



- **Obstruction depends on:**

- Degree and duration of obstruction.
- Presence and severity of ischemia.

- **Obstruction results in the following:**

- Accumulation of fluid and air in gut lumen. once bowel get distended, there will be impaired fluid and nutrient absorption.
- Overgrowth of bacteria: resulting in secretion of isotonic fluid into the gut lumen.

- **Etiology of bowel obstruction (image-1):**

• **Mechanical bowel obstruction.**

- ✓ It can be:
 - ❖ Acute vs chronic.
 - ❖ Partial vs complete.
 - ❖ Simple vs closed loop.
 - ❖ Gangrenous vs non-gangrenous.

• **Non-mechanical bowel obstruction (ileus).**

- **Pathophysiology of bowel obstruction:**

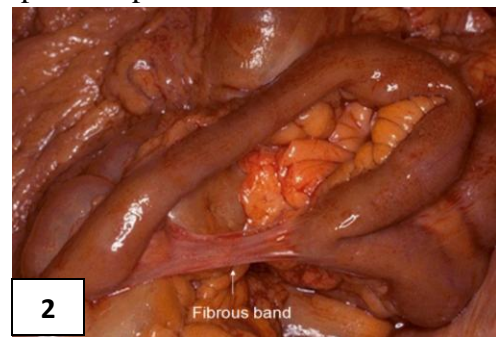
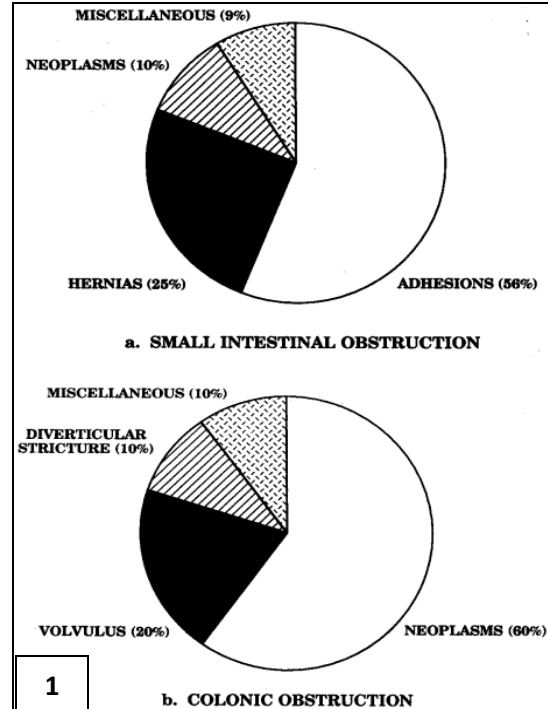
• **When obstruction happens:**

- ✓ There will be increased colonic pressure and decreased mesenteric venous blood flow which results in edema of the wall and transudation of water and electrolytes into the lumen. This in turn results in dehydration and electrolyte imbalance.
- ✓ Arterial blood supply becomes jeopardized (مُعَرَّض للخطر) which results in mucosal ulceration with full-thickness necrosis and perforation.
- ✓ Colonic bacteria translocation leads to septic complications.

- Image (2) shows an extrinsic arch which can also lead to volvulus formation. Notice that there is discoloration of the small bowel (normal color: nice pink). In addition, the bowel is collapsed and it has a fibrous band.

- **Volvulus (image-3):**

- **It is twisting of a portion of the digestive tract on its mesentery which results in:**
 - ✓ Intestinal obstruction.
 - ✓ Distention of the involved segment.
 - ✓ Interference with circulation to the affected area.
- **Cause:** congenital or acquired.
- **Areas most frequently affected are:**
 - ✓ Sigmoid colon.
 - ✓ Ileocecal region.
 - ✓ Stomach (rare!).
 - ✓ Small intestine (why?) → because it has a big mesentery which has a high risk to be rotated.





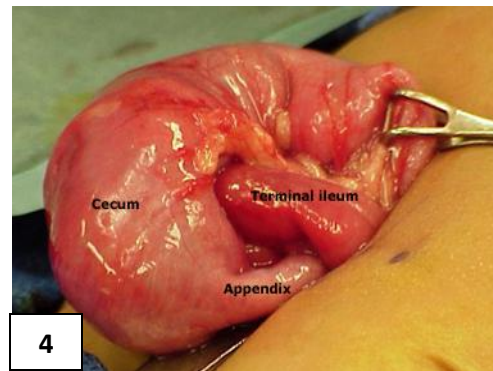
- **Pathogenesis:** it leads to:
 - ✓ Closed-loop type obstruction.
 - ✓ Proximal colon dilates.
 - ✓ Extent depends on ileo-cecal valve competence.
 - ✓ Simple or strangulated.
 - ✓ First venous then arterial obstruction occurs.
 - ✓ It takes few days for vascular compromise to develop.

- **Inguinal hernia: it might be:**

- **Direct:**
 - ✓ Protrudes through the inguinal triangle.
 - ✓ Bulges directly through abdominal wall medial to inferior epigastric artery.
 - ✓ Goes through the external (superficial) inguinal ring only.
 - ✓ Covered by external spermatic fascia.
- **Indirect:**
 - ✓ Goes through the internal (deep) inguinal ring, external (superficial) inguinal ring and into the scrotum.
 - ✓ Enters internal inguinal ring lateral to inferior epigastric artery.
 - ✓ Covered by all three layers of spermatic fascia.

- **Intussusception (الإنغماد المعوي):**

- “Telescoping” of one bowel segment into distal segment.
- Commonly at ileocecal junction.
- Unusual in adults (associated with intraluminal mass or tumor).
- Majority of cases occur in children (usually idiopathic!).
- Image (4) shows part of the terminal ileum is going into part of the cecum leading to bowel ischemia.



- **Bowel ischemia:**

- The bowel has a good collateral blood circulation but occlusion of a major vessel will lead to extensive infarction.
- Gradual loss of blood supply may be tolerated.
- **Extent of injury and effects:**
 - ✓ Superficial mucosal necrosis:
 - ❖ It is patchy (not extensive).
 - ❖ Ischemic injury to the small bowel or large bowel can recover.
 - ✓ Deeper necrosis:
 - ❖ Which is present in submucosa and part of mesentery.
 - ❖ Might result in fibrosis and stricture formation.
 - ❖ It is a chronic process which is not recoverable.
 - ✓ Transmural necrosis:
 - ❖ Leads to gangrene, perforation of serosa and shock!
- Image (5) shows ischemic enteritis with brown discoloration of the whole bowel mucosa; necrotic mucosa with some inflammatory cells and fibrin exudates; very rarely you can find an ulcer.

