

NEONATAL ABDOMINAL EMERGENCIES

Carlos J. Sivit M.D.

- Low intestinal obstruction
- High intestinal obstruction

INTESTINAL OBSTRUCTION

- High obstruction - proximal to mid-ileum
 - Few dilated, air filled bowel loops
 - Complete obstruction diagnosed by KUB
 - Partial obstruction diagnosed by UGI
- Low obstruction - distal ileum & colon
 - Many dilated air-filled bowel loops
 - Contrast enema study of choice

LOW INTESTINAL OBSTRUCTION

LOW OBSTRUCTION

- Typically present with failure to pass meconium or constipation
- 90% of normal neonates pass meconium in 1st 24 hours; 99% in 1st 48 hours

LOW OBSTRUCTION

- Hirschprung's disease
- Functional immaturity
 - Meconium plug, small left colon
- Meconium ileus
- Ileal atresia
- Colonic atresia

CONTRAST ENEMA

- Water soluble contrast
 - Dilute gastrograffin
- Patient immobilization
 - Octagon board
- Foley catheter
 - 8 french
 - Do not inflate balloon

HIRSCHPRUNG'S DISEASE

- Arrest in migration of ganglion cells
- Extends proximally from anus
- Without skip areas
- Rare form is total colonic aganglionosis
- Transition zone most specific finding
- Most common site is *rectosigmoid (2/3)*

MECONIUM PLUG SYNDROME

- Failure to pass meconium in 1st 24 hrs
- Characterized by multiple meconium plugs
- Usually improves following enema

Clatworthy. Surgery 1956;39:131-41

SMALL LEFT COLON SYNDROME

- Caliber change near splenic flexure
- Associated w/ maternal diabetes
- Ddx - Hirschprung's disease

Davis. AJR 1974;1974;120:322-9

MECONIUM ILEUS

- Inspissated meconium in distal ileum
- Almost always associated w/ CF
- Presenting feature in 5-10% w/ CF
- Complications include *volvulus*,
perforation, *peritonitis* & *microcolon*

MECONIUM ILEUS

- Bubbly appearance in rlg
- Paucity of air fluid levels
- Reflux into nondilated distal ileum
- Dilated small bowel

MECONIUM PERITONITIS

- Results from intrauterine perforation
- Primarily from meconium ileus
- Calcification of peritoneal meconium
- Site of perforation usually not found

ILEAL ATRESIA

- Secondary to vascular insult
- Atresias may be multiple
- +/- Microcolon

COLONIC ATRESIA

- Secondary to vascular insult
- Type I – Complete obstruction by diaphragm
- Type II – Obstruction by atretic cord
- Type III – Complete separation of proximal & distal colon

CONTRAST ENEMA DDX

● Microcolon

- Meconium ileus
- Ileal atresia
- Total colonic aganglionosis
- Colonic atresia

CONTRAST ENEMA DDX

● Transition zone

- Hirschprung's
- Small left colon syndrome

CONTRAST ENEMA DDX

● Normal

- Hirschprung's
- Ileal atresia

HIGH INTESTINAL OBSTRUCTION

HIGH OBSTRUCTION

- Midgut malrotation
- Duodenal atresia/stenosis/web
- Jejunal atresia/stenosis

MIDGUT MALROTATION

- Most important UGI obstruction in newborn
- Arrest in normal rotation of midgut
- Results in abnormal mesenteric fixation
- Obstruction 2° twisting around SMA
(*volvulus*) or abnl peritoneal attachments
(*Ladd's bands*)

ASSOCIATED CONDITIONS

● Always present

- Omphalocele
- Gastroschisis
- Congenital diaphragmatic hernia

● Increased incidence

- Duodenal/jejunal atresia/stenosis
- Hirschprung disease
- Heterotaxy syndrome

MIDGUT MALROTATION

RADIOGRAPHIC FINDINGS

- Normal
- Partial / complete obstruction
- Proximal / mid small bowel

MIDGUT MALROTATION

UGI FINDINGS

- Abnormal duodenal-jejunal junction
 - Normal = left of left vertebral pedicle at level of bulb
- Duodenal obstruction
- Corkscrew appearance of small bowel

Pitfalls

- False positive diagnosis
 - Low DJJ due to bowel dilatation
 - Duodenal redundancy
- False negative diagnosis
 - Abnormal DJJ *rarely* to left of spine and at level of bulb

Ladd's bands

- Condensations of mesentery
- Cross & compress duodenum

Midgut volvulus

- Spiraling of bowel around SMA
- Beaked deformity distal bowel

MIDGUT MALROTATION

US/CT FINDINGS

- Reversal of mesenteric vessels
 - SMV to left of SMA
- “Whirlpool” appearance of vessels
- Not accurate enough for 1^o dx

DUODENAL OBSTRUCTION

- Most common cause of high obstruction
- Atresia > stenosis > web
- 3/4 distal to papilla & associated with bilious vomiting
- 1/3 associated w/ Down's syndrome
- May be part of VACTERL association

JEJUNAL ATRESIA

- Due to vascular insult
- Atresia > Stenosis
- Atresias may be multiple
- Normal caliber colon

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