


Disorders of Intestines
Surgical Emergencies

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Mechanical Bowel Obstruction

Congenital:
Atresia, Stenosis, Meconium ileus, Anorectal malformation, Volvulus, Annular pancreas

Acquired:
Necrotizing Enterocolitis

Functional Obstruction:
Hirschsprung's disease, Meconium plugs, Ileus

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Mechanical Bowel Obstruction

General Signs & Symptoms

- Bilious Vomiting
- Abdominal distention
- Failure to pass meconium
- Specific X-ray findings
- Contrast studies

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Mechanical Bowel Obstruction



Intestinal Atresia

Accounts for 1/3 of all intestinal obstructions

Incidence: 1/1500 live births

- Jejunioileal
- Duodenal
- Colonic

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Mechanical Bowel Obstruction



Duodenal Atresia

30% of all intestinal atresias

70% are associated with other anomalies such as

- Down Syndrome
- Annular pancreas
- Cardiovascular malformations
- Esophageal atresia
- Small bowel and anorectal lesions

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Duodenal Atresia

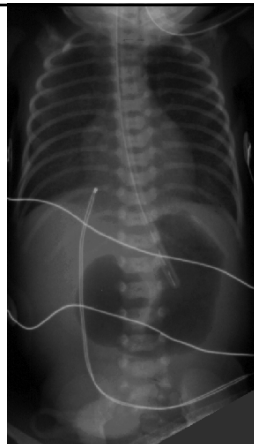
Symptoms

Bile stained vomiting

History of Polyhydramnios

Absent abdominal distention

X-ray: double-bubble sign



Mechanical Bowel Obstruction



Duodenal Atresia

Treatment:

Correction of dehydration

Correction of electrolytes

Surgery: duodenal-duodenostomy or duodenal-jejunostomy

& inspection of the entire bowel (15% may have multiple atresias)

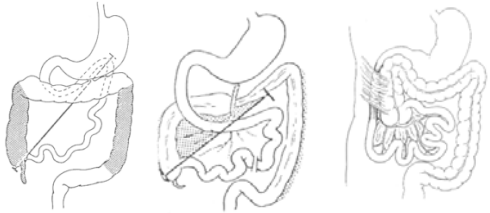
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Malrotation & Volvulus



Incidence: 1/6000 live births

Occurs between the 8th and 10th weeks of gestation



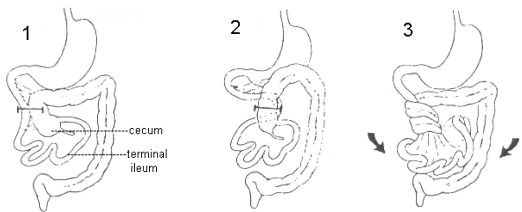
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Malrotation & Volvulus



Volvulus is usually in the clockwise direction

It causes: Intestinal obstruction. Vascular compromise and gangrene.



Malrotation

Early volvulus

Late volvulus

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Other causes of bowel obstruction



Stenosis

Duodenal stenosis is usually due to:

- Annular pancreas
- Peritoneal bands
- Aberrant superior mesenteric artery
- Pre-duodenal portal vein

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Other causes of bowel obstruction



Jejunioleal Atresia

- Accounts for 55% of all intestinal atresias
- 31% Proximal Jejunum
- 20% Distal Jejunum
- 13% Proximal Ileum
- 36% Distal Ileum

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Jejunal Atresia

Symptoms:

- History of polyhydramnios
- Bilious vomiting
- Abdominal distention
- Failure to pass meconium
- Jaundice



Supine abdominal radiograph showing small bowel obstruction and multiple distended small bowel loops and absent colonic gas.

Jejunal Atresia

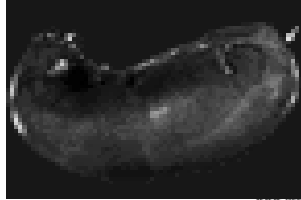


Treatment:

Surgery:

Procedure of choice, primary closure after an end-to-end anastomosis

Survival > 90%



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Colonic Atresia

< 10% of all intestinal atresias

Mostly in ascending colon



Surgically proven case of colonic atresia. The radiographs show a hugely distended loop of bowel. The barium enema shows a microcolon which ends abruptly at mid transverse colon level. The distended loop of bowel is the ascending colon.

Meconium Ileus



Intraluminal intestinal obstruction

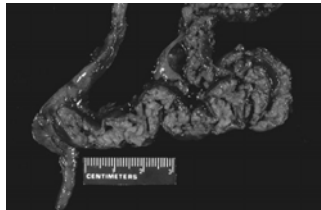
90% are associated with cystic fibrosis for which prenatal diagnosis is available

Infants present with:

Vomiting

No meconium

Abdominal mass



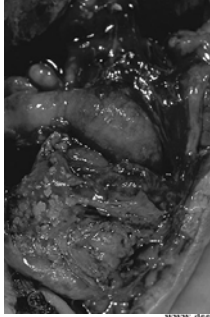
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Meconium Ileus



Treatment:

- Hyperosmolar enema
- Fluid & electrolyte balance
- Surgical intervention:
Enterotomy, Irrigation & closure



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Anorectal Malformations



- Incidence: 1/5000 live births
- Male > Female
- Associated anomalies:
Vertebral
Genitourinary 28%
Gastrointestinal 13%

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Anorectal Malformations

- | | |
|-------------------------------|-----|
| Anal stenosis | 8% |
| Imperforate anal membrane | 6% |
| Anal agenesis without fistula | 7% |
| Anal agenesis with fistula | 29% |
| Rectal agenesis | 47% |



Prone decubitus radiograph of a high anorectal atresia. The colonic gas reaches mid sacral level and there is a large gap between it and the external marker on the anal pit.



Distal colonogram in a boy with anorectal atresia. Note the fistula from the distal colon to the posterior urethra.

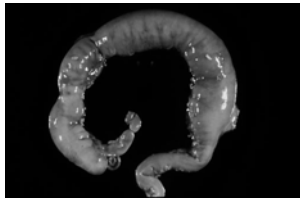


Abdominal radiograph of a neonate with a high anorectal atresia and a large fistula. Note the calcified intraluminal meconium typical of this.

Hirschsprung's Disease



- Low intestinal obstruction
- Agnesis of ganglion cells in the Auerbach & Meissner plexuses
- The lesion originates in the rectum
- 80 – 90% does not extend from the sigmoid colon



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Hirschsprung's Disease



- Male / Female 4:1
- Incidence: 1/5000 live births
- Accounts for 5% of neonatal intestinal obstructions
- Uncommon in LBW infants

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Hirschsprung's Disease



- Diagnosis & Treatment:
- Delay in passage of meconium
- Evidence of lower intestinal obstruction
- Enterocolitis: May lead to diarrhea, dehydration & shock
- Barium enema, rectal suction biopsy & full thickness biopsy

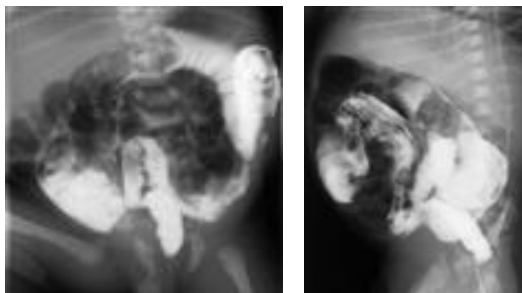
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Early images of contrast enema in the same child shows the irregular "saw tooth" appearance of the rectum.



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Frontal and lateral projection of the water soluble contrast enema showing a transition zone in the mid-descending colon, with proximal distension. Note the narrow, nondistensible rectum.

Meconium Plug Syndrome



- Obstruction of distal colon due to colonic dysmotility
- Pass no meconium for 24 – 48 hours
- Contrast enema: diagnostic & therapeutic
- Careful follow-up is necessary as ½ of patients may have Hirschsprung's disease

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Inguinal Hernia



One-week-old baby with bowel obstruction secondary to an inguinal hernia. Note gas in the scrotum on the right side.

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Ileus



Non-mechanical bowel obstruction due to variety of causes

Infections:

- Generalized sepsis
- Peritonitis

Metabolic:

- Hypokalemia
- Hypo or Hyper magnesemia
- Hypocalcemia
- Azotemia

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Ileus



Endocrine:

- Hypothyroidism
- Hypoparathyroidism

Pharmacologic:

- Narcotics
- Barbiturates
- Ganglion blocking agents
- Tricyclic antidepressants
- Phenothiazines

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Ileus



Neurologic:

- Severe anoxic brain damage
- Spinal cord injury
- Myotonic dystrophy
- Familial dysautonomia

Miscellaneous

- Idiopathic pseudo-obstruction
- Congestive heart failure

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Ileus



- Peritonitis
- GI perforation
- Acute appendicitis
- Chronic Idiopathic Intestinal Pseudo-Obstruction Syndrome
- GI motility disorder of both muscular and neurologic origin
- Megacystic-microcolon-intestinal hypoperistalsis syndrome

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