

Intestinal obstruction



Definition

Bowel obstruction occurs when the normal propulsion and passage of intestinal contents does not occur.

Intestinal obstruction



➤ **Mechanical obstruction**

Paralytic Ileus

Intestinal obstruction

- This obstruction can involve only the small intestine (small bowel obstruction), the large intestine (large bowel obstruction), or via systemic alterations, involving both the small and large intestine (generalized ileus). The "obstruction" can involve a mechanical obstruction or, in contrast, may be related to ineffective motility without any physical obstruction, so-called functional obstruction, "pseudo-obstruction," or paralytic ileus

CLASSIFICATION

- Dynamic/ Adynamic
- Small bowel obstruction [high or low]
- Large bowel obstruction
- Acute
- Chronic
- Acute on chronic
- Subacute
- Simple
- Strangulated
- Closed loop obstruction

INTESTINAL OBSTRUCTION IS CLASSIFIED IN TWO TYPES

- DYNAMIC : where peristalsis is working against a mechanical obstruction.
- ADYNAMIC: it may occur in two forms
 1. 1st where peristalsis may be absent (paralytic ileus,) occurring secondarily to neuromuscular failure in the mesentery.
 2. 2nd where peristalsis may be present in non-propulsive form.(pseudo-obstruction)

IN BOTH FORMS MECHANICAL ELEMENT IS ABSENT.

Mechanical obstruction

- There is physical blockage of intestinal lumen which due to:
 1. Intramural : congenital-tumor-hematoma-inflammatory
 2. Extramural : adhesion-volvulus-hernia –abscess-hematoma
 3. Lumen obstruction: stone-meconium-foreign body- impaction (stool-worm-barium)
- This mechanical obstruction can be partial (lumen narrowed but allow transit some content) or complete (lumen totally obstruction) this classify to
 - A. simple obstruction (no vascular impairment)
 - B. closed loop (both ends are obstructed e.g volvulus)
 - C. strangulation obstruction

ON THE BASIS OF NATURE IT IS CLASSIFIED IN TO

- ACUTE
- CHRONIC
- ACUTE ON CHRONIC
- SUBACUTE

ACUTE OBSTRUCTION :

- IT USUALLY OCCUR IN SMALL BOWEL OBSTRUCTION WITH SUDDEN ONSET OF SEVERE COLICKY CENTRAL ABDOMINAL PAIN,DISTENTION AND EARLY VOMITING AND CONSTIPATION.



CHRONIC OBSTRUCTION :

- USUALLY SEEN IN LARGE BOWEL OBSTRUCTION WITH LOWER ABDOMINAL COLIC AND ABSOLUTE CONSTIPATION, FOLLOWED BY DISTENTION.



ACUTE ON CHRONIC OBSTRUCTION :

- IT STARTS IN LARGE BOWEL BUT GRADUALLY INVOLVES THE SMALL INTESTINE.
- EARLY SYMPTOMS ARE PAIN AND CONSTIPATION BUT WHEN SMALL INTESTINE IS INVOLVED IT IS CHARACTERIZED BY VOMITING AND GENERAL DISTENTION.

ON THE BASIS ,WHETHER THE OBSTRUCTION IS

- SIMPLE MECHANICAL
- STARANGULATED
- CLOSED LOOP

ETIOLOGY

- CAUSES FROM OUTSIDE THE WALL (Extraluminal)
- CAUSES FROM THE WALL (Intramural)
- CAUSES IN THE LUMEN (Intraluminal)

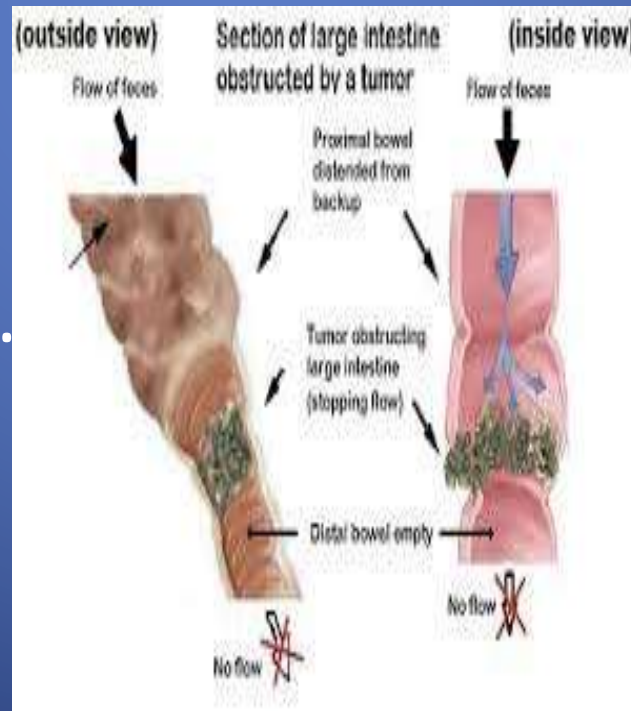
Cause of intestinal obstruction

- Adhesions- 40%
- Tumors -15%
- Inflammatory- 15%
- Obstructed hernia-12%
- Intraluminal-10%
- Miscellaneous -8%

ETIOLOGY

DYNAMIC(MECHANICAL)FROM
THE WALL

- 1- TB
- 2- CROHN'S
- 3- TUMORS
- 4-STICTURE
- 5- CONGENITAL



ETIOLOGY

MECHANICAL IN THE LUMEN

1- GALL STONES

2- F.B

3- BEZOARS

4- WARMS

5- FECES



ETIOLOGY

MECHANICAL EXTRALUMINAL

1- BANDS

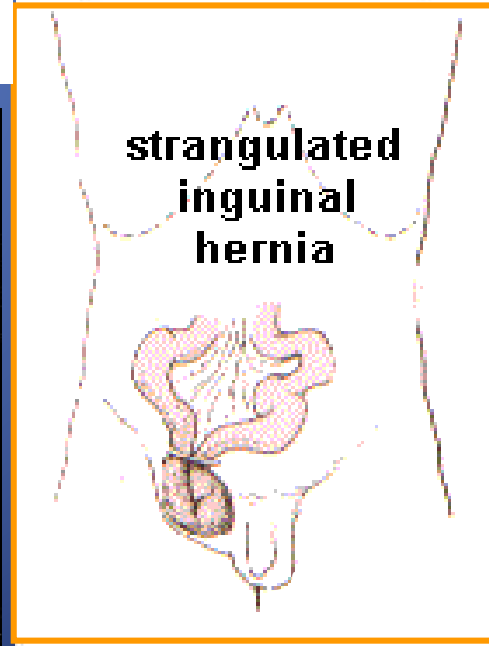
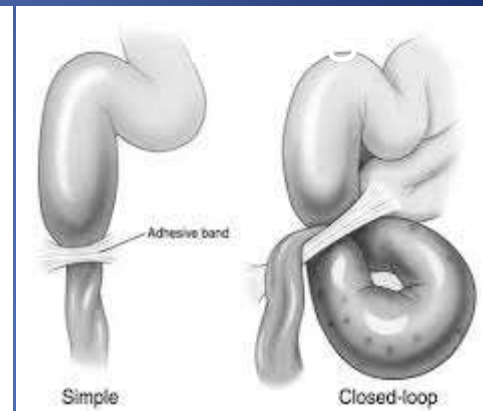
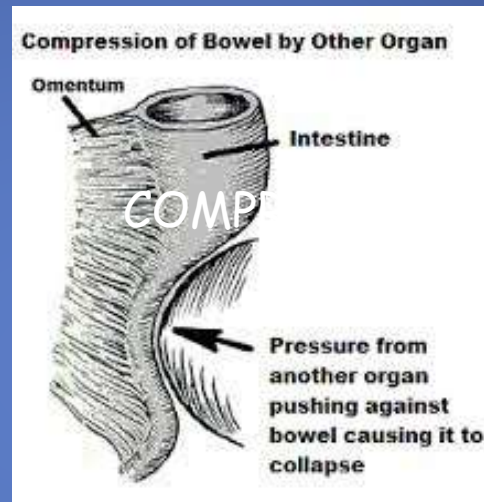
2- ADHESIONS

3- ABSCESS

4- HERNIAS

5-COMPRESSION

.....



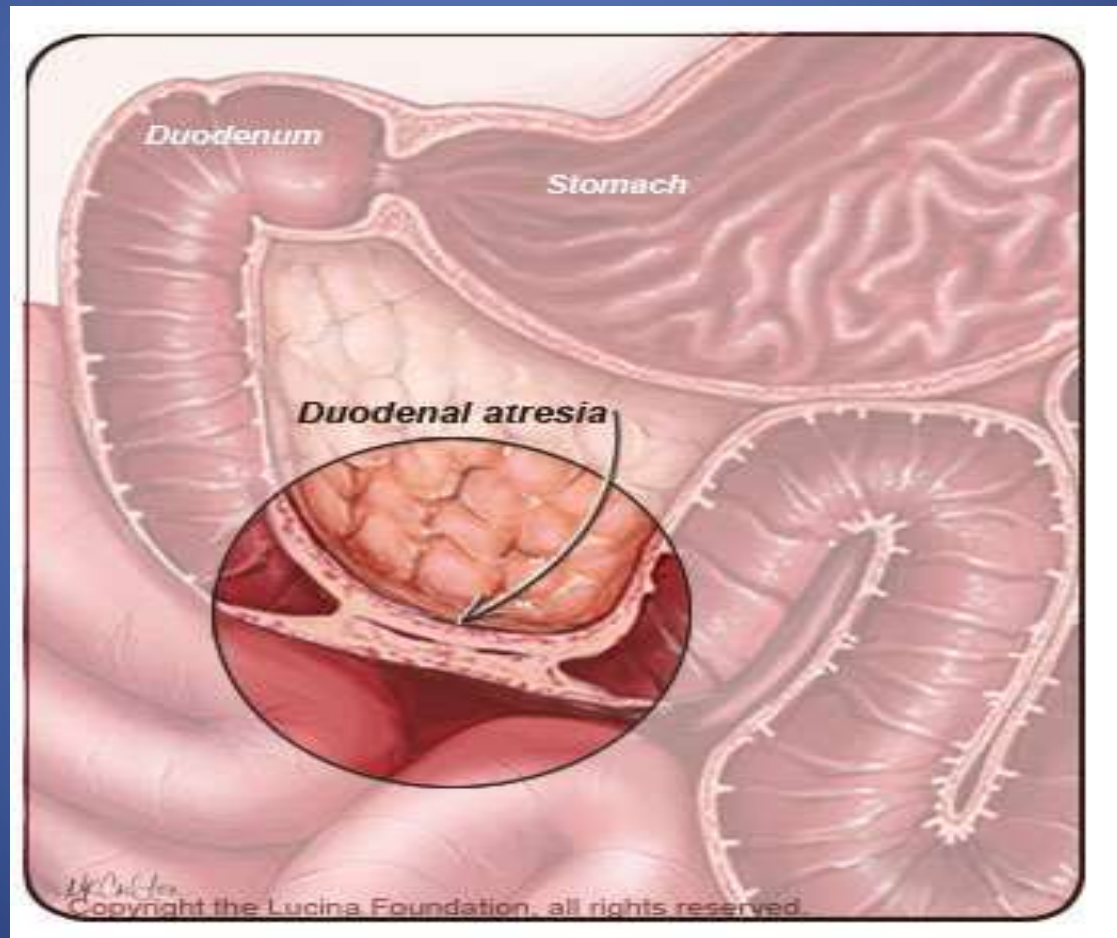
GALLSTONES



INTUSSUSCEPTION



Duodenal Arteries



Intestinal tumor



ADHESIVE BANDS AND CONSTRICTION



ETIOLOGY

Adynamic Intestinal Obstruction.

- 1- Peritonitis
- 2- Electrolytes' Imbalance
- 3- Postoperative
- 4- Ischemia
- 5- Drugs
- 6- Retroperitoneal causes...

MOST COMMON CAUSES

SMALL INTESTINE

- ADHESIONS &
- EXTERNAL HERNIAS (both are more than 75% of cases)
- CROHN'S, TB, TUMORS, INTUS., CONGENITAL.....

LARGE INTESTINE

- TUMORS &
- VOLVULUS (both are 90% of cases)
- DIVERTICULITIS (rare)
- ADHESIONS (extremely rare if at all)

CAUSES ACCORDING TO AGE

BIRTH : Atresia, Meconium, NE, Volvulus, Hirschsprung's

3 WEEKS : Pyloric stenosis

6-9 MONTHS : Intussusception

TEENAGE : Appendicitis , Meckel's diverticulitis

YOUNG ADULT : Adhesions , Hernia

ADULT : Adhesions , Hernia, Appendicitis, Crohn's,
Carcinoma

ELDERLY : Carcinoma, Diverticulitis, Sigmoid Volvulus ,
Feces

PATHOPHYSIOLOGY

THE OBSTRUCTION COULD BE :

- Simple
- Closed loop
- Strangulated

PATHOPHYSIOLOGY

SIMPLE OBSTRUCTION :

1-ABOVE THE OBSTRUCTION

OBSTRUCTION → Peristalsis increases → Intstine dilates → Reduction in peristaltic strength → Flaccidity and paralysis (protective but late)

2- BELOW THE OBSTRUCTION

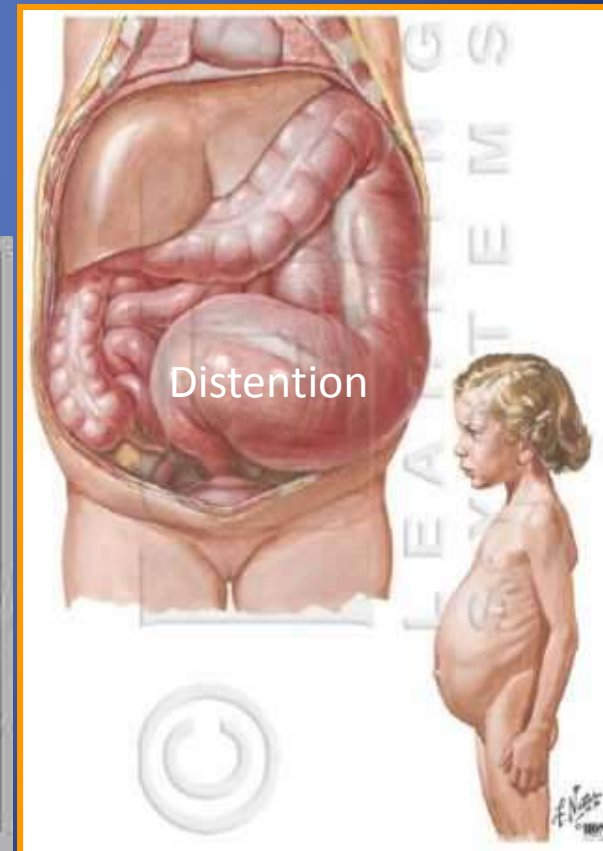
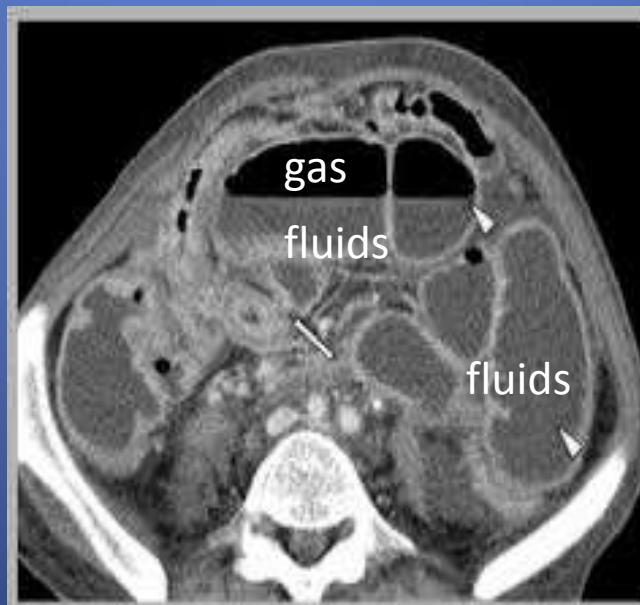
NORMAL PERISTALSIS & ABSORBTION → Until it becomes empty → It contracts & becomes immobile

PATHOPHYSIOLOGY

Distention of the intestine is caused by accumulation of:

1- GAS

2- FLUIDS



PATHPHYSIOLOGY

Gas in the intestine is due to:

1. Swallowed air
2. Bacterial overgrowth
3. Diffusion from blood

PATHOPHYSIOLOGY

Fluids come from :

1. Ingested fluids
2. Saliva
3. Gastric and intestinal juice
4. Bile & Pancreatic secretions

PATHOPHYSIOLOGY

Dehydration caused by :

1. Reduced intake
2. Reduced absorption
3. Increased loss (Vomiting & sequestration)

PATHOPHYSIOLOGY

Systemic Effects of Obstruction :

1. Water and electrolyte losses (lead to hypovolemia)
2. Toxic materials and toxemia(lead to sepsis)
3. Cardiopulmonary dysfunction(atelectasis)
4. Renal failure
5. Shock and death

PATHOPHYSIOLOGY

Strangulation leads to impaired venous return

→ Increased congestion →

- free peritoneal fluid
- edema of intestinal wall
- blood in the lumen
- impaired arterial blood supply
- ischemia and gangrene

◆ Pathophysiology :

(1) Proximal segment

- Hyperperistaltic phase
- Antiperistaltic phase
- Stage of dilatation
- Fluid accumulation
- Gas accumulation
- Increased tension
- Ischemia

(2) Distal segment Collapsed



ADYNAMIC OBSTRUCTION causes

Either localized or generalized

Small intestine

- Postoperative
- Intra-abdominal abscess or peritonitis
- Mesenteric embolism or thrombosis

Large intestine

- Retroperitoneal hematoma
- Drugs
- Hypokalemia
- Idiopathic

STARANGULATED OBSTRUCTION



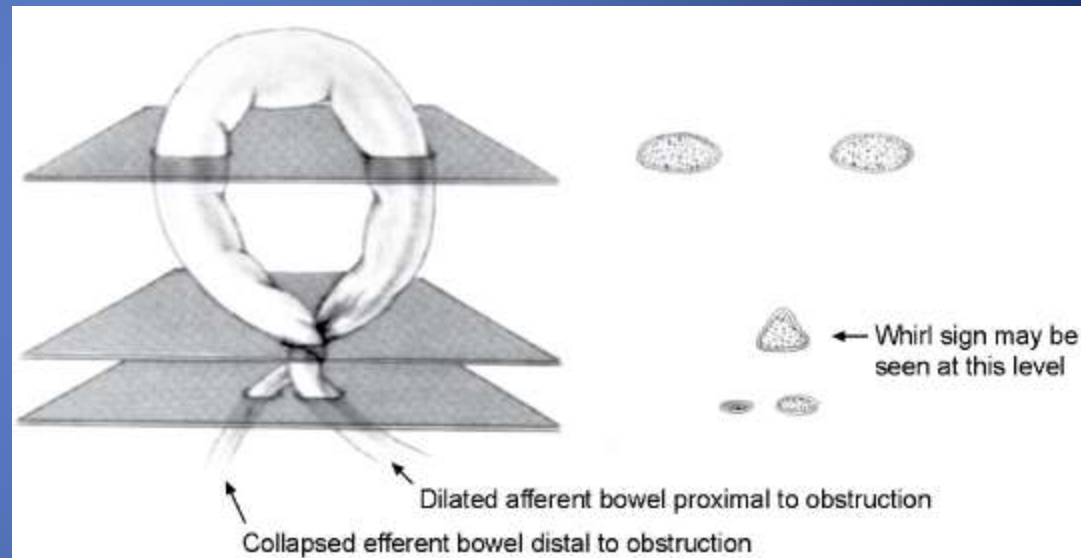
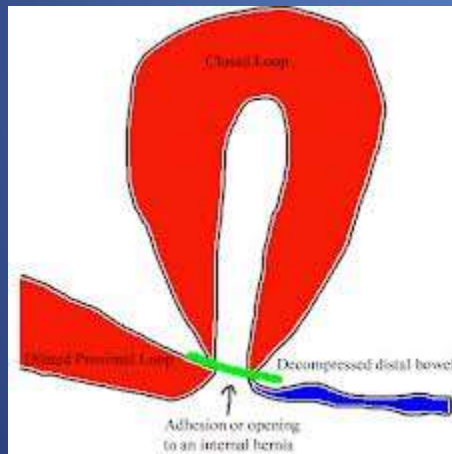
STARANGULATED OBSTRUCTION :

- Strangulating obstruction is obstruction with compromised blood flow; it occurs in nearly 25% of patients with small-bowel obstruction.
- It is usually associated with hernia, volvulus, and intussusceptions.
- Strangulating obstruction can progress to infarction and gangrene in as little as 6 h.

- - Venous obstruction occurs first, followed by arterial occlusion, resulting in rapid ischemia of the bowel wall.
 - The ischemic bowel becomes edematous and infarcts, leading to gangrene and perforation. In large-bowel obstruction, strangulation is rare (except with volvulus)



CLOSED LOOP OBSTRUCTION

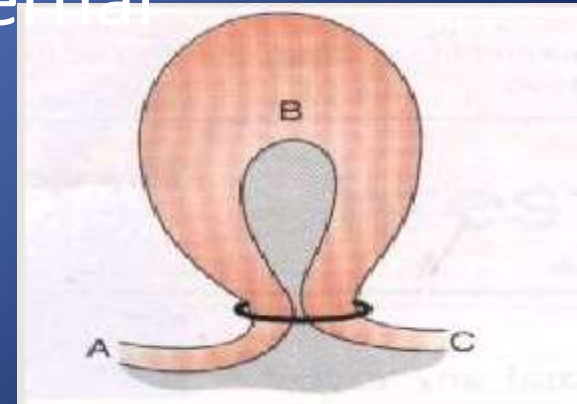


Source: Schwartz DT: *Emergency Radiology: Case Studies*:
<http://www.accessemergencymedicine.com>

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CLOSED LOOP OBSTRUCTION

- Closed loop obstruction is a specific type of obstruction in which two points along the course of a bowel are obstructed at a single location thus forming a closed loop.
- Usually this is due to adhesions, a twist of the mesentery or internal herniation.

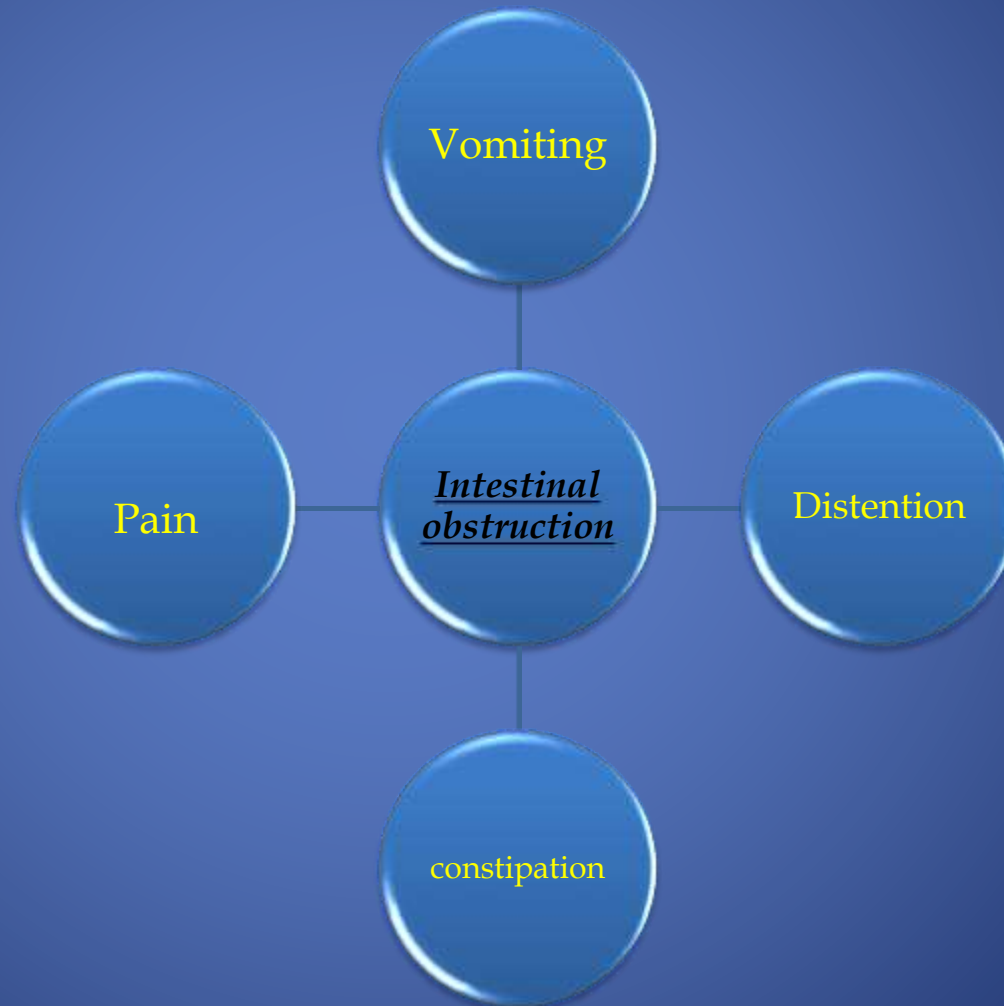


- In the large bowel it is known as a volvulus.
- In the small bowel it is simply known as small bowel closed loop obstruction.
- Obstruction to the blood supply occur either from the same mechanism which caused obstruction or by the twist of the bowel on mesentery.

DIAGNOSIS

- History
- Clinical examination
- Investigations

Examination findings



CLINICAL FEATURE OF INTESTINAL OBSTRUCTION

Clinical obstruction of intestinal obstruction vary according to :

- The location of the obstruction;
- The age of the obstruction;
- The underlying pathology;
- The presence or the absence of the intestinal obstruction;

PAIN

- Pain is the first symptom encountered, it occurs suddenly and is usually severe..
- It is colicky in nature and usually centered on the umbilicus (small bowel) or lower abdomen (large bowel).
- The pain coincides with the increasing peristaltic activity



VOMITING

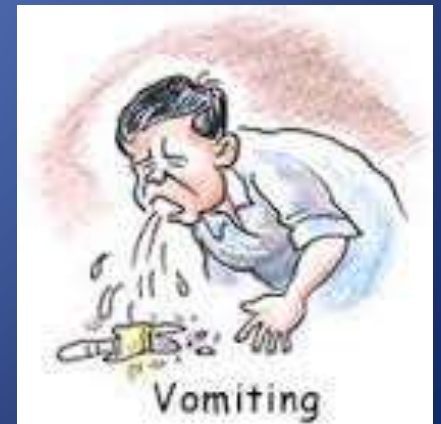
- The more distal the obstruction ,the longer the interval between the onset of symptoms and the appearance of nausea and vomiting .
- More proximal the obstruction, more the frequency.
- The interval ,frequency & nature of vomitus depends on the site of obstruction



- In high bowel obstruction :
- the interval is shorter
- Bile stained vomitus
- Vomiting is more frequent and copious ;
- And is relieved by decompressing the obstructed bowel



- In low bowel obstruction :
- the interval is longer may last for a day or two
- Feculent vomitus
- vomiting is less frequent and does not cause any relief.



Pyloric obstruction

- Watery and acidic vomitus

Large bowel obstruction

- Uncommon and late symptoms.



Long standing low small bowel obstruction-

- feculent material.
- Strangulation- blood.



DISTENTION

- In the small bowel, the degree of distention is dependent on the site of obstruction & is greater the more distal the lesion.
- Central abdomen is distended in low small bowel obstruction.
- Distention is much less in high small bowel obstruction.



CONSTIPATION

- Failure to pass flatus or faeces through the rectum is important symptom of bowel obstruction.
- It may be classified as
 1. ABSOLUTE
 2. RELATIVE



VISIBLE PERISTALSIS

- Visible peristalsis may be present if the abdomen is examined carefully.
- Mostly seen in proximal loops.
- Borborygmi is quite loud ,does not require stethoscope to hear it .
- In auscultation sound of hyper peristalsis coinciding with attack of colic characteristic feature f intestinal obstruction.

VISIBLE PERISTALSIS

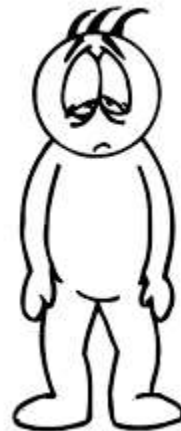


BLOATING

- The accumulation of chyme and gas gives rise to a feeling of fullness and causes bloating. This may also give rise to high-pitched gurgling sounds from the abdomen

FATIGUE

- Obstruction and the resulting digestive inability hampers the absorption of vitamins and other nutrients from food, leading to weakness, headache and dizziness. Even regular activities may make the individual feel exhausted and drowsy



FATIGUE

INFREQUENT URINATION

- Dehydration due to diarrhea and vomiting, results in the loss of body fluids and electrolytes. As a response to this, the body tries to retain water through lowered urine output.

OTHER MANIFESTATION

- Dehydration
- Hypokalemia
- Pyrexia
- Abdominal tenderness
- Bowel sound

PHYSICAL EXAMINATION



PHYSICAL EXAMINATION

- Inspection
- Palpation
- Percussion
- Auscultation
- Rectal examination

INSPECTION



INSPECTION

- Shape of the abdomen
- Movement of the abdomen wall
- Umbilicus
- Visible loop of bowel/visible peristalsis
- Scar
- Striae
- Prominent veins
- Pubic hair
- Hernial orifices

PALPATION



PALPATION

- During colic there may be muscle guarding.
- Slight tenderness may be present between attacks of pain.
- Tenderness and rigidity at the sight of obstruction usually indicate strangulation.
- All the hernial orifices should be palpated to exclude the presence of hernia.

PERCUSSION



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PERCUSSION

- Percussion to hear any Dullness or Resonance related to site of obstruction.
- Tympanic note will be present.
- Tenderness on light percussion suggest strangulation.

AUSCULTATION



AUSCULTATION

- Bowel sounds are Initially Loud and frequent
- Then as bowel distends the sounds become more resonant and high pitched
- Eventually becoming amphoric.
- In strangulation bowel sound is completely absent.

RECTAL EXAMINATION

- Presence of mass on rectal examination within or outside the lumen will give a clue to diagnosis.
- Presence or absence of feces in rectum should be noted. Absence means obstruction is higher up. If presence it should be studied for presence of occult blood which include mucosal lesion e.g.cancer,Intussuception or infraction

INVESTIGATIONS

- BLOOD EXAMINATION
- RADIOLOGICAL EXAMINATION



BLOOD EXAMINATION

- CBC
- Urea & electrolytes
- Serum amylase level
- Metabolic acidosis



CBC (Complete blood count)-

- A rise white cell count will indicate an infection.
- Normal or slight rise in W.B.C count: simple mechanical obstruction.
- Moderate rise in W.B.C count(15000-20000):strangulation.
- Very high rise in W.B.C count(30000-40000):primary mesenteric vascular occlusion.

Serum Urea & electrolytes-

- Derangement may be seen with vomiting & diarrhea.
- Dehydration will be reflected in raised serum urea and creatinine.



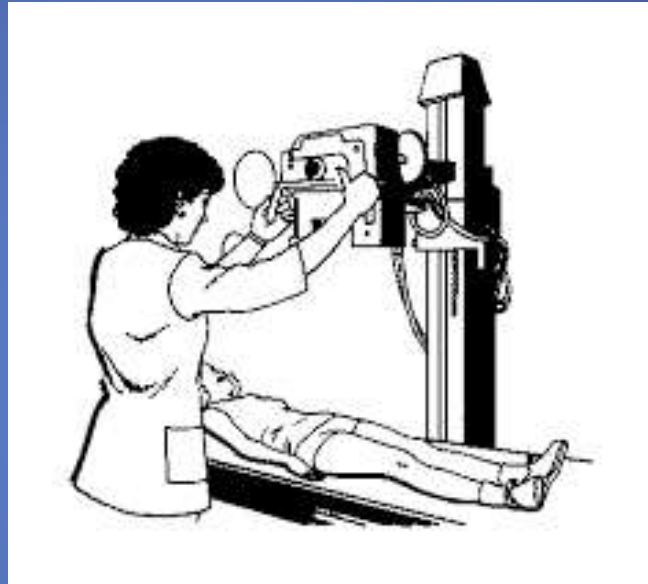
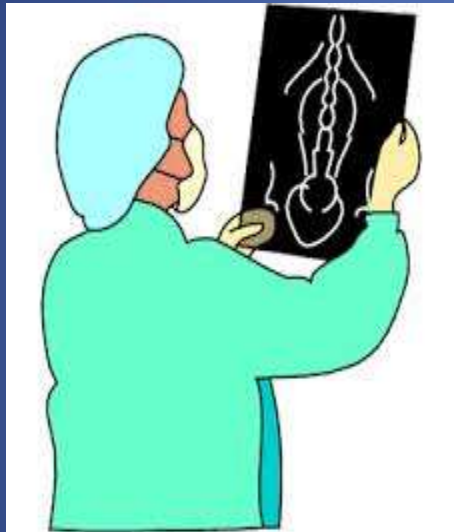
Serum Amylase-

- It is non specific test & may be raised in cases of small intestinal obstruction.

Metabolic acidosis

- It occurs due to combined effects of dehydration ketosis and loss of alkaline secretion.
- Very common in distal intestinal obstruction.

RADIOLOGICAL EXAMINATION



Bowel Obstruction

Radiologic Evaluation

- Xrays: ? AFLs, ? Free Air, ? Distal Gas
- UGI / SBFT: Identify mechanical obstruction
- Enteroclysis: Independent of gastric emptying
- CT Scan: ? Free Air, ? Pneumatosis, ? Tumor

RADIOLOGICAL EXAMINATION

- Gas fluid levels are the most important criteria of diagnosis of intestinal obstruction.
- When obstruction occurs, both fluid and gas collect in the intestine.
- They produce a characteristic pattern called "air-fluid levels". The air rises above the fluid and there is a flat surface at the "air-fluid" interface.

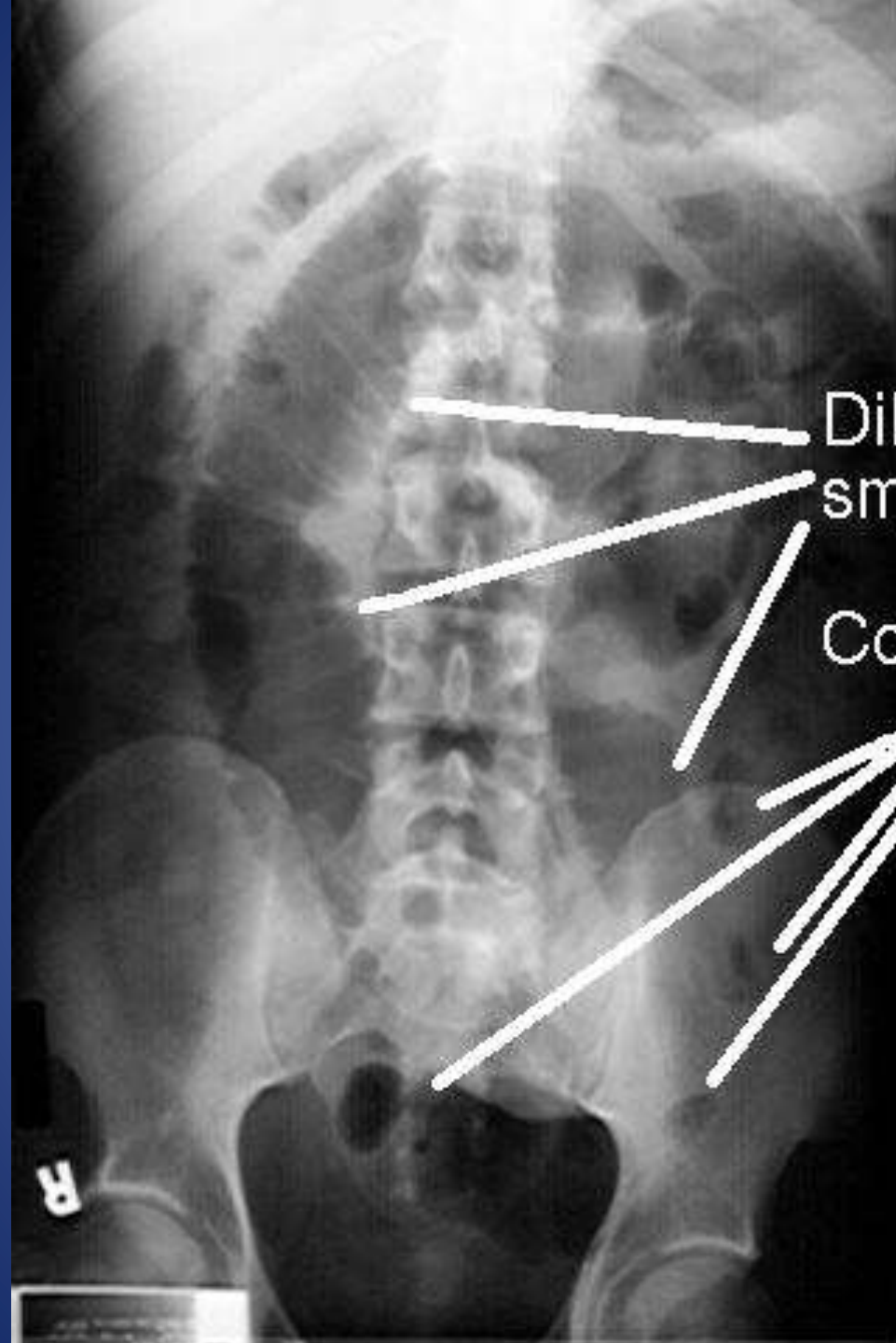
RADIOLOGICAL PICTURE

- Small Bowel Obstruction
 - Central distention (GAS)
 - Valvulae conniventes
 - “Ladder-like dilatation”
 - Small diameter
- Large Bowel Obstruction
 - Peripheral distention “Picture frame”
 - More gross distention
 - Haustral indentation & large diameter

In most cases, the abdominal radiograph will have the following features:

1. ileated loops of small bowel proximal to the obstruction
2. predominantly central dilated loops
3. dilatation of loops over 3cm
4. valvulae conniventes are visible

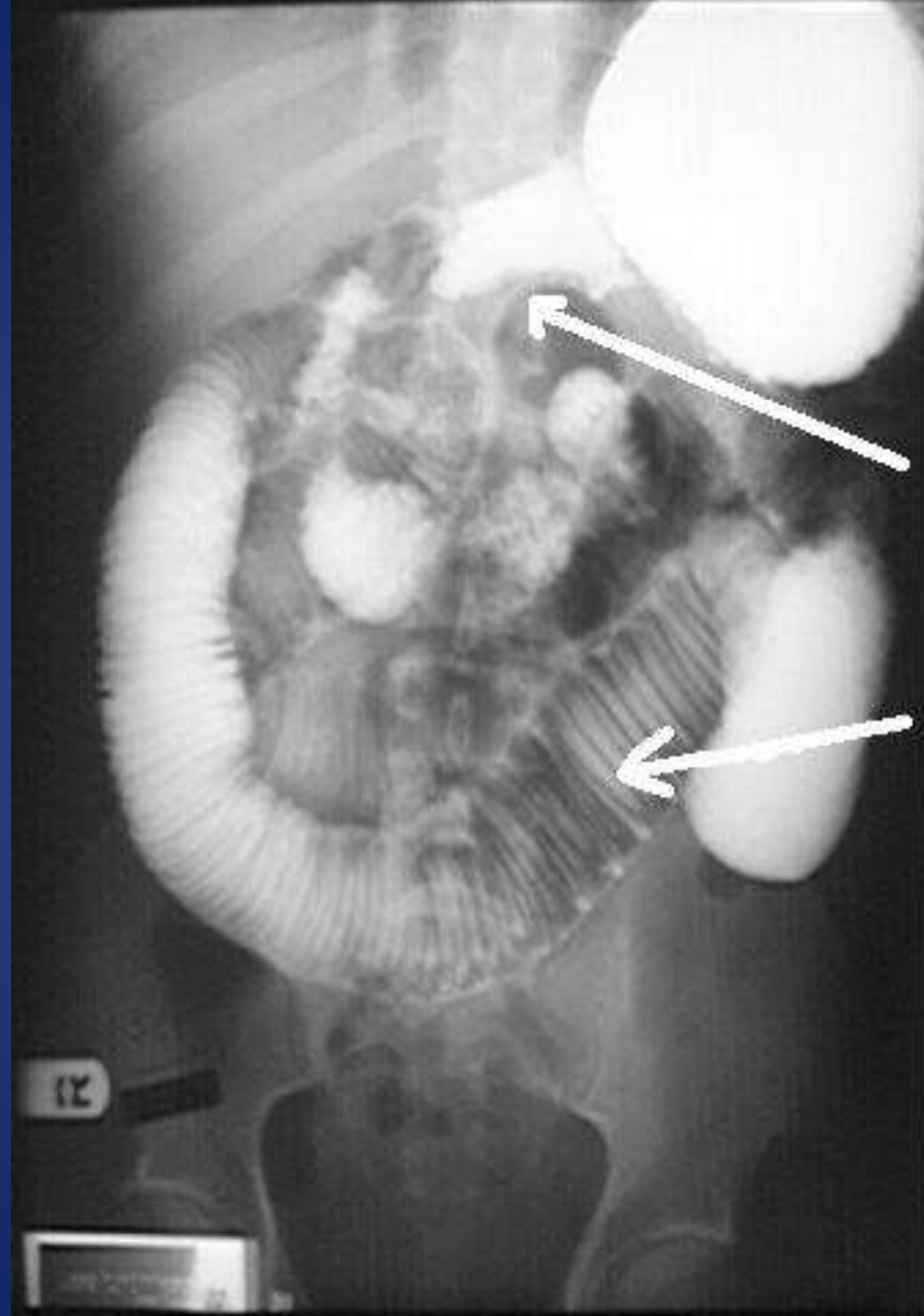




Dilated loops of
small bowel.

Collapsed colon.

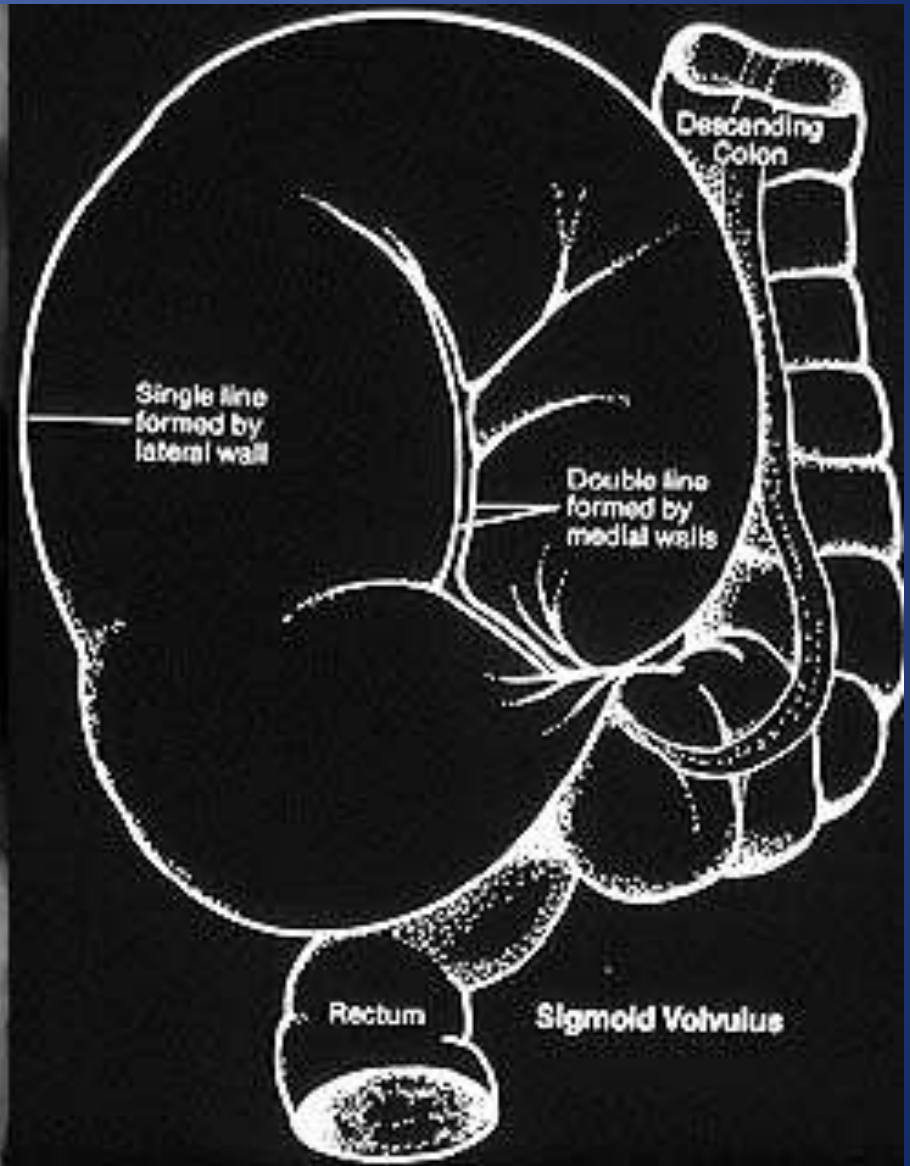




Irregularity along
greater curvature.

Dilated Small Bowel.







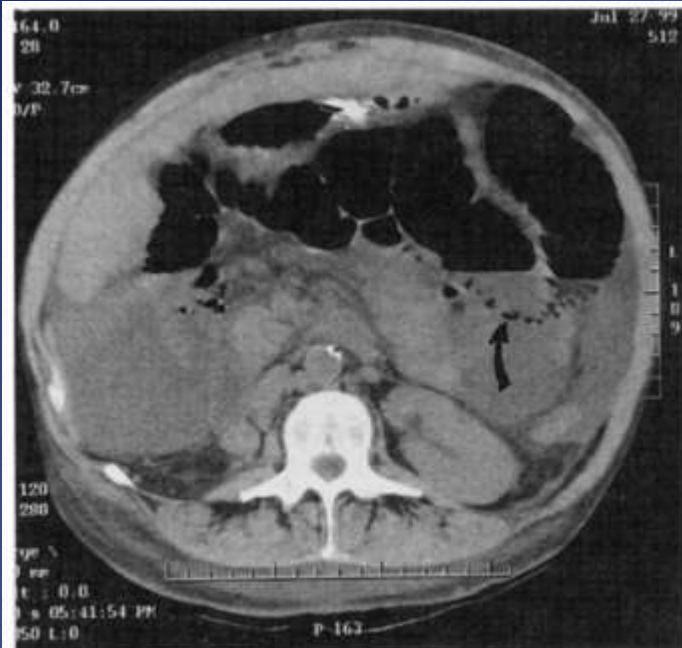




Colon Cancer

Large Bowel Obstruction





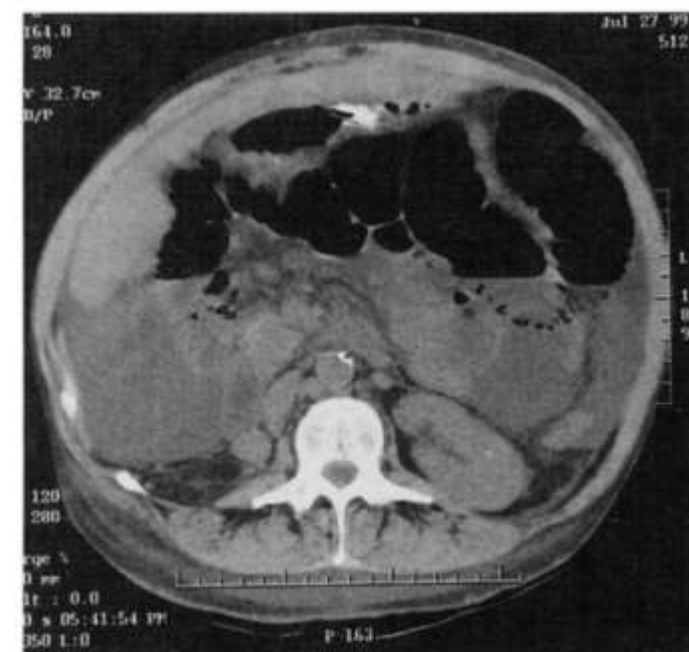
A



B



C



D

DIAGNOSIS ?



DIAGNOSIS ?



DIAGNOSIS



Large bowel obstruction



Small bowel obstruction

Volvulus x ray: Sigmoid volvulus - 'coffee bean' sign

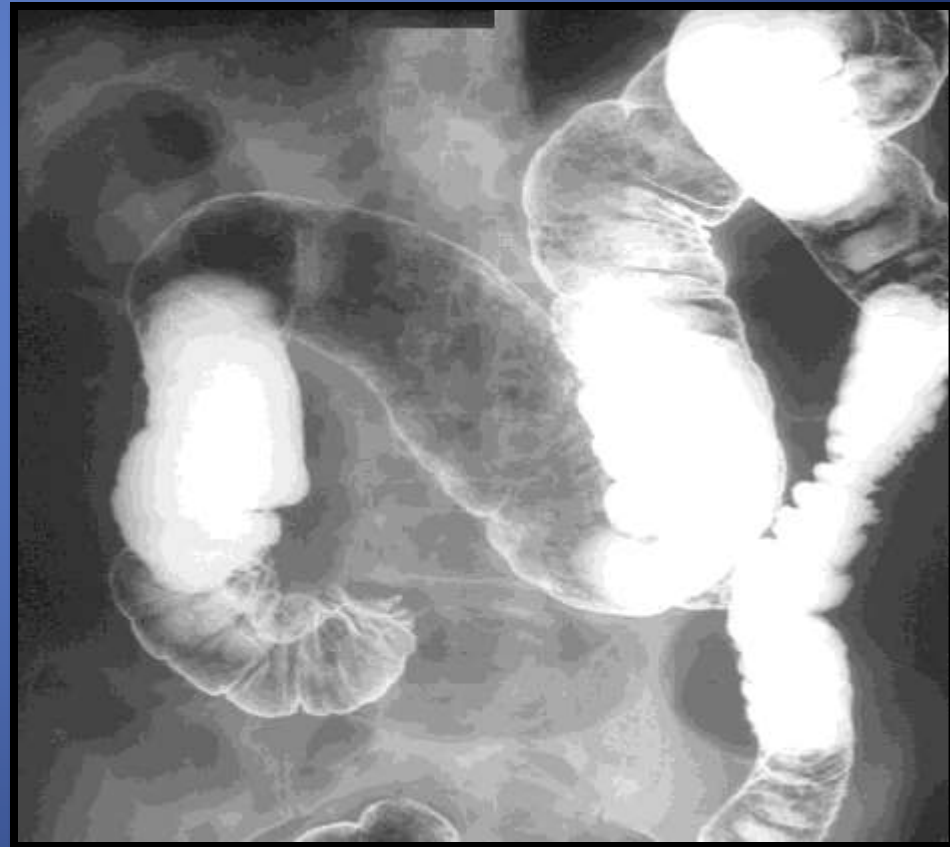
The sigmoid colon is very dilated because it is twisted at the root of its mesentery in the left iliac fossa (LIF)

The twisted loop of sigmoid colon is said to resemble a coffee bean



Barium studies

- Are recommended in patient with a history of recurring obstruction

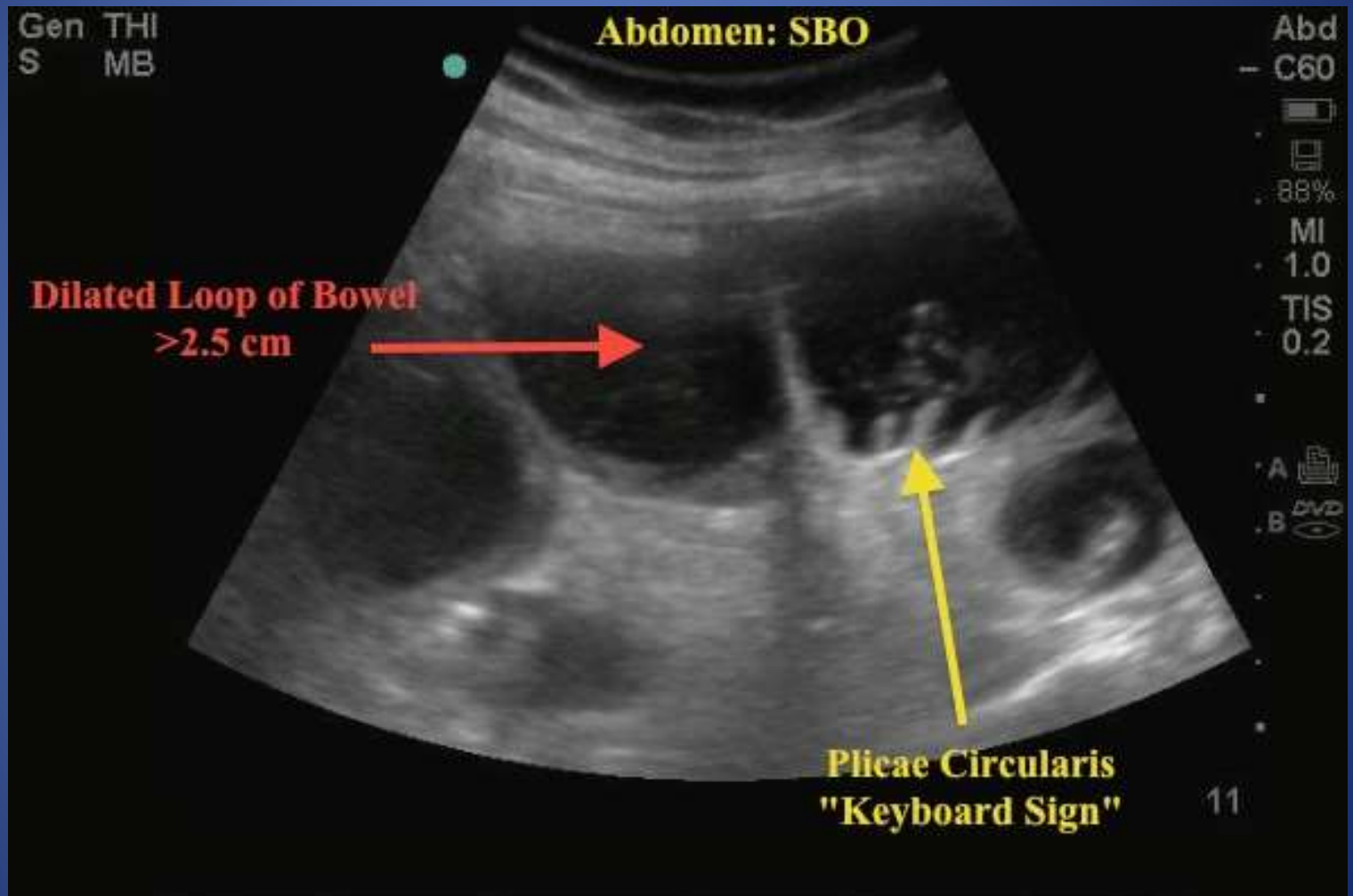


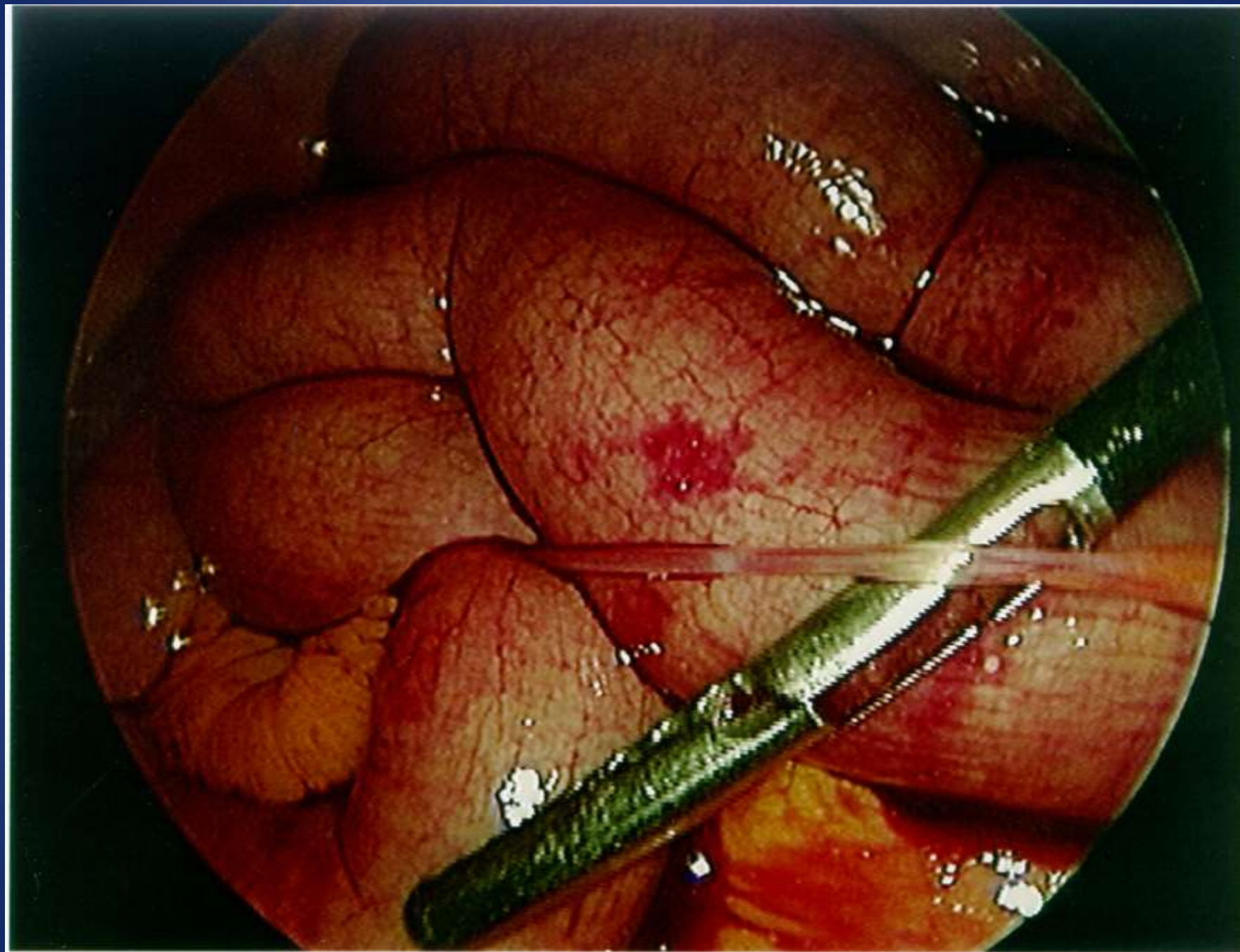
CT scan

- CT scan examination is particularly useful in patient with a history of abdominal malignancy, in postsurgical patients, and in patient who have no history of abdominal surgery and present with symptoms of bowel obstruction.



Ultrasound: small bowel obstruction







reatmentTM



DANGEROUS SIGNS (Red Flags)

- Constant pain
- Absent bowel sounds
- Tenderness with rigidity
- Leukocytosis
- Fever and tachycardia
- Shock



Treatment

Three main measures-

- GI drainage
- Fluid & Electrolyte replacement
- Relief of obstruction, usually surgical

Treatment

Conservative:

- Nasogastric aspiration by Ryles tube
- IV fluids- volume varies depending on dehydration
- NPO
- urinary catheter
- check temp. and pulse 2 hourly
- abdominal examination 8 hourly
- Broad spectrum antibiotics initiated early-
reduce bacterial overgrowth.

Treatment

- Some cases will settle by using this conservative regimen, other need surgical intervention.
- Surgery should be delayed till resuscitation is complete unless signs of strangulation and evidence of closed-loop obstruction.
- Cases that show reasons for delay should be monitored continuously for 72 hours in hope of spontaneous resolution e.g. adhesions with radiological findings but no pain or tenderness
- “The sun should not both rise and set” in cases of unrelieved obstruction.

Treatment

Indication for surgery:

- failure of conservative management
 - tender, irreducible hernia
 - strangulation
 - virgin abdomen
-
- If the site of obstruction is unknown; laparotomy assessment is directed to-
 - The site of obstruction.
 - The nature of obstruction.
 - The viability of gut.
 - The site of obstruction can be determined by caecum

Surgical treatment

Operative decompression required-if

- ✱ dilatation of bowel loops prevent exposure,
- ✱ bowel wall viability is compromised,
- ✱ or if subsequent closure will be compromised.

Savage's decompressor used within seromuscular purse-string suture.

Or large-bore NG tube maybe used for milking intestinal contents into stomach.

Surgical treatment

The type of surgical procedure depend upon the cause of obstruction viz division of bands, adhesiolysis, excision ,or bypass

*Once obstruction relieved, the bowel is inspected for viability, and if non-viable, resection is required.

Indication of non-viability

- 1.absent peristalsis
- 2.loss of normal shine
- 3.loss of pulsation in mesentry
- 4.green or black color of bowel
- 5.absent mesentric pulsations

Surgical treatment

- If in doubt of viability, bowel is wrapped in hot packs for 10 minutes with increased oxygen and reassessed for viability.
- Resection of non viable gut should be done followed by stoma.
- Sometimes a second look laprotomy is required in 24-48 hours e.g. multiple ischemic areas.

MANAGEMENT OF ACUTE CASE (Plan)

- I.V Fluids and electrolytes resuscitation for all
- N.G tube if repeated vomiting
- Antibiotics for all
- Hernia → Operation
- Adhesions → Conservative first
- Obstruction → Remove
- Volvulus → Derotate and or Operate
- Mesenteric ischemia → Operate
- Abscess or Peritonitis → Drain and Treat
- Intussusception → Pneumatic or Barium Reduction or Operate

Do not take to OR if:

- Post-op
- Carcinomatosis
- Recurrent adhesive bowel obstruction
- Post radiotherapy

Obstruction by adhesions & Bands

- Most common cause of intestinal obstruction.
- Peritoneal irritation results in local fibrin production, which produce adhesions.

BANDS

- Congenital : obliterated vitellointestinal duct.
- A string band following previous bacterial peritonitis.
- A portion of greater omentum adherent to parietes.

Causes of adhesions :

- Abdominal operation : anastomosis, raw peritoneal surfaces
- Foreign material: talc, starch, gauze, silk
- Infection: peritonitis, T.B.
- Inflammatory conditions: crohn's disease.
- Radiation enteritis.

Prevention

- Good surgical technique.
- Washing the peritoneal cavity with saline to remove the clots.
- Minimizing contact with gauze.
- Covering the anastomosis & raw peritoneal surfaces.

Treatment

- Usually conservative treatment is curative.
(i.v. rehydration & nasogastric decompression)
- It should not be prolonged beyond 72 hrs.

Surgery

- Division of band.
- Minimal adhesiolysis.

Treatment of recurrent obstruction due to adhesions

- Repeat adhesiolysis alone.
- Noble's plication : adjacent intestinal coils (15-20 cms) are sutured with serosal sutures.
- Charles-Phillips trans-mesenteric plication.
- Intestinal intubation : intraluminal tube insertion via a WITZEL jejunostomy or gastrostomy.

Internal hernia

- When a portion of small intestine is entrapped in one of retroperitoneal fossae or in a congenital mesenteric defect.

Sites of internal herniation:

- Foramen of Winslow.
- A hole in mesentery / transverse mesocolon.
- Defects in broad ligaments.
- Congenital/ acquired diaphragmatic hernia.
- Duodenal retroperitoneal fossae- Lt. paraduodenal & rt. Duodenojejunal.
- Intersigmoid fossae.

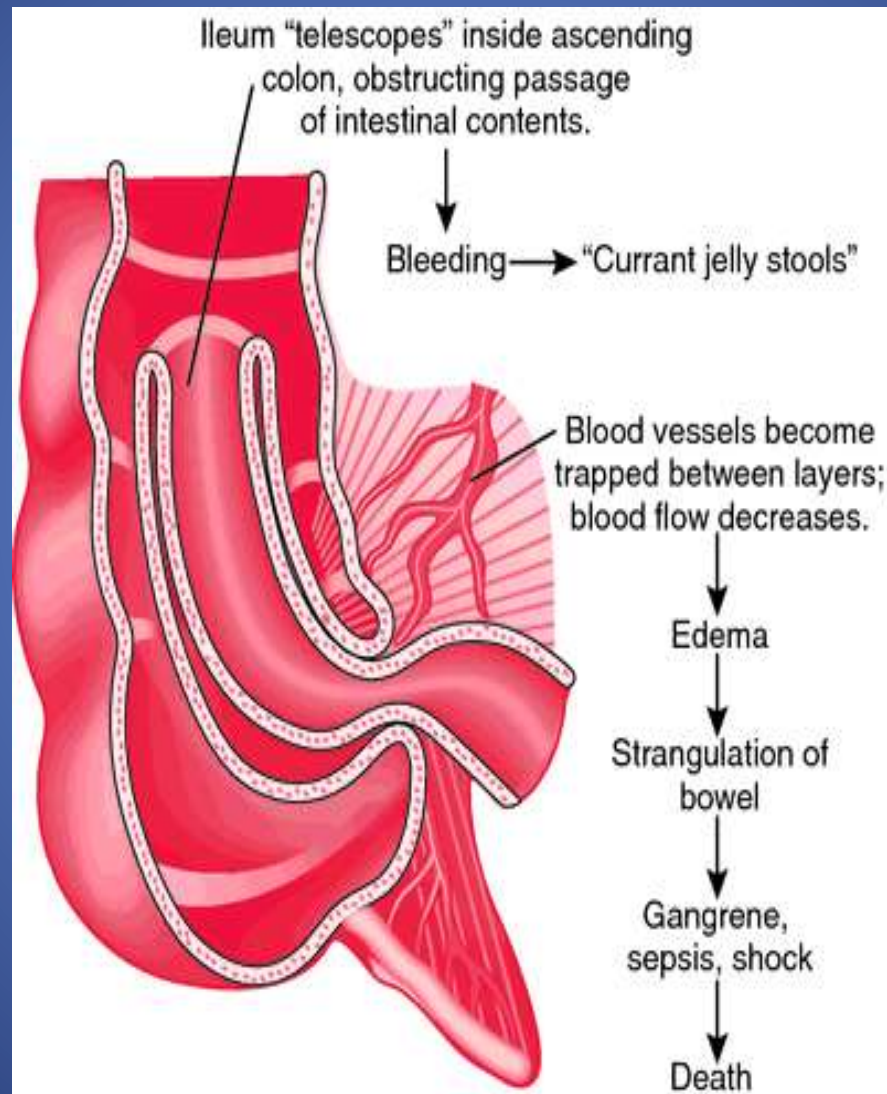
- It is uncommon in the absence of adhesions.
- Treatment : to release the constricting agent by division.

Intraluminal obstruction

Gall stones

- It tends to occur in elderly.
- Erosion of large gallstone into duodenum.
- Present with recurrent obstruction.
- X-ray: small bowel obstruction with air in biliary tree.
 - may show a radio opaque gall stone.
- Treatment : laparotomy & removal /crushing of stone.

INTUSUSCEPTION



INTUSSECEPTION

- An intussusceptions is a medical condition in which a part of the intestine has invaginated into another section of intestine.
- Usually proximal loop invaginate in to the distal bowel.
- Rarely distal loop may invaginate into the proximal loop this is called retrograde intussusceptions.

- Condition is more commonly seen in infants & young children.
- More often in iliocaecal region.
- Complication – Intestinal obstruction, gangrene, perforation and peritonitis.



Acute intussusception

- One portion of gut becomes invaginated with in adjacent segment.
- Most common in children(3-9 months.)
- Ideopathic-70%
- Associated gastroenteritis/UTI- 30%
- Hyperlpasia of Peyer's patches in terminal ileum can be initiating factor.

- In older children intussusception is usually associated with a lead point – meckel's diverticulum, polyp, & appendix.
- Adults: always with a lead point.- polyp, submucosal lipoma/ tumor.
- It is composed of three parts:
 - Entering/ inner tube(Intussusceptum)
 - Returning/ middle tube
 - Sheath/ outer tube(intussusciens)
- It is an example of strangulating obstruction with impaired blood supply of inner layer.
- It may be ileoileal(5%); ileocolic(77%); ileo-ileo-colic(12%); colocolic (2%) & multiple.

CLINICAL SYMPTOMS

- The first sign of Intussusception in an otherwise healthy infant may be sudden, loud crying caused by abdominal pain.
- Infants who have abdominal pain may pull their knees to their chests when they cry.
- The pain of Intussusception comes and goes, usually every 15 to 20 minutes at first.



Clinical features

- Severe colic pain.
- vomiting as time progress
- blood & mucus (the 'redcurrent' jelly stool).
- Abdominal lump(sausage shaped)
- Emptiness in RIF(the sign of Dance).
- Death may occur from bowel obstruction or peritonitis secondary to gangrene.

Other frequent signs and symptoms of Intussusception include:

- Stool mixed with blood and mucus (also known as “redcurrant jelly” stool because of its appearance)
- Vomiting
- A "sausage-shaped" mass felt upon palpation of the abdomen, with concavity towards umbilicus
- Lethargy

Radiography

- Plain X-ray Abd.: Bowel obstruction with absent caecal shadow gas in ileo-ileal & ileo-colic cases.
- Ba-enema: the claw sign in ileocolic & colocolic cases.
- CT scan in equivocal cases of ileo-ileal intussusception. (small bowel mass may be revealed)

Differential Diagnosis

- Acute enterocolitis: faecal matter/ bile is always present.
- Henoch-schoenlein purpura.
- Rectal prolapse: projecting mucosa can be felt in continuity with perianal skin

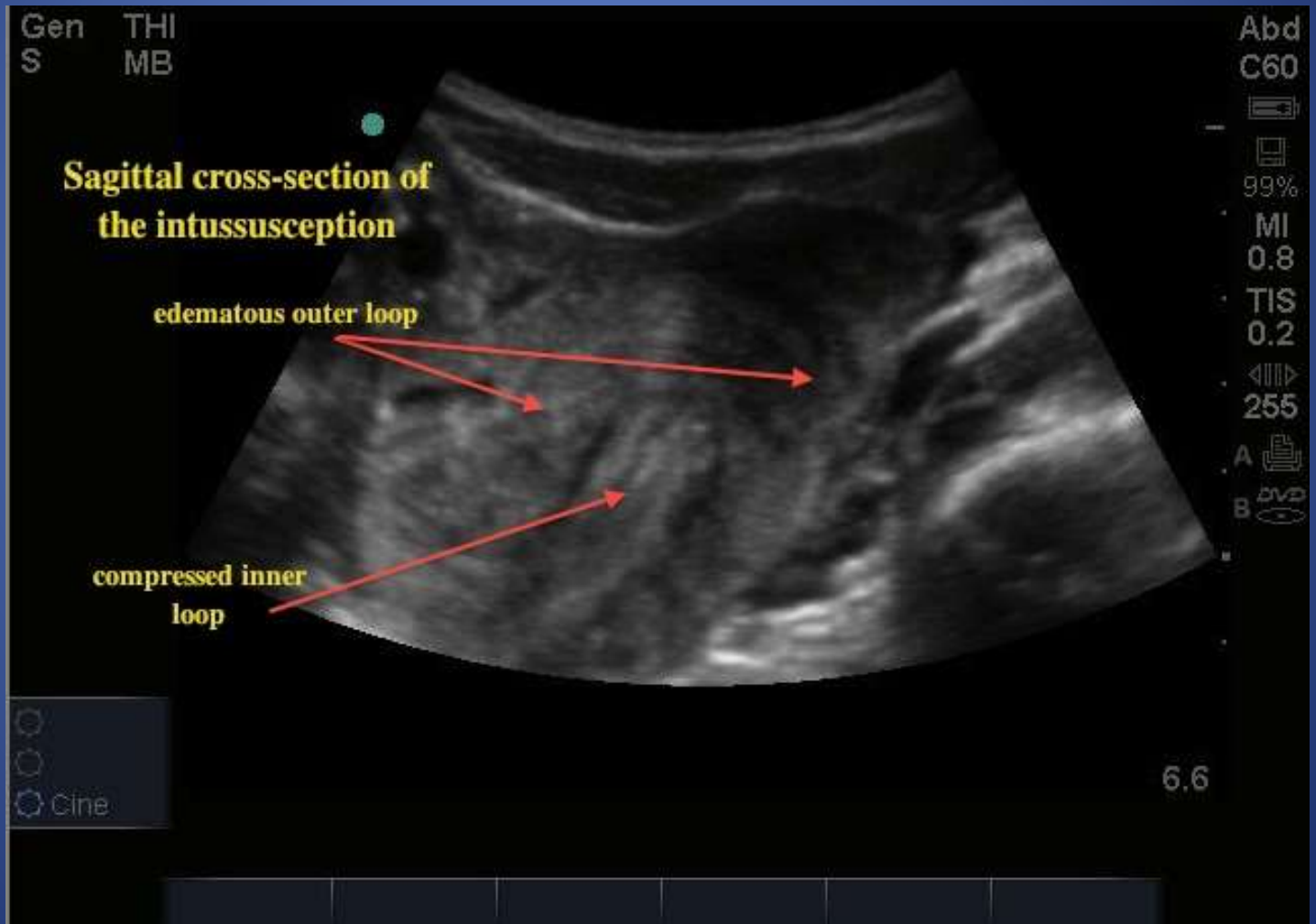
Treatment

- Therapeutic Ba-enema : -in infants.
 - unlikely to succeed in lead points.
 - contrindications: peritonism, prolonged history (> 48 hrs.).

Operative

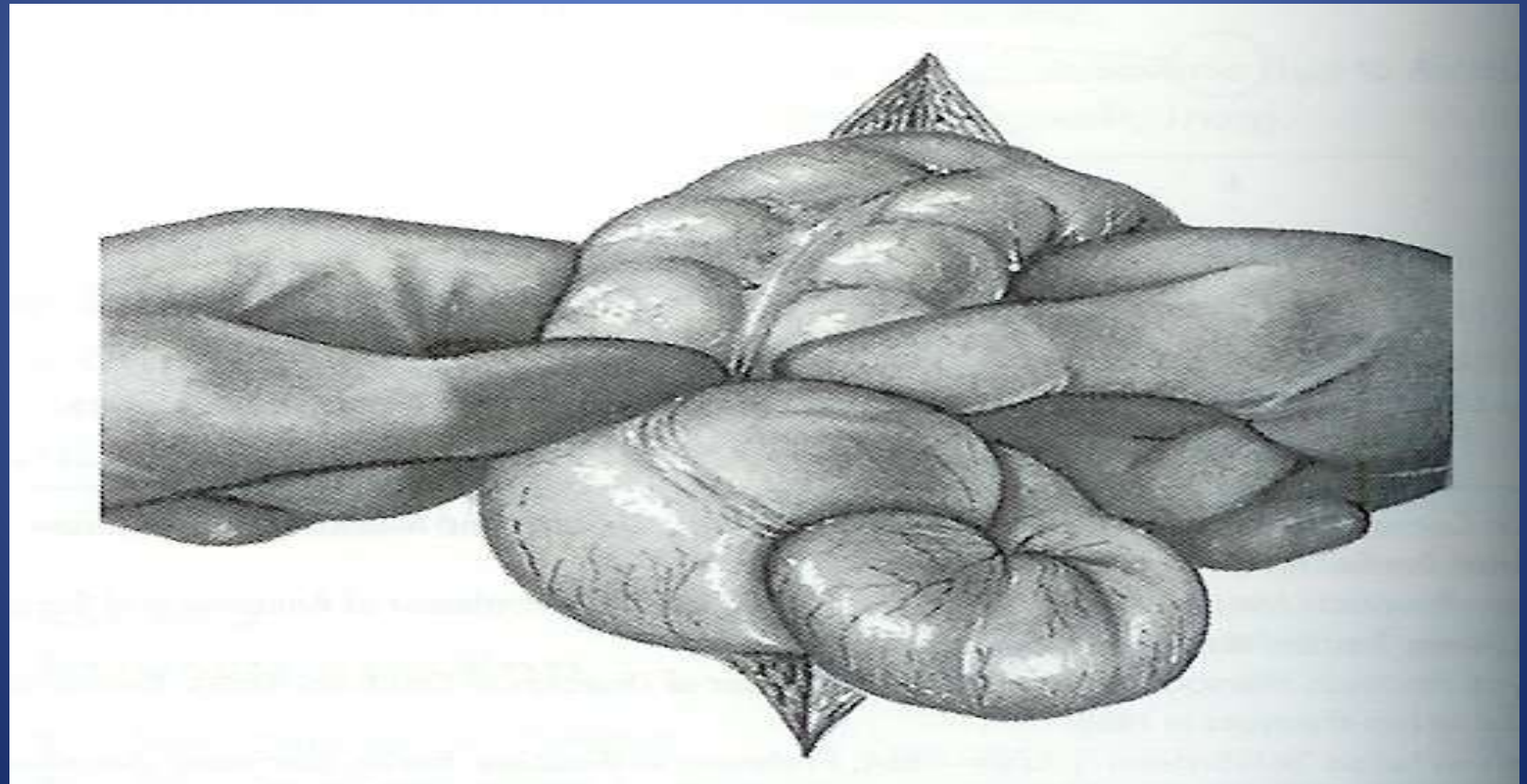
- After resuscitation ;Laparotomy with reduction.
- Cope's method.
- Irreducible/ gangrenous intussusception: excision of mass & anastomosis.

RADIOGRAPHY



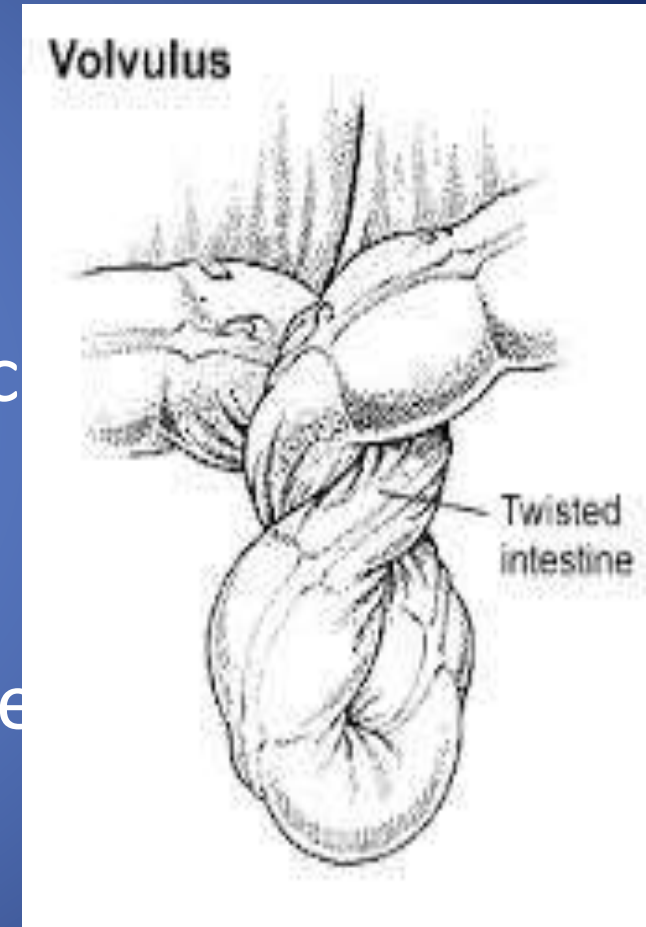
OPERATIVE MANAGEMENT

- REDUCING THE TERMINAL PART OF THE INTUSSUSCEPTION :
- REDUCING IS ACHIEVED BY SQUEEZING THE MOST DISTAL PART OF THE MASS IN CEPHALAD DIRECTION



VOLVULUS

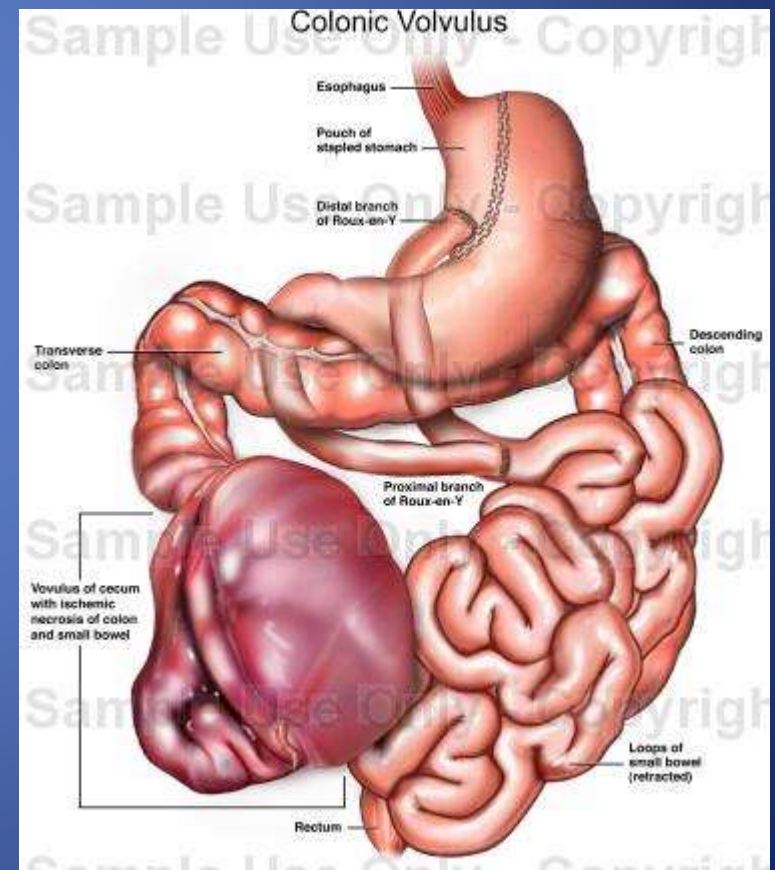
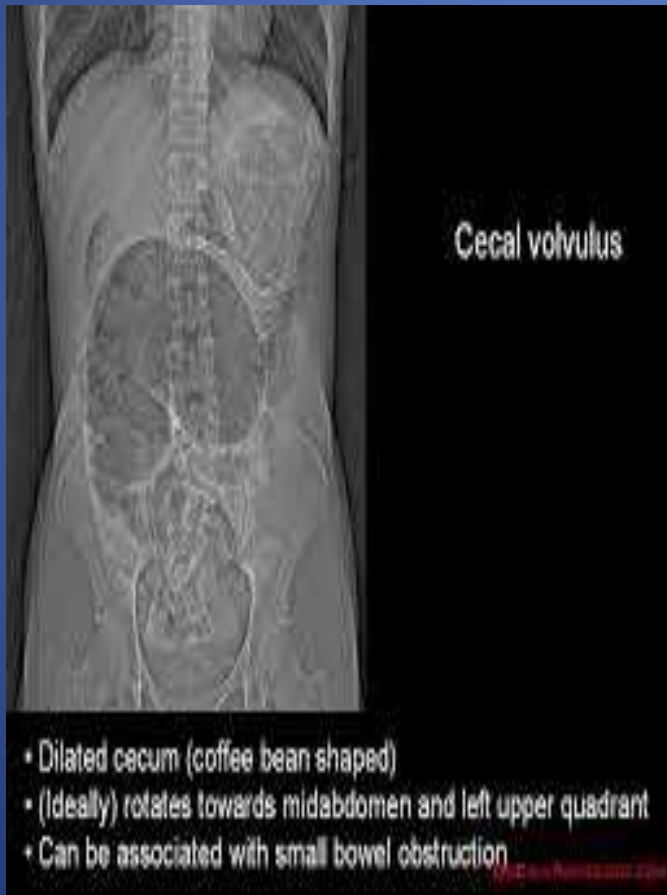
- Abnormal twisting of a portion of the gastrointestinal tract, usually the intestine, which can impair blood flow.
- Volvulus can lead to gangrene and death of the involved segment of the gastrointestinal tract.



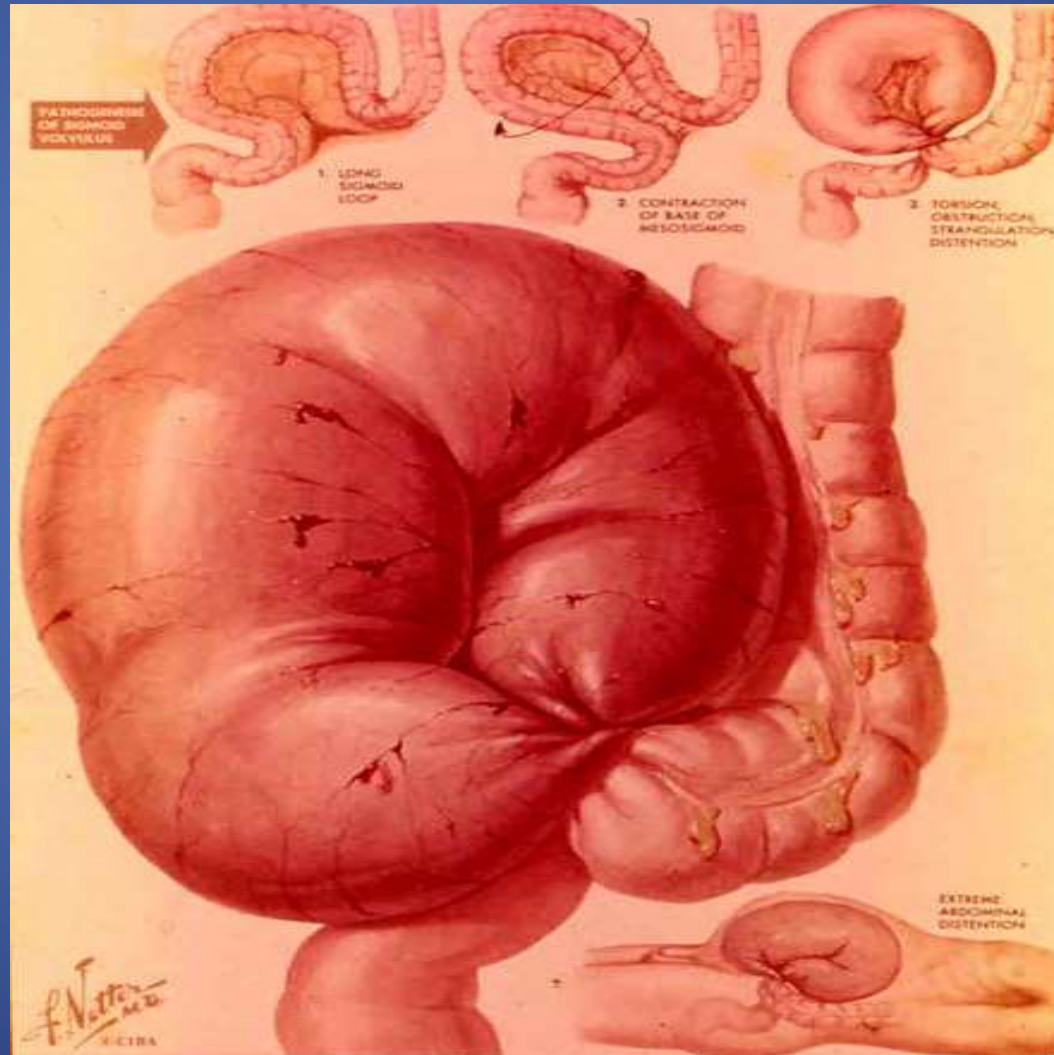
CAECAL VOLVULUS

- More common in female in fourth and fifth decades and usually presents acutely with the classic feature of obstruction.
- Rotation always occurs in clock wise direction.
- Ischemia is common.

CAECAL VOLVULUS

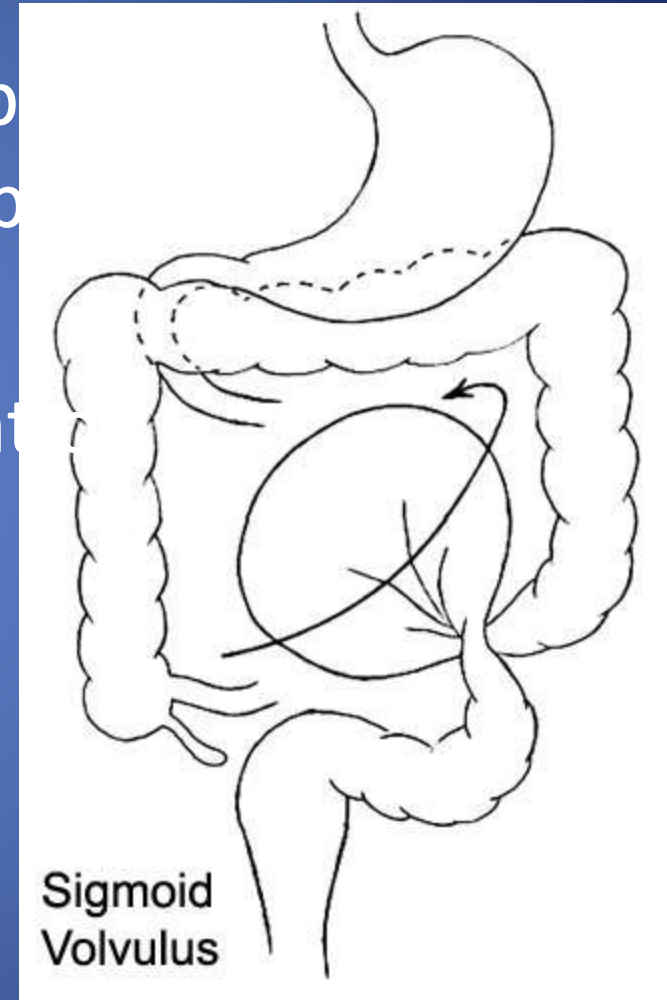


SIGMOID VOLVULUS



SIGMOID VOLVULUS

- Rare in Europe and USA but common in Eastern Europe and Africa.
- Symptoms resembles that of large bowel obstruction.
- Rotation is always occurs anticlockwise direction.



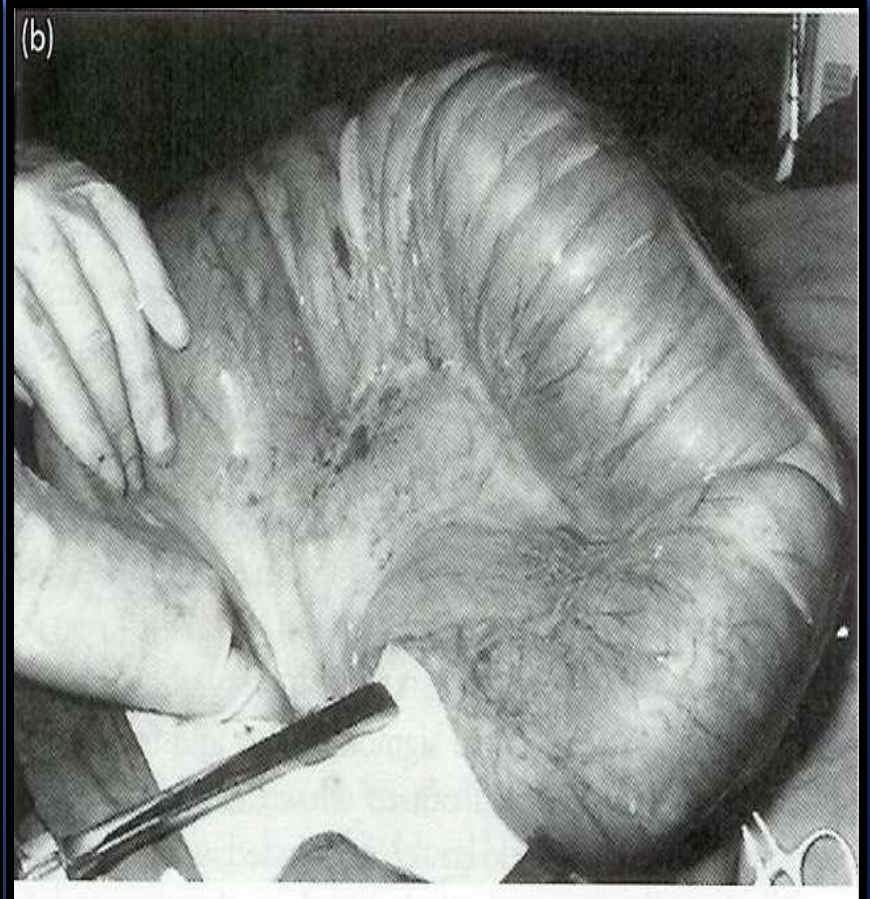
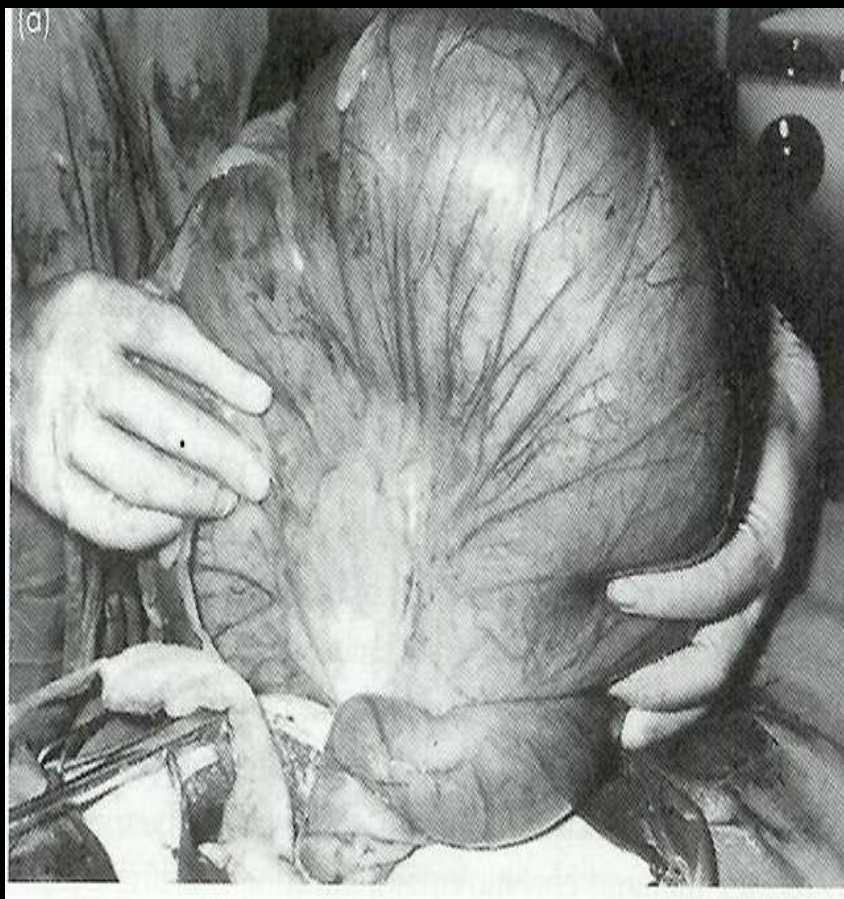
Treatment

- Flexible sigmoidoscopy/ rigid sigmoidoscopy
- Laparotomy- untwisting

SIGMOID VOLVULUS

BEFORE UNTWISTING

AFTER UNTWISTING



FOOD

- After partial /total gastrectomy.
- Unchewed food can cause obstruction.
- Treatment similar to gall stone.

BEZOARS

- Trichobezoars
- Phytobezoars

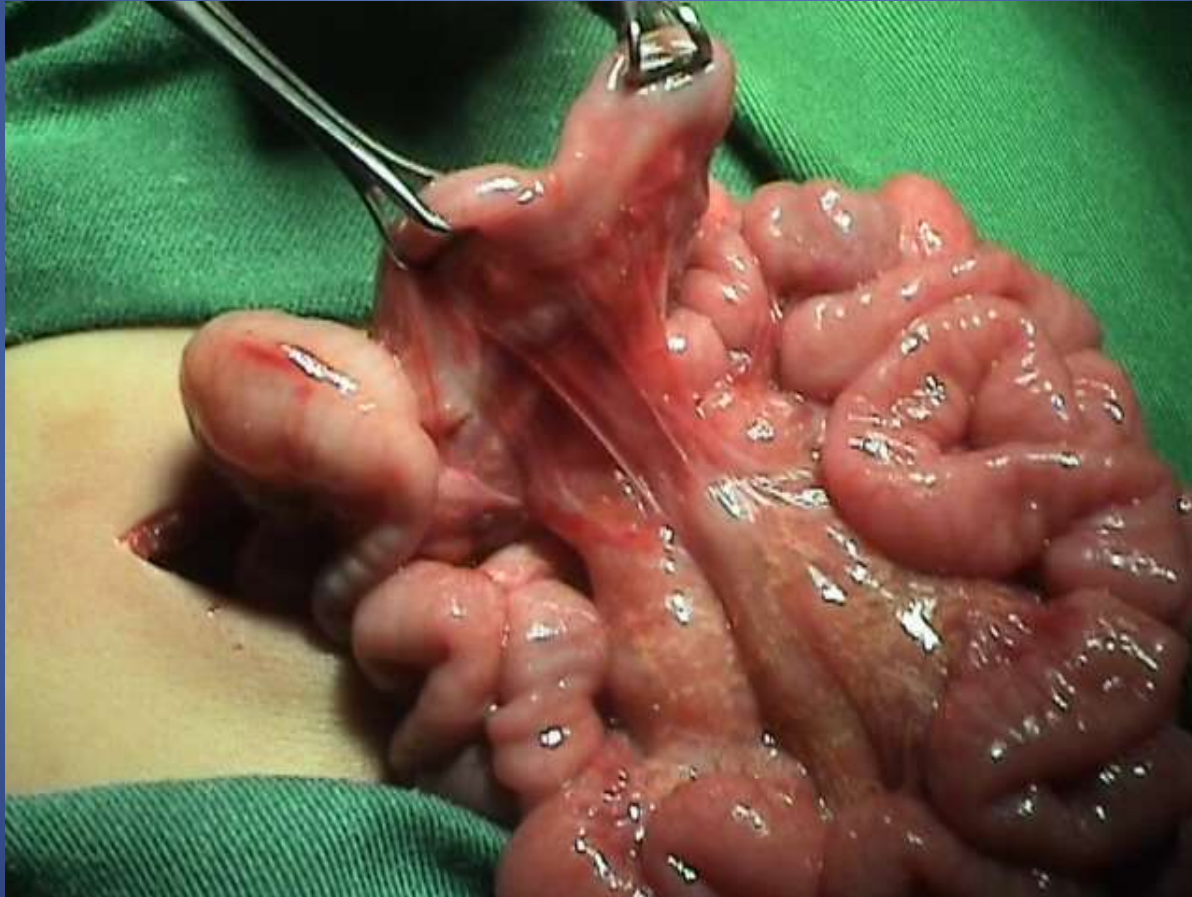
WORMS

- *Ascaris lumbricoides*
- Frequently follows initiation of antihelminthic therapy.
- Eosinophilia/worm with in gas filled bowel loops.
- Laparotomy.

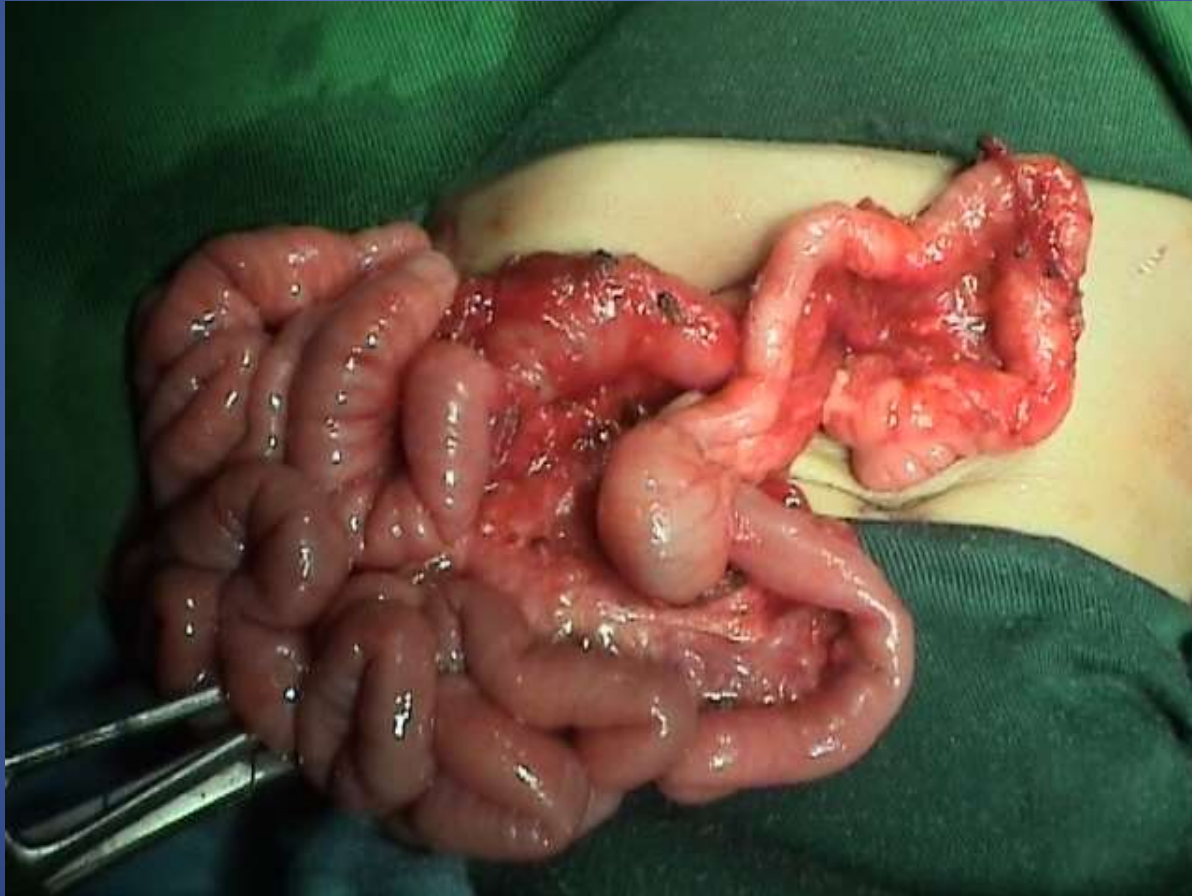
Malrotation



Malrotation



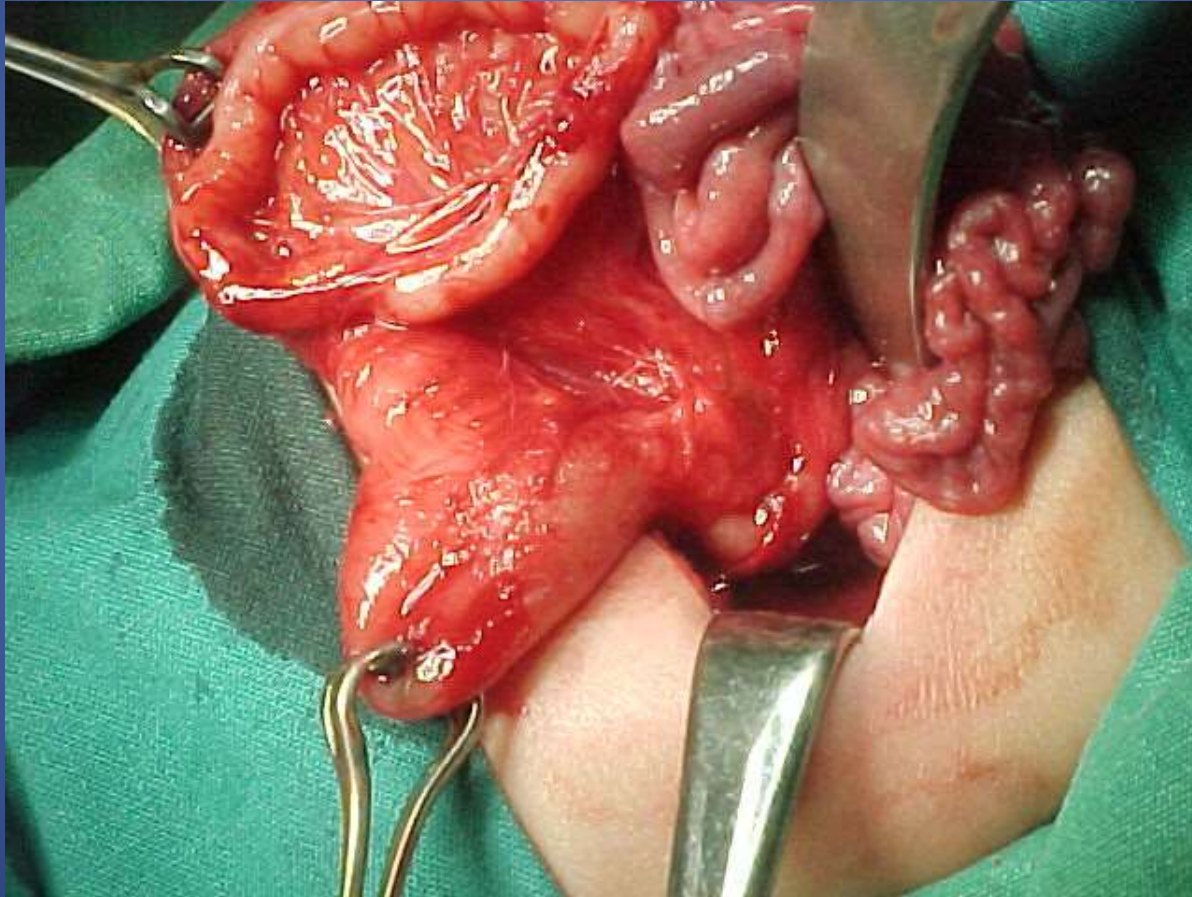
Malrotation



Annular pancreas



Duodenal obstruction



Mechanical intestinal obstruction

<p>Sup. mesenteric a. syndrome (compression of 3rd part of duodenum).</p>	
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Ischemic bowel



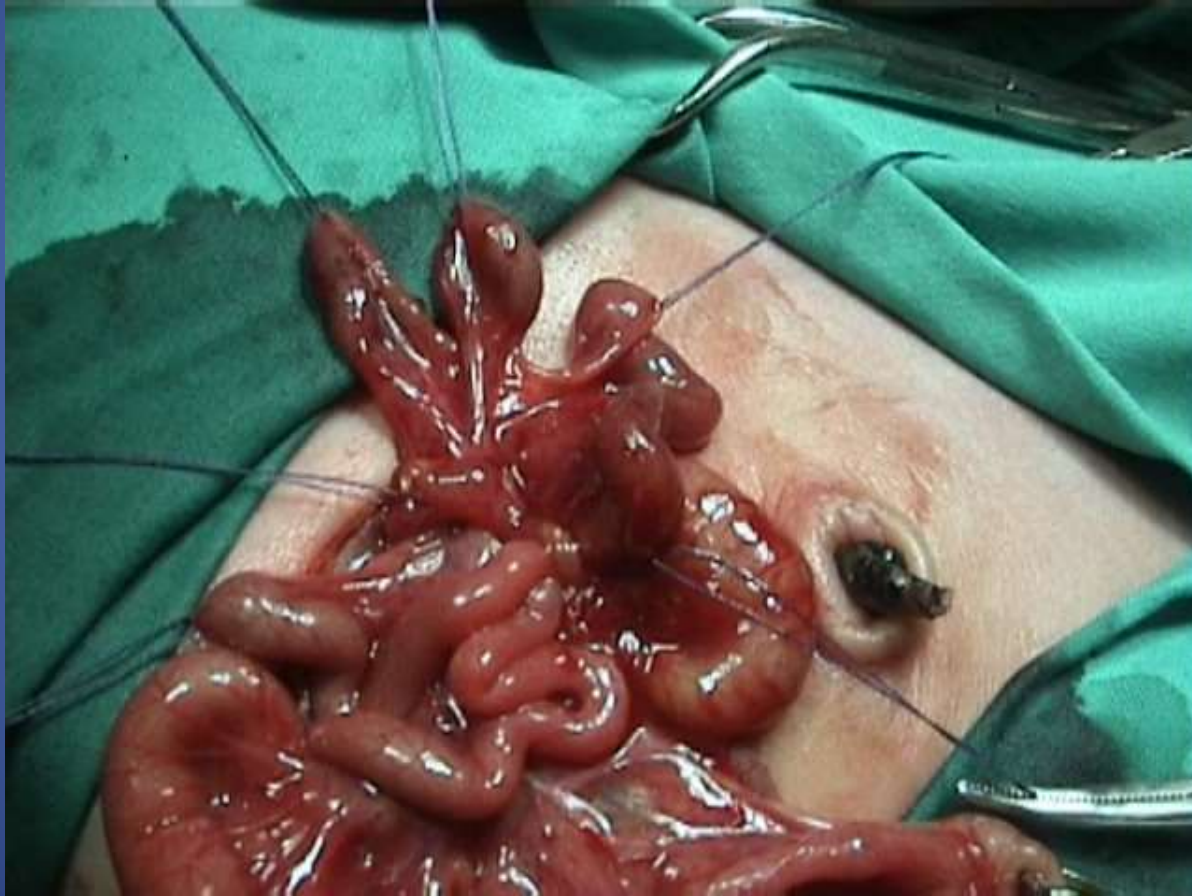
Mechanical intestinal obstruction

❖ Mural:

- Small bowel atresia.

- Imperforated anus.

Multiple atresia



Mechanical intestinal obstruction

- Stenosis.
- Webs (diaphragm).

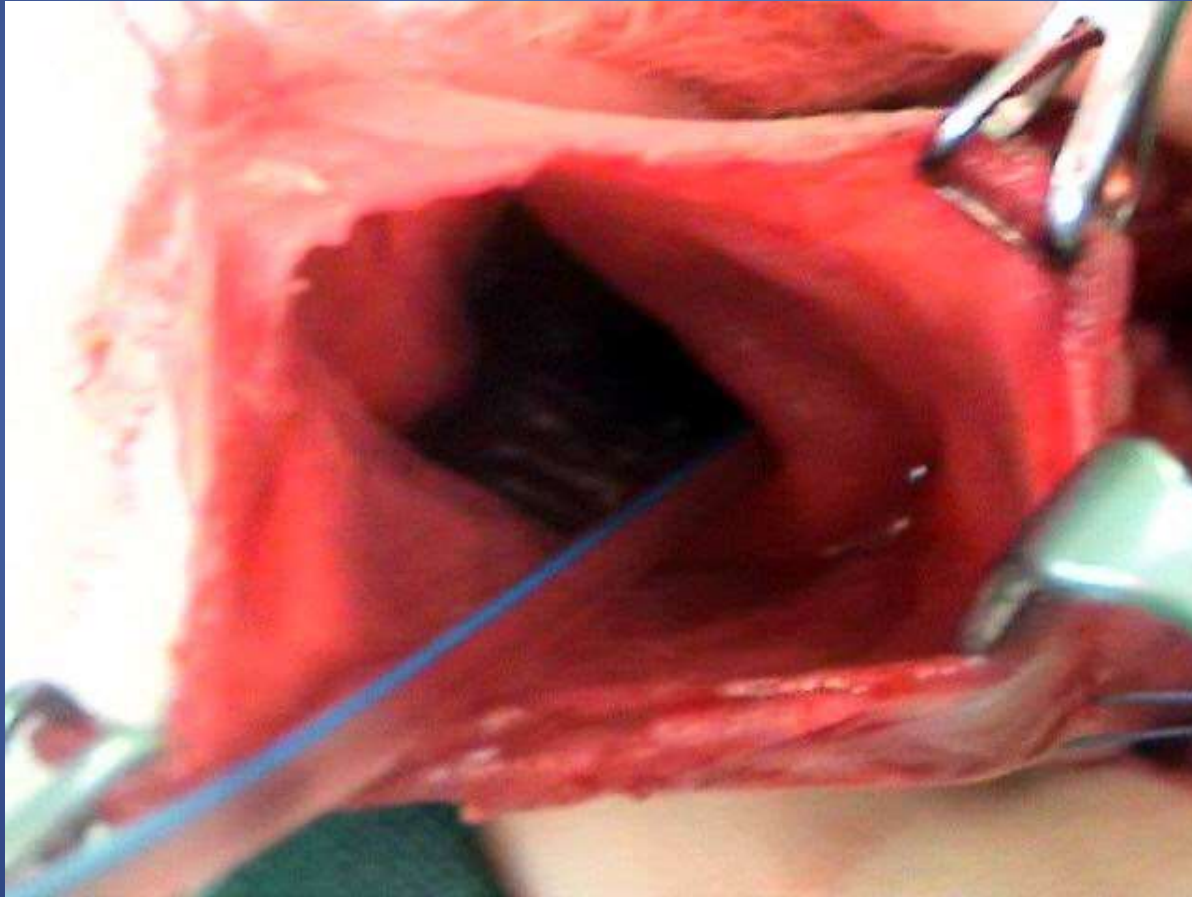
Duodenal web



Duodenal web



Duodenal web



Mechanical intestinal obstruction

➤ Inflammatory :

- Regional enteritis.
(Crohn's disease.)
- Radiation enteritis, stricture.

➤ Neoplastic : Small bowel neoplasms.

- Ulcerative colitis.
- Diverticulitis.
- Radiation enteritis.

Mechanical intestinal obstruction

❖ Intra luminal obstruction:

- F.B. (Barium , worms)
- Gallstone ileus (more common in elderly).

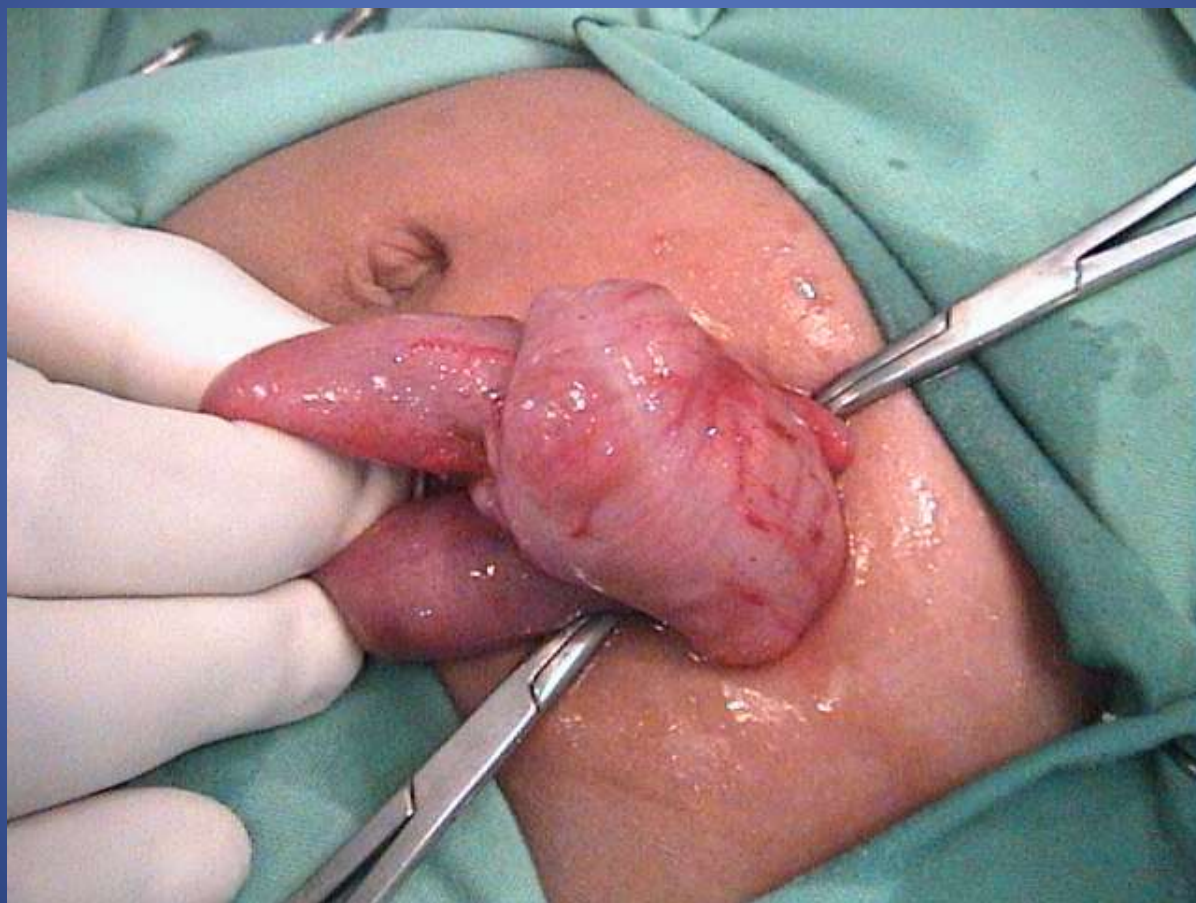
- F.B. (Constipation , Barium , worms)

F.B in the G.I.T

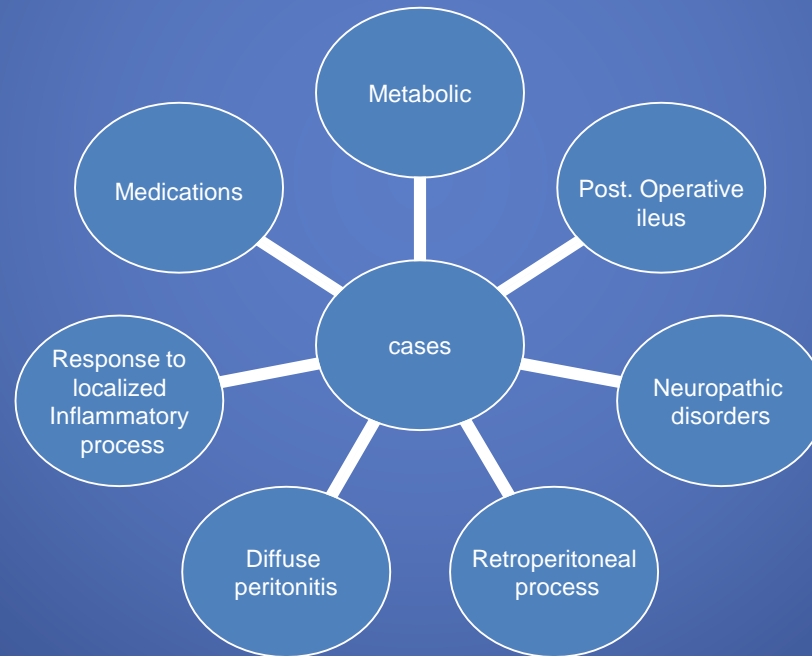


F.B in the G.I.T





Medical causes of small & Large bowel obstruction



1. True about strangulation of intestine is: (*MHPGMCET 2001*)

- a. Arterial blood flow affected first
- b. Usually venous blood flow affected first
- c. Blood flow normal
- d. No gangrene

2. Most common cause of hyponatremia in surgical practice:

- a. Small intestinal obstruction (*MHPGMCET 2008*)
- b. Duodenal fistula
- c. Pancreatic fistula
- d. Intussusception

3. Best investigation for acute intestinal obstruction is:

- a. Barium studies
- b. X-ray
- c. USG
- d. ERCP

4. Early sign of intestinal strangulation: (PGI SS June 2001)

- a. Continuous pain
- b. Abdominal rigidity and shock
- c. Abdominal fluid
- d. Dilated bowel loops on USG

5. The most common cause of small intestinal obstruction is: (All India 96, PGI 97)

- a. Intussusception
- b. Iatrogenic adhesions
- c. Trauma
- d. Carcinoma

THANK YOU 😊