Common Pediatric Surgical Cases

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Nothing to Disclose
Pediatric Surgical Cases

- Objectives:
  - Discuss the presentation of common surgical cases in infants that can present to the PCP
  - Identify the differential diagnoses of each case and the management options for each

- Surgical cases:
  - Projectile Vomiting
  - Umbilical mass
  - Acute scrotal swelling
Projectile vomiting

- EG
- 80 do female delivered by vaginal delivery at 39 w with mild neonatal jaundice
- Breast fed
- Occasional spit-ups till 1 week prior to office visit when she started having forceful vomiting shooting across mom’s shoulder
- No weight loss and well hydrated
- Us obtained on 1/25/11
Projectile Vomiting

- Pylorus thickness 1.6 mm and length 14 mm (normal for age 3.5 mm and 16-17 mm) with fluid going through
- Mom back in 2 days with more concern about vomiting.
- Weight stable
- Repeat US on 1/28/11
- Pylorus 3 mm thick and 19 mm long with fluid going through
Projectile Vomiting

- Admitted to the hospital for monitoring feeds
- UGI obtained and shows pyloric patency
- Good PO intake with occasional spit-ups with large volume
- Ua negative and TSH normal. CRP 0.8. No BMP
- Discharged with instructions not to overfeed baby
- Dx: Overfeeding and ?? Pyloric spasm
Projectile Vomiting

- WM
- 56 do boy delivered at 40+ weeks by C-section
- Breast fed
- No vomiting till 1 w prior to 1st visit to PCP
- Vomiting described as projectile
- Minimal weight loss on 1st visit
- Family reassured and instructed to reduce volume of feeds
Projectile Vomiting

- Pt presents 1 w later with lethargy, dry diapers and non-stop vomiting x 2 days with weight loss
- Admitted to hospital
- BMP 137, 3.5, 84, 31, 20, 0.7, 106
- US obtained: pylorus 6 mm thick and 19 mm long
- Hydration overnight. Bolus 20 cc/ kg of NS x 2 and D5 ½ NS + 20 Kcl x 1.5 maintainance
Projectile Vomiting

- Repeat labs in AM normal
- Lap pyloromyotomy
- Discharged home on POD 2
- Dx: Hypertrophic pyloric stenosis
Hypertrophic Pyloric Stenosis

- Prevelance 1.5-4/1000 white infants
- More common in boys (x 2-5) between 2-8 weeks old
- Non-bilious progressively worsening projectile vomiting and no other GI signs. Usually no Hx of GERD
- Weight loss common after 1-2 weeks
- Differential:
  - GERD: very common, present since birth, may be forceful
  - Overfeeding: very common, monitoring feeds
  - Pylorospasm: uncommon, difficult to differentiate
  - Others: food allergy, antral web & pyloric duplication
Hypertrophic Pyloric Stenosis

- **Diagnosis:**
  - Palpable olive diagnostic
  - Visible gastric peristalsis (right to left)
  - Hypocholeremic hypokalemic metabolic alkalosis
  - US: thickness 3.5 mm or greater (3 mm if premie). Length 16 mm or greater (14 mm if preemie). No fluid goes through
  - If non-conclusive, an UGI is diagnostic
Hypertrophic Pyloric Stenosis

Management:

- Aggressive hydration. Bolus of NS 20 cc/kg x 2
- Fluids x 1.5 maintainance using D5 ½ NS + 20 KCL
- Cl and HCO₃ should be close to normal before surgery. HCO₃ must be < 30 meq/dl
- Laparoscopic pyloromyotomy
Umbilical Mass

- AM
- 31 do boy delivered at 38 w by C-section
- Umbilical cord fell-off at 1.5 weeks leaving a red fleshy mass
- Oozing of small amount of serous fluid x 1-2 days and then dried up
- Seen by NP and reassured that it should fall in 2-3 weeks
Umbilical Mass

- No bilious drainage or constant flow of clear fluid
- Admitted to the hospital on DOL 31 after seen by PCP for increased work of breathing x 3 days.
- RSV diagnosis made
- Consulted by peds to evaluate umbilical mass
- Abd US obtained and shows no infraumbilical cyst
Umbilical Mass

- Biopsy under local anesthesia at bedside
- Cauterization of base x 2 with silver nitrate
- Path results:
  - Benign skin with excess granulation tissue, foreign material and hair with associated giant cell reaction
  - Umbilical cord remnant
Umbilical Mass

- WL
- 25 Day old boy delivered at 38 w by C-section
- Umbilical stump fell-off at 7-9 days without residual masses
- Clear serous drainage from umbilicus x 4-5 days
- No other abnormalities until bloody drainage 3 days prior to presentation with swelling
Umbilical Mass

- Next day erythema x 1 cm around and purulent drainage with low grade fever
- Pt presented to PCP who initially made the diagnosis of omphalitis
- Surgical consultation obtained and abd US ordered
- IV Vanco and gent started
Umbilical Mass

- Infected thickened urachal cyst communicating with bladder
- Pt kept on IV abx x 24 hours and taken to OR
- Excision with primary closure
- Kept in hospital on IV Clinda and gent x 48 h
- Switched to PO Bactrim and dced home
Umbilical Anomalies

- Normal time of separation of umbilical cord is 3 days to 2 months (mean 14-15 d)
- Delayed separation in neutrophil mobility defects. May take up to 3 months
- Abnormalities:
  - Umbilical granuloma
  - Umbilical hernia
  - Urachal remnant
  - Omphalomesenteric duct remnant
Umbilical Granuloma

- Commonest
- Consists of umbilical cord remnant and granulation tissue
- If small, can be cauterized with Silver Nitrate. If recurs after 2 attempts, suspect a congenital remnant
- If large, needs to be excised
- If in doubt, obtain an US of lower abdominal wall and biopsy
- If recurrent, proceed with umbilical exploration
Umbilical Hernia

- Very common particularly in AA
- If > 5 cm diameter, qualifies as a small omphalocele
- What matters is the size of the palpable defect
- Rarely becomes incarcerated
- Observation till the age of 2-5 y since spontaneous closure occurs in 90-95% of patients

Indications for surgery:
- Incarceration
- With another surgery
- Persistence beyond 2-5 y
Urachal Remnant

- Variants:
  - Urachal sinus: Minimal clear drainage +/- a mass
  - Urachal cyst: Minimal clear drainage +/- infection
  - Bladder diverticulum: asymptomatic
  - Patent Urachus (fistula): copious clear drainage

- Ultrasound very helpful in cases of cyst, diverticulum or fistula. Fistulogram rarely needed

- Total excision is treatment of choice down to bladder

- If infected, primary excision is feasible with abx
Fig. 3. Urachal remnant anomalies: urachal fistula (A), urachal cyst (B), urachal sinus and diverticulum (C).
Omphalomesenteric Remnant

- **Variants:**
  - Vitelline sinus: Minimal clear drainage +/- mass
  - Vitelline cyst: Minimal clear drainage +/- infection
  - Vitelline fistula: copious bilious drainage from umbilicus
  - Persistent band: asymptomatic but can lead to SBO
  - Meckel’s diverticulum: asymptomatic, diverticulitis or painless bleeding

- Imaging not very helpful
- If mass present proceed with biopsy +/- fistulogram
- Surgical excision + Meckel’s diverticulectomy. ALWAYS LOOK FOR IT
Acute Scrotal Swelling

- FL
- 2 mo old boy, former 32 w preemie delivered by C-section
- Doing well till the day of admission to hospital when became more fussy, irritable, vomited once and refusing feeds
- Vomiting non-bilious. Had a BM the day before
Acute Scrotal Swelling

- Baby presents to PCP
- Exam benign but has new onset right sided scrotal swelling. Exam difficult because baby irritable
- Ultrasound obtained and read as communicating hydrocele
- Baby admitted to the hospital for hydration. Continues to be irritable and started having bilious vomiting
Acute Scrotal Swelling

- Surgical consult obtained
- KUB shows dilated bowel loops
- Exam reveals tender swollen right scrotum that does not transilluminate
- To OR for repair of incarcerated right inguinal hernia
- Viable incarcerated loop of small bowel
- Dced home in 48 hours
Acute Scrotal Swelling

- SM
- 3 mo old full term at birth delivered by normal vaginal delivery
- Baby had cough and irritability for 24 hours
- The mother noted new onset right scrotal swelling when giving the baby a bath
- The scrotum looks bruised and bluish. No vomiting and tolerating feeds
Acute Scrotal Swelling

- Baby presents to PCP
- Baby has cough and a non-reducible right scrotal swelling. Exam difficult
- Called for urgent consultation
- Seen in office. The right scrotal swelling is non-tender with adequate distraction and transilluminates
Acute Scrotal Swelling

- Family reassured that this is an acute hydrocele
- Ultrasound obtained to reassure family and confirms the diagnosis of a hydrocele
- Family advised to observe till the child is 6 months old and if recurrent or fluctuating swelling would proceed with repair
Inguinal Hernia

- Incidence 0.8-4.4%
- More in preemies, boys (x 8) & on the right side
- Due to patency of processus vaginalis in 99% of cases
- Presents as a painless bulge. Pain by itself is rare
- A tender swelling denotes incarceration

Differential:
- Simple hydrocele: non-fluctuant swelling that transilluminates. Observe till the age of 6m-2y. Usually present at birth & bilateral
- Communicating hydrocele: fluctuant swelling that transilluminates. Should be treated as a hernia
Inguinal hernia

- Imaging not helpful and might be misleading
- Treatment is elective surgery
- In preemies, it is preferable to do surgery when off Oxygen and around 3 kg
- Indications for exploration of contralateral side:
  - Left sided hernia in a preemie
  - History of bulge on the contralateral side
- As long as laparoscopy feasible, it is advisable to inspect the contralateral groin
Thank You