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Surgery

Intestinal Obstruction

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Today we will be talking about intestinal obstruction

- Definition
- Review of Basics
- History and Examination
- Differential Diagnosis
- Investigation
- Fluid prescription
- Clinical algorithm

Definition

Clinical condition, due to; failure of the intestine (small or large) to pass gas, liquid and solid material.

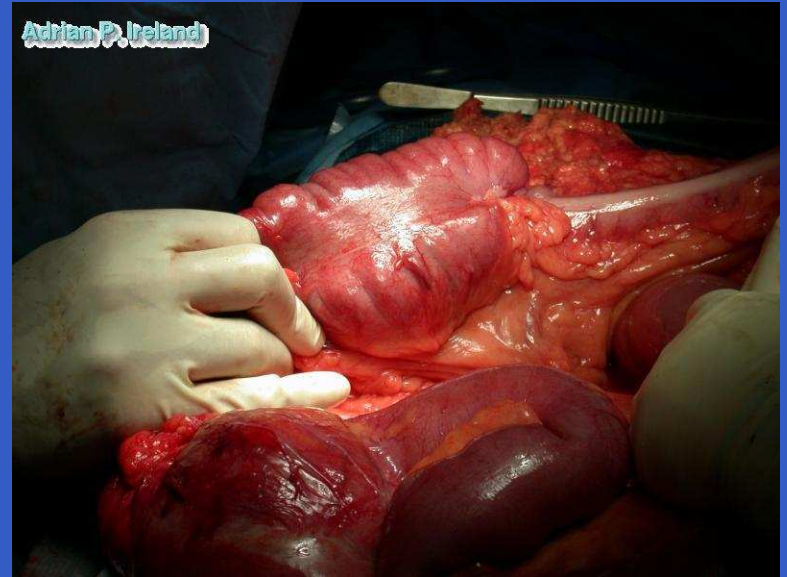
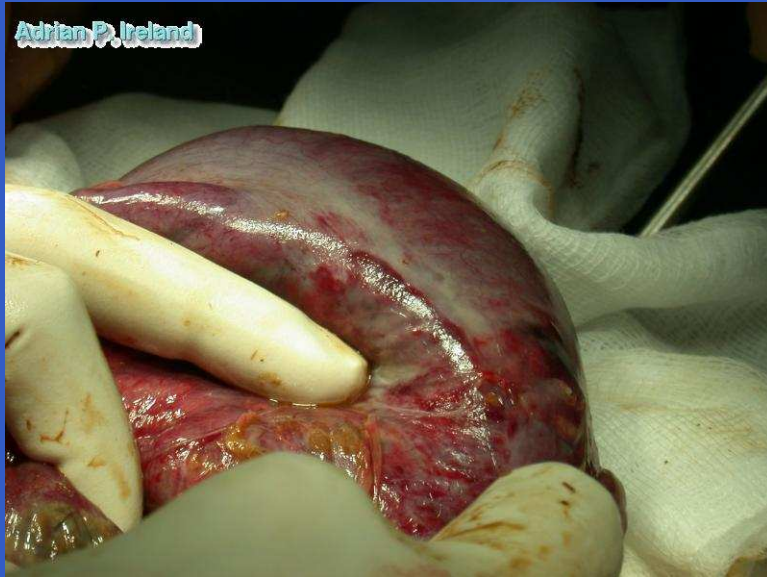
Review of the Basics

- Pathophysiology
- The 3 pains / The 3 guts
- Causes

Intestinal Obstruction; Pathophysiology

- Blocked Lumen
 - Distension (solid, liquid, gas); Pain, vomit, constipation
 - Increased Wall tension; Perforation
 - Ischaemia
- Closed and Open loops

Closed and Open loops



Review of the Basics

- Pathophysiology
- The 3 pains / The 3 guts
- Causes

The 3 Pains

- Visceral
- Referred
- Somatic

Visceral Pain

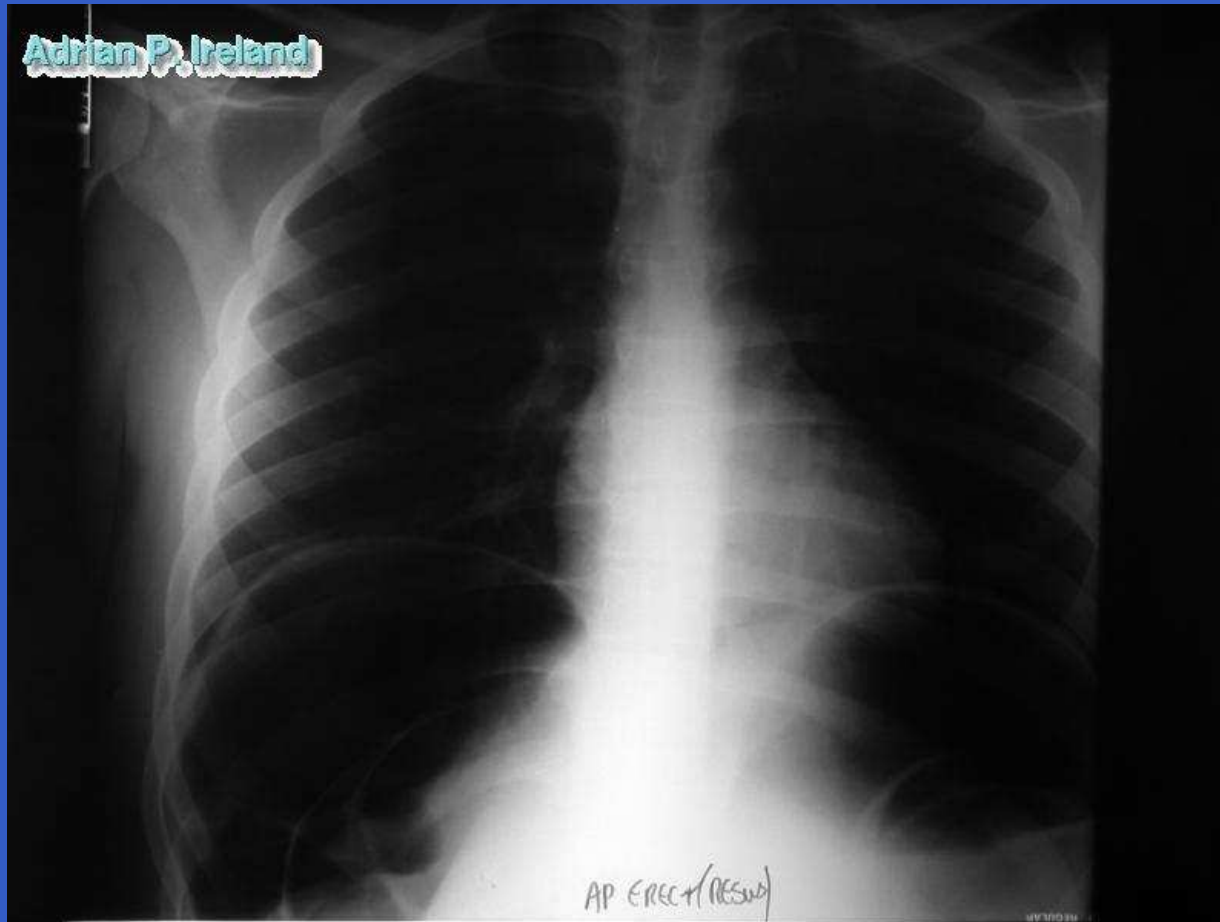
- Sensation of the intestines is not the same as the sensation of the skin
- The gut does not mind being cut or burnt
- It does not like to be pulled or distended
- It does not like being irritated by things that are not normally present

Referred Pain

Diaphragmatic irritation (pneumonia, pus, blood)

- Diaphragm is irritated
- Pain travels along the phrenic nerve (C3, C4, C5)
- Pain signals enter cord at C3–5
- Brain thinks that the pain is coming from the suprascapular nerves which supply the shoulder tip and enter the cord in the same place

What is this?



Somatic Pain

When the parietal peritoneum is inflammed;

- Pain is severe
- Breathing shallow
- Movement curtailed
- Tenderness marked

Those who feel pain the most have the most symptoms and abdominal tenderness

The 3 guts

There are 3 main guts to be aware of when it comes to pain

- Fore gut

The 3 guts

There are 3 main guts to be aware of when it comes to pain

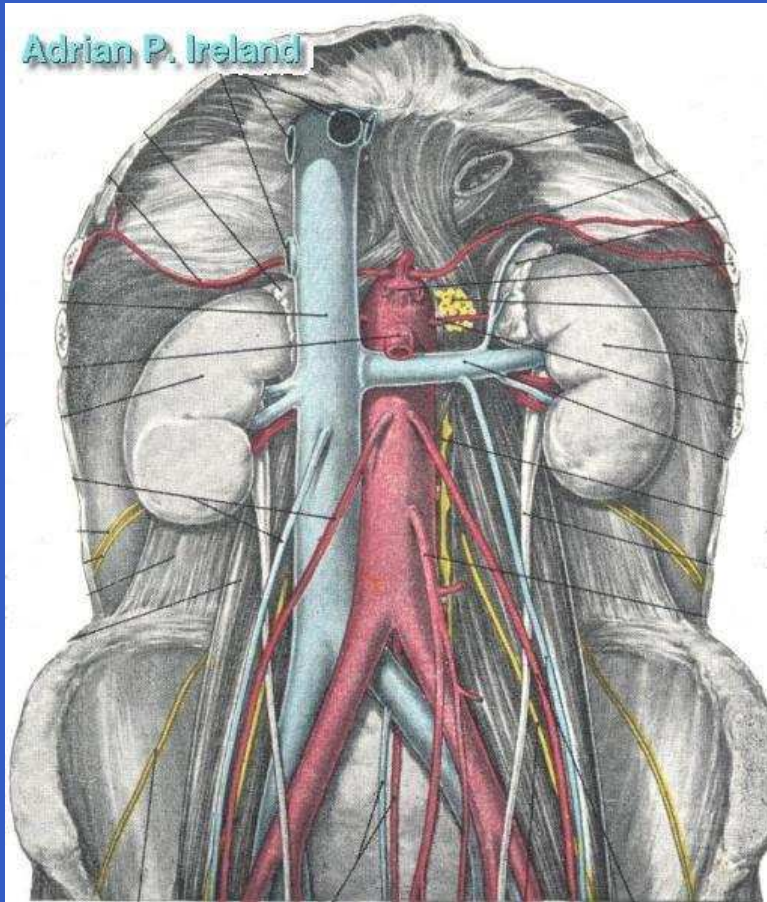
- Fore gut
- Mid gut

The 3 guts

There are 3 main guts to be aware of when it comes to pain

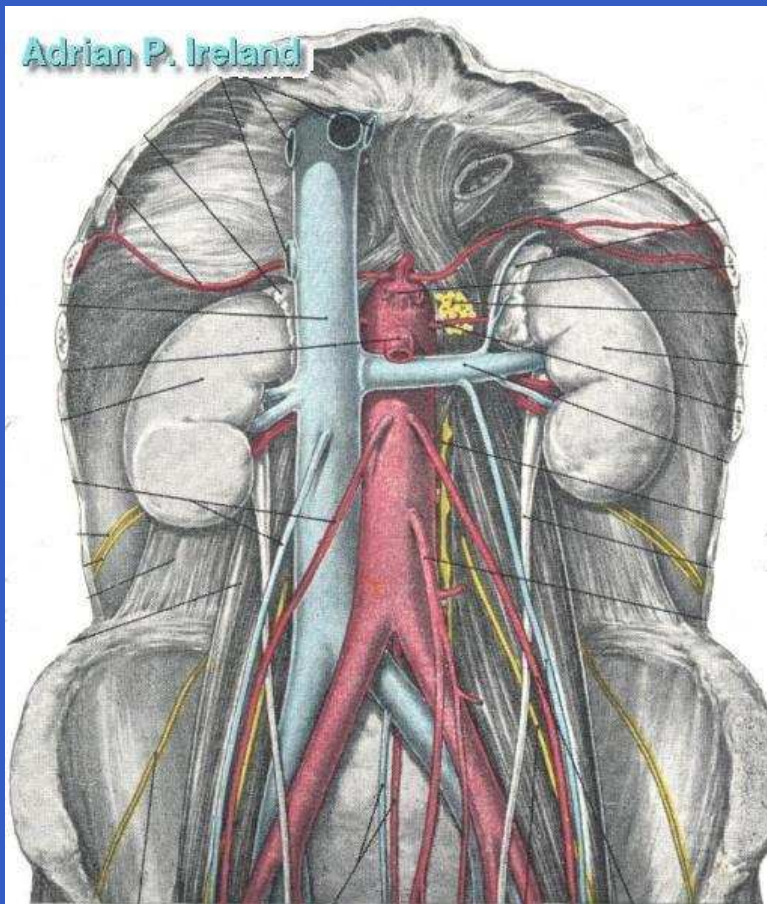
- Fore gut
- Mid gut
- Hind gut

The 3 guts; Based upon arterial supply



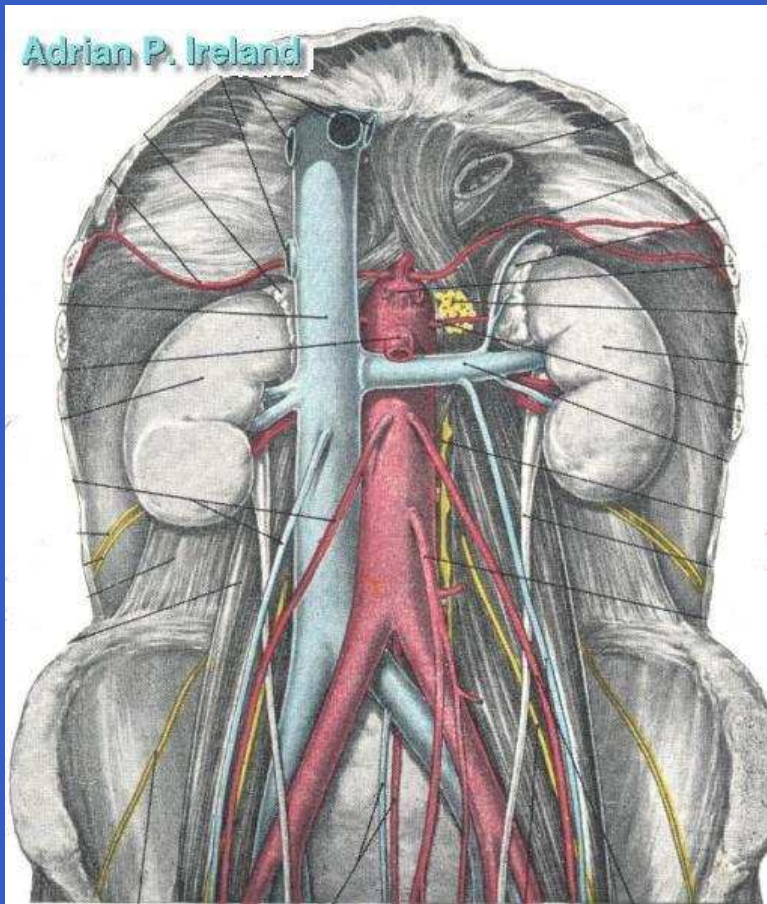
- Fore-gut
- Mid-gut
- Hind-gut

The Fore-gut



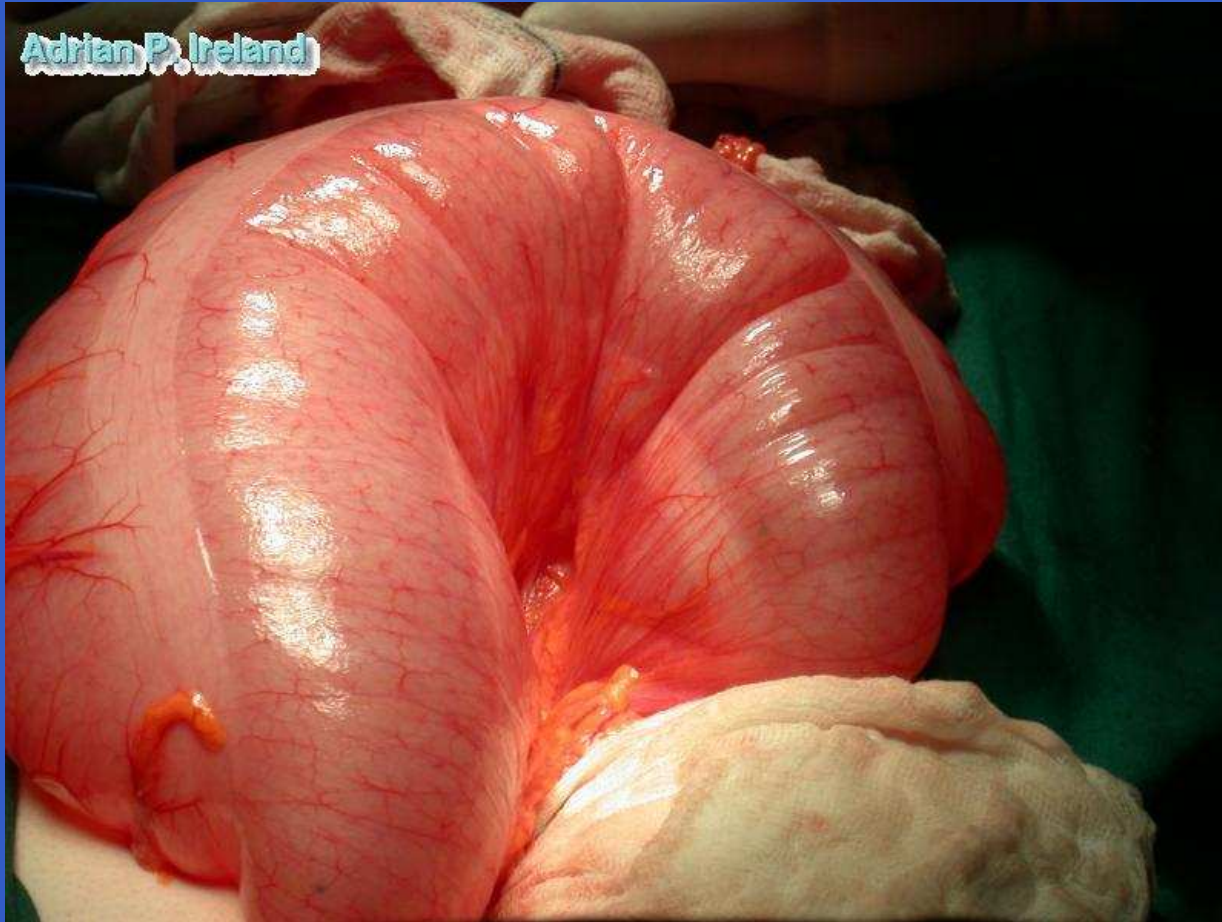
- In the distribution of the Coeliac artery
- Extends from the lower esophagus to half way down D2
- Pain is referred to the epigastrium

The Mid-gut

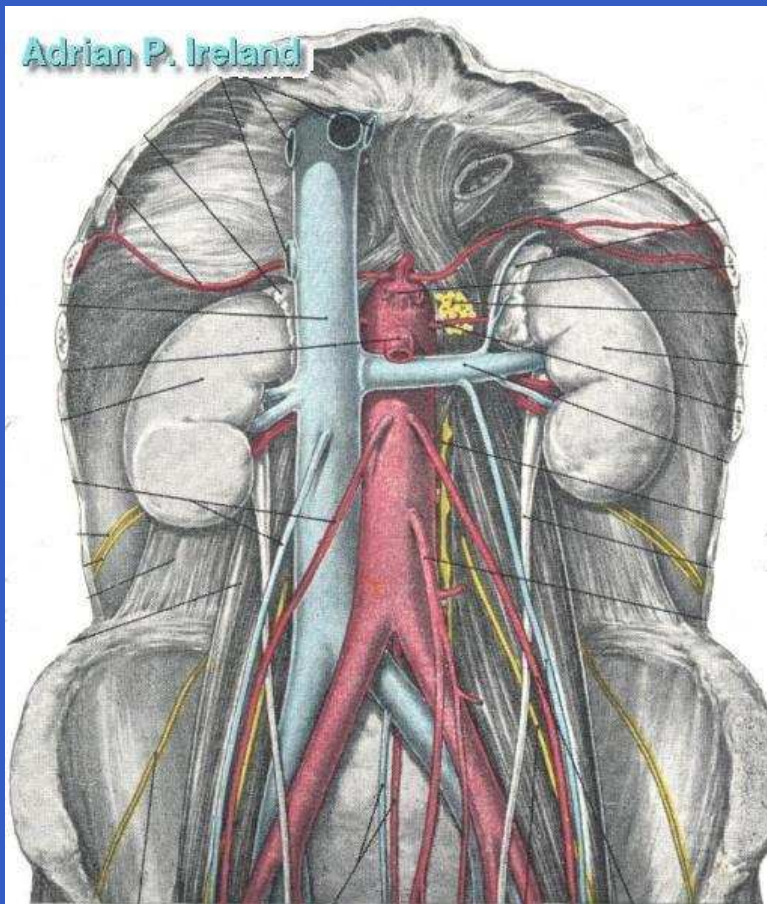


- In the distribution of the Superior Mesenteric artery
- Extends from half way down D2 to the distal transverse colon
- Pain is referred to the umbilicus

What is this?



The Hind-gut



- In the distribution of the Inferior Mesenteric artery
- Extends from the distal transverse colon to the rectum
- Pain is referred to the hypogastrium

Review of the Basics

- Pathophysiology
- The 3 pains / The 3 guts
- Causes

Causes of Intestinal obstruction

Classification based upon;

- lumen, wall, outside and combinations (Explain all causes)
- open and closed loop (Identify dangerous types)
- simple and complex (Clinically useful)
- small intestine, large intestine (Clinical and Radiological)
- common and rare (Clinical)

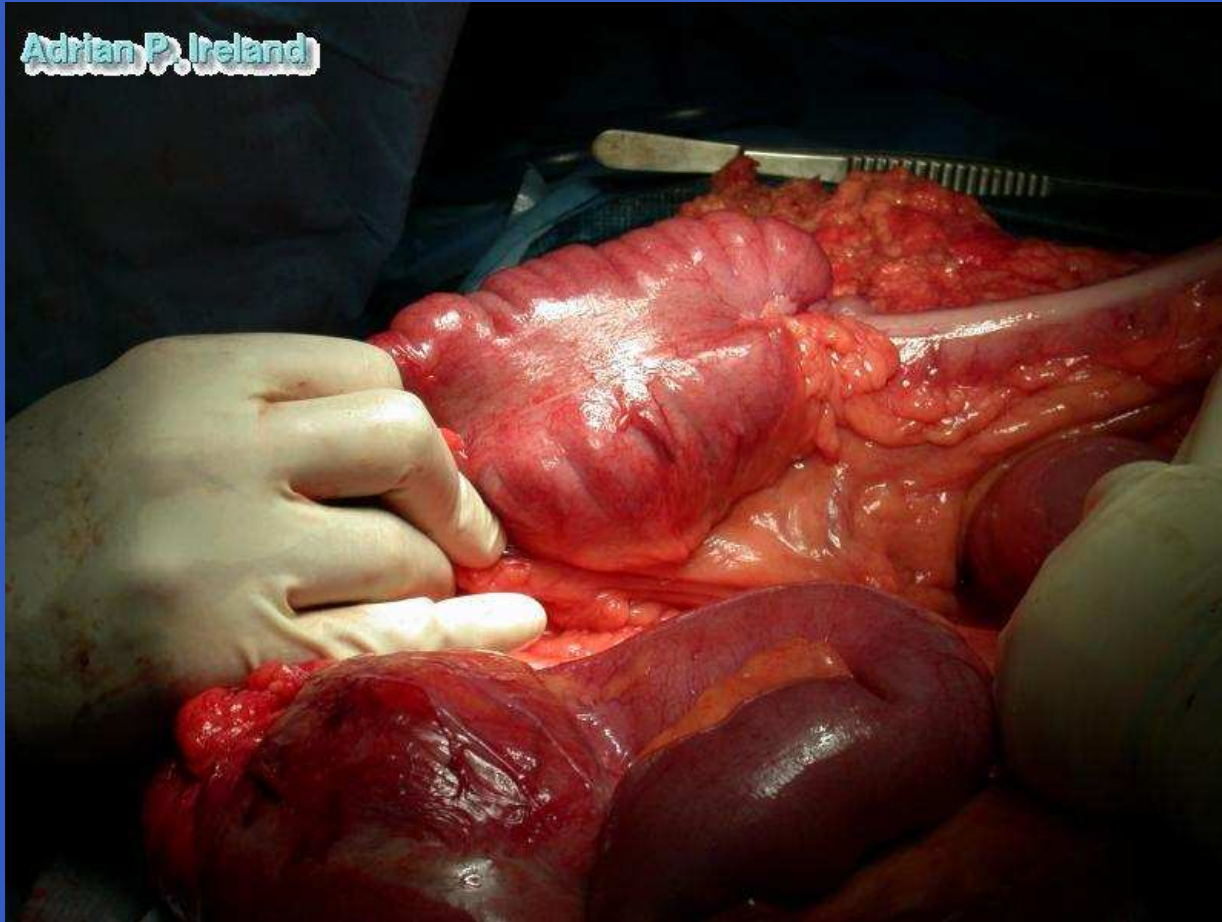
Lumen, Wall, Outside and Combinations

- Lumen; Gallstone, Beezoar, Foreign Body
- Wall; Stricture
- Outside; Volvulus, Hernia, Adhesions, Metastases
- Combinations; Intussusception

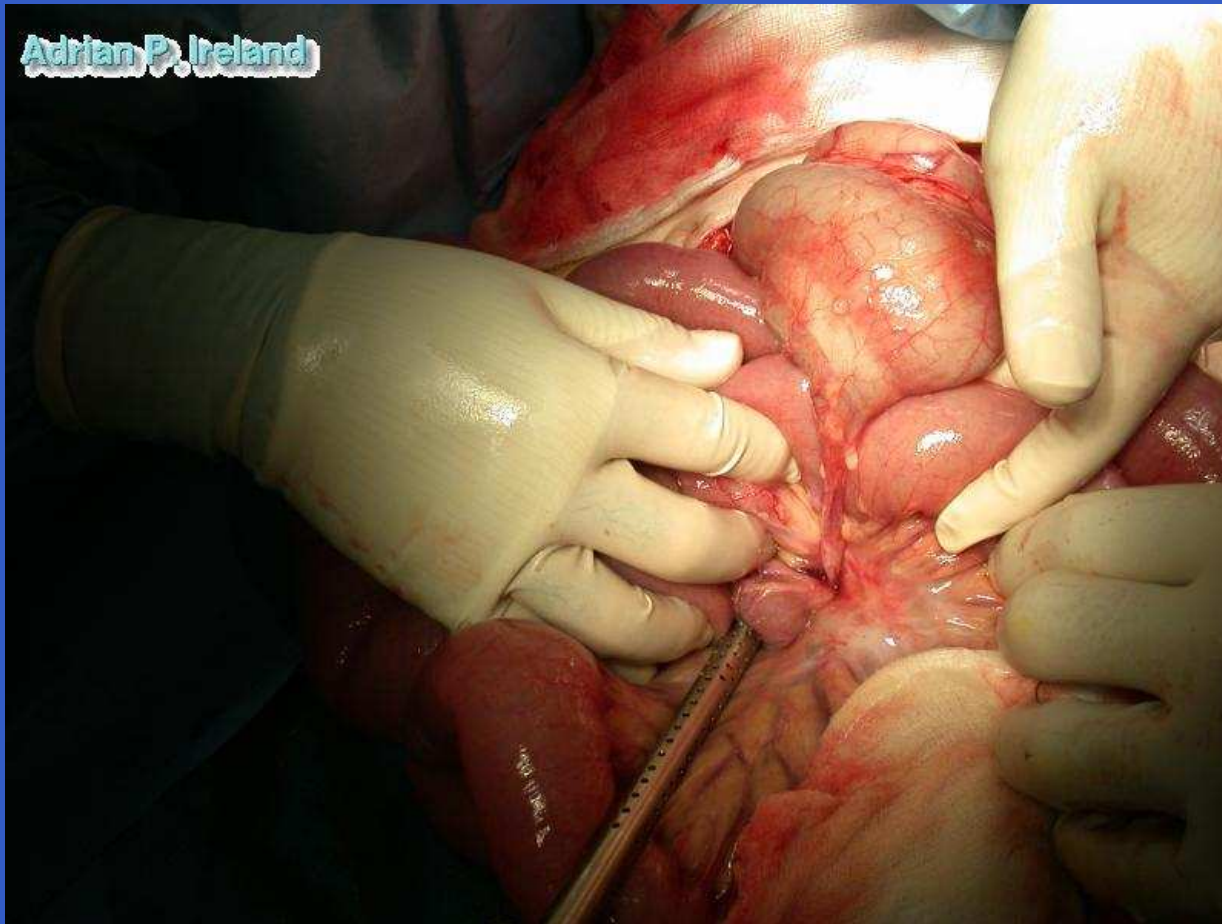
Lumen



Wall



Outside



Causes of Intestinal obstruction

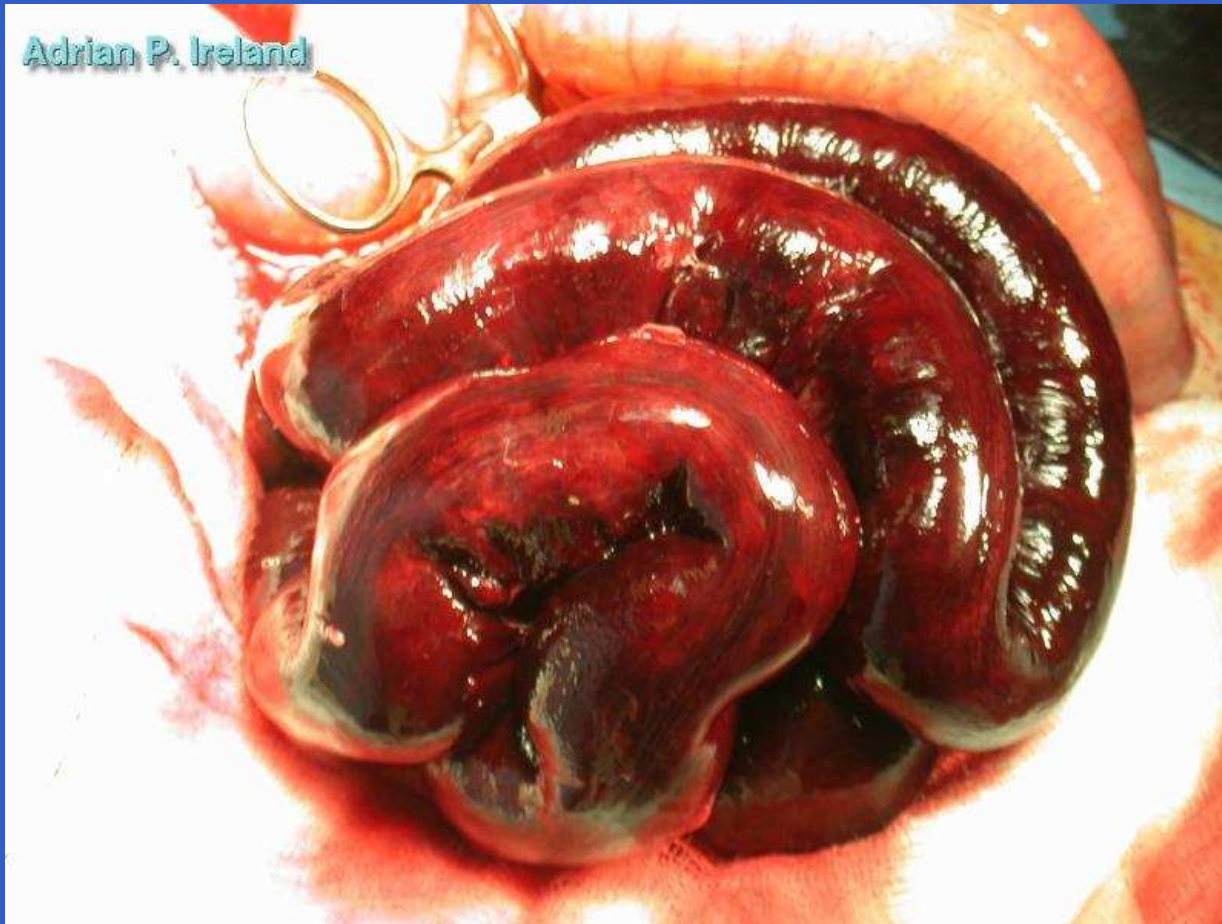
Classification based upon;

- lumen, wall and outside
- Small Intestine, Large Intestine
- common and rare

Small Intestine

- Post operative adhesions
- Stuck onto tumor or inflammatory mass somewhere
- Hernia; External, Internal
- Volvulus
- Intussusception
- Crohn's stricture
- Ischaemic stricture
- Tumors of the small intestine

Operative Findings; Small bowel volvulus



Large Intestine

- Colo-rectal cancer
- Volvulus; Sigmoid, Caecal
- Inflammatory Stricture

Causes of Intestinal obstruction

Classification based upon;

- lumen, wall and outside
- small intestine, large intestine
- Common and Rare

Common and Rare

- Common;
 - Post operative adhesions
 - Herniae; Groin, Femoral and Inguinal, Incisional
 - Colorectal Cancer
- Rare; Internal hernia

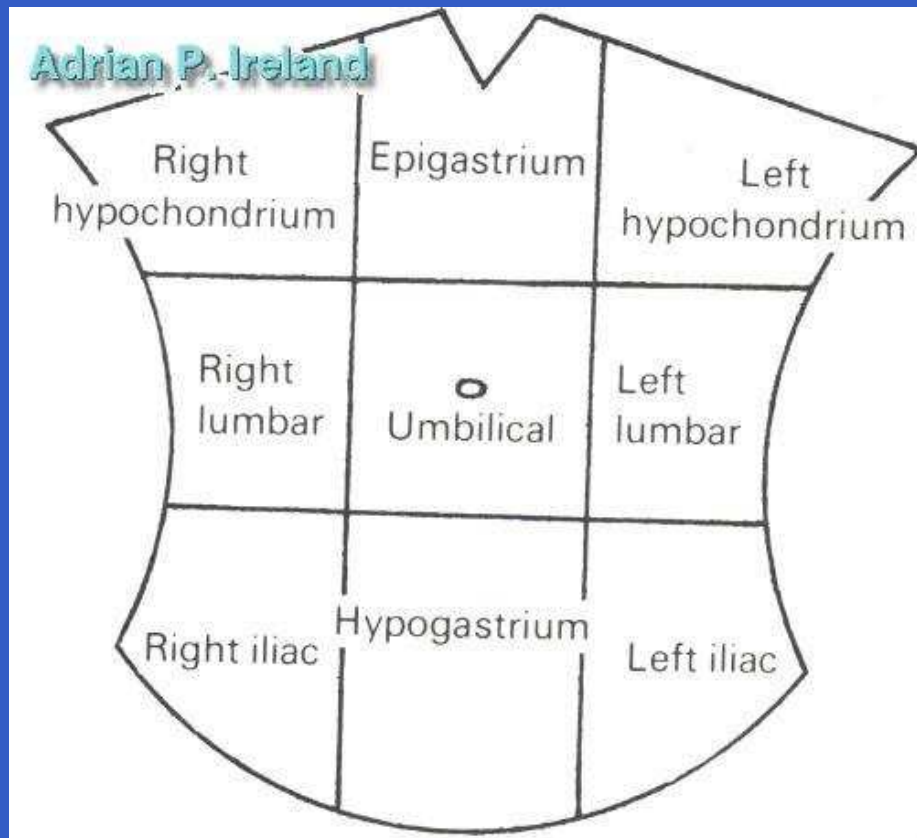
Presenting Complaint

- Abdominal Pain
- Vomiting
- Distension
- Constipation, even wind? (Complete, obstipation)
- Blood PR
- Energy, Appetite, Weight

Pain

- Site
- Radiation
- Type
- Severity
- Onset and Duration
- Aggravating and Relieving factors
- Associated symptoms

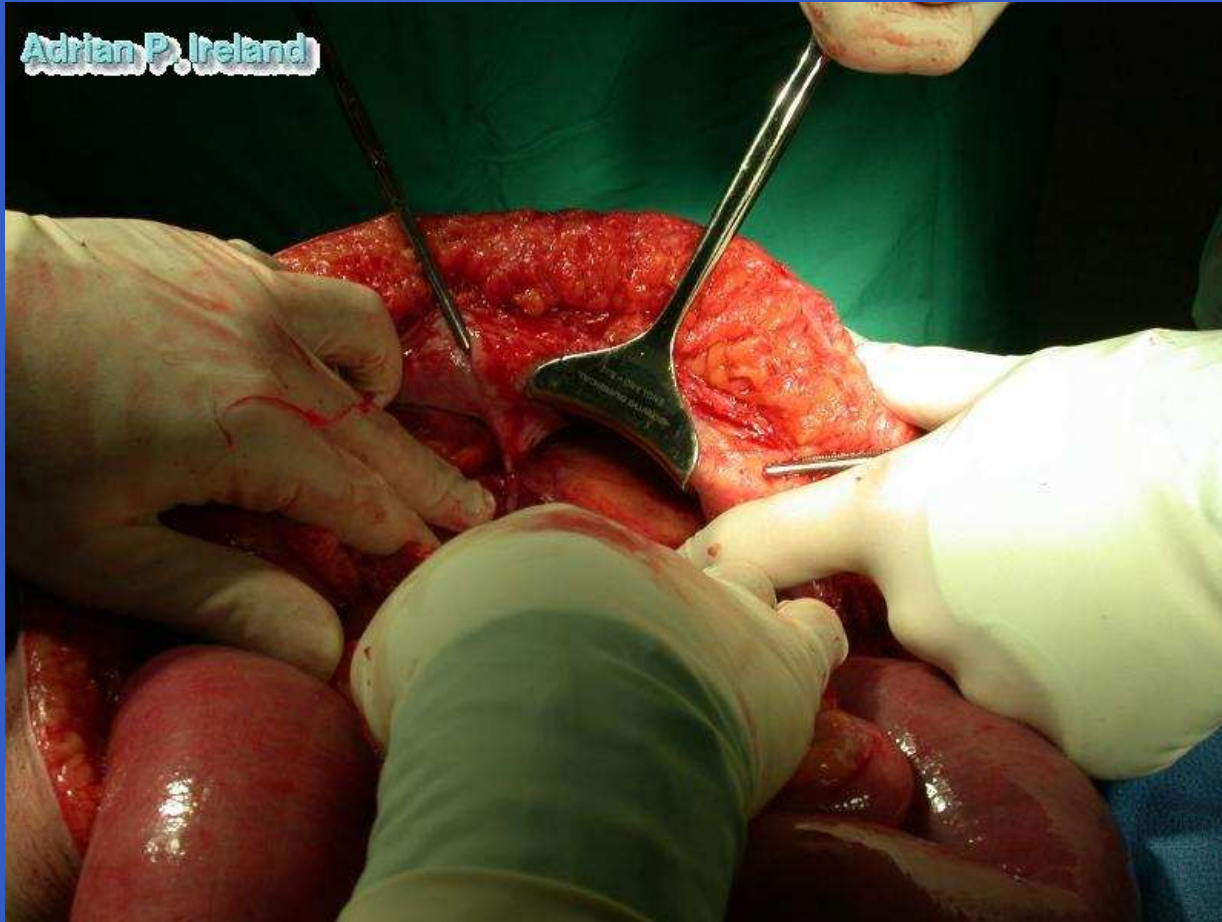
Site



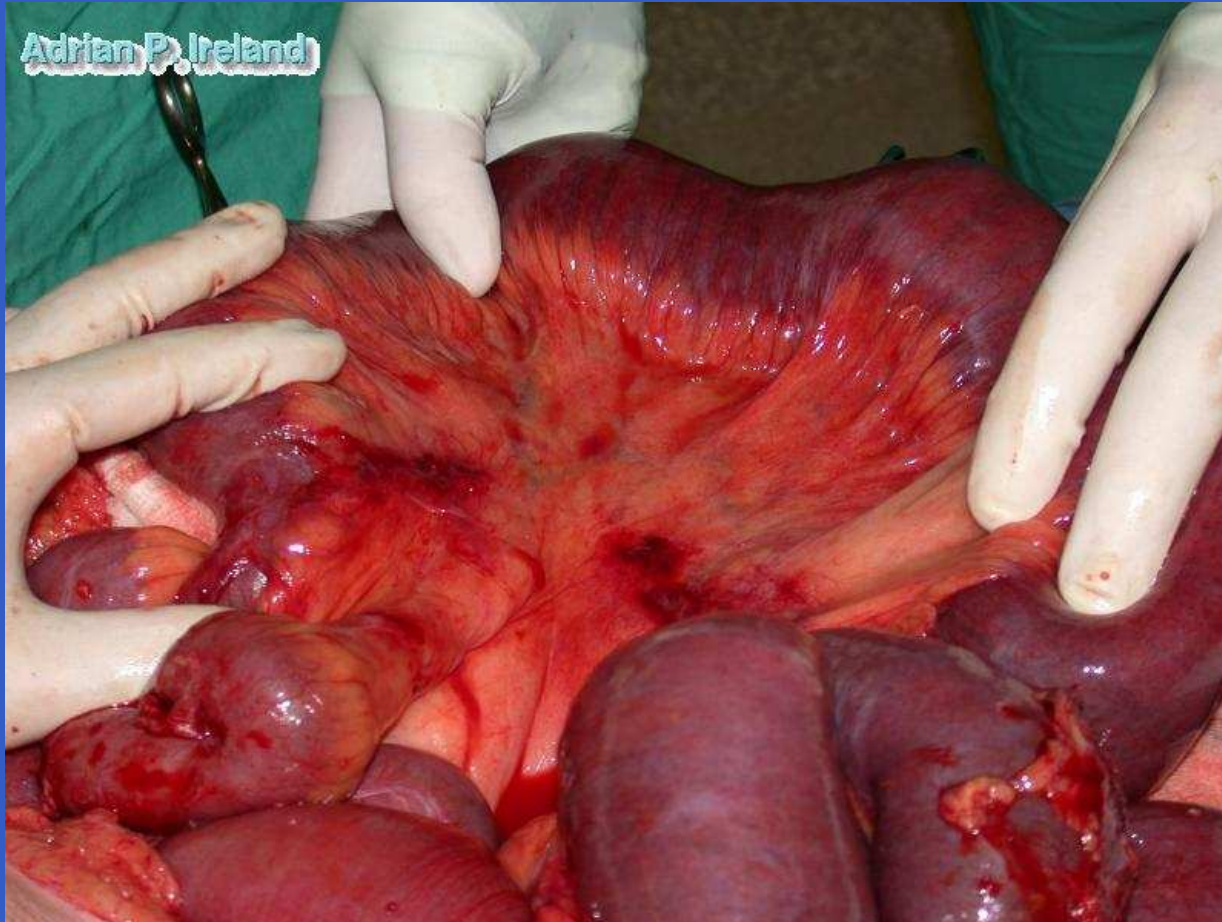
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Whats this?



Whats this?



Past history

- Had this before?
- Previous surgery
- Other illness (drugs)

Important other points in History

- Problems with anaesthetics
- Family history of problems with surgery
- Drug allergies (document; when, what happened)

Examination

- Overall state; distressed, comfortable, cachexia
- Vital signs
- State of Hydration
- Abdominal Examination; distension, peristalsis, tenderness, mass
- Hernial orifices, Perineum, Rectal, Genitalia, Femoral Pulses

Inspection



Inspection



Clinical approach

- Has the patient got intestinal obstruction?
- Is it simple or complicated?
- What is the fluid deficit?
- What is the level of the obstruction?
- What is the cause of the obstruction?

Differential Diagnosis

- Obstruction or Pseudo-obstruction
 - May need Gastrograffin Enema
- Of the pain; Abdominal, Non Abdominal
- Of the distension; Fluid, Flatus, Fat, Faeces, Fetus, 'Friggen great Mass'

Investigation

- Urine; Urinalysis, Microscopy, C&S
- Pregnancy test
- Blood; U & E, FBC, Amylase, Muscle Enzymes, Calcium.
- Radiological; PFA, Erect CXR, CT scan, Enemas.

Radiology

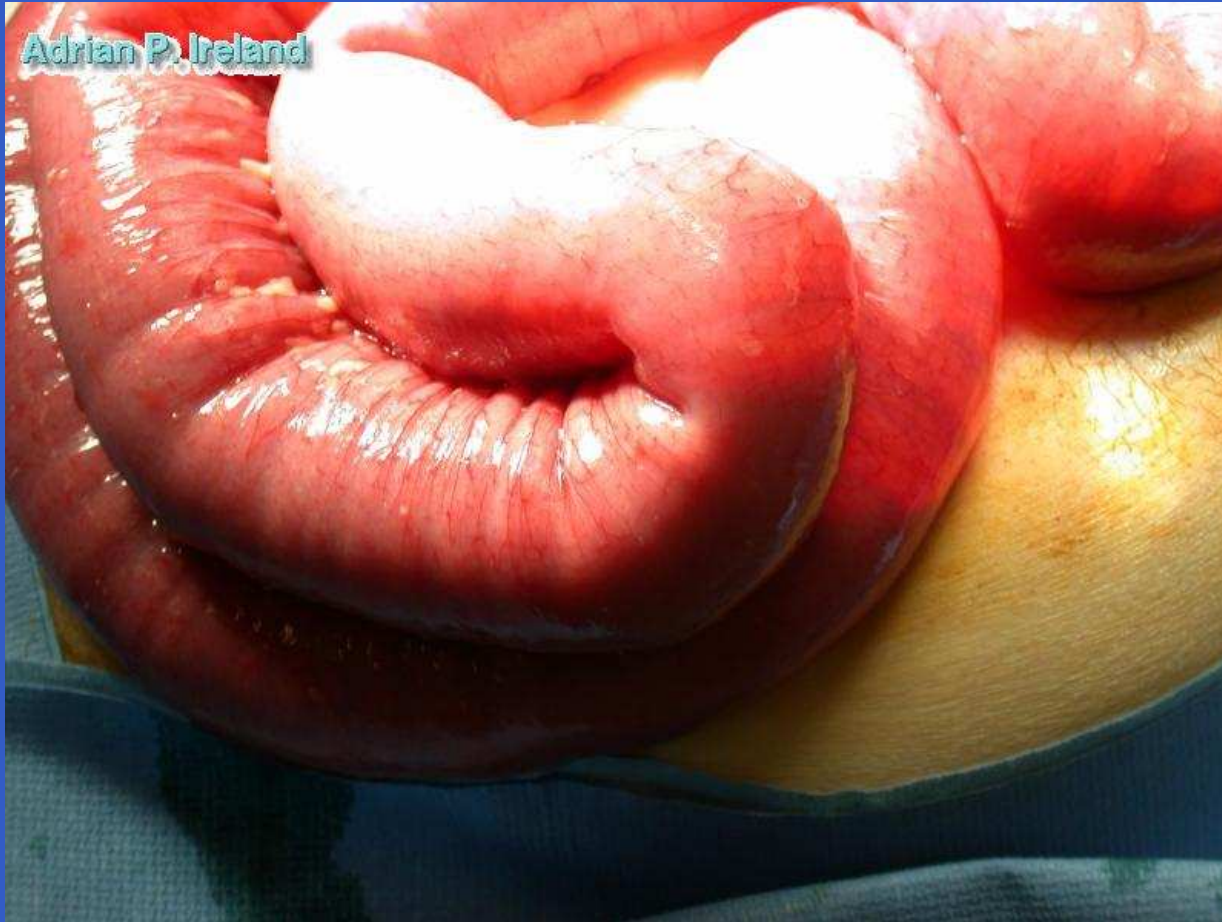
Quite simple, believe it or not!

- Gaseous distension, what is distended?
- Fluid levels, fluid distension
- Transition zone, any gas distally?
- Contrast wont pass, show mass

Radiology; PFA, Small bowel obstruction



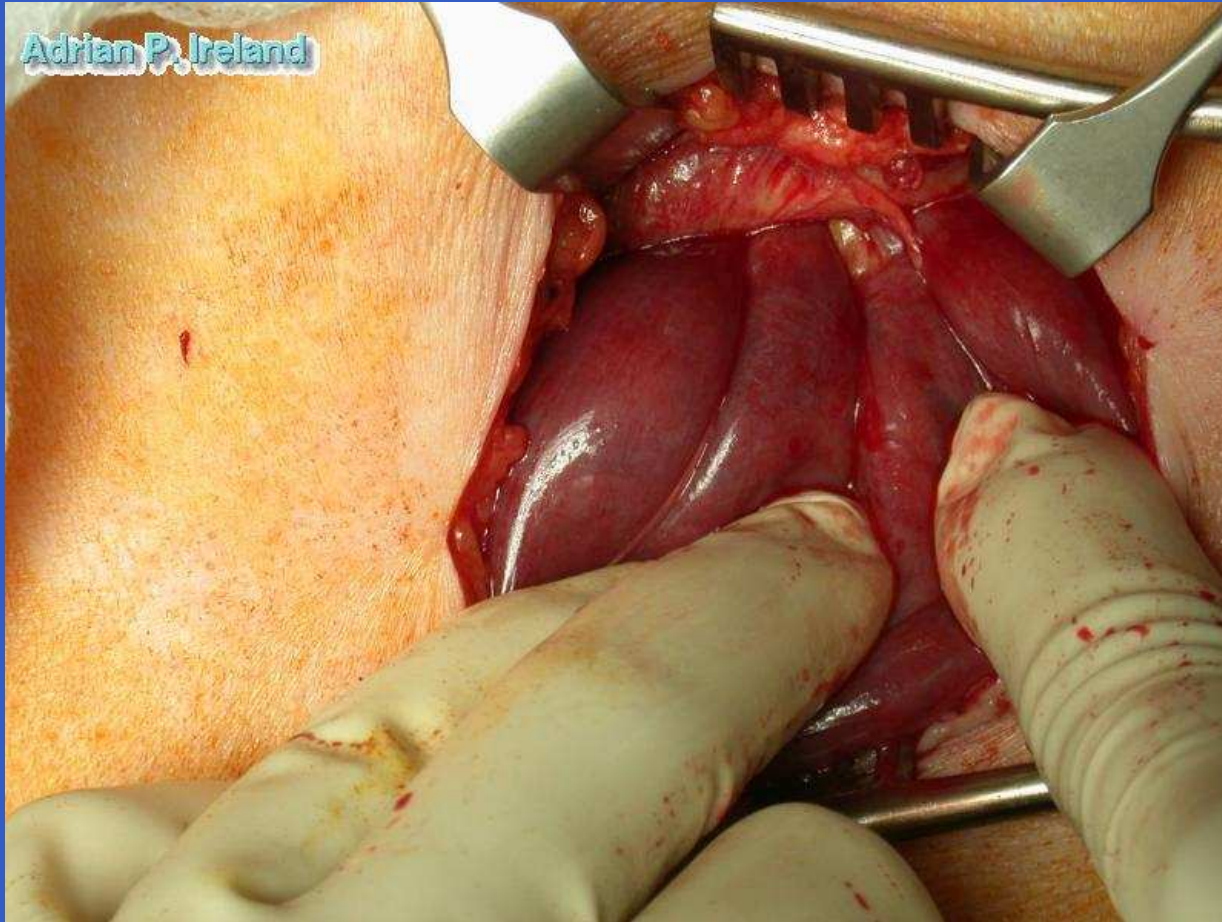
Operative Findings; Small bowel obstruction



Radiology; CT, Small bowel obstruction



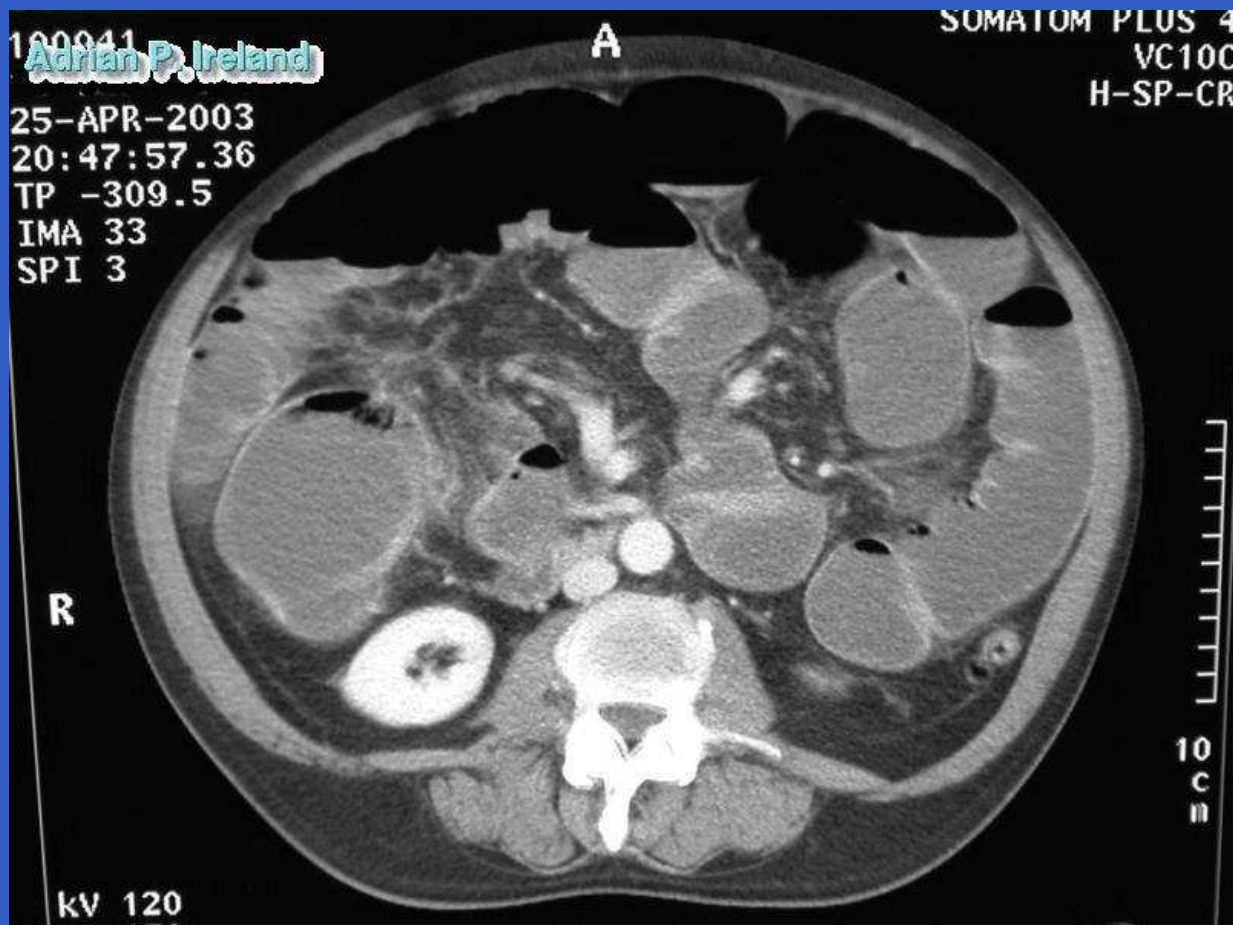
Operative Findings; Small bowel obstruction



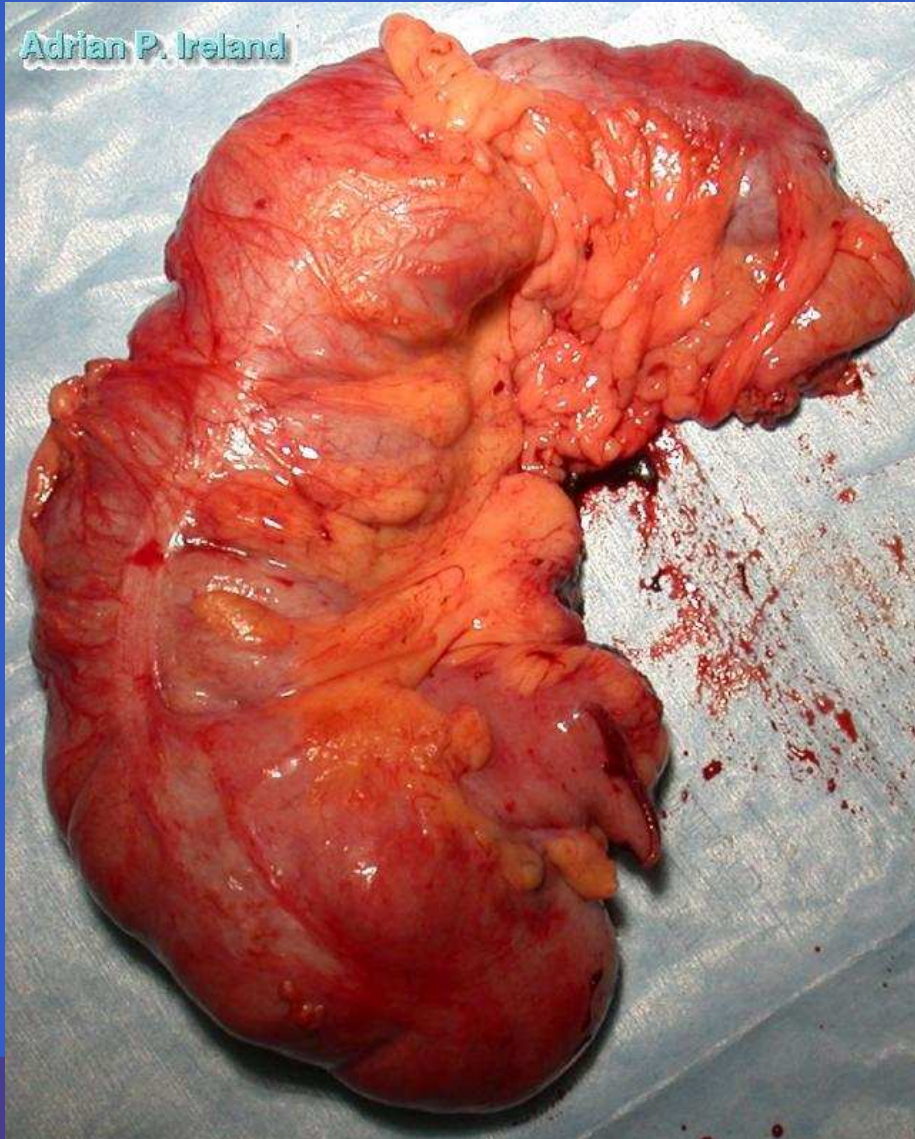
Radiology; PFA, Large bowel obstruction



Radiology; CT, Large bowel obstruction



Operative Findings; Large bowel obstruction



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Thanks



Questions please