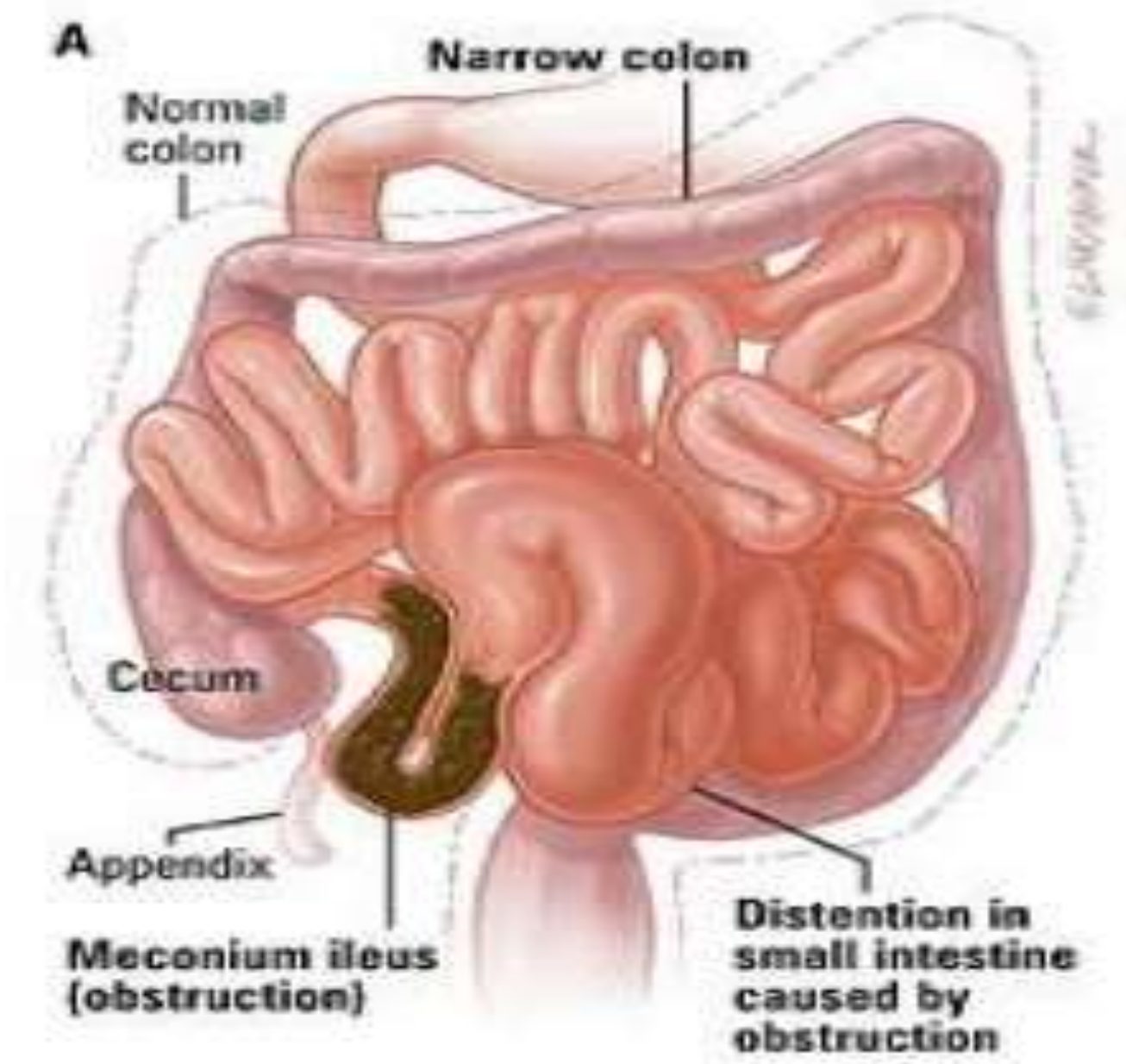
Meconium ileus

Dr. Narinder Singh,
Associate Professor,
Pediatrics Surgery,
Department of Surgery,
GMC, Jammu

- One of the most common cause of neonatal intestinal obstruction accounting for 9-30% cases
- It is the earliest manifestation of cystic fibrosis. 16% patients of cystic fibrosis present like this.
- It is characterized by extremely viscid, protein rich, inspissated meconium causing intraluminal type of obstruction of distal ileum.


A
Narrow colon
Normal colon
Cecum
Appendix
Meconium ileus (obstruction)
Distention in small intestine caused by obstruction

Pathogenesis

- Due to abnormalities of excessive mucous secretions and pancreatic enzyme deficiency the meconium in meconium ileus has less water content, increased albumin (protein) level , lower sucrase and lactase levels (decrease carbohydrate levels).
- More viscous intestinal mucous in absence of degrading enzymes results in thick dehydrated meconium which obstructs intestine.
- In addition, there is also intestinal glandular abnormality which leads to hyperviscous mucous and there is also abnormal intestinal motility which prolongs transit time leading to increased absorption of water and development of thick meconium in patients when present with “Meconium ileus like disease”.

Clinical features

- **Simple meconium ileus** -50% neonates present with simple obstruction of mid ileum with dilatation and thickening of proximal bowel.
- Ileum is filled with firm concretions and lumps of meconium while proximal dilated gut is filled with thick sticky meconium.
- With in 1-2 days of birth, there is abdominal distension and bilious vomitings.
- Non passage of meconium.
- Dilated proximal bowel loops are visible and palpable with doughy feel.

- **Complicated meconium ileus-** present with volvulous, gangrene, atresia and perforation of gut with meconium peritonitis.
- Meconium peritonitis patients present immediately after birth and develop sepsis with in 24hrs of birth.
- In utero perforation leads to palpable walled off collection of meconium in peritoneal cavity called “meconium pseudocyst”

Diagnosis

1.All patients should be tested for cystic fibrosis with sweat chloride test after 1 month of age.

2.Xray abdomen (supine and erect).

Uncomplicated- unevenly dilated gut loops with few air fluid levels. In later stages, swallowed air mixes with thick meconium giving ground glass appearance.

Complicated –present with pneumoperitoneum , air fluid levels, peritoneal calcification in cases of antenatal perforation.

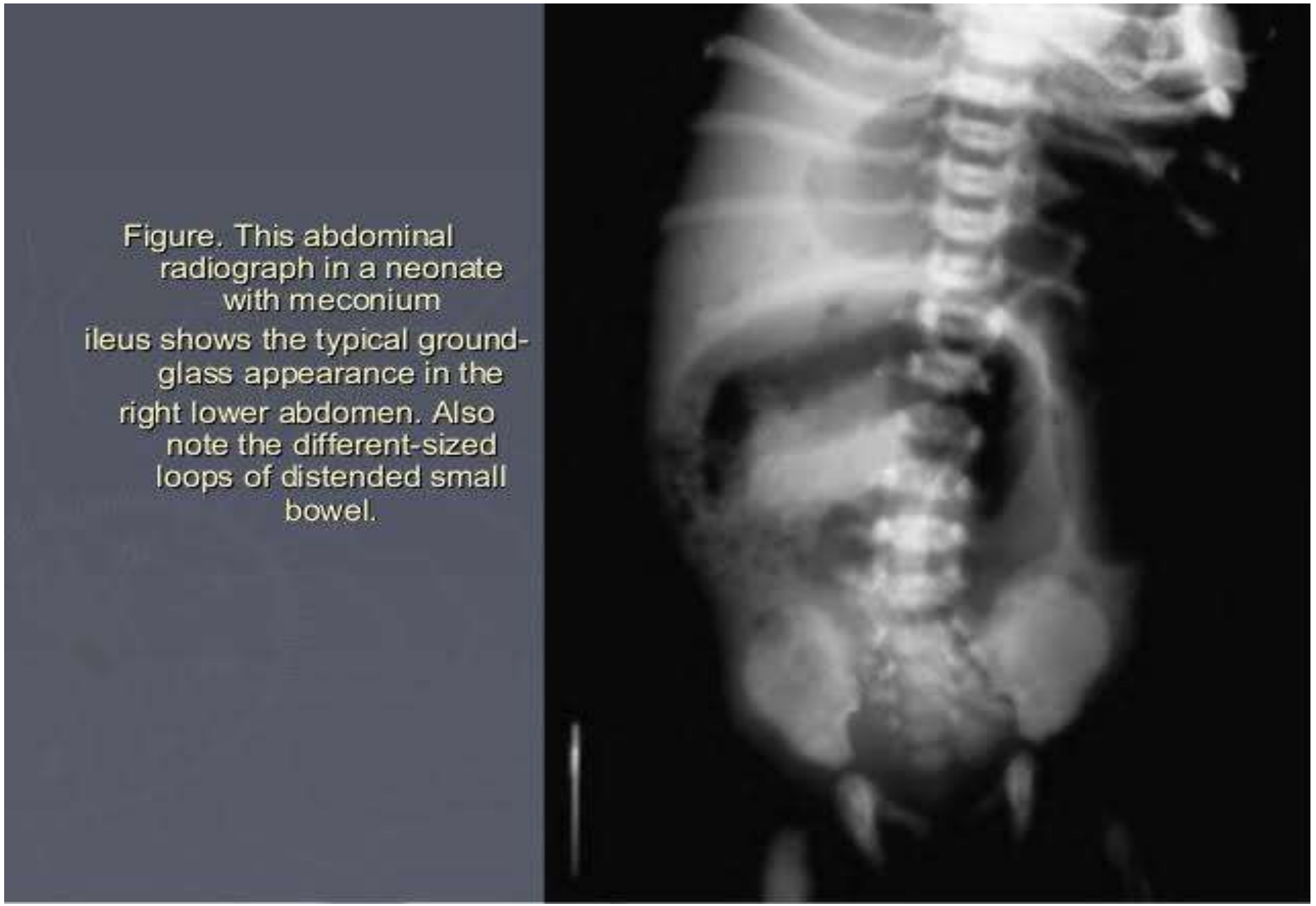


Figure. This abdominal radiograph in a neonate with meconium ileus shows the typical ground-glass appearance in the right lower abdomen. Also note the different-sized loops of distended small bowel.

- Contrast enema – Gastrograffin with 25%- 50% which is hyperosmolar water soluble contrast media. It is used both for diagnosis and treatment. Typically, there is a small caliber colon i.e. microcolon of disuse containing small inspissated lumps of meconium called “rabbit pellets” in the distal ileum with proximally dilated small bowel.

Passage of pellets and meconium after the gasteograffin enema is therapeutic in uncomplicated cases.

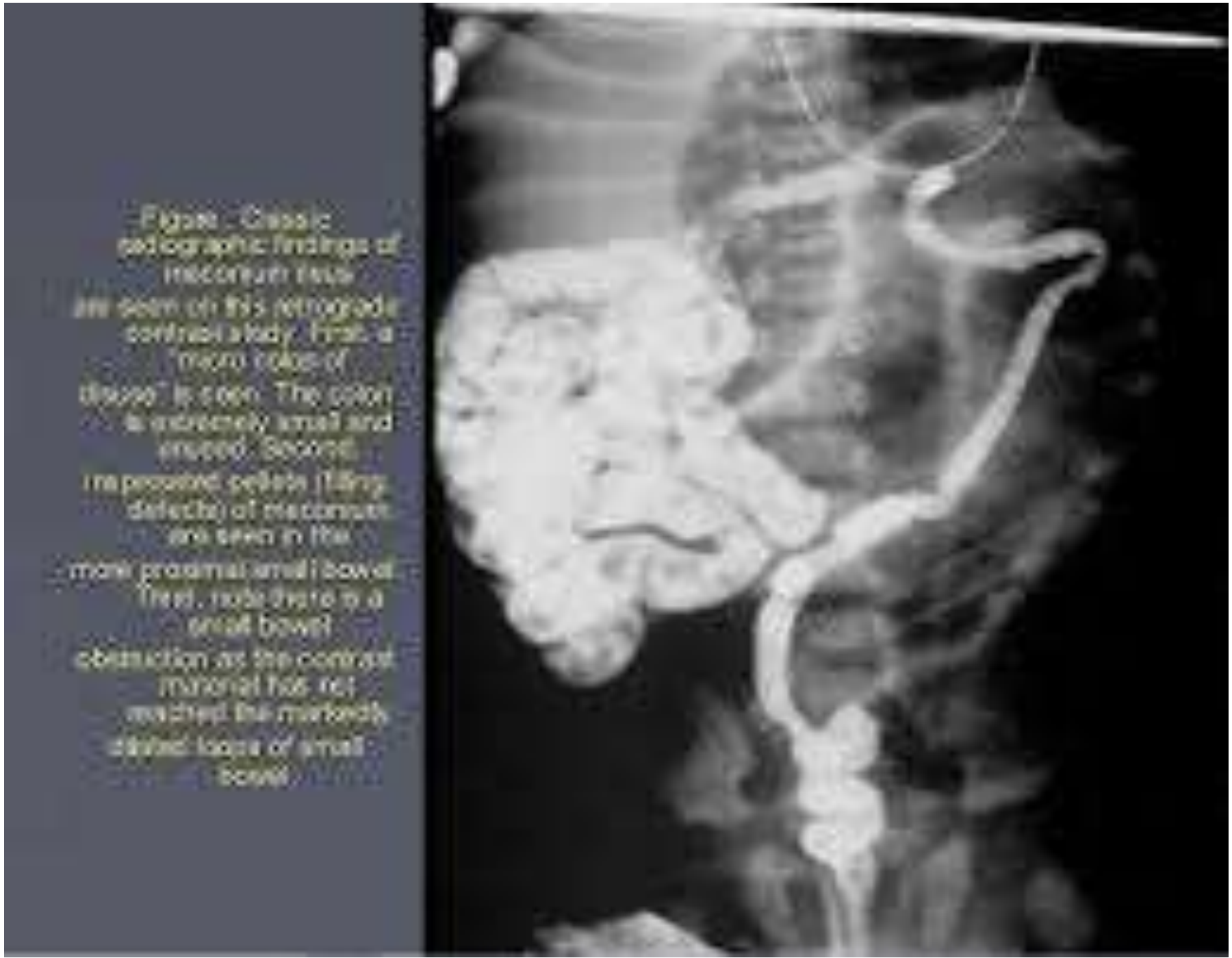


Figure : Classic radiographic findings of meconium ileus are seen on this retrograde contrast study. First a "micro colon" is seen. The colon is extremely small and unused. Second, multiple pellets (filling defects) of meconium are seen in the more proximal small bowel. Third, note there is a small bowel obstruction as the contrast material has not reached the markedly dilated loops of small bowel.

Management

General

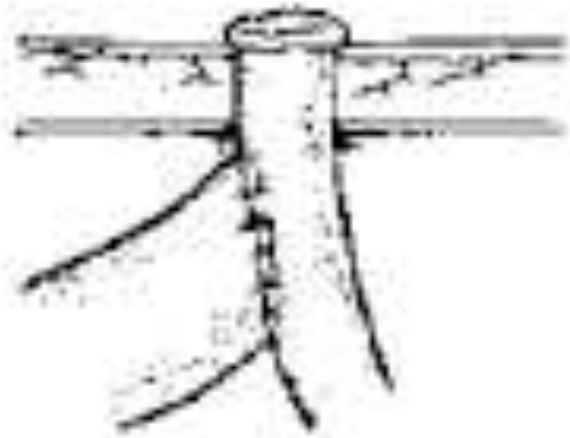
- Admission in NICU
- Nasogastric aspiration
- I/V fluids and correction of electrolytes
- Antibiotics
- FFP infusion
- Inj. Vitamin K

Uncomplicated

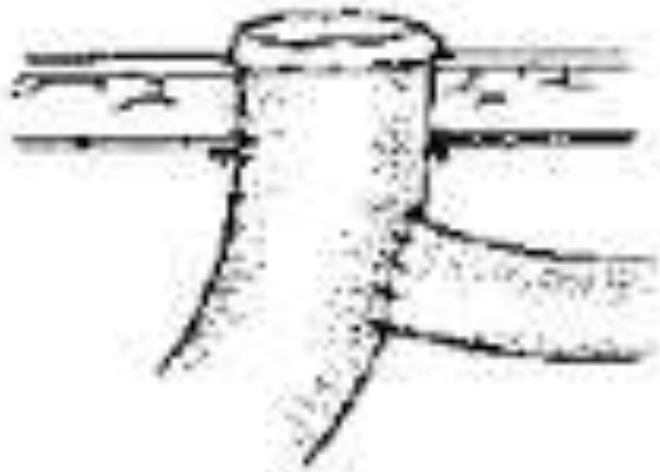
- Nonoperative treatment with gastrograffin enema – if patient passes hard pellets followed by meconium more washes are given with 1-3% N- acetyl cystine solution to complete evacuation.
- N- acetyl cystine solution can also be given through nasogastric tube for clearing of gastrograffin enema.

In **complicated cases –Exploratory laparotomy and enterostomy :** Stoma formation is done and followed by irrigation with gastrograffin / normal saline/ N acetyl cystine through stoma.

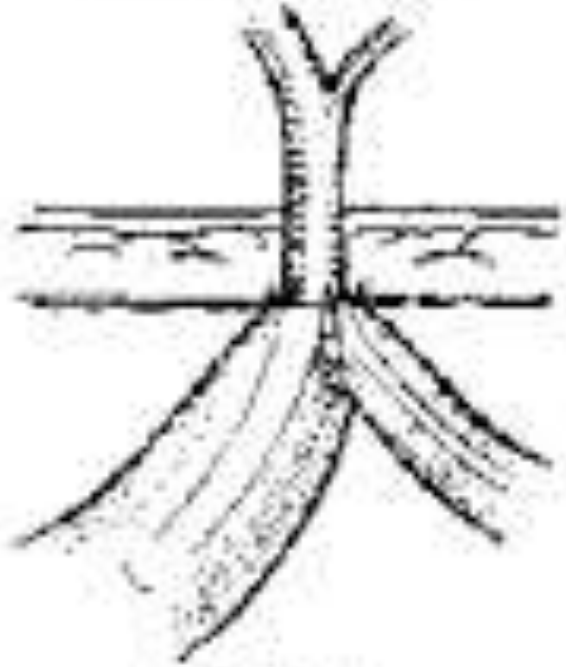
Double-barrel
(Modified Mikulicz)



Bishop-Koop



Santulli



Rehbein

THANKS