

Acute abdomen

↳ alarming.

Definition

- All abdominal conditions that present with short duration less than 10 days which might indicate a progressive intraabdominal condition, that is threatening to life or capable of causing severe morbidity. Pain is usually chief symptoms.

main presentation
of acute abdomen

- Surgical, Medical and Gynecological causes

↳ inferior MI / Bacterial pneumonia / DKA

↳ ectopic pregnancy / ruptured ovarian cyst.

- Not all acute abdomen require surgery and not all acute abdomen is of short duration

up to 7-10 days.

↳ acute pancreatitis rarely need surgery
↳ don't give antibiotics
↳ don't open early and do more
↳ late and do less

→ Acute abdomen 10% of A and E visits / 40% need surgery.

* 1/3 of cases → have atypical presentation

→ ER ال acute abdomen غالباً بيحيى ل ER

mortality rate. بشكل متأخر - بعد قد تزيد

* acute abdomen caused by
[15% 50% 30%]
[NOMIS / embolism / thrombosis]
→ SMA
infection
inflammation
vascular occlusion
single from ← SMA
abdominal Aorta. at lower edge of L1.
→ obstruction.

Classification

■ Operation necessary [urgent]

- perforated duodenal ulcer → emergency..

■ Operation not immediately necessary investigate first

(e.g.) appendicitis → قبل لفق الحصى بيذا شوف
gynecological cause ال

■ Operation not necessary

↳ peritoneal colic / Biliary colic.

منظفم اذو رسته مان تسقط ال Stone صلا
وتخفف ال وجع.

LABS

- Serum Amylase > 1000 → acute appendicitis
- Serum lipase
- air under

air in the abdomen [outside the bowel]

↳ due to perforation
منها بعد كذا
عن الحصى
أخا لو أكتحس كذا
سكة

Severity scale for causes of acute abdomen

- Scale 1 to 10
- Less than 5
- Scale of 5
- More than 5

- 2 type of appendicitis
 → obstructive [more severe] 1/3
 → not obstructive 2/3
 → urgent → perforated. 1/3 to 2/3

Origin of abdominal pain

* Biliary colic - appendix :-
gall Bladder.

begin visceral pain due to distension of Biliary duct
then become parital pain [due to infection]

- Visceral pain ①

- Parietal pain ②

- Extra-abdominal ③

Rectus muscle hematoma, testicular torsion, MI, PE, Pneumonia, herpes zoster, scorpion sting, sickle cell disease, opioid withdrawal, Ketoacidosis

more in female.../more common membrane than the A.
after 6h. dead.
or ovary.
Easily diagnosed than ovary torsion.
outside air
↑ viscosity of Blood.
GDKA.
lead to abdominal pain.
addict.

* inferior epigastric A → in post rectus muscle.

Origin of abdominal pain

- Intra abdominal 3G + 1V
- GI, GU, Vascular, GYN
↳ genitourinary ↳ gynecologically.
- Extra abdominal

- Cardiopulmonary ✓
- Abdominal wall ✓
- Neurogenic T9-L1
- Toxic metabolites ✓

→ endocrine :- F M F - uremia - diabetes crisis
→ hematological :- sickle cell disease.

[F M F: familial mediterranean
fever] ...

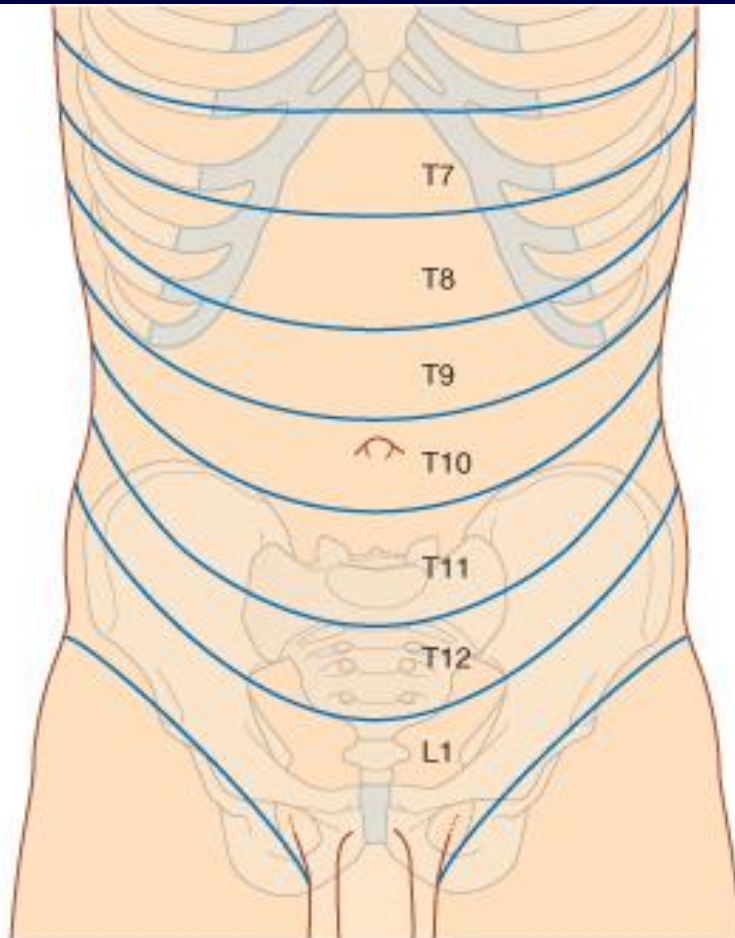
M. contraction
M. distension
[stretch]

Visceral pain ← [T₁₀ → para umbilical region].
[not well localized but maybe severe]
↳ in para umbilical region

- Muscular contraction colic gut, ureter
- Stretching the wall of hollow organ GB
- Stretching the capsule of a solid organ liver
- Torsion or ischemia ovary
- Inflammation in early

Dermatomes

↳ area of skin supplied by the same nerve than supply viscerum



- Sensory dermatome with which the viscera shares innervations
- This may be in a completely different place to location of the viscera!

* parietal pain → local pain

Costal nerve → typical inchest
↳ Atypical T inchest in abdomen.

2 nerve supply the inguinal region → ilio hypogastric
↳ ilio inguinal (mixed)
From Lumber branch - [6 Branches] mixed nerve

continue

* Conjoint tendon متراب ...
↳ if cut the N. that supply the conjoint tendon.
lead to direct inguinal hernia

- Pain is not well localised, vague, deep, dull, diffuse, central due to bilateral presentation by autonomic nervous system
هنا في رصف البطن ولكن من غير تحديد

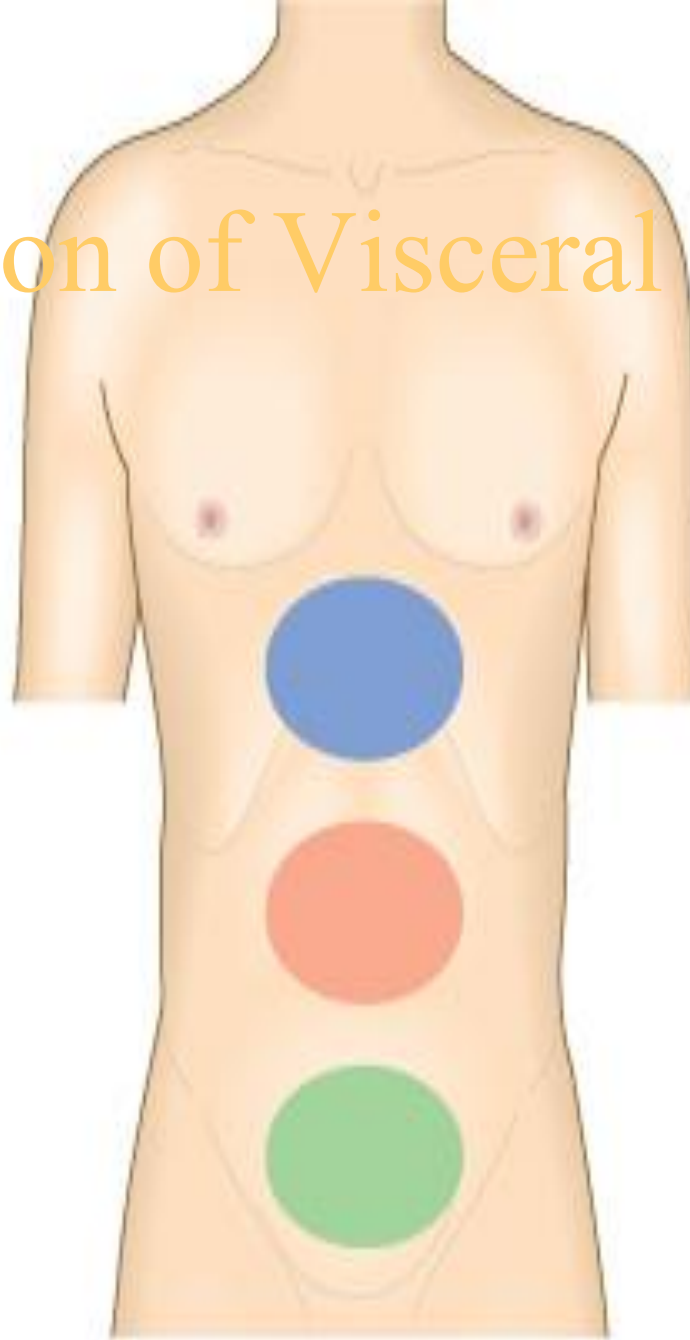
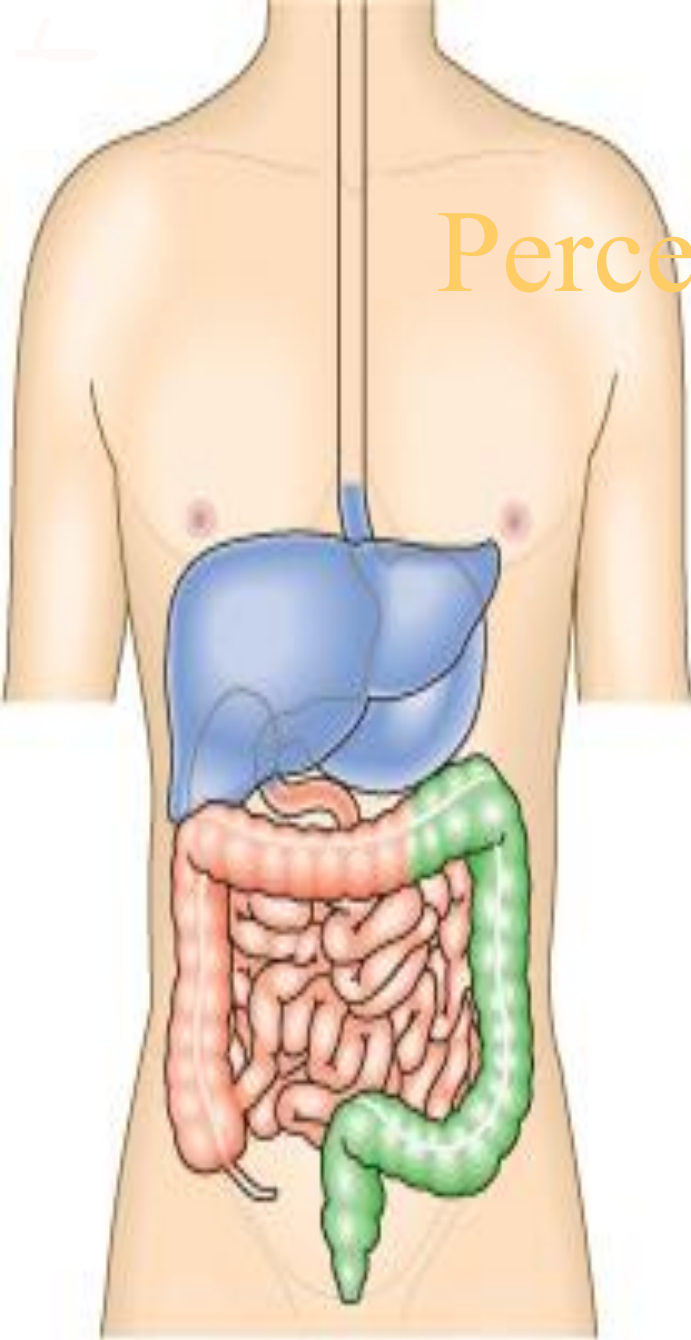
- Fore gut Epigastric

radiate
↳ end in the middle of 2nd part of duodenum

- Mid gut peri umbilical

- Hind gut Hypogastric and suprapubic

Perception of Visceral Pain



Foregut – pain localizes to epigastric area

Stomach – esophagus – liver – spleen – pancreas – gall bladder – first 1/2 of duodenum



Midgut – pain localizes to periumbilical area

2nd part of duodenum



Hindgut – pain localizes to suprapubic area

difference between colic, and distension

- **Colic** comes and goes

عضو ← labor pain
بیماری و بیماری
رشد

- **Distension** is same pain but continuous

← ex/ Biliary colic
→ transient obstruction of Biliary duct

* acute cholecystitis → pain more than 6 hour.

Parietal pain

- Spinal Somatic nerves, from skin to peritoneum, unilaterally

Localized, sharp severe

- Bacterial or chemical irritation, mechanical as in surgical incisions

- Appendicitis, cholecystitis *begin visceral then become parietal (somatic)*

x unilateral presentation.

Extra-abdominal pain

- Pain with the same innervations of abdominal wall

T9-L1

ex. Spinal nerve.

- **Radiation** Pain start in one place and spread to another place, and initial pain persist

- Pancreatitis, abdominal aorta, ureter, diaphragm

Graduate to back ←

Graduate to vulva/testis

↑ Shoulder.
[CS]

Referred pain

- From **deep viscera**, but superficial at presenting site.
- Central neural pathway common to somatic nerve and deep viscera
- **Biliary**, inferior scapular region, diaphragm irritation to shoulder tip

Gall bladder to → inferior Scapula [R+]
↳ tip of Shoulder

Peritoneal irritation

- **Guarding** *part of abdomen. [part of rigidity]* Spinal reflex which cause contraction of abdominal muscles, at site of peritoneal irritation.
 - thoracic Bleeding in male*
 - acidosis ($\uparrow \text{CO}_2$)*
 - (inflamed visceral peritoneum in contact with abdominal wall)
 - **Voluntary, Involuntary.** *with appendicitis بعد فحصه انه ضايق يعبر عن شدة المرض قبل لفحصه يعبر عن شدته [learning experience - كتبت / قتيل]*
 - with examination lead to contraction in appendicitis*
- * Murphy sign in Gall Bladder.*

Continue

- **Rigidity** *all of abdomen* Board like Muscles are held rigid, abdomen is held still *عائس*
- Perforated viscus, Generalized peritonitis *perforated ulcer*
- Thoracic breathing
- Rebound tenderness **Blumberg sign**
- **Cough sign** *[NO Cough]*
عائس

Auscultation

- Exaggerated bowel sounds 5-25

- Absent bowel sounds

• **PR** examination

- Irritation of pelvic peritoneum
- Pelvic mass

→ tenderness in the peritoneum → peritoneal mass [plummer chest sign]
[doglas pouch [recto uterine pouch] in female / recto vesicle in male] → lower thing. So this we feel it in PR

Onset and duration of pain

- Sudden onset of pain within seconds

Rupture AAA, Perforated ulcer

دشمن حاد و مفاجئ بطنی

- Rapid accelerating pain within minutes

- Colic syndromes دشمن Biliary colic with meal fatty → ادشمن حاد و یسیه و غذای چرب

- Inflammatory process

- Ischemic process دشمن mesenteric Ischemia pain → severe pain / no signs

- Gradual onset of pain over hours

→ Crampy pain → obstructive pain. / age of pt is important..

Acute GI Emergencies - Objectives

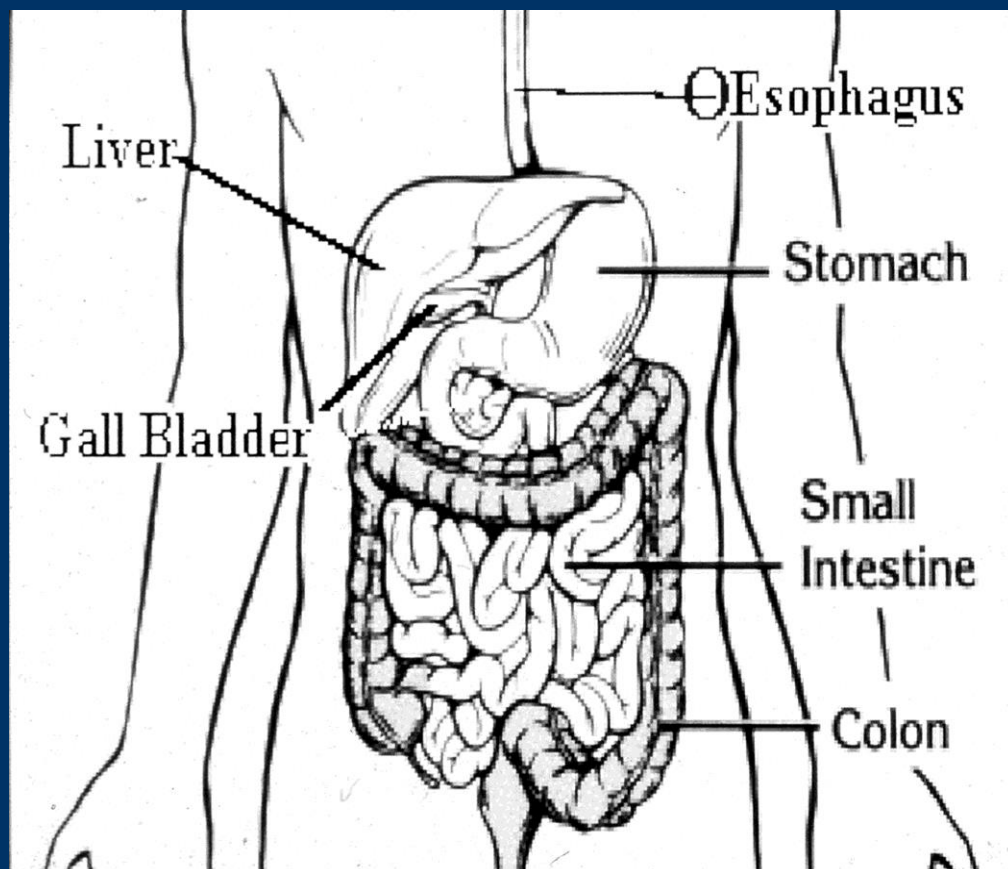
- Know conditions which commonly present as GI emergency, according to GI site.
*↳ perforating / Bleeding / pyloric obstruction / acute dysphagia.
dysphagia → elderly → cancer esophagus / young → GERD*
- Know typical clinical presentation.
- Know underlying pathology.
- Know treatment strategy.

Right Hypochondrion	Epigastric	Left Hypochondrion
Acute Cholecystitis Biliary colic Cholangitis Hepatomegaly (congestive) Hepatitis Basal pneumonia	Peptic ulcer Acute pancreatitis MI AAA Dissecting aortic aneurysm Oesophagitis Perforated oesophagus	Ruptured spleen Splenic infarct Splenomegaly Subphrenic abscess Basal pneumonia
Right Lumbar	Umbilical	Left Lumbar
Renal / ureteric colic Renal infarct Pyelonephritis	Acute pancreatitis Early appendicitis AAA Dissecting aortic aneurysm Bowel obstruction Ischaemic bowel Gastroenteritis	Renal / ureteric colic Renal infarct Pyelonephritis
Right Iliac Fossa	Suprapubic	Left Iliac Fossa
Appendicitis Meckel's diverticulitis Perforated caecal carcinoma Renal / ureteric colic Terminal ileitis Crohn's disease Ectopic pregnancy Testicular torsion Other gynae pathology	Cystitis / UTI Urinary retention	Diverticulitis Colitis Renal / ureteric colic Ectopic pregnancy Testicular torsion Other gynae pathology

Abdominal signs

Cullen	Ecchymosis around umbilicus	Hemoperitoneium,pancreatitis,ectopic pregnancy
Grey Turner	Ecchymosis of flank	Hemoperitoneium,pancreatitis,
Kehr		Spleen rupture
Murphy	Abrupt cessation of inspiration	Cholecystitis
Dance	No bowel sounds RIF	Intussusceptions
Blumberg	Rebound tenderness	appendicitis
Rovsing	RIF pain on Lt IF pressure	Appendicitis
Markle	Raise on toes then heel hit ground	Appendicitis

Acute GI Emergencies - 1



Classify by site

Oesophagus –

- Acute Dysphagia

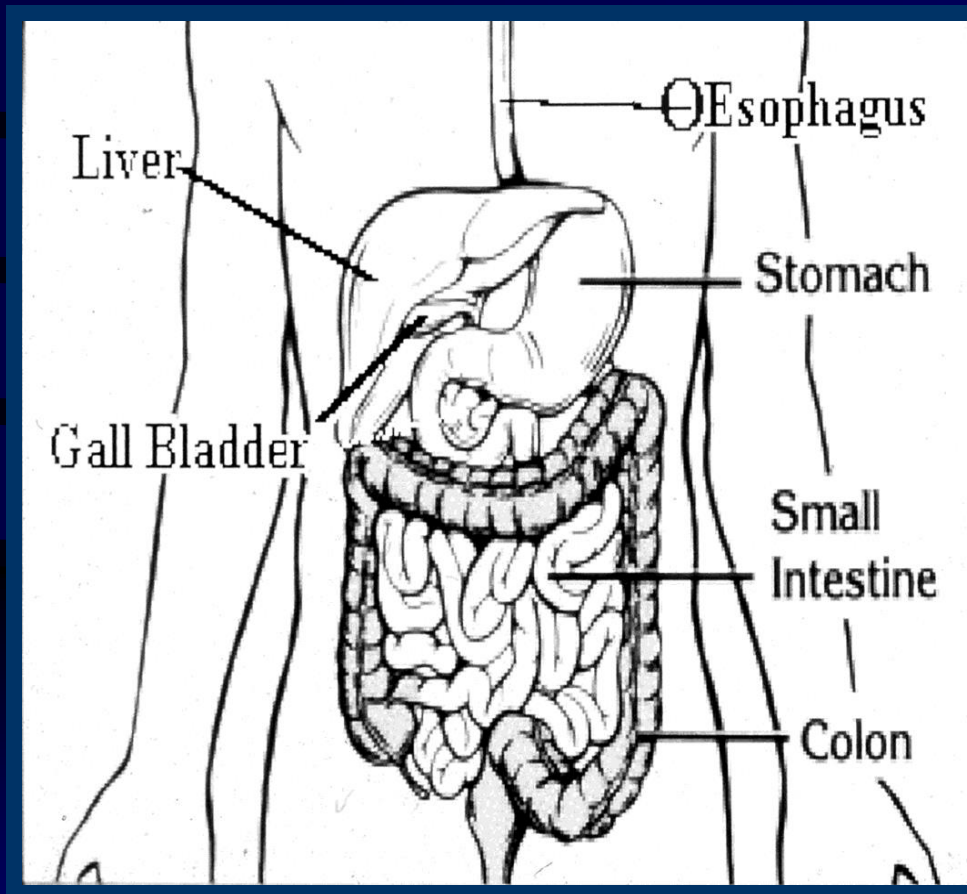
- **perforation**
sign.
Le Fontaine: – complete perforation of 3-4 layers.

Stomach/duodenum –

perforation ✓

Bleeding ✓

Acute GI Emergencies - 2



Gallbladder/Biliary Tract

acute **Cholecystitis** ✓

• **Cholangitis** ✓

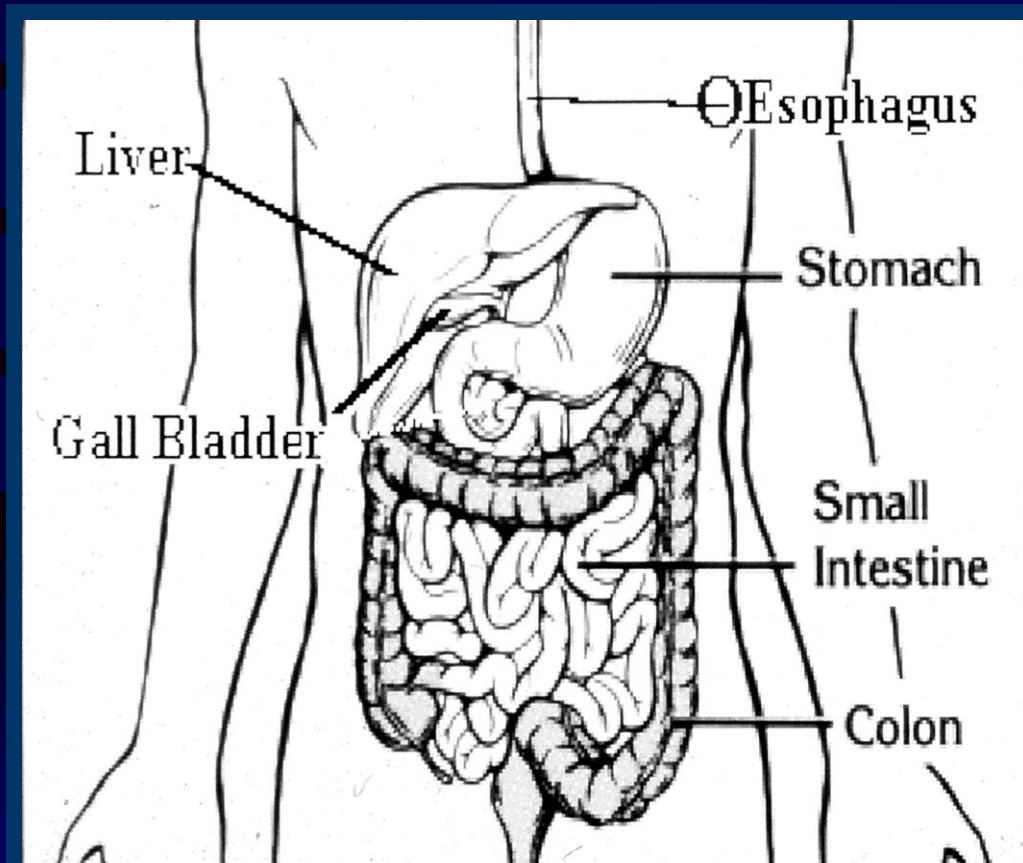
• **Obstructive jaundice** ✓

Pancreas

Acute pancreatitis ✓

[Breast - thyroid - gall Bladder] → for osky.

Acute GI Emergencies - 3



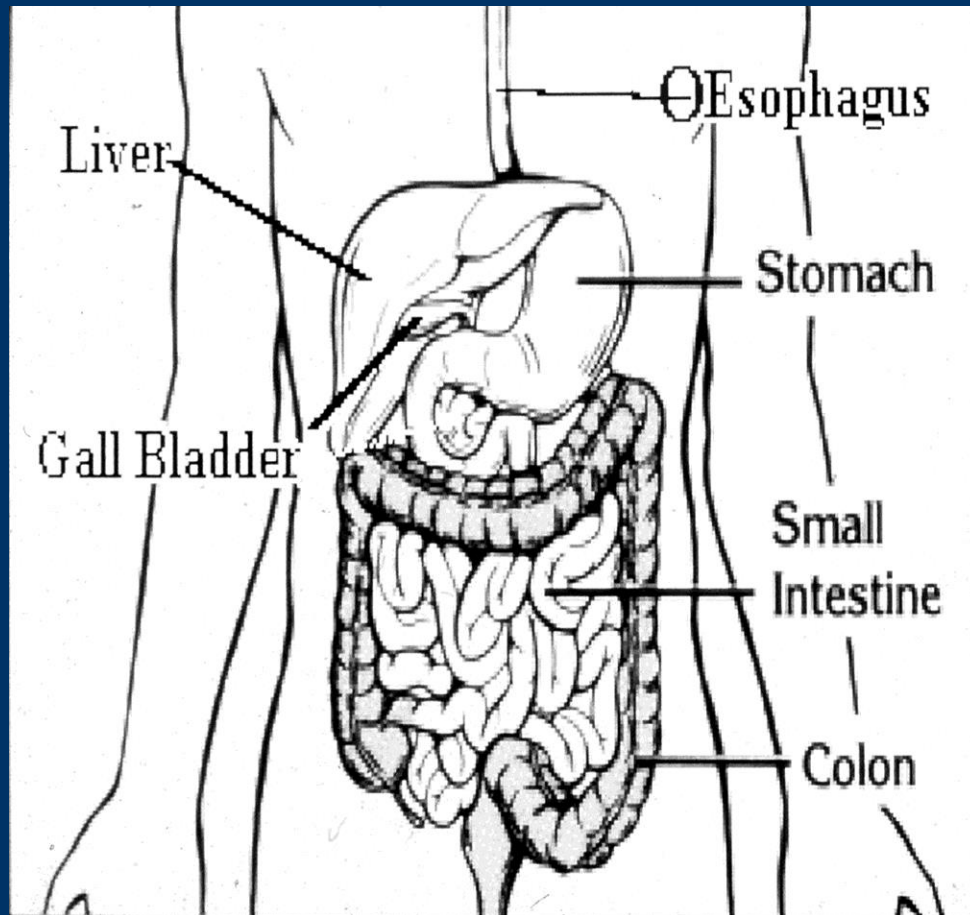
Small intestine

- ✓ Intestinal obstruction
- ✓ Mesenteric Infarct
- (Infectious diarrhoea)
- ✓ Crohn's Disease
- ✓ Meckel's Diverticulum

↳ from mouth to anus

② ↳ 2 type of Meckel's
[meckel's Bleeding in children
meckel's diverticulitis in adult]

Acute GI Emergencies - 4

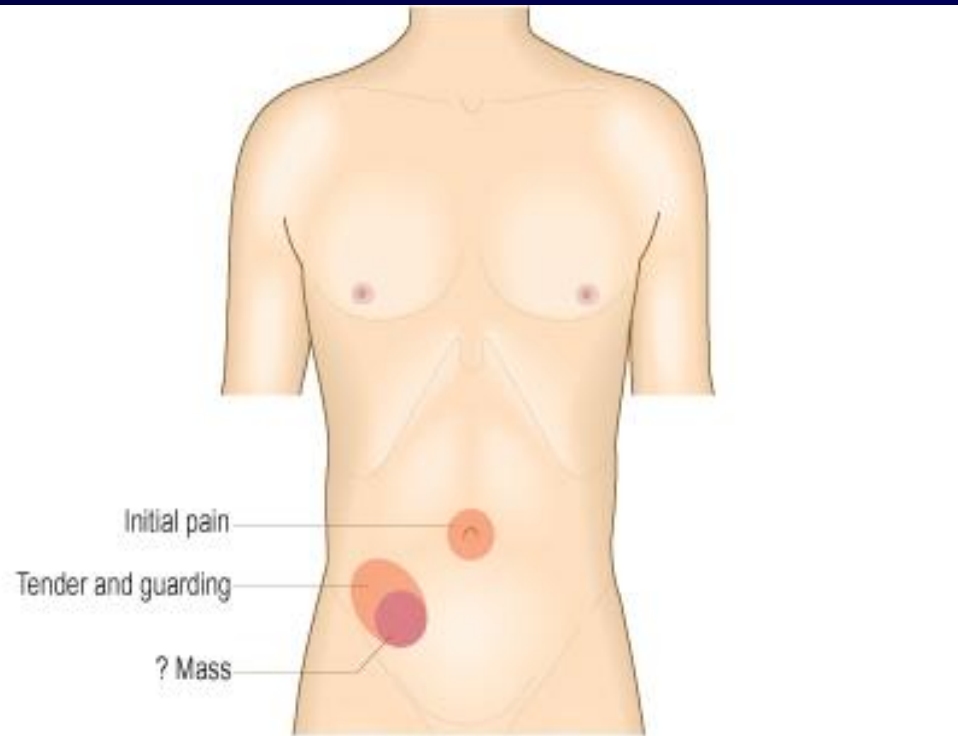


Large Bowel (+ App)

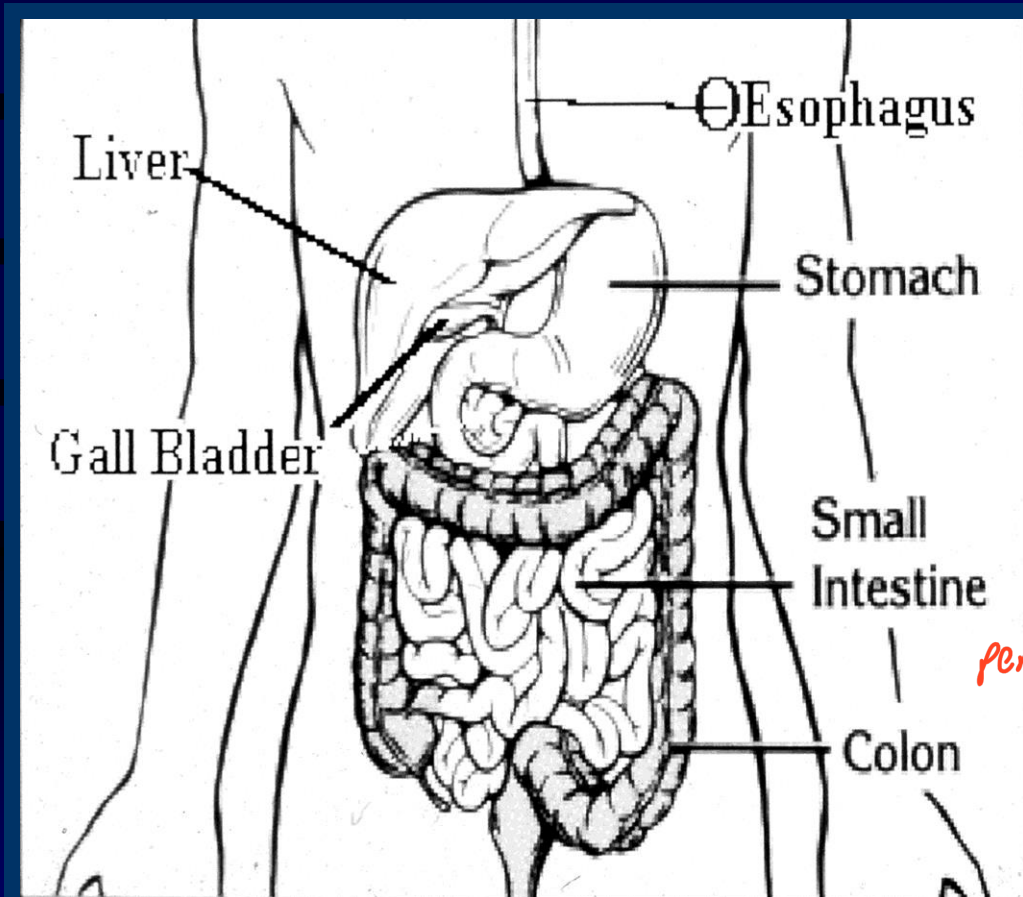
- ✓ **Acute Appendicitis**
- ✓ **Acute Diverticulitis**
- ✓ **Lower GI bleeding**
- ✓ **Perforation**
- ✓ **Intestinal obstruction**
- ✓ **Uncontrolled** *toxic megacolon* **ulcerative colitis**

e.g. Acute Appendicitis

- Initial umbilical pain
 - Visceral pain
 - Appendix inflammation
- Secondary RIF pain
 - Localized parietal peritoneum inflammation



Acute GI Emergencies - 5



Peritoneal cavity

- Peritonitis ✓
- ✓ Intra-abdominal abscess

acute abdomen → The trauma is excluded

penetrating Trauma [Intra-abdominal] ← abdominal pain + signs ←
not acute abdomen.

Oesophagus - Bleeding

**Oesophagitis, Mallory Weiss,
Varices**

Variceal bleeding catastrophic

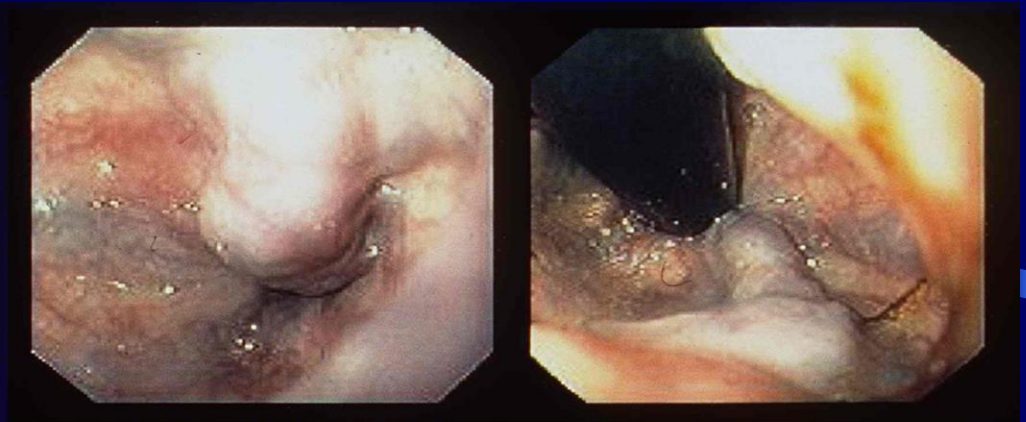
Treatment - varices

Sengstaken tube

**Sandostatin injection
(octreotide)**

Sclerotherapy

Oesophageal transection



Oesophagus – Acute Dysphagia

Presentation – cannot swallow

May have *benign stricture* or *cancer*

Triggered by food bolus or tablet

Treatment -
remove bolus
deal with underlying
oesophageal disease



Oesophagus – Perforation

High mortality

Spontaneous
(Boerhaave syndrome)

May follow endoscopy

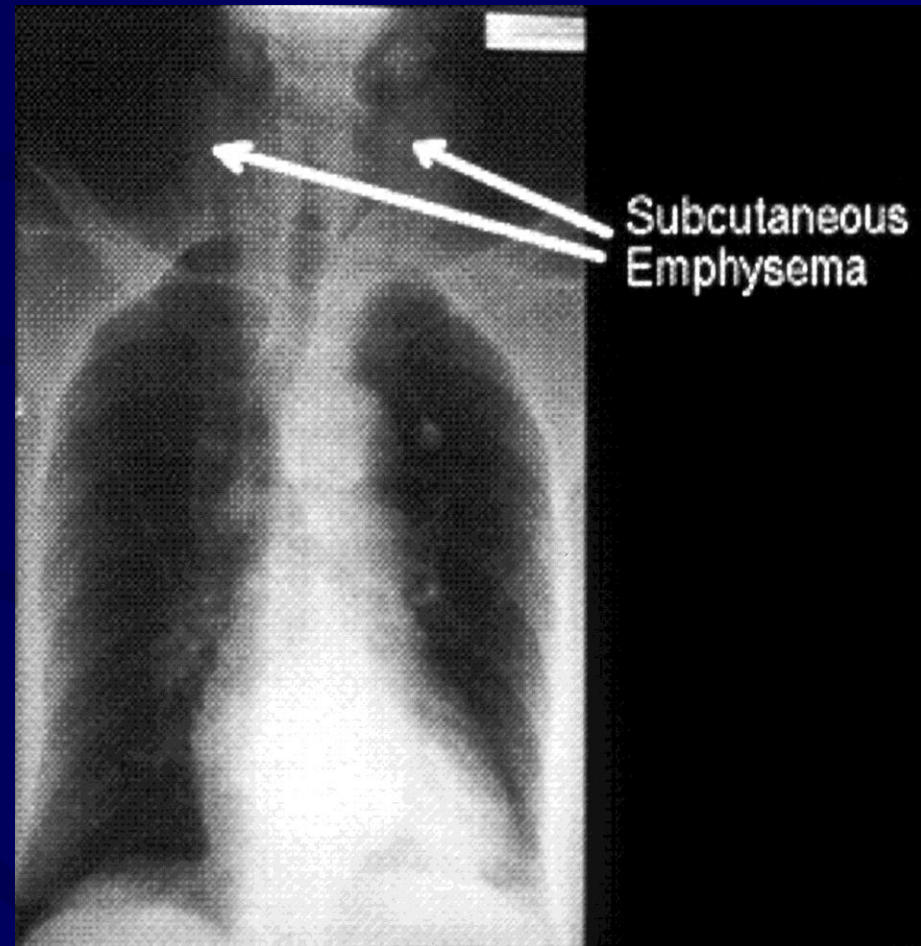
Presentation – acute chest/abdominal
pain

Air in mediastinum
and soft tissues

Treatment -

surgery - benign

intubation - malignant



Stomach/duodenum – Perforation

Presentation –

abdominal pain

rigidity

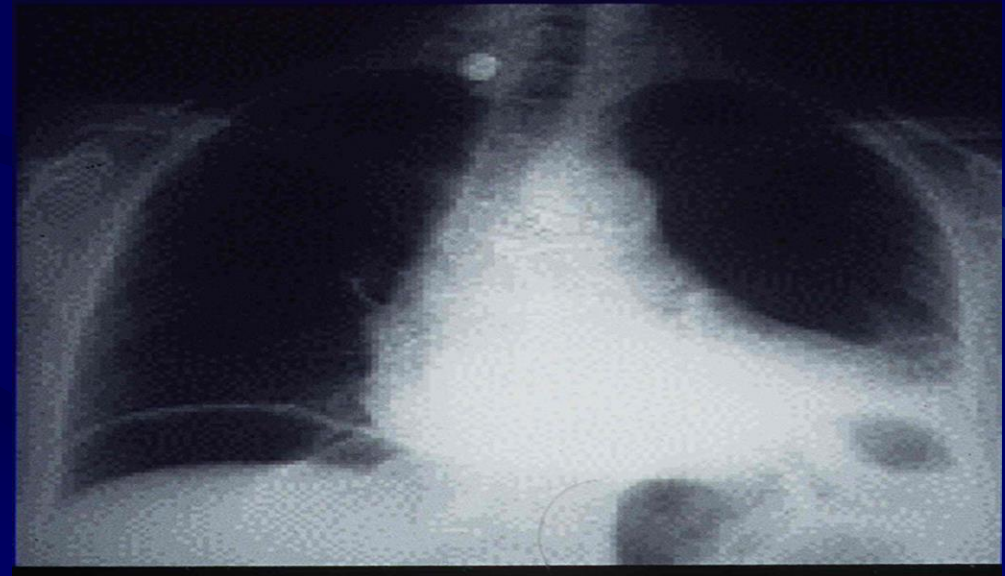
peritonism, shock

Air under diaphragm

Treatment

antibiotics, resuscitate

repair



Stomach/duodenum – Bleeding

Presentation –

Haematemesis +/-

Melaena

Severity

Increased PR > 90

Fall BP < 100

Causes

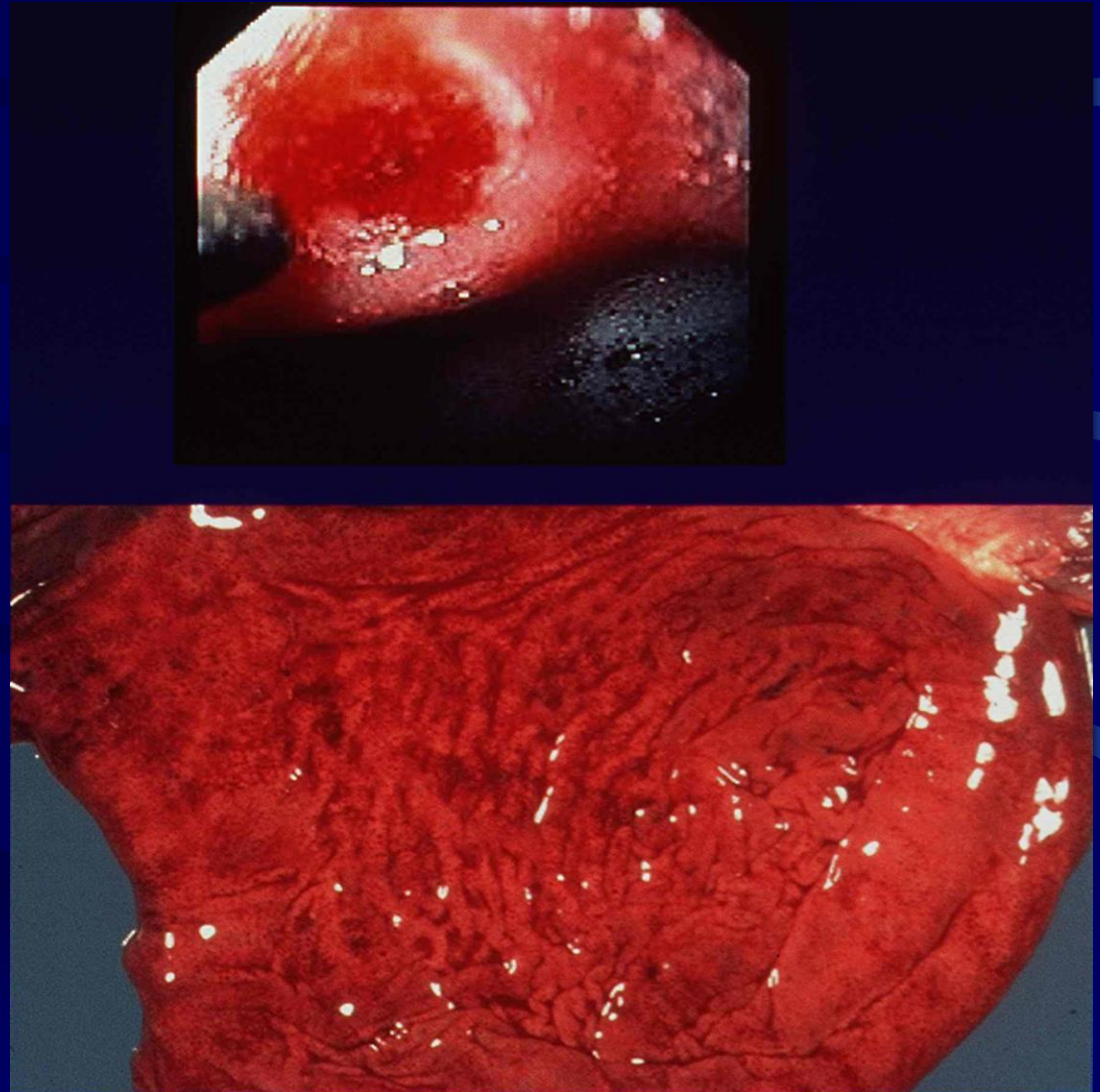
DU, erosions, GU

Stomach neoplasm

Treatment – transfusion

inject DU

Definitive Surgery



Gall bladder/Biliary Tract

Obstructive Jaundice

Yellow skin, sclerae

Pale stools, dark urine

+/- Pain

+/- Courvoisier's sign

Ultrasound

CT – dilated bile ducts

ERCP,MRCP

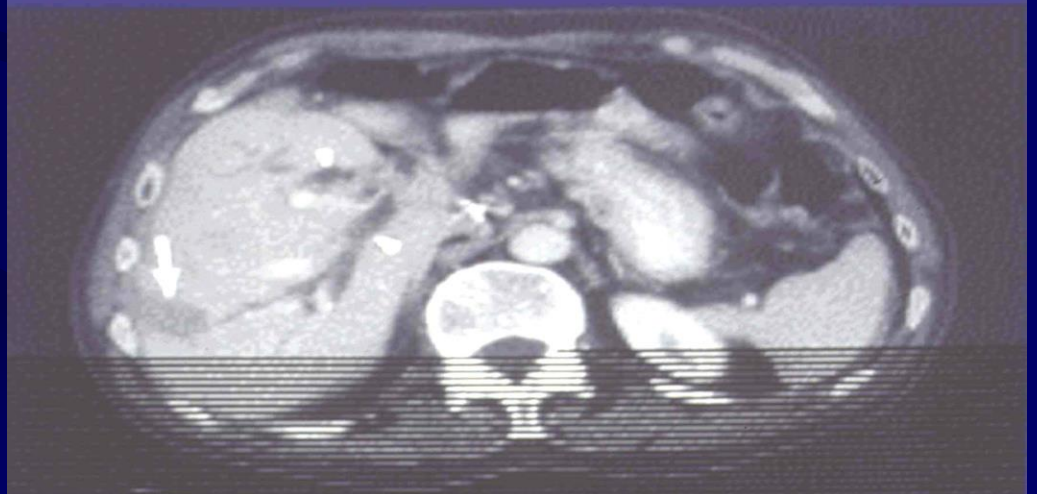
Establish diagnosis

Bile duct stone

Ca Head of Pancreas

Cholangiocarcinoma

Appropriate treatment



Gall bladder/Biliary Tract

Acute Cholecystitis

Presentation

Acute RUQ pain

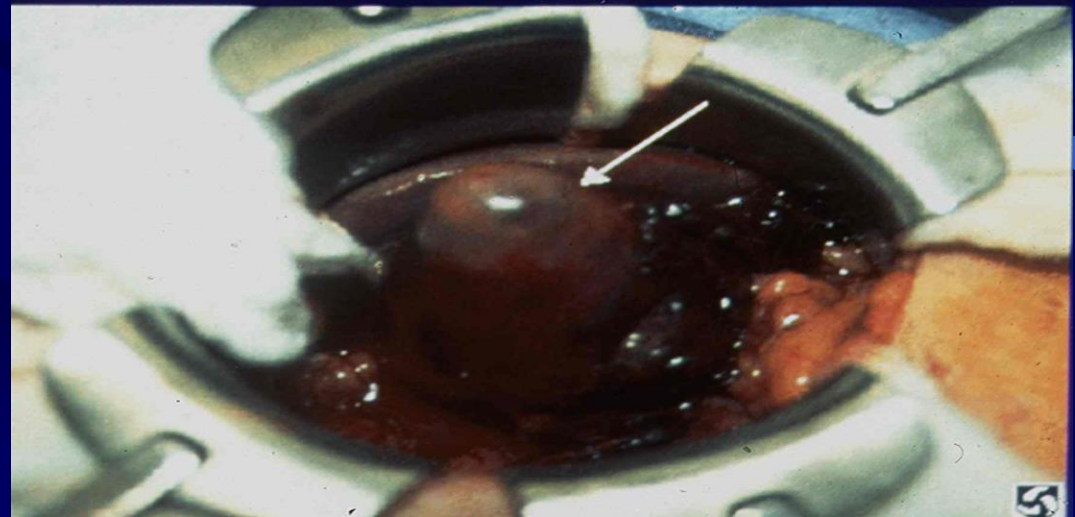
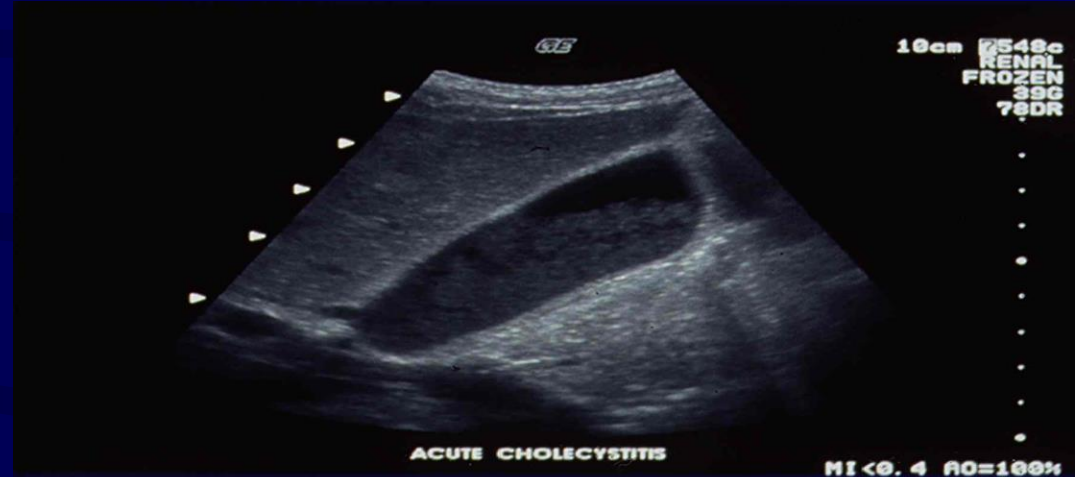
+/- Pyrexia

+/- Rigors, Murphy sign+ve

Diagnosis – FBC, WBCC,
USS

(HIDA Scan)

Treatment – Antibiotics,
analgesics
Early surgery



Pancreas

Acute pancreatitis

**Constant pain, vomiting,
shock**

Causes

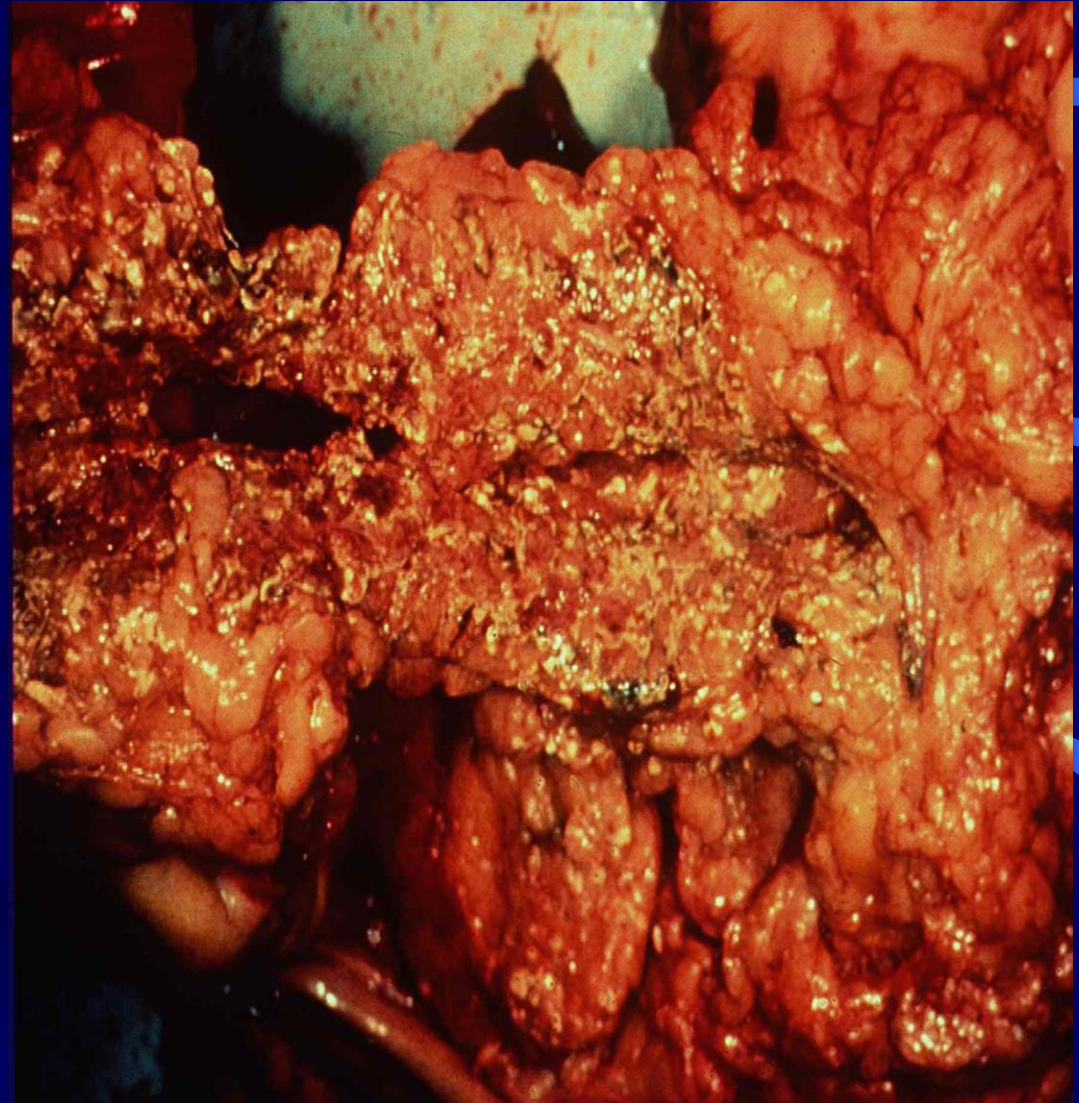
**Gallstones, or
Alcohol, Trauma**

Diagnosis

**Serum amylase, lipase
elevation, USS, CT**

complications

**pseudo cyst, phlegmon
abscess**



Small Intestine

Meckel's Diverticulum

- rare
- diverticulum of terminal
- ileum
- can be lined by gastric
- epithelium
- can perforate
- can present like appendicitis
- can bleed



Small Intestine

Intestinal obstruction

May arise due to

adhesions, hernia, tumour

Inflammation, impaction

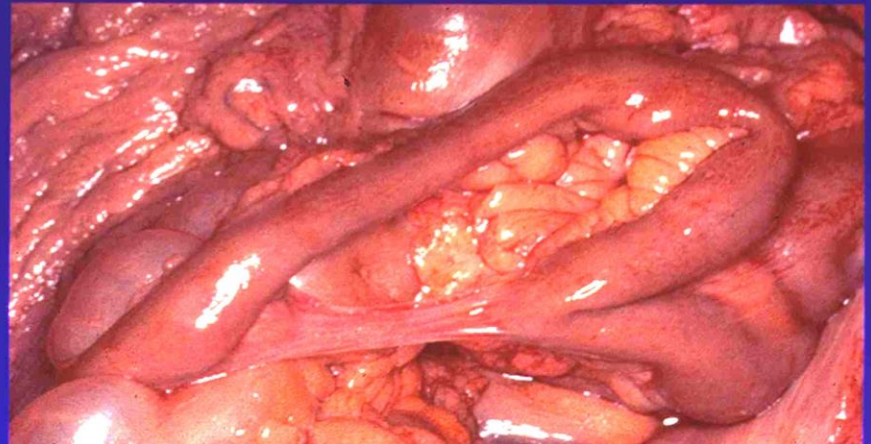
Presentation

colicky abdominal pain,

vomiting, constipation,
distension

Treatment

resuscitate/operate



Small Intestine

Mesenteric infarct

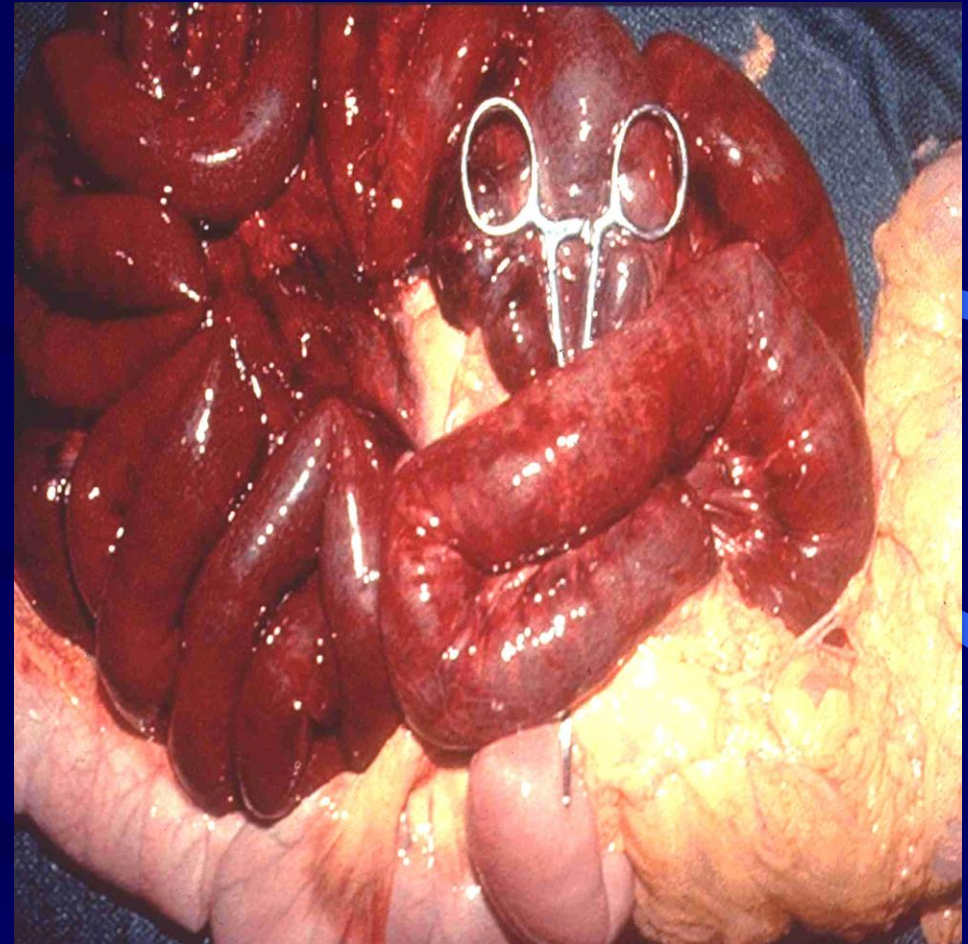
**Sudden occlusion of small
bowel arterial supply**

**Sudden onset of abdominal
pain, shock**

Peritonitis

Treatment

resuscitate/operate



Large bowel

Acute diverticulitis

Maximal in (L) colon

**Presentation LIF pain,
fever, tenderness,
leukocytosis**

Middle aged or elderly

**Treatment – conservative
antibiotics, fluids, bed rest
surgery**



Large bowel

Lower GI bleeding

- Angiodysplasia
- Diverticulum, colitis,
- Crohn's tumour

Present with Fresh Red Blood P/R

**Tendency to be more conservative
than with upper GI**

**resuscitate,
transfusion,colonoscopy,
gastroscopy,angiography.**



Large bowel

- Perforation

- Neoplasm

- Diverticulum,

- colitis

sudden severe abdominal pain,
rigidity

Faecal peritonitis

Pyrexia, shock

Free gas on X-ray

Treatment

resuscitate, operate



Inflammatory Bowel Disease

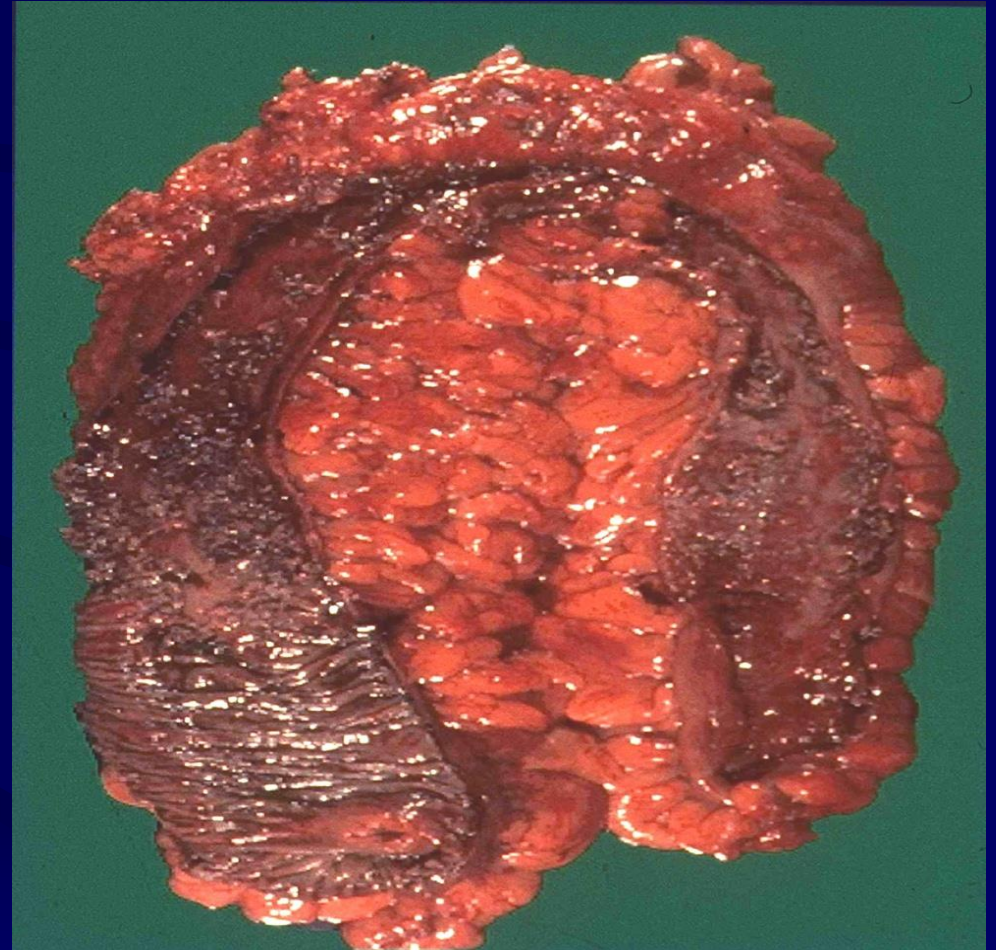
Bloody, mucous diarrhoea

Abdominal colic's

Toxic mega colon

**Increased risk of tumour
formation**

14.8 X



Large Bowel

Ulcerative colitis

Presents – bloody

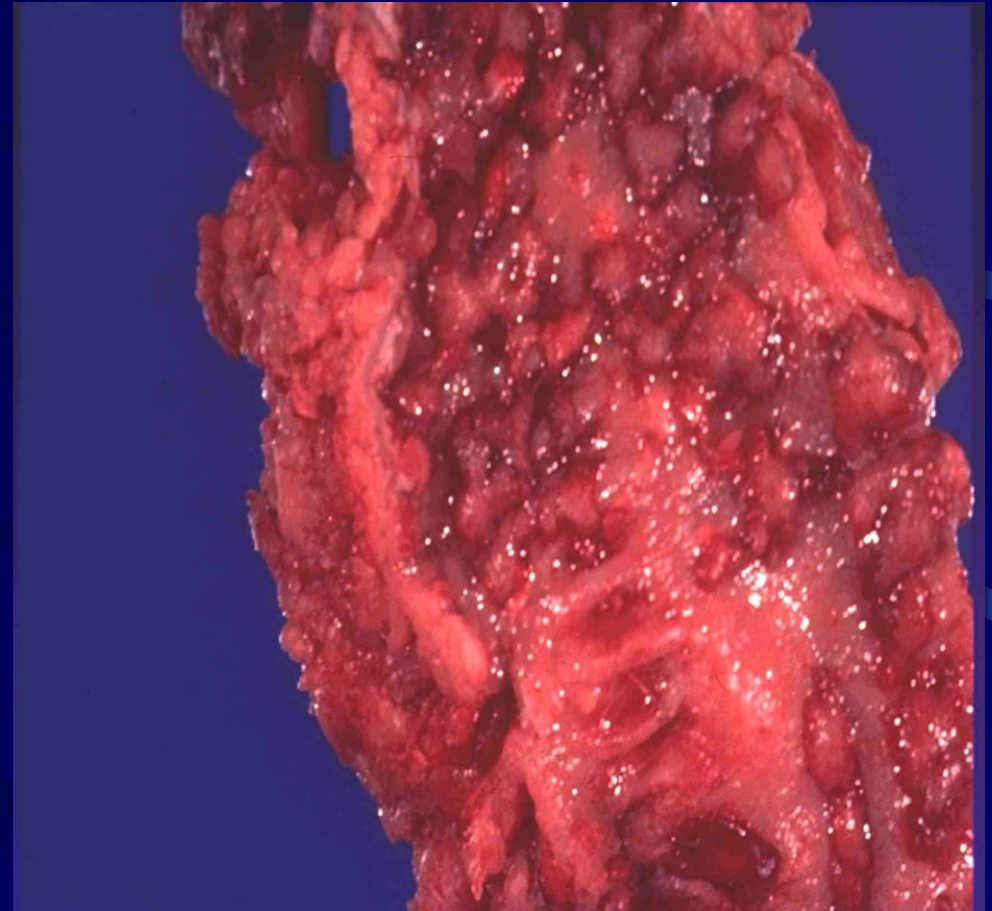
diarrhoea, pyrexia

leukocytosis

**may develop toxic mega
colon**

Treatment – steroids

Surgery on failure



Peritoneal cavity

Acute peritonitis

any perforation,

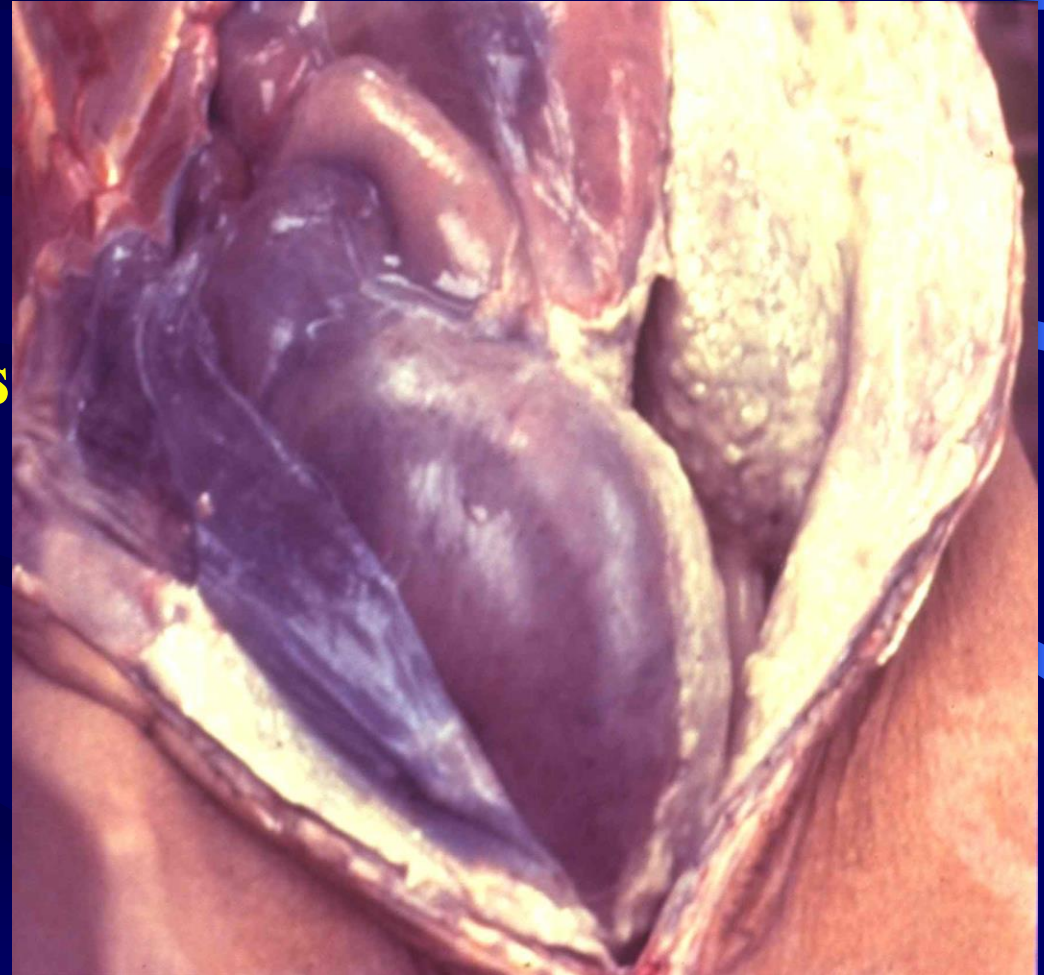
pancreatitis

abdominal pain, tenderness

guarding, silent abdomen

shock

**Treatment – underlying
condition**



Acute GI Emergencies - Conclusions

- Conditions which commonly present
- GI emergency, according to
- GI site
- Typical clinical presentation
- Underlying pathology
- Treatment strategy

Intestinal Obstruction

What are the main five causes of Intestinal obstruction?

Main Causes

- 1. Adhesions**
- 2. Strangulation**
- 3. Inflammation**
- 4. Neoplasm**
- 5. Impaction**

**How to differentiate between small
and large Bowel Obstruction from
history?**

- **Vomiting**
- **Constipation**
- **Distension**
- **Abdominal Pain**

**How to differentiate acute from
chronic intestinal obstruction?**

1. By examination

- **Signs of peritonitis**
- **Tender caecum**

2. By radiological and blood investigations

- **Free air under diaphragm**
- **Dilated bowel > 7cm**
- **WCC ↑**
- **Severe hypokalemia, urea ↑**
- **Metabolic acidosis**

How to diagnose acute large bowel obstruction?

- **History & examination**
- **Colonoscopy**
- **Water soluble gastrograffin enema**
- **C.T. colonography**

**What are the tumour markers for
cancer colon?**

What are the tumour markers for cancer colon?

- CEA
- CA 19.9

**How to prepare a patient with acute
colonic obstruction for surgery?**

- 1. NG tube**
- 2. Foley catheter**
- 3. Correct dehydration**
- 4. Correct hypokalemia**
- 5. Blood ??**
- 6. Antibiotics 3rd generation cephalocporin + metronidazole**
- 7. Anticoagulant,s Heparin, low molecular weight heparin**

**What are the common sites for cancer
colon?**

- 1. Rectum 40 %**
- 2. Sigmoid colon 30%**
- 3. Caecum 20%**
- 4. Rest 10%**

What are your surgical options?

- 1. Three stages operations (Colostomy first)**
- 2. Two stages operations (Hartmann's procedure)**
- 3. One stage operation (Resection anastomosis)**

Histological classification + prognosis

Dukes classification

A	95%
B	75%
C	45%
D	10%

- 1. Post op care**
- 2. Chemotherapy**
- 3. Radiotherapy**
- 4. Follow up by CT or MRI every three months**
- 5. Tumour markers CEA – CA 19.9 every three months**
- 6. Colonoscopy every one year**



YouTube - Examination of the Thyroid Gland.flv