Pre operative preparation in emergency situation

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Preanesthetic Assessment

- GOALS
  - Establish rapport with child
  - Brisk History taking to rule out associated disease
  - Plan about anesthetic technique
  - To explain the anticipated risk involved peri operatively
  - To allay anxiety in parents

Preoperative assessment

- **History**
  - History of present illness- pyrexia, Cough and cold
  - Previous medical history-preterm, Congenital anomaly, Previous admission, anesthetic problems, Bleeding disorders in family
  - Drug history – steroid therapy, anticonvulsant drugs
  - Drug allergy

Physical examination

- Age
- Body weight
- Pulse, Color of the child, temperature, hydration
- Amt of blood to be given = $\frac{\text{BV x Hb rise}}{\text{Hb of whole blood}}$
- Jaundice , Cyanosis, Edema, Dehydration
- Full mouth opening, Receding lower jaw
- Inspection of veins/ extra vein to be secured

Physical examination

- Respiratory system :Look for dyspnea, bronchospasm, signs of airway obstruction
- Cardiovascular system: look for murmur to r/o CHD
- CNS : Meningocele and Hydrocephalus

Routine investigation

- Hb, CBC, urine routine
- Blood grouping, cross matching
- PT, PTT – suspected bleeding disorders, anticipated blood loss,
- SEBU - CHPS, Intestinal obstruction
- Chest X ray – Cardiopulmonary diseases
- Echocardiography

PREANAESTHETIC PREPERATION

- Restriction of feeds – at least 4 hours before anesthesia
- Secure IV line and start maintenance fluid (glucose containing fluid).
- Control fever – Delay surgery till fever is controlled
- Pass Ryles tube and aspirate the gastric contents
- Correction of dehydration with 10ml/ kg of NS

PREANAESTHETIC PREPERATION

- Correction of electrolyte imbalance
- Vitamin k – For Neonates 1 mg IM
- Correction of Anemia = Amt of blood to be given = $\frac{\text{BV x Hb rise}}{\text{Hb of blood given}}$
- Keep PCV / FFP ready for intra op transfusion
- High risk consent

Premedication

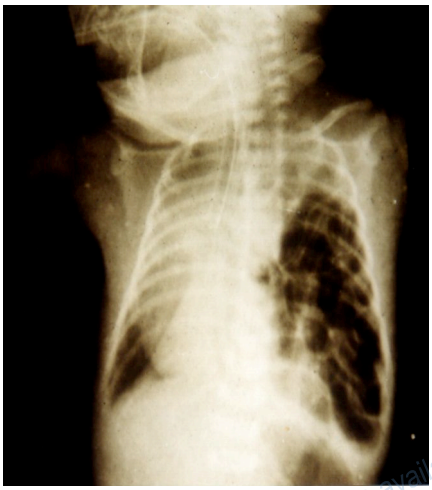
Syrup Trichlophos-	75 mg/kg
Oral midazolam –	0.5 mg/kg
Oral Atropine –	0.02mg/kg

Neonatal surgical emergencies

Congenital Diaphragmatic hernia

- Herniation of the abdominal contents through the posterolateral foramen of bochdalek
- Presentation – Dyspnoea, cyanosis and dextrocardia, scaphoid abdomen
- Malrotation and cardiac anomalies may be associated
- Use upper limb veins as increase intra abdominal pressure may cause lower limb venous congestion
- NG tube to decompress stomach
- When infant is hypoxic and acidotic, avoid bag and mask ventilation, early Endotracheal intubation , hyperventilation and avoid surgical intervention till baby is stabilized
- Treat PPHN

Congenital Diaphragmatic Hernia

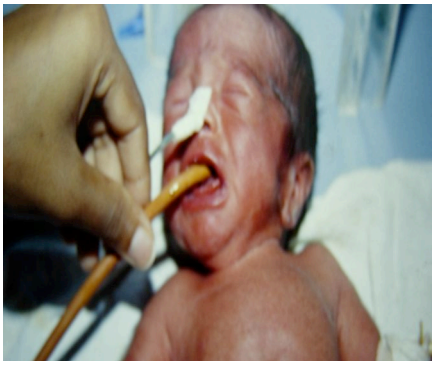


- CDH is not a surgical emergency
- Adequate stabilzation / oxygenation is must
- Labour room management: avoid bag and mask , put RT, confirm with X ray chest
- Treatment of PPHN

Tracheoesophageal fistula

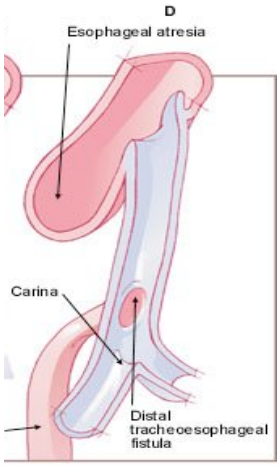
- Most common variety – upper end blind with lower end communicating
- 50% cases have associated anomalies VACTERL
- Diagnosis – Froth in mouth
- Inability to pass NJ Tube
- Avoidence of feeding
- Keep esophageal pouch free from secretions by continuous low suctioning of upper pouch
- Transfer baby in head up position
- surgery Can be delayed for 24 to 48 hours to be stabilized
- Treat pneumonia with Antibiotics
- To evaluate baby's cardiac status

EA with TEF



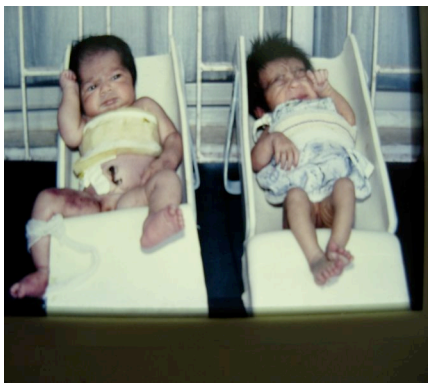
- Excessive frothing
- Inability to pass tube in stomach
- X ray with tube in situ
- No need for Dye study

EA with TEF



- Transport – head high position with infant mucus sucker
- Regular suctioning of upper blind pouch of esophagus to prevent aspiration
- Operated once stable

EA with TEF



- Prognosis:
  1. Weight > 2.5 kg
  2. pneumonia +/-
  3. associated anomalies + /-
- Results: Very very good : 95 % survival

omphalocele/ Gastroschisis

Omphalocele

Covered with outer membrane called amnion

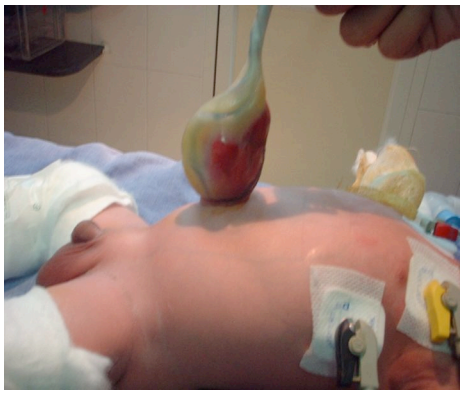
Associated with other congenital anomalies

Gasroschisis

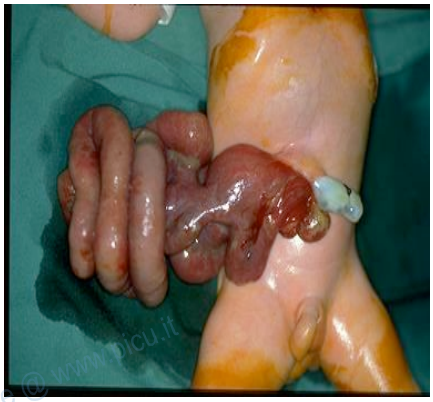
Bowel exposed with umbilicus to one side

Rarely associated with congenital anomalies

omphalocele/ Gastroschisis



Cover



NO Cover

Omphalocele/ Gastroschisis

Preoperativepreperation

Massive replacement of fluid. Repeated boluses of 20ml/kg of lactated Ringers solution and Albumin

Decompression of the stomach

Broad spectrum antibiotics especially in gastroschisis

Prevent hypothermia as bowel is unprotected

OT preperation

- Massive replacement of fluid. Repeated boluses of 20ml/kg of lactated Ringers solution and Albumin
- Decompression of the stomach
- Broad spectrum antibiotics especially in gastroschisis
- Prevent hypothermia as bowel is unprotected

Intestinal obstruction

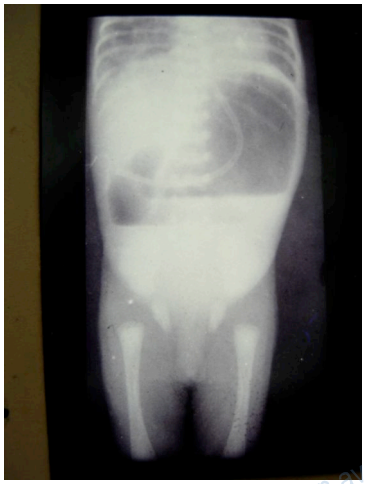
Upper GIT

– Bilious vomiting, dehydration, hypochloraemia, metabolic alkalosis

– "Double bubble" sign in Duodenal atresia

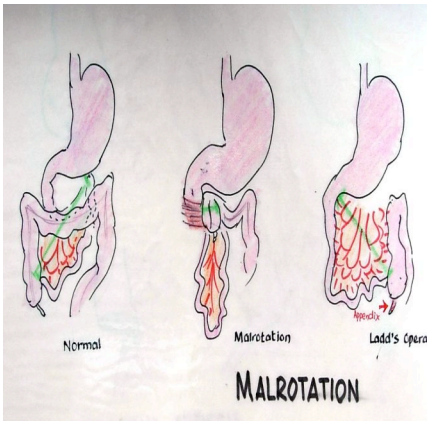
– Nasogastric suction decrease gastric distention and risk of aspiration

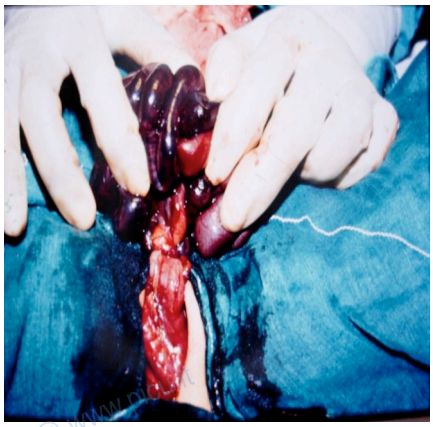
Neonatal Intestinal obstructions



- Double bubble" sign in Duodenal atresia
- Duodenal aresia- associated with congenital heart anomalies – 33 %
- Bilious vomiting, dehydration, hypochloraemia, metabolic alkalosis

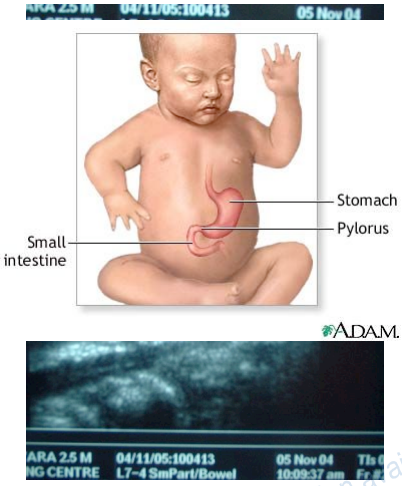
Neonatal Intestinal obstructions





Malrotation with volvulus Is true midnight emergency – protect the airway from full stomach

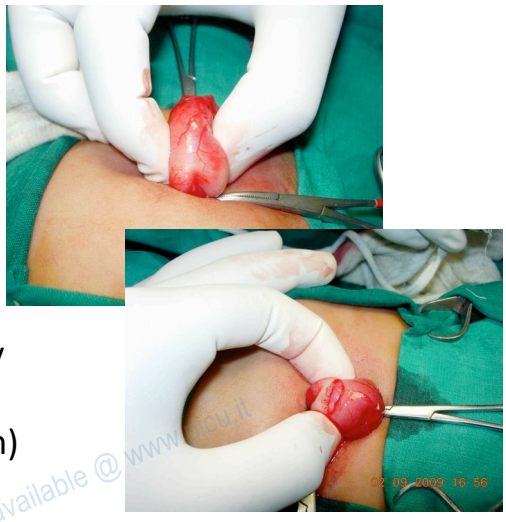
CHPS



- Seen in first 6 to 8 wks of life, common in males, Jaundice in 5% cases
- Cardinal features : projectile non bilious vomiting, visible peristalsis, baby hungry for more after vomiting
- Hallmark: hypochloremic hypokalemic metabolic alkalosis with paradoxical aciduria

Ramsted's pyloromyotomy

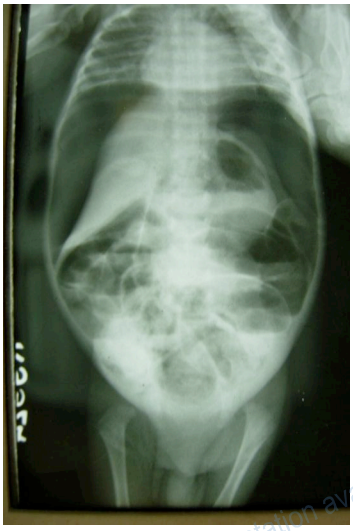
- Repletion of intravascular volume
- Correction of electrolytes with 5% dextrose in 0.45% NS with K infusion.
- Surgery is not urgency (operate with in 12 to 48 hrs after correction)



Lower GI Obstruction (imperforated anus, colonic atresia, Hirschsprung's disease)

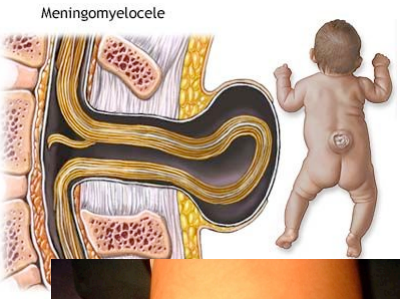
- Abdomen distension, vomiting is usually late
- Correct dehydration, electrolyte imbalance & acidosis before operating
- Necrotizing Enterocolitis – altered CBC & electrolytes, DIC
  - Gut rest, start antibiotics & IV nutrition

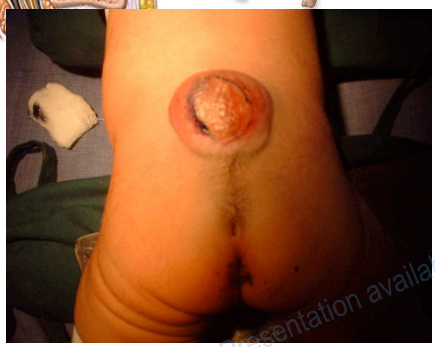
Neonatal Bowel perforation



- Real Emergency
- Be Ready for messy surgery
  - Bleeding, resections, Hypotension, electrolyte imbalance etc
  - NEC, Neglected Hirschsprung's/ ARMs, gastric perforations

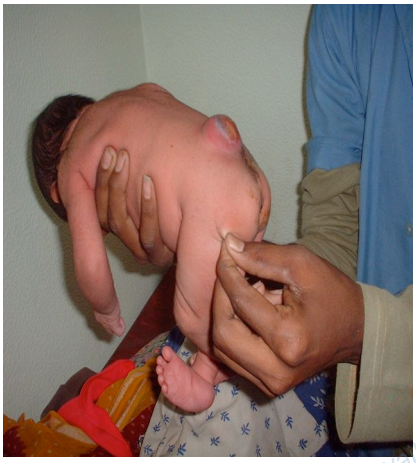
Spina Bifida- Menigomyelocele





- Not associated with congenital anomalies (cardiac evaluation not required)
- Arnold Chiari malformation requires CSF shunting.
- Start antibiotics to minimize contamination of exposed spinal cord
- Repaired with in first day of life

Clinical assessment: Legs



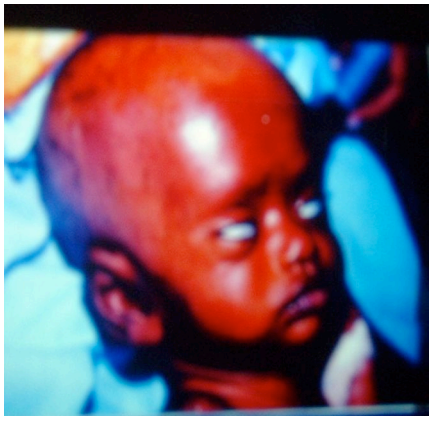
General consensus

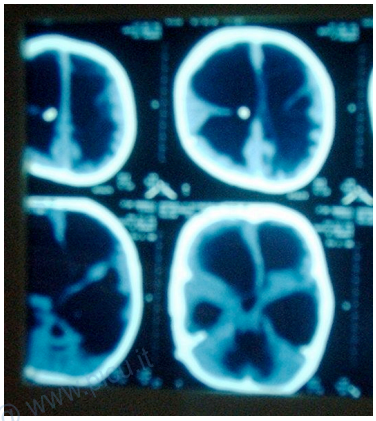
Paraplegia- No surgery

Paraparesis- Explain the prognosis & leave it to parents.

No neurological deficit- immediate surgery

Hydrocephalus



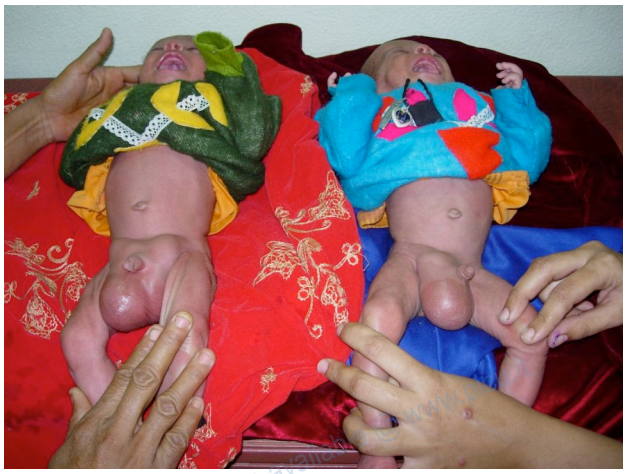


Hydrocephalus : 70 % association

Hydrocephalus

- Slow developing hydrocephalus with open sutures - Can increase skull diameter- normal ICP
- Fast developing Hydrocephalus with closed suture- outpaces gradual skull growth- increase ICP
- Irritability, vomiting , bradycardia, tense AF- raised ICP- Gastric emptying is delayed

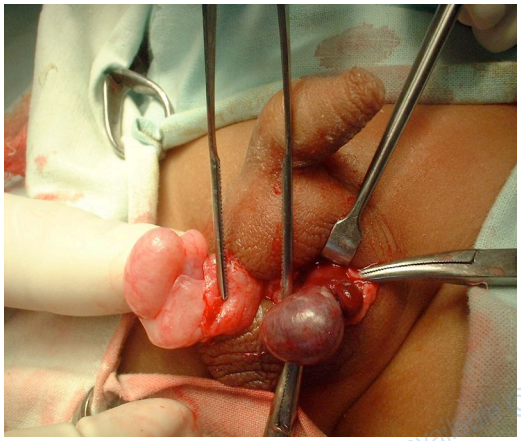
Neonatal and infant hernia are large and at more risk of obstruction



Obstructed inguinal hernia

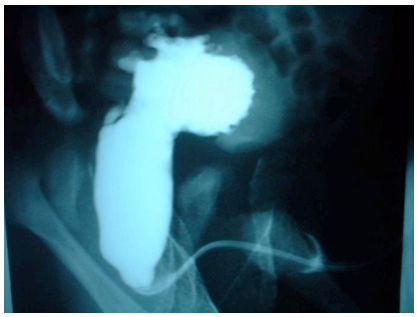
- More common in premature infants and in first year of life
- Proper sedation and head low position can reduce hernia in 50% 0f cases.
- If not, generally gets reduced after anesthesia and with manipulation
- Abdominal distension and bilious vomiting – treat it as small bowel obstruction

Torsion testis



- True emergency
- Do not waste time in USG/ color doppler
- Decompress stomach
- Always fix opposite side

Obstructive uropathy



- P U Valves can have devastating effect on whole urinary system
- Pt may present with Urosepsis, High creatinine, Disturbed electrolytes and CRF

Posterior urethral valves

Take home message

- Preoperative visit is must however urgent is the nature of surgery, as it provides important clues to plan anesthesia
- High risk informed and written consent is must
- Stabilize properly before anesthetising as most pediatric emergency can wait and gives you enough time
- Use anesthetic technique which is safe with minimum side effects and rapid awakening

THANK YOU

Pre operative preparation in emergency situation

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