Surgery in Prematures, Neonates and Children

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Prematures

- Defined as those born below 36 weeks gestation
- Special considerations: airway, mobility, temperature
- Most emergency operations concern necrotizing enterocolitis (NEC)
NEC
NEC

- Lately the trend is to operate in the incubator in order to avoid movement with dislodgement of ETT, venous lines, hypothermia
Are microcirculatory derangements a factor or a cause in NEC?
Neonatal Emergencies

- Definition – term babies up to 1 month from birth
- Omphalocele/gastroschisis
- Esophageal atresia
- Intestinal atresia
- Imperforate anus
- Diaphragmatic hernia
Abdominal wall defects

- Omphalocele – usually not an emergency unless perforated coelomic sac.
Gastroschisis

- Emergent condition – operation best done within 6 hours from birth
Esophageal Atresia

Majority – type C with fistula

Usually not severe emergency unless ventilated child or distal atresia

If severe cardiac defect – closure of fistula first – heart surgery - esophagus
Cyanotic Spells After EA Repair

Compression of the weakened trachea by the dilated esophagus

At presentation

After dilatation
Bowel Atresia

- Usually not an emergency
- In cases where a “to and fo” motion is detected in utero with previous intra-uterine perforation – operation at birth!
Bowel atresia

- 5 cases of “to and fro”
- 3 incarcerated internal hernia
- 1 perforation of bowel at birth
- 1 midgut volvulus
Bowel atresia
Imperforate Anus

- Usually has an obligatory wait of 36-48 hours
- Emergency only in bowel distention
Congenital diaphragmatic hernia - Bochdalek

- Not a surgical emergency
- Operation only after pulmonary stabilization
- Major determinant of outcome – pulmonary hypertension
Congenital diaphragmatic hernia - Bochdalek

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Congenital diaphragmatic hernia - Bochdalek

- Need very prolonged follow up, both pediatrician and surgeon
- Should be sent to serial respiratory evaluation
- Once a year ECHO for pulmonary hypertension
- Tendency for bowel obstruction
Children

- Midgut volvulus
- Incarcerated hernia
- Torsion of testicle
- Intussusception
- Hirschsprung’s
Midgut Volvulus

- Extreme emergency
- Delay can lead to necrosis of the whole gut and death
Midgut Volvulus

- Every bilious vomiting should have an UGI
- 25% of bilious vomiting in non-operated children is midgut volvulus
- Another 25% is bowel obstruction
Hernia

- Most hernias are reduced in the emergency room
- Operative approach – laparoscopy vs groin
- Delay endangers gonad and gut
Laparoscopic approach to hernia repair in neonates
Torsion of gonad

- Extreme emergency
- Operation within 4-6 hours
- If neonatal – 3-4 hours
Intussusception

- 60-70% can be reduced by enema
- Perforation during reduction – tension pneumoperitoneum
- Ileo-ileal – usually can wait; cannot be reduced by enema
Intussusception

- Ileo-ileo-colic: not advised to repeat enema reduction attempts
Hirschsprung’s

- Operation only if child not responsive to conservative measures
- Needs intra-operative frozen sections
- Short procedure, long operation time
Hirschsprung’s

- Perform a rectal exam!
- If suspicious – biopsy!
- Enema is good to ascertain extent of disease once proven
Hirschsprung’s

- In case of disease only to recto-sigmoid, trans anal approach should be considered
Hirschsprung's