recessive osteogenesis imperfecta) are indications for medical termination of pregnancy.

Defects detectable in utero but best corrected after term delivery
These are oesophageal, duodenal, jejunoileal, and anorectal atresias; meconium ileus (cystic fibrosis), enteric cysts and duplications; small intact omphalocoele; small intact meningocele or myelomeningocele; spina bifida; unilateral multicystic dysplastic kidney; hydronephrosis; craniofacial, limb, and chest wall deformities; simple cystic hygroma; small sacrococcygeal teratoma, mesoblastic nephroma; benign cysts (e.g ovarian, mesenteric, choledochal); and cystic lesions in the chest.

Defects that may lead to Caesarean delivery
These are conjoined twins, giant omphalocoele, ruptured omphalocoele, gastroschisis, severe hydrocephalus, large or ruptured meningocele, large sacrococcygeal teratoma or cervical cystic hygroma, and malformations requiring preterm delivery in the presence of inadequate labor or foetal distress.

Defects that may lead to induced preterm delivery
These are: Obstructive hydronephrosis, obstructive hydrocephalus, gastroschisis or ruptured omphalocoele, intestinal ischaemia and necrosis secondary to volvulus or meconium ileus, immune hydrops foetalis, intrauterine growth retardation, and arrhythmias (e.g. supraventricular tachycardia with failure).

Foetal surgery
Foetal surgery is being tried in a few centers in USA, but it is still in an experimental stage. Premature delivery is one of the main problems of foetal intervention. One is then faced with managing not only the congenital anomaly but also prematurity. At present foetal surgical intervention in most of the centers is not a realistic option. It is best to deal with the anomaly after birth.

Antenatal diagnosis permitting postnatal management
In the following conditions there is no need to terminate the pregnancy unless there are associated anomalies of the heart and brain, or chromosomal abnormalities. These conditions are best managed in the postnatal period.

Cystic chest lesion: The possibilities are congenital diaphragmatic hernia, congenital cystic adenomatoid malformation of the lung, pulmonary sequestration, bronchogenic cyst, duplication cyst, or neuroenteric cyst.

CONGENITAL ANOMALIES - DIAGNOSIS AND MANAGEMENT

Dr. Sandeep Motiwale
### Cystic chest lesions

<table>
<thead>
<tr>
<th>Lesion</th>
<th>Investigations</th>
<th>Treatment</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congenital diaphragmatic hernia</td>
<td>X-ray chest and abdomen with Ryles tube, lateral film barium meal/enema</td>
<td>Surgical repair after stabilisation of hypoxia &amp; acidosis</td>
<td>Outcome depends on lung hypoplasia</td>
</tr>
<tr>
<td>Congenital cystic adenomatoid malformation of the lung</td>
<td>X-ray chest, CT chest, barium swallow, ECHOcardiography</td>
<td>Lobectomy even for small asymptomatic lesions to prevent malignancy</td>
<td>Although chest x-ray appears normal, CT chest should be done. Outcome depends on lung hypoplasia in symptomatic cases.</td>
</tr>
<tr>
<td>Pulmonary sequestration</td>
<td>X-ray chest, CT chest, doppler US to see for systemic blood supply</td>
<td>Lobectomy to prevent infections and malignancy in hybrid lesions</td>
<td>If systemic blood supply confirmed and there are no cysts–may follow up conservatively</td>
</tr>
<tr>
<td>Bronchogenic cyst</td>
<td>X-ray chest, CT chest</td>
<td>Excision</td>
<td>Good prognosis</td>
</tr>
<tr>
<td>Duplication cyst</td>
<td>X-ray chest, barium swallow, CT chest</td>
<td>Excision</td>
<td>Good prognosis</td>
</tr>
<tr>
<td>Neuroenteric cyst</td>
<td>X-ray chest, X-ray spine to exclude spina bifida, MRI spine and chest</td>
<td>Excision</td>
<td>Communication with spinal canal</td>
</tr>
</tbody>
</table>

All the above conditions require postnatal investigations to confirm the diagnosis and to manage surgically.

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**Cystic lesion in the abdomen**: The possibilities are duplication cyst, mesenteric cyst, duodenal atresia (double bubble appearance), urachal cyst, ovarian cyst, multicystic dysplastic kidney and polycystic kidneys. Ovarian simple cysts < 5cm can be followed up conservatively. Complex cysts or the one > 5 cm should be excised to prevent torsion.

**Abdominal wall defects**: Possibilities are exomphalos, gastrochisis and umbilical hernia. Exomphalos and gastrochisis require urgent surgical correction, neonatal intensive care and parenteral nutrition.

**Pelvic tumour**: Sacrococcygeal teratoma requires excision within the first month of life to prevent malignant change.

**Polyhydramnios in mother**: One must always rule out oesophageal atresia in the newborn by passing a size 10 FR rubber catheter through the mouth.

**Antenatal hydronephrosis**: This is the commonest anomaly picked up on an antenatal ultrasound scan. The incidence is 1 in 100 pregnancies.

### Correction

The last issue on Promoting Positive Health had an article on “Watch Your Weight & Hormones”. There was a printing error in the formula to calculate BMI. The correct formula is, ‘Body weight in kilograms divided by square of the height in meters’.

\[
\text{BMI} = \frac{\text{BW (Kg)}}{\text{Ht(Mts)}^2}
\]
Neonatal jaundice is mostly physiological. However, when the jaundice persists beyond 2 weeks in a full term infant or 3 weeks in a premature infant or when there is an increase in the direct bilirubin (conjugated hyperbilirubinaemia), it is no longer physiological. The cause of jaundice must be investigated and that too quickly. The surgeon’s objective is to identify an infant in whom the jaundice requires surgical relief. (The infant who is suffering from biliary atresia).

There are many laboratory tests that claim to distinguish hepatocellular disease from obstruction. None of these are specific, but all are valuable. Till now there is no ideal test. Besides laboratory studies HIDA scan and ultrasonography are very useful investigations. Percutaneous liver biopsy is reliable as a correlative study, but there are histological similarities between hepatitis and biliary atresia and mistakes are possible.

**HIDA scan**

HIDA scan is the gold standard diagnostic study. The accuracy of this study is enhanced if the infant is given phenobarbital for 5 days. The appearance of the radio nucleotide in the intestine confirms the patency of the bile ducts. If jaundice of the same intensity persists, a repeat study is worthwhile. The study also merits repetition if the first study was done without phenobarbital priming. Failure of isotope to appear in the intestine is consistent with obstruction or severe intrahepatic cholestasis.

**Ultrasonography (USG)**

USG is a useful investigation. It detects clinically silent abnormalities such as a choledochal cyst at the porta hepatis. Presence of dilated intrahepatic ducts points to an alternative diagnosis or extrahepatic biliary obstruction. The gallbladder is well demonstrated in fasting infants, but it is very difficult to comment about the status of the common bile duct. When the hepatic artery runs parallel to atretic bile duct it is at times mistaken for a biliary structure.

The need for an expeditious diagnostic evaluation is emphasised, because the outcome of surgical correction of the atretic biliary tree after 3 months of age is poor.

A intraoperative cholangiogram remains the only investigation which identifies to the extent of 100% presence or absence of biliary atresia. An operative cholangiogram is performed when the gallbladder is patent. The passage of the contrast material into the duodenum but not proximally into the liver is consistent with biliary atresia, but this finding may sometimes be encountered in infants with cholestatic jaundice (Alagille syndrome). The liver surface is smooth in this condition. Portal dissection and portoenterostomy are indicated only if liver is fibrotic and shows histological criteria of obstruction. When operative cholangiogram shows a patent ductal system, diagnosis of biliary hypoplasia is considered. Biliary hypoplasia is a reflection of intrahepatic cholestasis and is not correctable surgically.

In most patients with biliary atresia, the gallbladder is atretic and fibrous, the liver is green brown in colour and is nodular. A cholangiogram is not performed in such a situation. These patients require portoenterostomy.

Portoenterostomy, performed before 3 months of age is usually successful in accomplishing bile drainage. In approximately 40% of patients, the bilirubin returns to normal and liver function is preserved. For the remaining bile drainage does not mean cure. Recurrent cholangitis and progressive liver fibrosis leading to cirrhosis are still life threatening problems. Reoperation with excision of fibrous scar tissue at the porta, if initial conservative treatment fails, helps to control cholangitis. Liver transplant is the answer in case of failure of surgery when hepatic fibrosis and progressive liver failure ensue in spite of bile drainage. Portoenterostomy still remains the initial procedure, even in late referrals.

**NEWS**

Hinduja Hospital participated in the “Swadeshi Arogya Mela” held at the Somaiya Medical College Grounds on 8th - 13th January 2004.

Hinduja Hospital participated in the second “India Africa Health Summint” at the Taj, organised by the Federation of Indian Chamber of Commerce & Industry in November 2003. It was well received by international delegates. The Medical Tourism Council of Maharashtra website was also launched during the summit to promote the concept of medical tourism.
Laparoscopic surgery in children is rapidly advancing all over the world. Experience has lead to better definition of indications, contraindications, advantages and disadvantages. Advantages of laparoscopic surgery include less pain and early recovery of normal function, small incisions and hence small scars leading to good aesthetic healing, decreased incidence of pulmonary problems like atelectasis and pneumonia, decreased incidence of post operative small bowel obstruction, and decreased hospitalisation and hence less stress to the family. Disadvantages are slow and steep learning curve and relative increase in the operative time.

Indications of laparoscopy with definite benefits
- Diagnostic laparoscopy
  - Nonpalpable undescended testis (even therapeutic)
- Chronic and recurrent abdominal pain
- Bleeding per rectally, to exclude Meckle’s diverticulum
- Intersex disorders to define the internal genitalia
- Appendicectomy
- Cholecystectomy
- Nissen fundoplication
- Splenectomy
- Excision of mesenteric and ovarian cysts
- Pull through surgery for Hirschsprung’s disease
- Retroperitoneal lymph node sampling for diagnosis and staging of lymphoma
- Ne p h r o u re t e r e c t o m y , ureterolithotomy and pyelolithotomy
- Exploration of contralateral hernia
- Repair of recurrent inguinal hernia
- Repair of diaphragmatic hernia in older child
- Division of Ladd’s bands in older children
- Oopherectomy, oopheropexy, ovarian biopsy, excision of ovarian cyst
- Surgery for varicocele
- Adhesiolyis for post operative adhesive obstruction.

Indications of laparoscopy with marginal benefits
- Repair of inguinal hernia
- Laparoscopic pyloromyotomy
- Repair of duodenal atresia and stenosis in newborn
- Repair of oesophageal atresia
- Surgery for malignancy
- Correction of volvulus in malrotation of small bowel in newborn
- Liver biopsy and operative cholangiogram in biliary atresia and other conditions
- Pyeloplasty in infants.

Non-palpable testis can be either absent, atrophic or abdominal. Radiological investigations, i.e., USG, MRI, and CT scan have high incidence of false results and are not indicated. The laparoscopy differentiates between the above conditions and at the same time allows the surgeon to perform orchiopexy or excision as may be the case.

Management of chronic and recurrent abdominal pain in children is often confusing. The diagnostic laparoscopy should be performed if abdominal pain continues in presence of normal blood tests, urine examination and radiological tests. It should also be performed if abdominal pain is associated with fever, anorexia and weight loss. It could pick up appendiceal abnormalities, Meckle’s diverticulum, inguinal hernia, adhesions, tubercles, congenital bands, etc.

The common cause of severe bleeding per rectally in children is due to Meckle’s diverticulum. The nucleide scan and other investigations are often normal and diagnostic laparoscopy is indicated. If Meckle’s diverticulum is found then one can excise it by laparoscopic assisted techniques. The diagnostic laparoscopy has replaced exploratory laparotomy in the intersex diseases to define the internal genitalia.

The incidence of patent contralateral processus vaginalis ranges from 15%-60% and depends upon the age and sex of the patient. The laparoscopic exploration can be safely performed by placing the telescope.
through the ipsilateral hernial sac and it adds only a few minutes to the operative time.

Appendicitis is one of the commonest surgical cause of acute pain in abdomen. Appendicitis is usually diagnosed clinically and surgeon proceeds with appendicectomy. Laparoscopic appendicectomy allows thorough exploration of entire abdomen if required.

Hirschsprung’s disease can be managed in one stage by performing laparoscopic biopsy to confirm the diagnosis and map the level of ganglionic bowel, followed by laparoscopic trans-anal pull through in the same sitting. Advantages of primary laparoscopic pull through include one anaesthetic, shorter hospitalisation, no need to take care of colostomy, avoidance of complications related to the colostomy and colostomy closure and overall fewer complications. The increased frequency of defaecation after laparoscopic trans-anal pull through gradually settles down over a few weeks to months.

Though uncommon, symptomatic cholelithiasis does occur in children and needs laparoscopic cholecystectomy. Splenectomy is a safe and easy laparoscopic operation due to the technical advancements in the endoscopic instrumentation. Average blood loss in laparoscopic splenectomy is less than the open splenectomy. In haemolytic disorders preoperative ultrasound should be performed to detect associated cholelithiasis and if present cholecystectomy may be performed at the time of splenectomy.

Retroperitoneal lymph node sampling is indicated for accurate staging in patients of malignancy. It is possible to obtain adequate biopsy of the suspicious site using laparoscopic techniques. Further, chemotherapy can be started in the post-operative period.

Incidence of recurrence of inguinal hernia is very low in children and surgery is very tedious due to the scarring. As laparoscopic surgery is performed under magnification in a virgin field, the chances of injury to the vas deferans and spermatic vessels are significantly reduced and is the procedure to be recommended.

Indications for laparoscopic fundoplication are failure of medical line of management, complications of GERD, i.e., stricture, repeated pneumonias, failure to thrive, asthmatic bronchitis and neurologically impaired children requiring feeding gastrostomy. The complications of open fundoplication are numerous and include oesophageal and gastric perforations, splenic injuries, gas bloat syndrome, dysphagia, persistent stricture, wound infection, pulmonary complications, and bowel obstruction. Laparoscopic procedure has significantly decreased the incidence of post fundoplication complications.

The benefits of laparoscopic adhesiolysis should be offered to patients having partial small bowel obstruction with mild distention of bowel or in patients with proximal small bowel obstruction. Symptomatic varicocele, should be operated. The laparoscopic division of spermatic vein is a simple outpatient procedure.

Removal of small dysplastic kidney can be performed using transperitoneal or retroperitoneal laparoscopy. If required the entire ureter can be dissected and excised using laparoscopy. Hydronephrotic non-functioning kidney can be decompressed and excised using laparoscopic techniques.

Impacted ureteric stones needing open surgery can be removed laparoscopically.

The principle of laparoscopic pyloromyotomy is similar to the open surgery and hence continues to have the excellent results. Laparoscopic pyloromyotomy is almost scarless and with experience it takes less time than the open surgery.

Duodenal obstruction in malrotation of the small bowel can be either caused by Ladd’s band or volvulus of the small bowel. Ladd’s band can be released using laparoscope; however in presence of volvulus, it may be safer to perform an open surgery.

Many other procedures can be performed using laparoscopy for e.g. transposition of omentum, placement of gastrostomy and jejunostomy tubes, drainage of pancreatic pseudocyst, distal pancreatectomy, excision of mesenteric cyst, Heller’s oesophagocardiomyotomy, excision of small adrenal neuroblastoma, etc.

Looking at the surgical trends it appears that minimal invasiveness is the future of surgery.

**Indications of thoracoscopy in children**

Early thoracoscopic debridement is relatively a simple procedure, which decreases hospitalisation and course of intravenous antibiotics. Intercostal drainage frequently fails as there is no debridement of fibrin plugs, loculi may persist and drainage is non dependent, allowing a pool of pus to collect below the site of drain insertion. After early thoracoscopic decortication, there is rapid resolution of pyrexia and toxaemia.

Lung biopsies are performed to aid in diagnosis of chronic infiltrate or
pulmonary nodule. Most of the lesions are peripherally located and could be easily identified on thoracoscopy. For deeply placed lesions a needle is placed and patient’s blood is injected under the guidance of CT scan, which helps to identify the lesion during thoracoscopy. Today, indications of thoracoscopic lung resection have been extended to infectious diseases, cavitary lesions, neoplasm’s, intra and extra lobar sequestrations, congenital and acquired lobar emphysema’s, congenital adenomatoid malformation, emphysematous bullae, etc.

Thoracoscopy is an excellent way to perform biopsy and excise the mediastinal masses. It is possible to excise bronchogenic cyst, ganglioneuroma, thymus, foregut malformations and cystic hygroma. Smaller masses, biopsy material and decompressed cysts can be removed through one of the port. For the large mediastinal mass and in suspected malignancy, muscle sparing mini thoracotomy may be performed to remove the specimen from the thoracic cavity.

Ligation of PDA can be safely performed using thoracoscope. Incidence of injury to the recurrent laryngeal nerve is decreased as the procedure is performed thoracoscopically under magnification.

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**PAEDIATRIC UROLOGY**

**Dr Sandeep Motiwale**

**Antenatal hydrenephrosis - postnatal management**

When the antenatal ultrasonography reveals bilateral hydrenephrosis (HN) or unilateral HN in a single kidney then USG and micturating cystourethrography (MCU) should be performed immediately after birth. This is to rule out posterior urethral valves, which require immediate surgical intervention in the form of resection / incision or drainage. If vesico ureteric reflux (VUR) or an obstructed megaureter is found, antibiotic prophylaxis is begun.

When the antenatal US reveals unilateral hydrenephrosis, a USG should be done on day 3 or 4 after birth. This is to avoid missing HN due to physiological oliguria during the first few hours after birth. The differential diagnosis of unilateral HN includes many conditions. Pelvicyucetemic junction (PUJ) obstruction is by far the commonest cause of HN. It is characterized by varying degrees of renal pelvic dilatation, caliectasis, absence of visible ipsilateral ureteral dilatation, normal bladder and normal amniotic fluid volume. When ureteral dilatation occurs with pelvicalyceal dilatation, the most common postnatal abnormalities found are vesico ureteric reflux (VUR), mega ureter, posterior urethral valves, prune belly syndrome, and ureteral ectopia.

Dilatation in the renal system or hydrenephrosis is not necessarily equivalent to obstruction. Several studies have shown that many neonatal kidneys with severe HN are not biologically obstructed despite even a profound initial decrease in renal function. Follow up of these kidneys shows no deterioration of renal function, or progression of HN and no evidence of contralateral renal hypertrophy. On the other hand misdiagnosis of a truly obstructed kidney results in a serious deterioration of renal function that may be irreversible. The definition of when significant obstruction is present and when to intervene surgically is the subject of continuing debate. All the investigations for assessing HN in this age group, e.g. IVU (intravenous urography), USG, nuclear renal scintigraphy and the Whitaker test are inaccurate. The diagnosis of significant obstruction in most cases is only possible by repeated investigations and careful follow up.

**Evolution in the management of PUJ obstruction**

Reports since 1985 emphasize that kidneys can be safely observed if the renal function is initially > 35%. There is so far no “gold standard” for prospectively distinguishing which kidney with HN would benefit from surgery and which will resolve inconsequentially. However measurement of the degree of HN by USG has proved to be the most useful tool for identifying the group that needs close follow up from that, that need minimal imaging. The degree of
HN is recorded by measuring the antero-posterior diameter (APD) of the renal pelvis in the transverse plane of the kidney on the renal US. The presence of mild HN (APD<12mm) with no calyceal dilatation has so far been shown to pose no risk for surgery. Gross HN (APD>50mm) warrants surgery as these patients will either have reduced function initially or will deteriorate subsequently. The population with severe HN (APD 20-50mm) and good function on DTPA scan poses a problem as HN can either remain stable, resolve spontaneously or eventually need surgery. These children require long term follow up. Care is necessary in dealing with kidneys having intrarenal pelvis, in whom although the APD is <20mm, the calyces are severely dilated causing renal parenchymal thinning and damage. These also require close follow up. The first DTPA scan is done at 4-6 weeks of age so as to allow the neonatal kidneys to mature as much as possible for accurate interpretation of their function. MCU is indicated in all cases since VUR is coexistent in 14% of the patients.

During the close follow up of children with unilateral HN, surgery is indicated if there is deterioration in differential renal function by more than 10%, or when the child is symptomatic with infection, pain, palpable lump, haematuria, calculi or hypertension.

**Bilateral dilatation**

The diagnosis of obstruction is challenging in the presence of severe bilateral dilatation. The differential renal function does not assist in deciding the management. In such a situation if HN is severe with APD>20 mm on both the sides then pyeloplasty is suggested by 3 months of age on the side with the greater degree of dilatation or lesser function.

**Solitary kidney**

Infants with a solitary kidney with severe HN or calyceal dilatation should have surgery in the first few months of life to eliminate the risk of future renal impairment.

**Posterior urethral valves**

In this condition there is membranous obstruction of the posterior urethra.

*Presentation:* In neonates obstructive symptoms (straining, poor stream, dribbling, palpable bladder) are seen in 3/4th of the cases. Renal failure predominates. Urinary ascites though a dramatic presentation, usually has a good prognosis.

Beyond the neonatal period the symptoms may be of repeated urinary infections, dribbling or non-specific, (poor feeding, failure to thrive and abdominal distension). Around half of the over 5 year olds present with enuresis and dribbling.

**Investigations:** Ultrasound is the first investigation. It shows hydroureteronephrosis, thick walled bladder and a dilated posterior urethra. The diagnostic gold standard is MCU, which shows dilated posterior urethra and vesicoureteric reflux if present. Diuretic-isotope (DTPA) renal scan gives information about function and drainage.

**Management:** Initial treatment involves adequate urinary drainage by inserting a fine urethral catheter. Attention is paid to fluid, electrolyte and acid base balance. Antibiotics are started to prevent sepsis. Cystoscopic valve ablation is done once the child is stable. Rising serum creatinine, sepsis, recurrent urinary infection or doubts over efficacy of adequate bladder drainage may prompt diversion usually in the form of vesicostomy. A check cystoscopy, 2-3 months after ablation of the valves, should be done in all the cases.

**Follow up:** Prophylactic antibiotics are given. Urine culture, USG, serum creatinine levels are done at regular intervals. MCU and DTPA scan are done a year after ablation of valves and repeated if child is symptomatic. Urodynamic studies for the bladder are indicated if there is persistent upper
tract dilatation and child has incontinence or dribbling. A close watch on the growth and blood pressure is necessary.

Short-and long-term outcomes: VUR is found in almost half of the cases. It resolves after valve ablation in half of the cases. Bilateral reflux is associated with poor long-term outcome, for the renal function. Failure of reimplantation for reflux is reported in 2/3 of cases due to abnormal bladders.

Renal function: 60% of the children recover normal biochemical renal function on short-term follow up. However in the long term, i.e, above 18 years it is found that 1/4 of the cases land up with chronic or end-stage renal failure.

Persistent upper urinary tract dilatation: In the majority this resolves spontaneously. If it does not, one needs to rule out residual valves or stricture urethra or noncompliant valve bladder. Polyuria due to hyperfiltration can also cause persistent dilatation.

WELCOME

**DR. JATIN KOTHARI MD, DM** has joined as a full time consultant nephrologist and transplant physician. He has completed MBBS, MD (Medicine) and DM (Nephrology) from Seth GS Medical College & KEM Hospital-Mumbai in with top rank at all examinations. For further advanced training, he completed the ISPD (International Society of Peritoneal Dialysis) Scholarship at the University of Missouri Health Sciences-Columbia-USA and was a visiting scientist for 8 weeks. He was awarded the International Society of Nephrology and Transplantation fellowship at the University of Toronto, Canada.

M.B.B.S. from Seth G.S. Medical College in 1992, and M.D. from Lokmanya Tilak Municipal Medical College. She won the Dr. Moxmadan Nerheram Desai Prize for standing first in M.D. (Anaesthesiology) in Mumbai University, January 1995.

Following M.D. she worked at Tata Memorial Hospital, Sion Hospital (as a lecturer for two years) and at P.D. Hinduja National Hospital for three and a half years (as a Clinical Associate for the latter two and a half years). Thereafter, she had been an honorary Consultant Anaesthetist at S.L. Raheja Hospital, Guru Nanak Hospital and B.J. Wadia Hospital for Children. Prior to present appointment, she was working as a full time Consultant in Anaesthesiology at Wockhardt Hospital, Mulund.

**DR. SHALINI SAKSENA MD, DA** has joined as Consultant Anaesthesiology. Dr. Saksena is an undergraduate and postgraduate student of L.T.M. Medical College and L.T.M. General Hospital, Sion, Mumbai. After qualifying she was appointed as lecturer in the same institute and subsequently as Associate Professor. She is a recognized teacher of the University of Mumbai and MUHS and has guided both MD and DNB students.

She has worked in all specialities and subspecialities, including the management of patients in the Trauma Centre.

She was in charge of the multidisciplinary pain clinic for patients of chronic pain.

She has presented and published papers, and attended and participated in conferences. Her special interest is Regional Anaesthesia and Pain Management.

**DR. SUPRIYA GAJENDRAGADKAR, MD** has joined the hospital as a Consultant in Anaesthesiology.

Dr. Gajendragadkar has completed WELCOME

**HOME CARE**

**CALL ON 9821493888**

Mon-Sat between 8am-8pm. to get a suitable appointment.
On 16th February, 2003 “MAHEK”- a support group for breast cancer patients came into existence.

The lamp-lighting was done by Dr. Asha Kapadia followed by make-up tips from representatives of Avon. This was to re-enforce that cancer patients need not look drab. A talk on “Art of Living” gave tips to help their transition into the main-stream of life easier. Two survivors of breast cancer spoke about their experience of cancer and what helped them cope with the trauma and treatment. This motivated a lot of patients on treatment who felt that they were not the only ones walking a difficult path. The evening ended with a musical night.

The goals set for the group are:

M - Mutual support
A - Activities to showcase your talents
H - Happiness enough to be shared
E - Extending awareness
K - Keeping alive the spirit to fight and win

A second gathering was organized on 21st September 2003. It is proposed to have such events twice a year and efforts are being made to formalize the group.

Correction

Newsletter issue on Promoting Positive Health had an article on Prostodontics. The article was written by Dr E. Mirza & not jointly by Dr. S. V. Pradhan and E. Mirza