

Etiology

Etiology of Obstruction

- Gastric:

1. Peptic ulcer
2. Gastric ingestion
3. Tumors (Benign & Malignant)
4. Surrounding Inflammation
5. Other causes like Bezoar
6. Iatrogenic

- Small bowel:

1. Post operative adhesions
2. Hernia (PUH, Incisional, Inguinal)
3. Crohn's
4. Anastomotic stricture - Iatrogenic
5. Foreign bodies / Gall stones
6. Tumors
7. Intussusception

- Large bowel:

1. Colon Ca
2. Post operative anastomotic stricture
3. Crohn's
4. Volvulus / Intussusception
5. Hernias

Pathophysiology

Intestinal Contents

- **Stomach**

1. Swallowed air
2. Saliva
3. Gastric juice

- **Small intestine**

1. Partially digested food
2. Gas from fermentation
3. Bile / Pancreatic / Intestinal juice

- **Large Intestine**

1. Stool
2. Micro organisms

Events in Obstruction

- Proximal intestine

1. Dilates above level of obst

due to accumulated
food / fluid / gas

2. Internal pressure rises

Draining veins & lymphatics are compressed
Walls become congested and edematous

3. Mucosal irritation causing

Fluid collection in the lumen

- Distal intestine

1. Collapses

2. Continues to show peristalsis

Decreased intake
Vomiting

PROXIMAL DILATATION

DISTAL COLLAPSE

Swallowed air

Distension

Increased peristalsis

Gas from fermentation

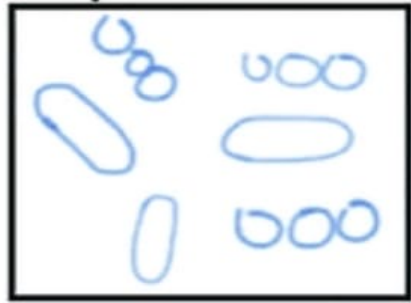
+ Fluid sequestration

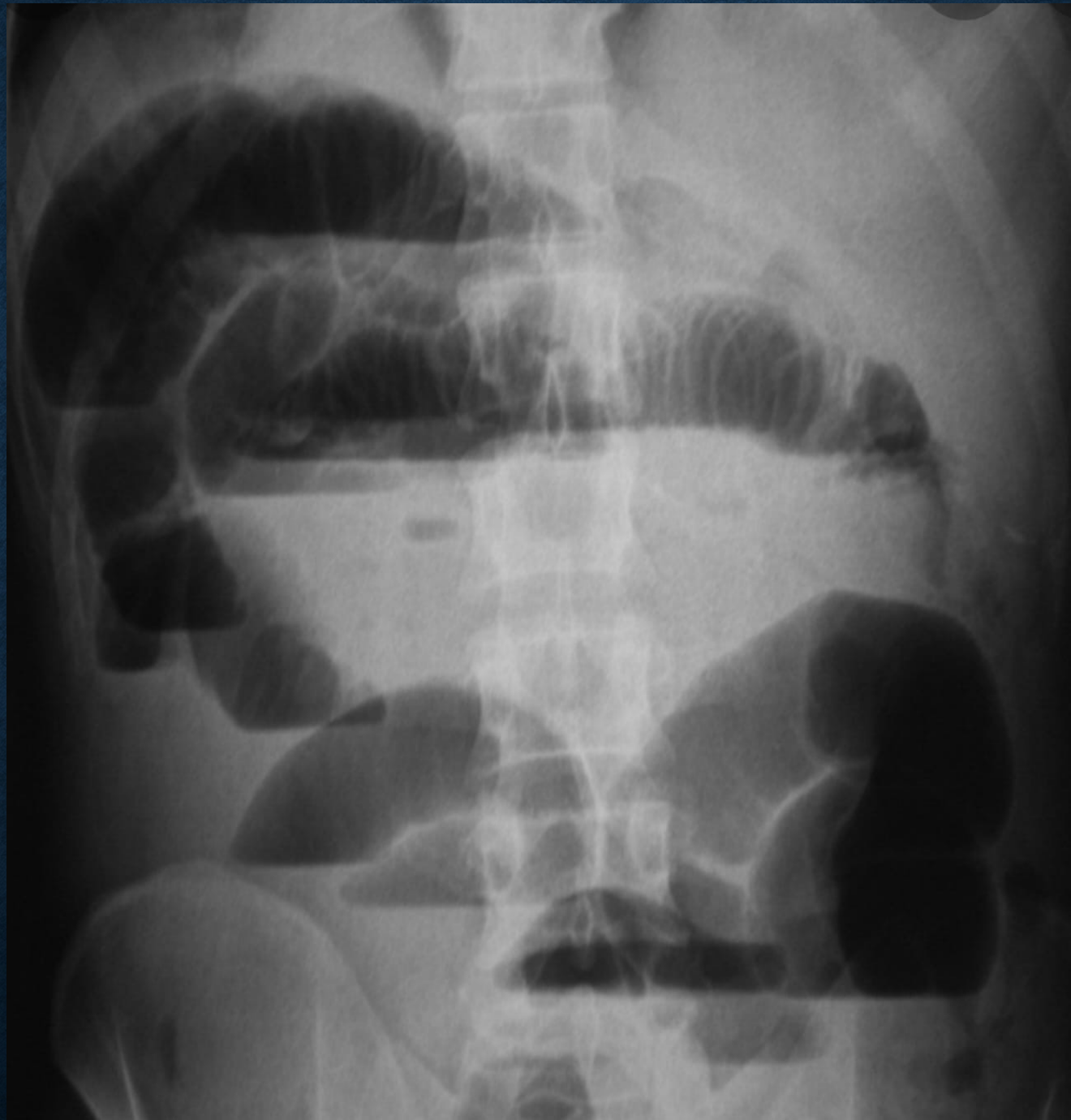
Adhesion

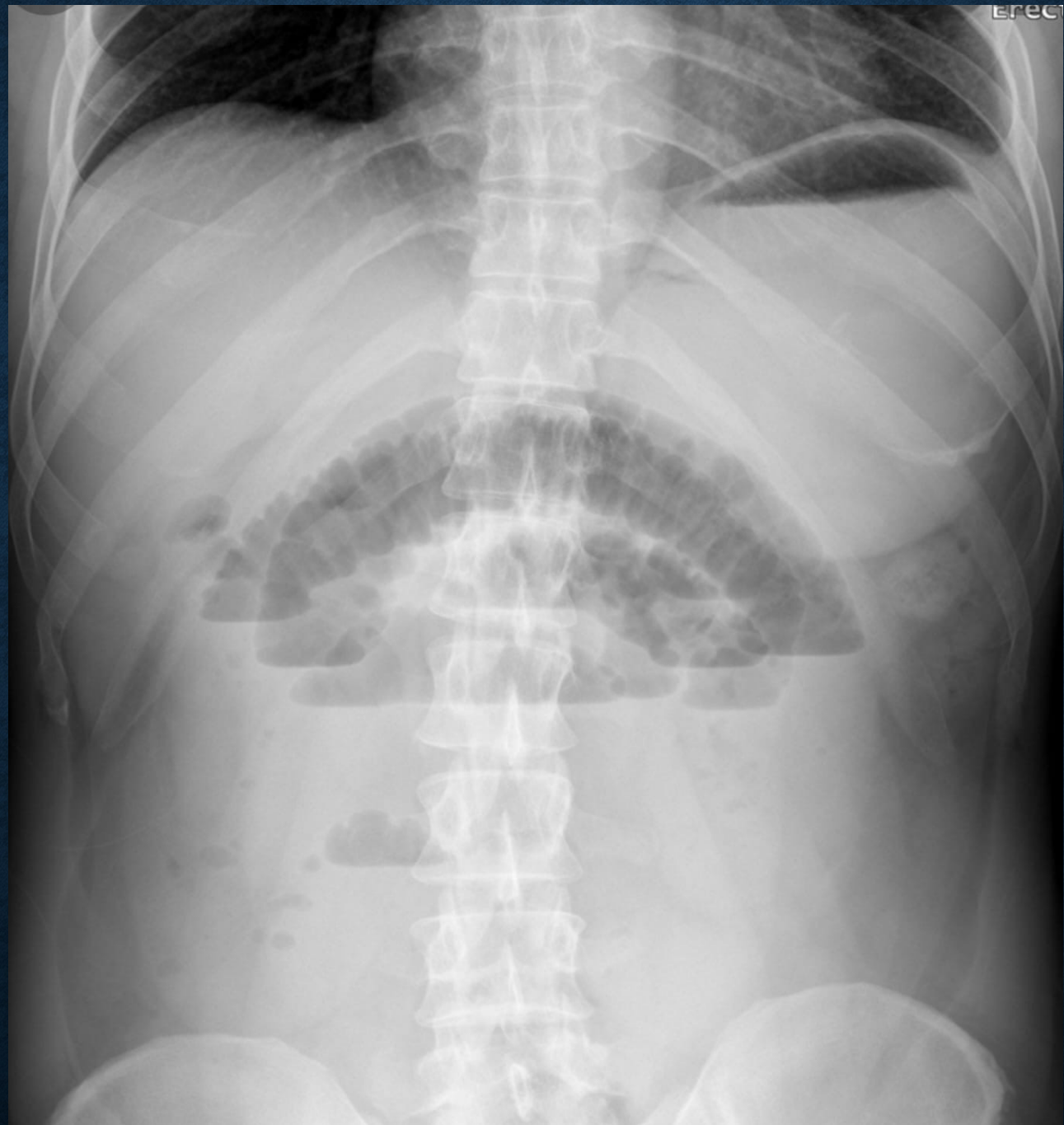
Third spacing
Fluid shifts

**Hypotension
Dehydration
Electrolyte depletion**

Stasis and bacterial overgrowth







- At the level of obstruction

1. Venous compromise
2. Arterial compromise

Causing ischemia

If recovered - Stricture

If progress - Gangrene & Perforation

Subsequent Events

- **Translocation**

Defined as

Invasion of indigenous intestinal bacteria through gut mucosa to normally sterile tissues & organs

Sometimes inflammatory compounds are translocated, which result in development of Systemic inflammatory response syndrome (SIRS)

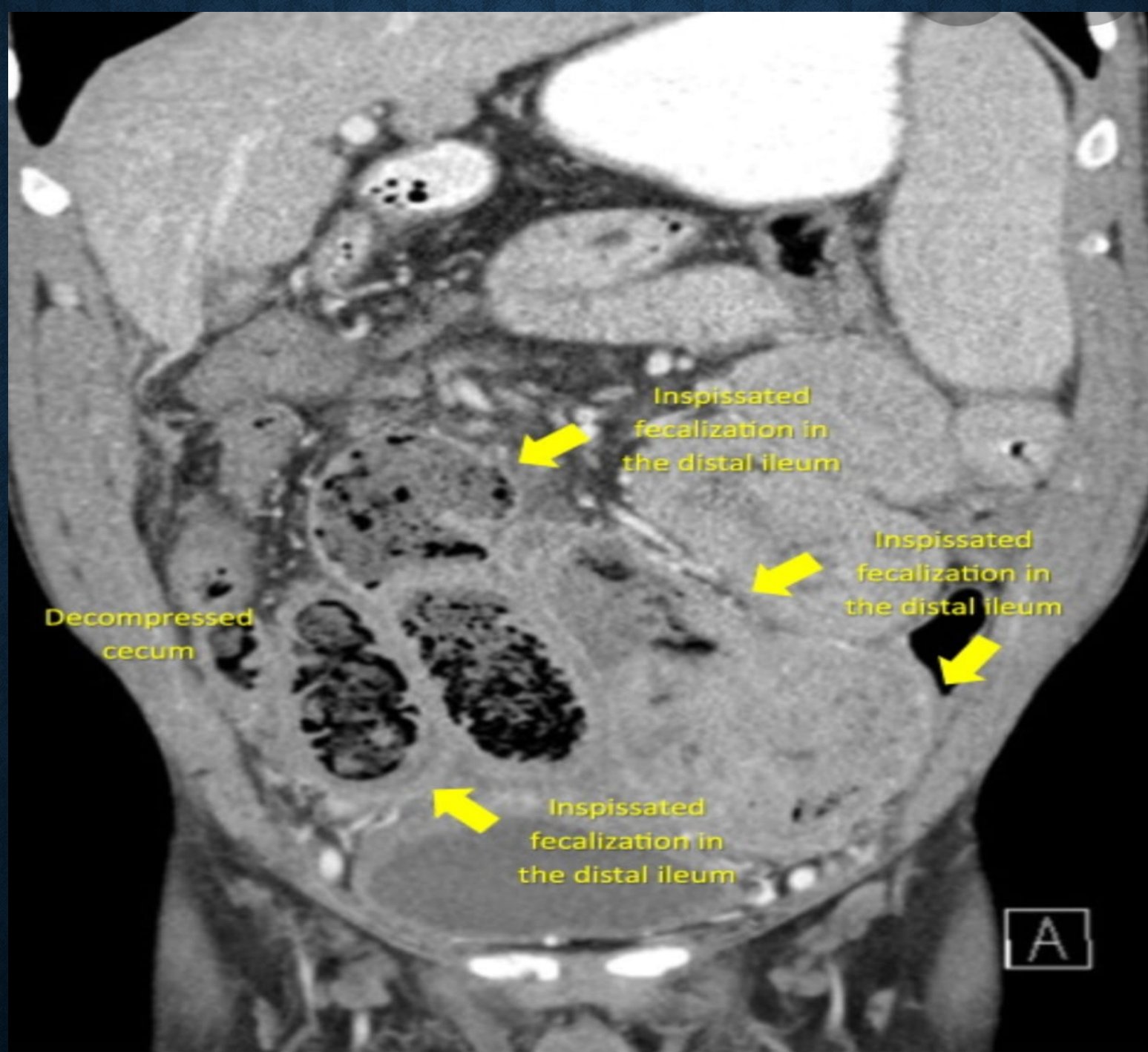
- **Fecalization**

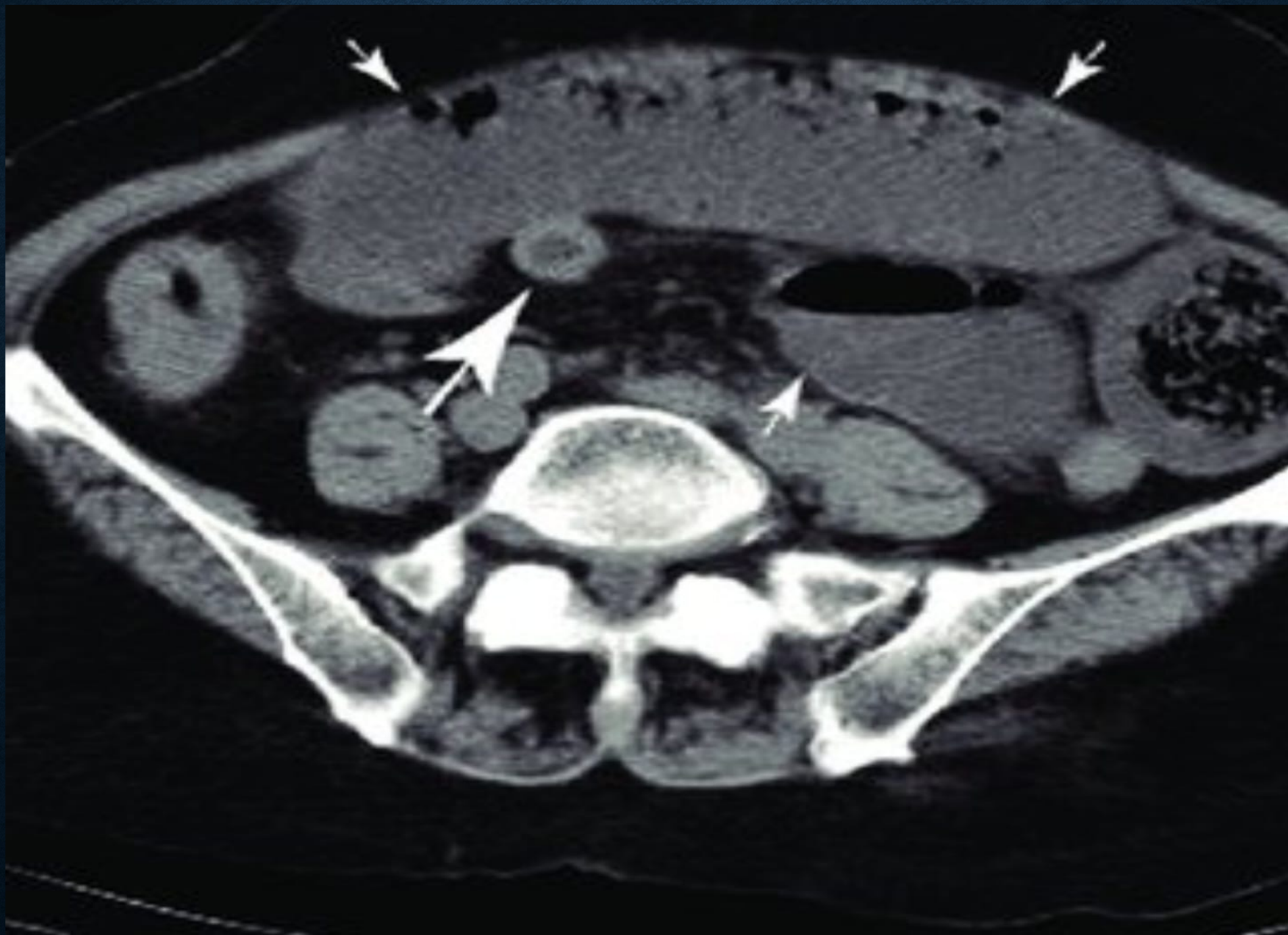
Defined as

Conversion of intestinal contents into stool like material

Due to

Stasis / absorption of water / bacterial over growth / production of gas





- **3rd space Shift**

Defined as

Sequestered fluid not taking part in physiology

Resulting in

Hypovolemia / Dehydration

- **Peritonitis**

Due to

inflammation of intestine / translocation

- **Systemic sepsis**

Classification of

- Two phases

B Obst

- **Location** - Gastric / SBO / LBO
- **Progress** - Acute or Chronic or Subacute
- **Severity** - Partial or Complete
- **Anatomy** - Open loop obst / Closed loop obst
- **Outcome** - Simple or Strangulation

- **Open loop obst**

Both incoming (afferent) & outgoing loops are open
There is only 1 obstructing point

- **Closed loop obst**

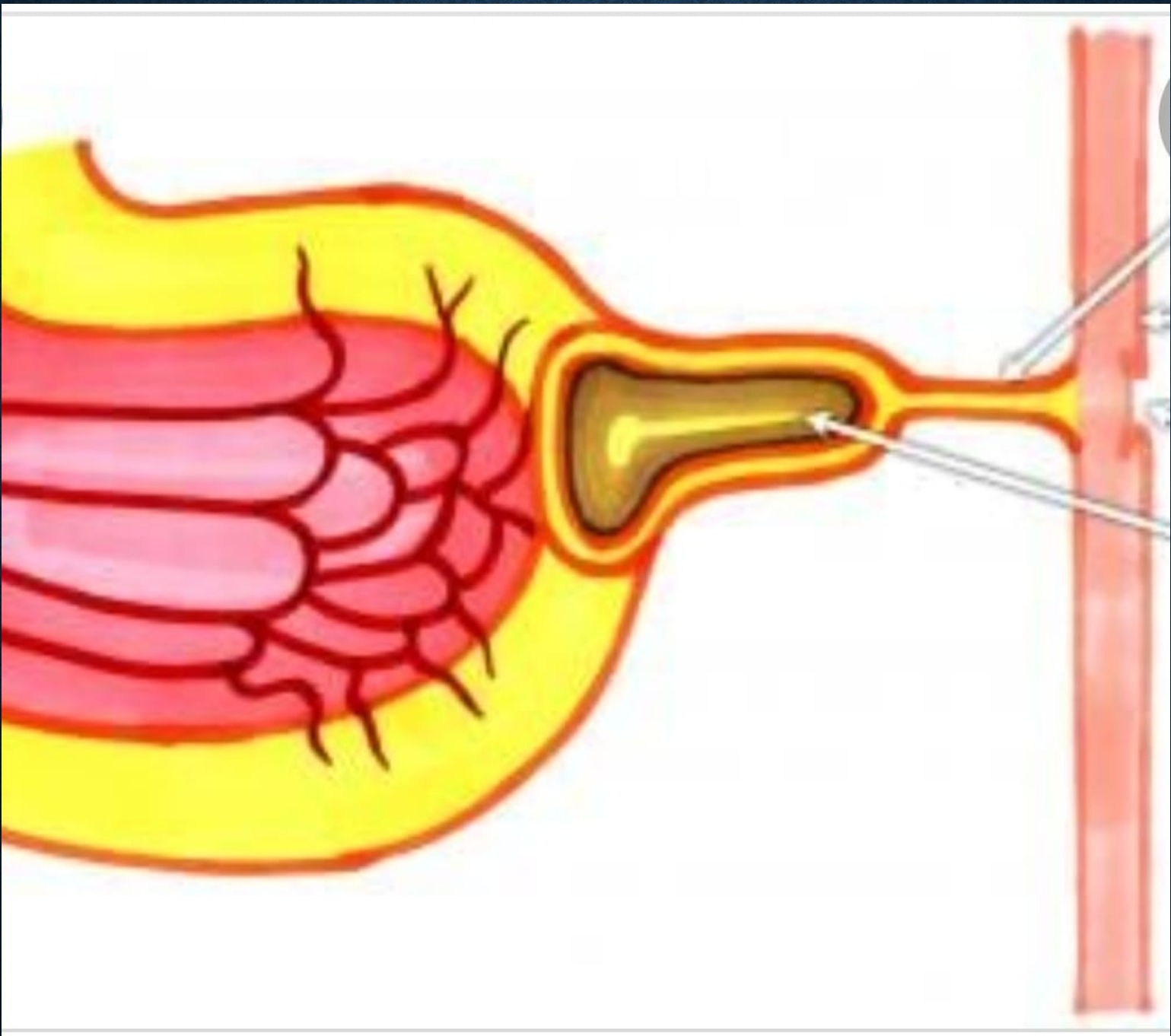
There is a disconnected loop between afferent & efferent loop
There are 2 obstructing points

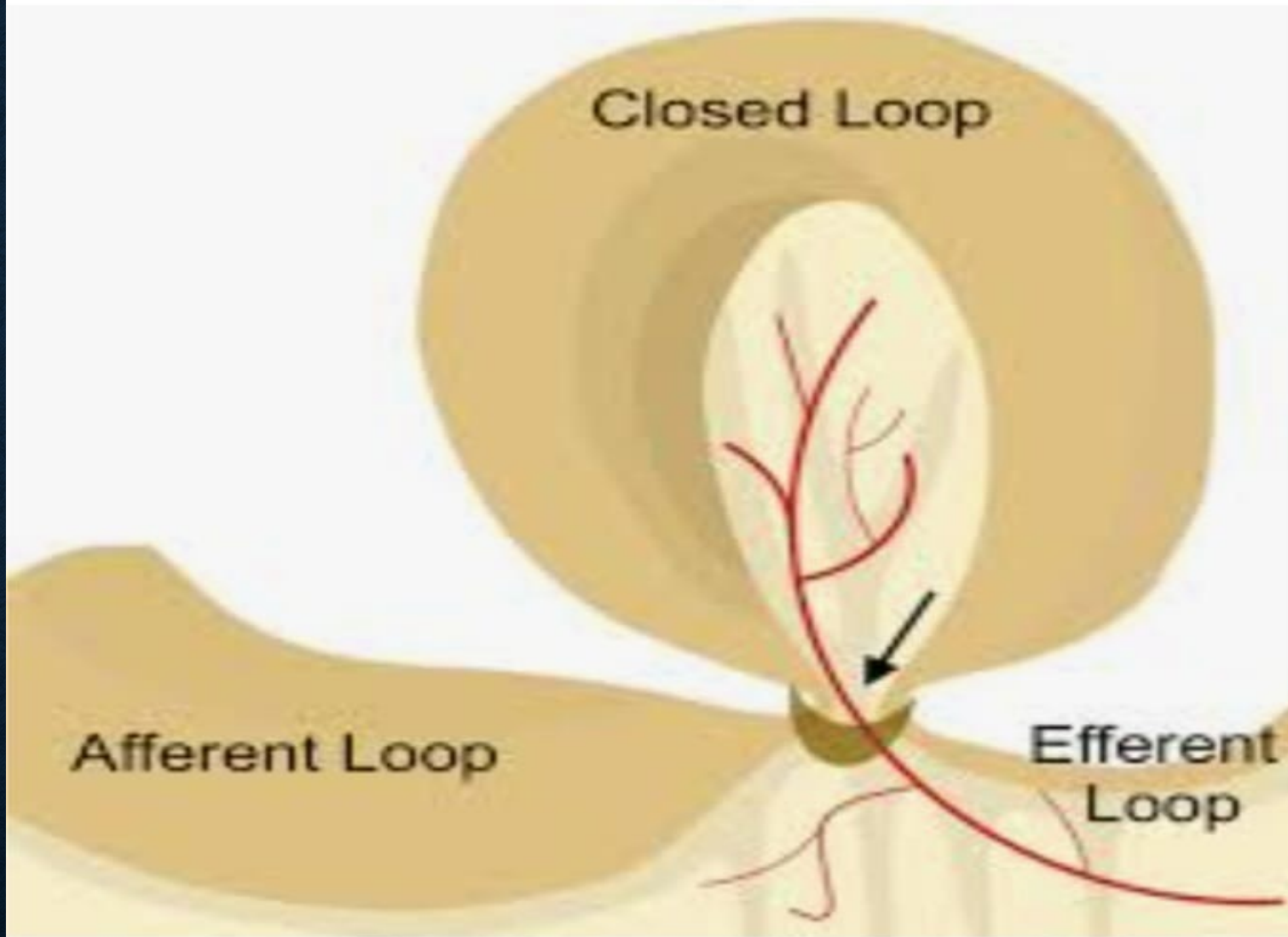
- **Simple obst**

Only lumen is obstructed
There is no strangulation

- **Strangulation obst**

A portion of bowel is dead





Adhesive Small Bowel Obstruction...
pubs.rsna.org

Dilated Proximal
Bowel

Adhesion or opening
to an internal hernia

Decompressed
Distal Bowel



Clinical features

- Two phases

Clinical features

- Depend upon
 1. Clinical picture of underlying disease
 2. Clinical features of Bowel Obstruction
 3. Clinical features related to complications

Gastric Obst

- Symptoms

1. Upper abd pain
2. Post prandial vomiting
3. Early dehydration
4. Emaciation

- Signs

1. Upper abd tenderness
2. Upper abd fullness
3. Suction splash
4. Bowel sounds are preserved

Small Intestine

- Symptoms

1. Central abd pain
2. Vomiting
3. Abd distention
4. Dehydration

- Signs

1. Central abd tenderness
2. Distention
3. Rebound tenderness
4. Guarding & Rigidity
5. Exaggerated bowel sounds
6. Dilated rectum

Large Intestine

- Symptoms

1. Lower abd pain
2. Vomiting late
3. Abd distention early
4. Dehydration

- Signs

1. Lower abd tenderness
2. Distention +
3. Rebound tenderness
4. Guarding & Rigidity
5. Exaggerated bowel sounds
6. Dilated rectum

	Gastric Obst	SB Obst	Colonic Obst
Abdominal Pain	Upper abd	Central	Central Left lower abd
Vomiting	Early - Post Prandial	Intermidiate	Late
Abd Distention	Upper abd only	Central abd	Central abd
Constipation Obstipation	Late +	Intermidiate ++	Early +++
Dehydration	Early +++	Intermidiate ++	Late +
Tenderness Rebound Tenderness	Only upper abd	Central abd	Lower Central
Guarding Rigidity			
Bowel Sounds	Normal	Exaggerated	Exaggerated

Symptoms of Peritonitis

1. Abd Pain
2. Anorexia / Nausea / Vomiting
3. Obstipation / Constipation
4. Decreased urine output
5. Fever / Tachycardia

Signs of Peritonitis

1. Abdominal Tenderness
2. Distension
3. Rebound tenderness
4. Guarding / Rigidity
5. Decreased bowel sounds
6. DRE (Digital rectal examination)

Complications

Complications

- Local

- (Local Peritonitis)
 - Collection
 - Abscess formation
 - Fistula formation
 - Stricture formation

- General

- Generalized Peritonitis
 - Septic shock
 - MOF / ARDS
 - Mortality