Surgery for Finals

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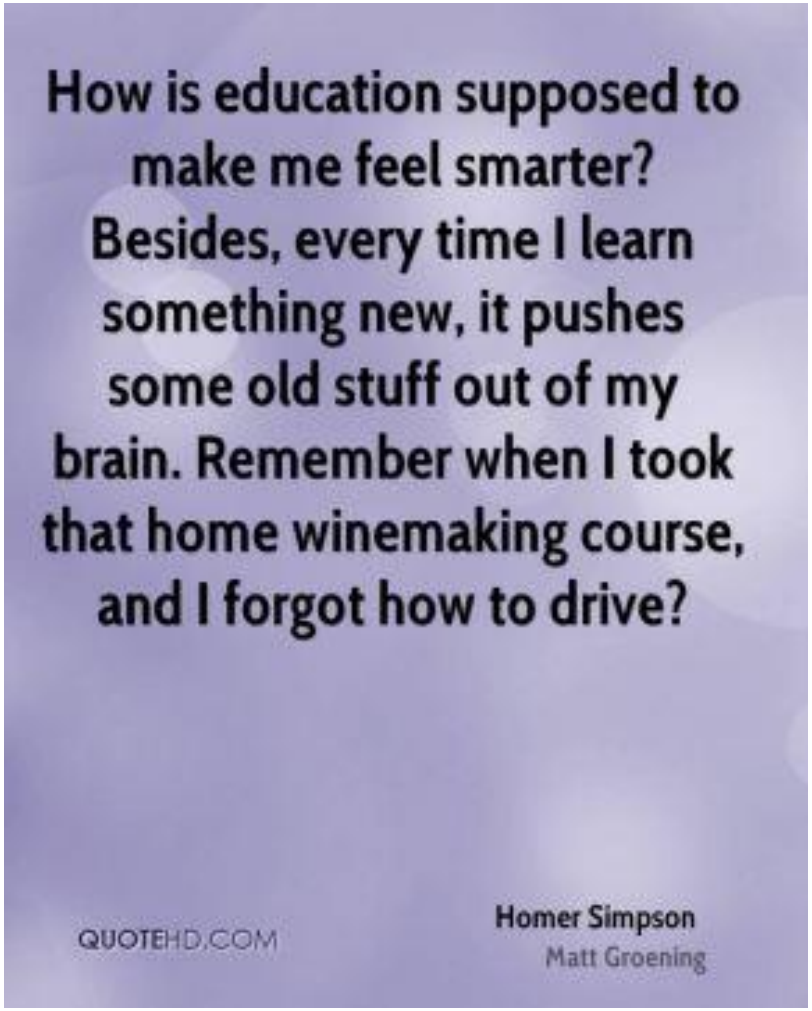
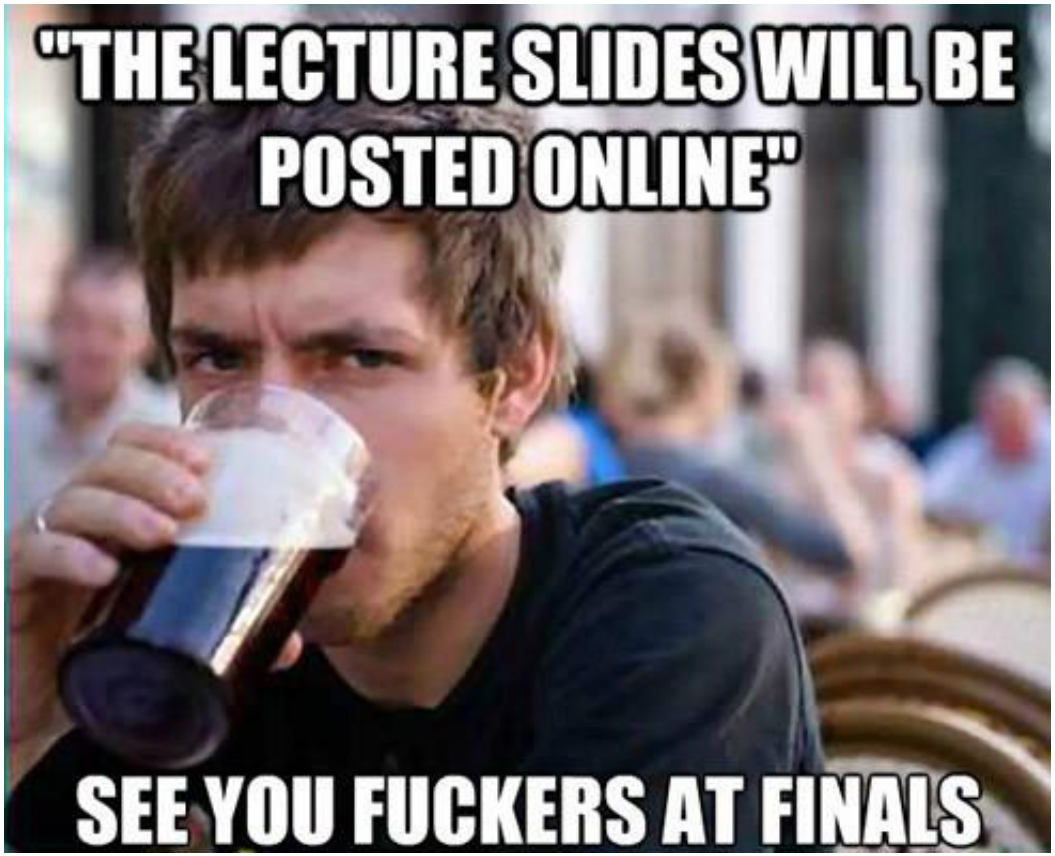


SIMPLY
FINALS

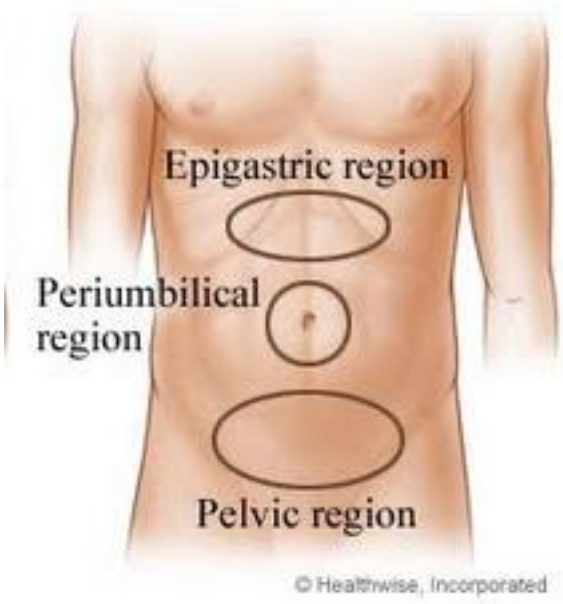


SIMPLY
FINALS

The Acute Abdomen

The History

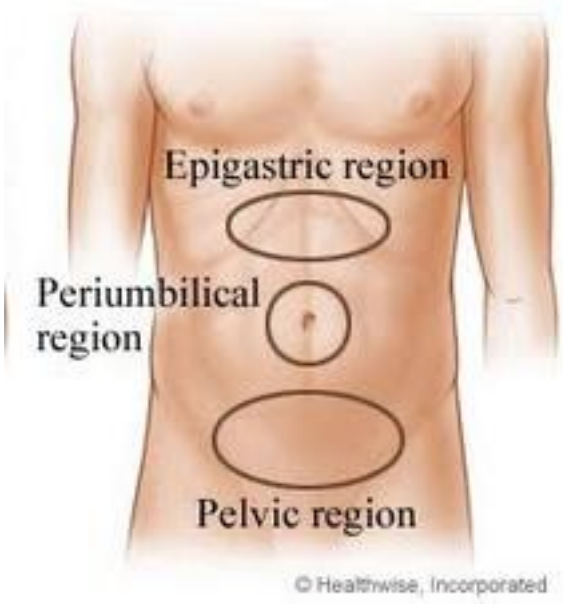
- Site
  - Embryology



SIMPLY FINALS

The History

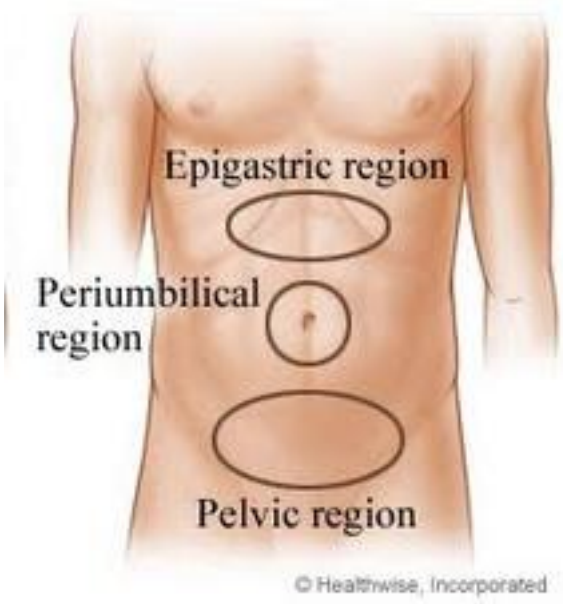
- Site
  - Embryology
    - Foregut
      - Stomach, D1-D2, GB, liver, pancreas
    - Midgut
      - D2 to mid-transverse colon
    - Hindgut
      - Mid transverse colon to rectum



SIMPLY FINALS

The History

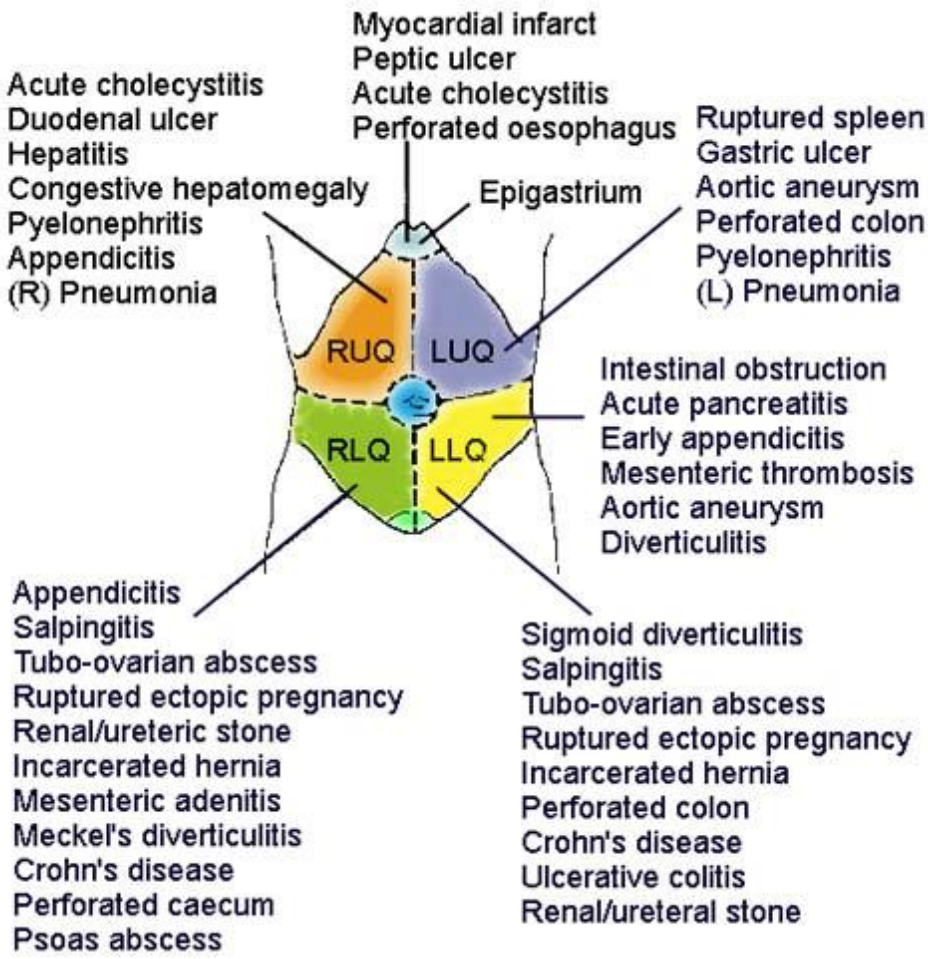
- Site
  - Embryology
  - Visceral vs Parietal

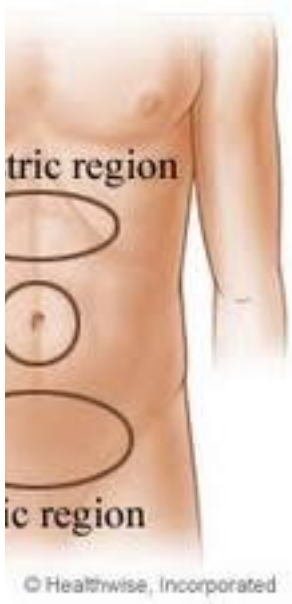


SIMPLY FINALS

The History

- Site
  - E
  - V





SIMPLY FINALS

The History

- Onset
  - Sudden – think of perforation/embolus
  - Inflammatory – more gradual

The History

- Character
  - Visceral vs parietal
  - Constant → think inflammatory
  - Intermittent → think mechanical
    - **Colic ≈ obstruction of a hollow viscus**

The History

- Character
  - Visceral vs parietal
  - Constant ➔ think inflammatory
  - Intermittent ➔ think mechanical
    - **Colic ≈ obstruction of a hollow viscus**

BOWEL
URETERS
BILIARY TREE
(UTERUS/FALLOPIAN TUBES)

SIMPLY FINALS

The History

- Radiation
  - Back – retroperitoneum
  - Shoulder tip – diaphragm
  - Loin to groin – renal tract/aorta

The History

- Associated features
  - ‘Abdominal pain in isolation rarely indicates severe pathology…’
  - Appetite
  - Vomiting
  - Bowel habit
  - Urinary
  - Gynae
    - **LMP**

SIMPLY FINALS

The History

- Timing/**Duration**

The History

- Exacerbating/relieving
  - MOVEMENT
  - Position
  - Morphine…

The History

- Severity….
  - Trend can be useful

- **Same pain before???**

The Acute Abdomen - History

- Inflammatory vs mechanical
- Associated features
- Previous episodes
- RISK FACTORS

The Acute Abdomen - History

- Per
- Ass
- Pre
- RIS

IMPLY
FINALS

SIMPLY
FINALS

Case 1

- 44yr Male
- PC: Abdominal pain
- HPC:
  - Acute onset of epigastric and periumbilical pain
  - Associated sweating, mild breathlessness and vomiting

SIMPLY FINALS

The Case

- Sudden onset circa 3am
- Constant
- Non radiating
- Worse on movement
- No previous episodes

SIMPLY FINALS

The Case

- PMH
  - T2DM
  - HTN
- No surgical history
- DH
  - Antihypertensive
  - NKDA

The Case

- PMH
  - T2DM
  - HTN
- No surgical history
- DH
  - Antihypertensive
  - NKDA
  - OTC Ibuprofen for back pain

SIMPLY FINALS

The Case

- **SH**
  - Smokes 10/day
  - Not much booze
  - Lorry driver

Examination

Examination

- **ABCDE…**

SIMPLY FINALS

Examination

- **A**
  - **Can they talk?**

Examination

- **A**
  - **Not talking?**
  - **Stridor**

SIMPLY FINALS

Examination

- **A**
- **B**
  - **RESPIRATORY RATE**
  - **Saturation**
  - **(Auscultation)**

Examination

- **A**
- **B**
- C
  - HR
  - BP
  - Volume status
  - PERFUSION

Examination

- **A**
- **B**
- C
  - PERFUSION

Examination

- **A**
- **B**
- C
  - PERFUSION

Skin

Kidneys

CNS

Examination

- **A**
- **B**
- C
  - PERFUSION

Skin	CRT
Kidneys	Urine output
CNS	GCS
	Blood gas

Examination

- **A**
- **B**
- **C**
- **D**
  - GCS/AVPU
  - BM

SIMPLY FINALS

Examination

- **A**
- **B**
- **C**
- **D**
- **E**
  - **Abdomen!**

SIMPLY FINALS

A quick aside…

- SIRS
- Sepsis
- Severe Sepsis
- Septic shock

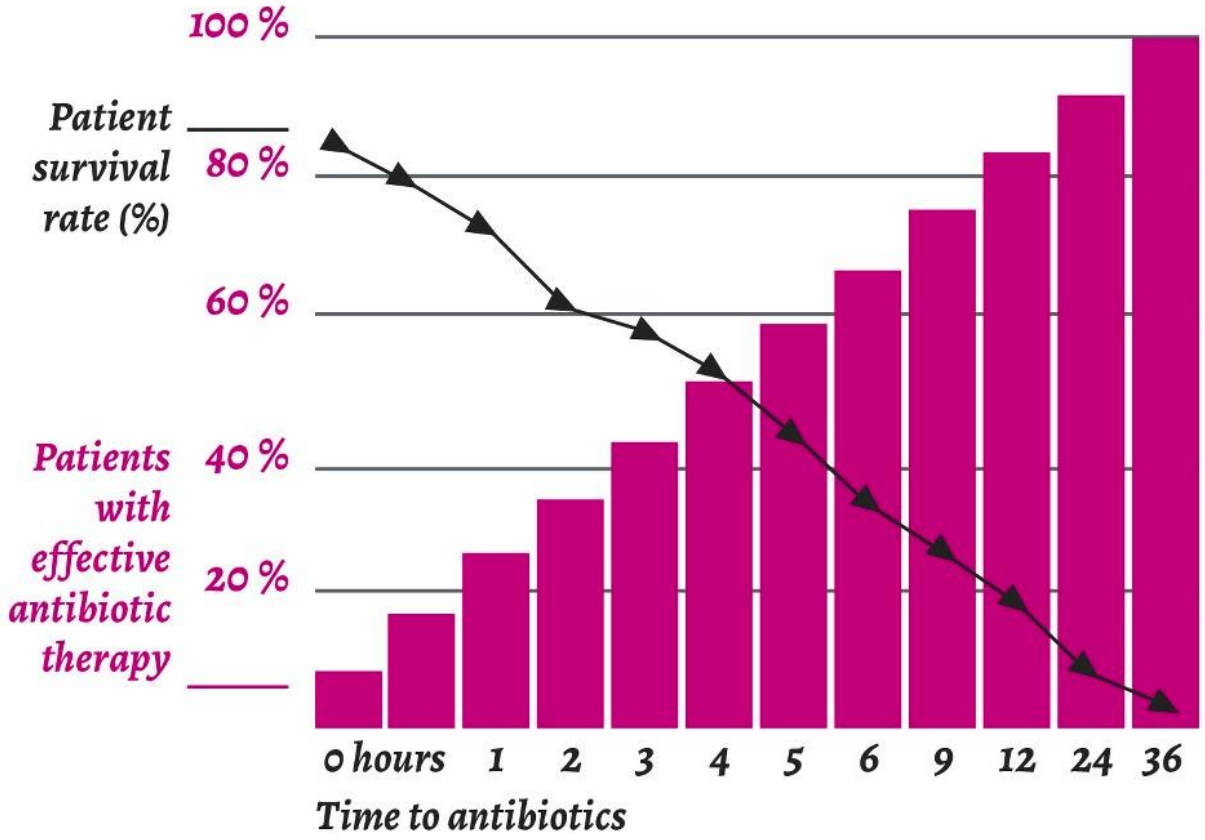
A quick aside…

- SIRS

  HR >90
  RR >20
  Temp >38 or <36
  WCC >12 or <4

- Sepsis
  - SIRS + infection
- Severe Sepsis
  - Sepsis + organ dysfunction
- Septic shock
  - Sepsis + hypotension (despite fluid)

SIMPLY FINALS

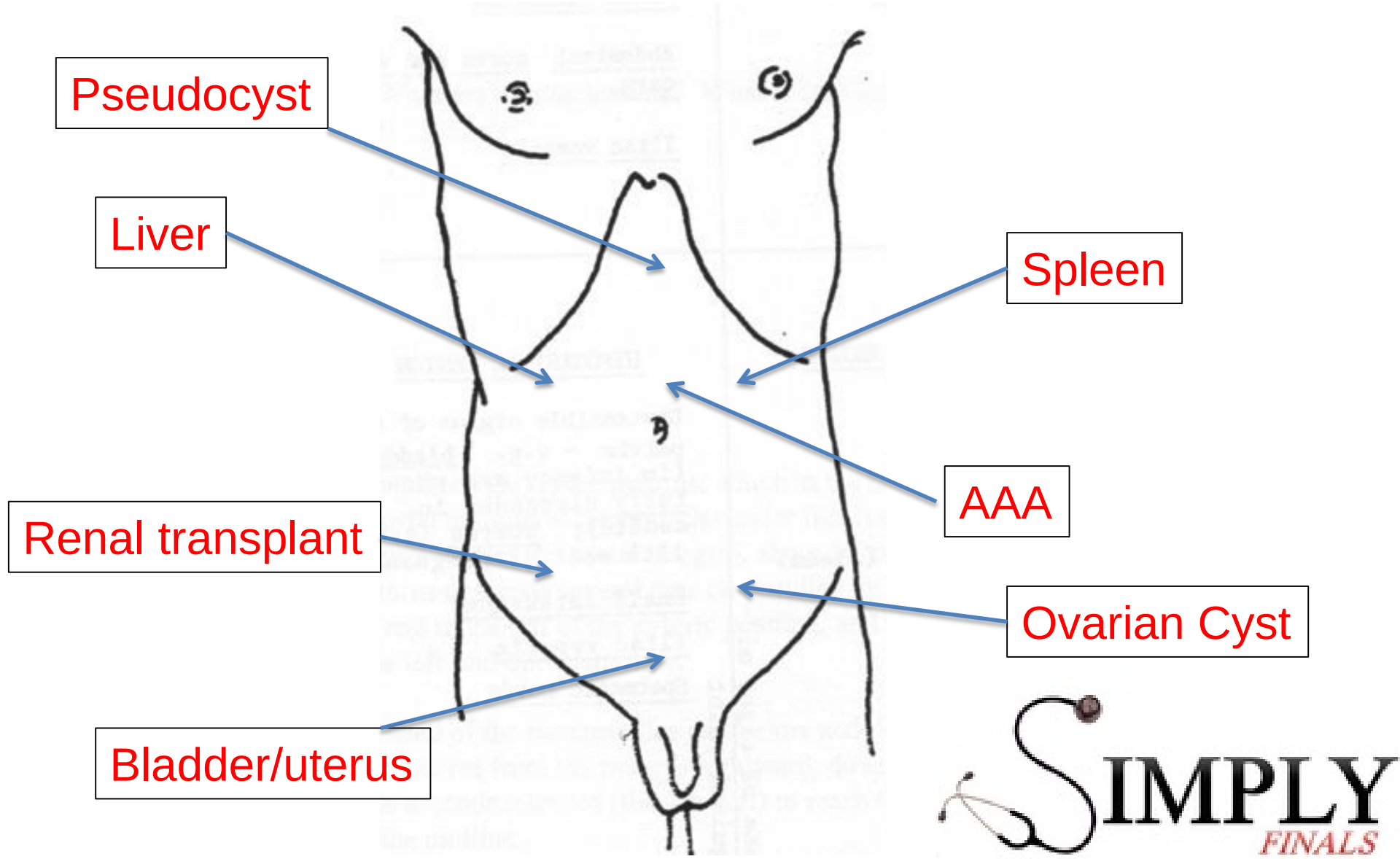


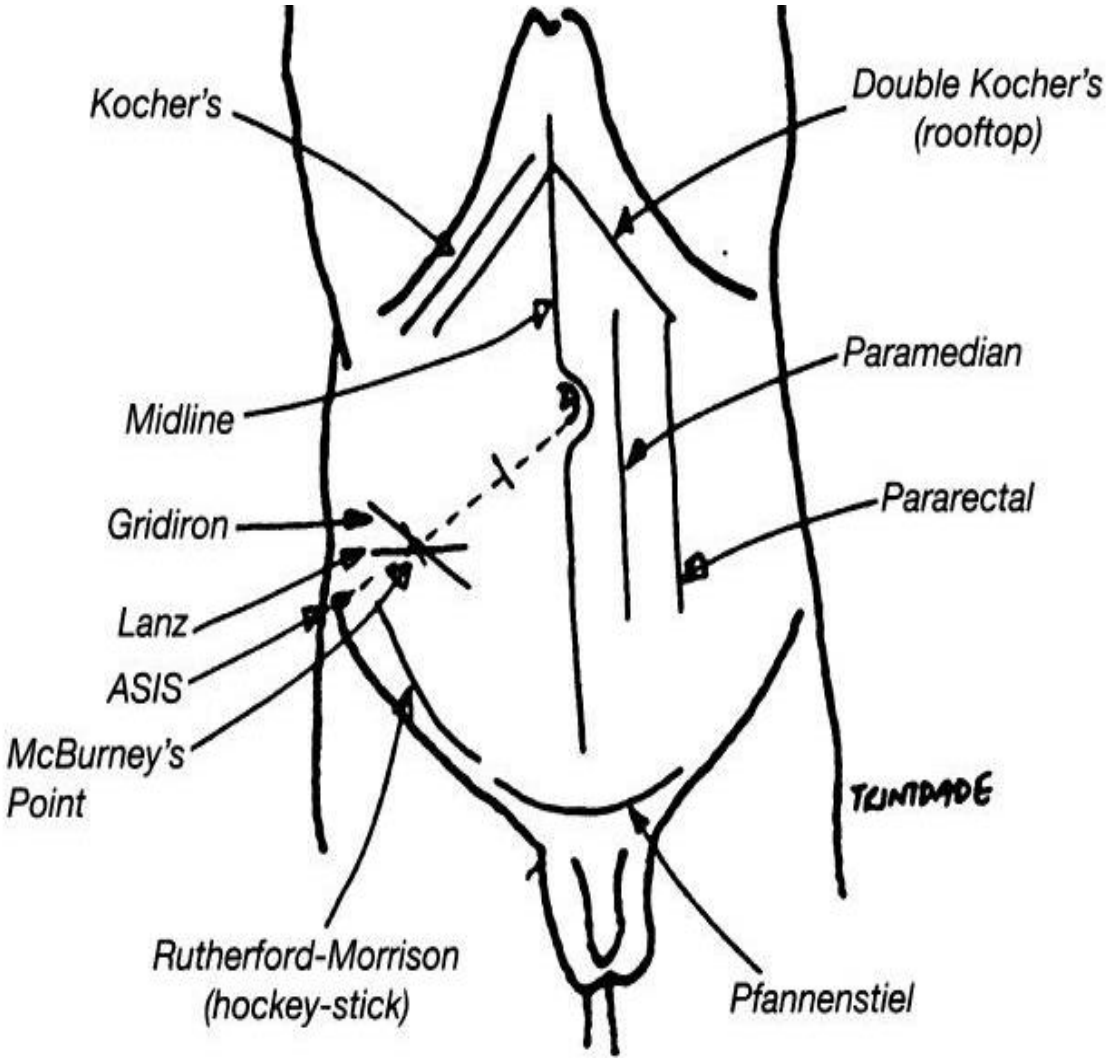
SIMPLY FINALS

Abdominal Examination – for the OSCE

- General inspection
- Don’t say clubbing
- Look for scars
- Don’t hurt the patient…
- Feel for masses/organomegaly carefully

SIMPLY FINALS


Pseudocyst
Liver
Spleen
AAA
Renal transplant
Ovarian Cyst
Bladder/uterus
SIMPLY
FINALS



SIMPLY
FINALS

The Acute Abdomen

- General examination
- Peritoneal stretch
  - Movement
  - Coughing
  - ‘hop test’
- Percuss first
- Palpation
  - Guarding
  - Rigidity
- Bowel sounds

SIMPLY FINALS

The Acute Abdomen

- General examination
- Peritoneal stretch
  - Movement
  - Coughing
  - ‘hop test’
- Percuss first
- Palpation
  - Guarding
  - Rigidity
- Bowel sounds

Is the patient peritonitic?

SIMPLY FINALS

Anything else?

Anything else?

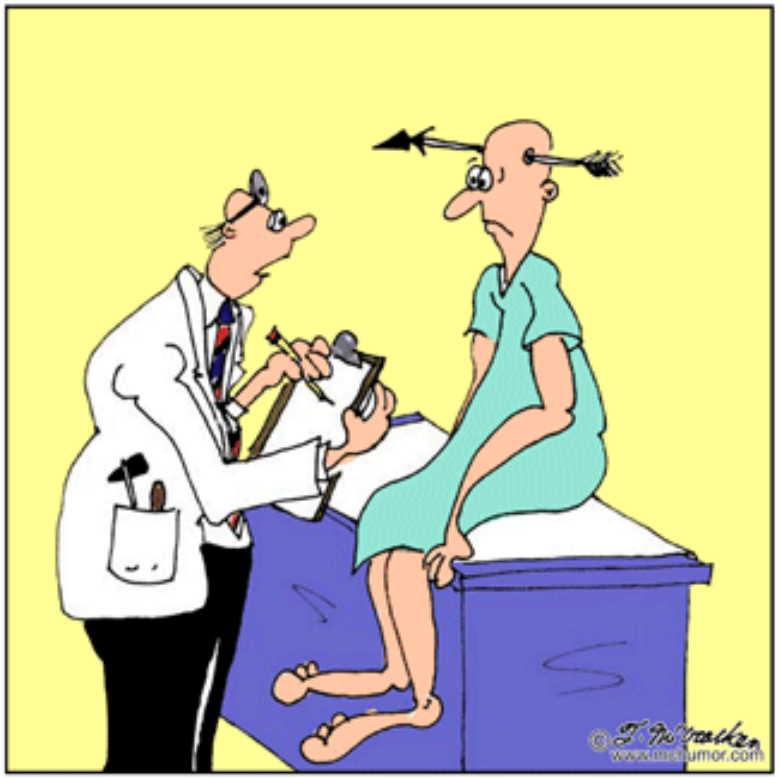
- Hernial orifices
- External genitalia
- PR

The Case

- A
  - SM
- B
  - RR 24/min
  - SaO2 95%
- C
  - CRT 2secs
  - HR 110/min
  - BP 160/90
- D
  - Alert
- E
  - T 37.4
  - Abdomen
    - Tender epigastrium and RUQ
    - Guarding
    - Percussion tenderness

SIMPLY FINALS

Thoughts?



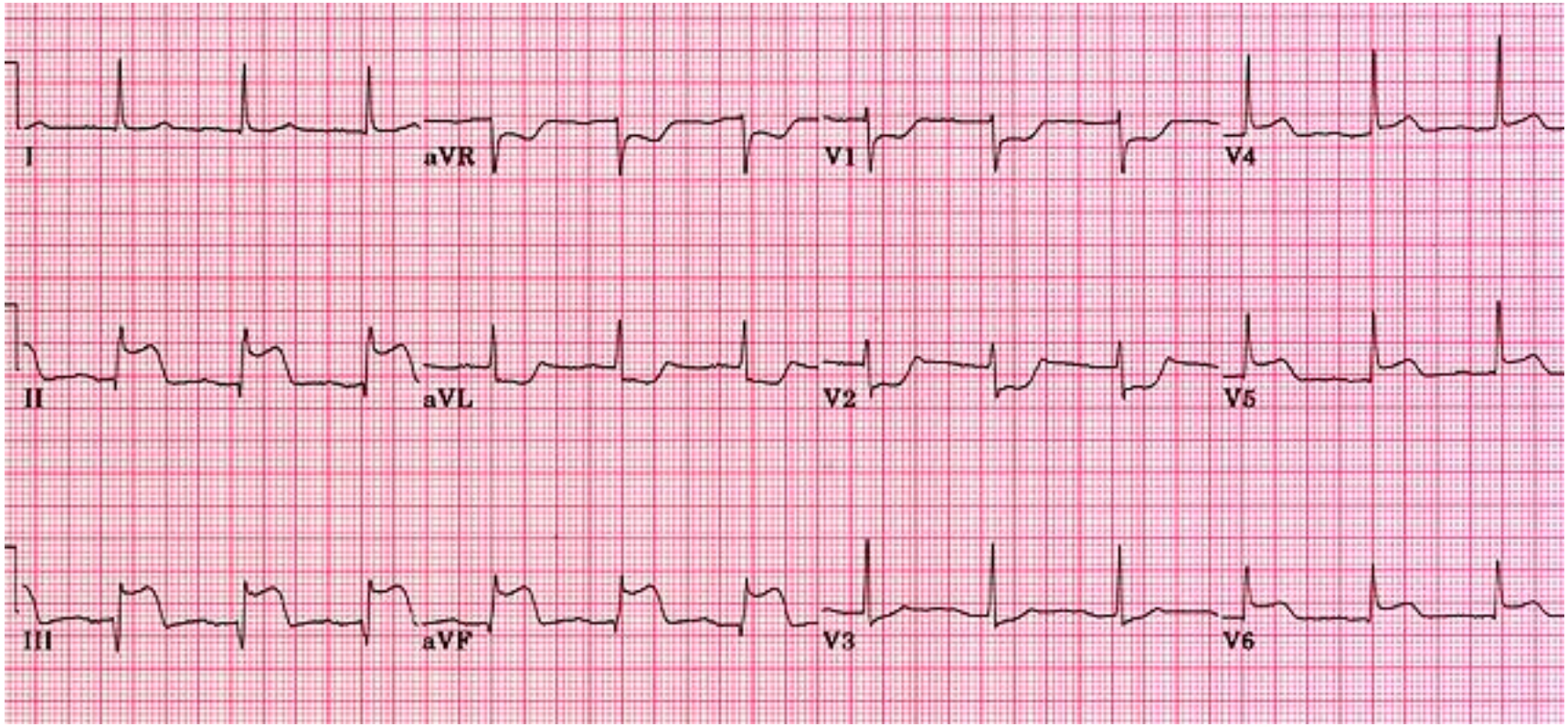
"Off hand, I'd say you're suffering from an arrow through your head, but just to play it safe, I'm ordering a bunch of tests."

SIMPLY FINALS

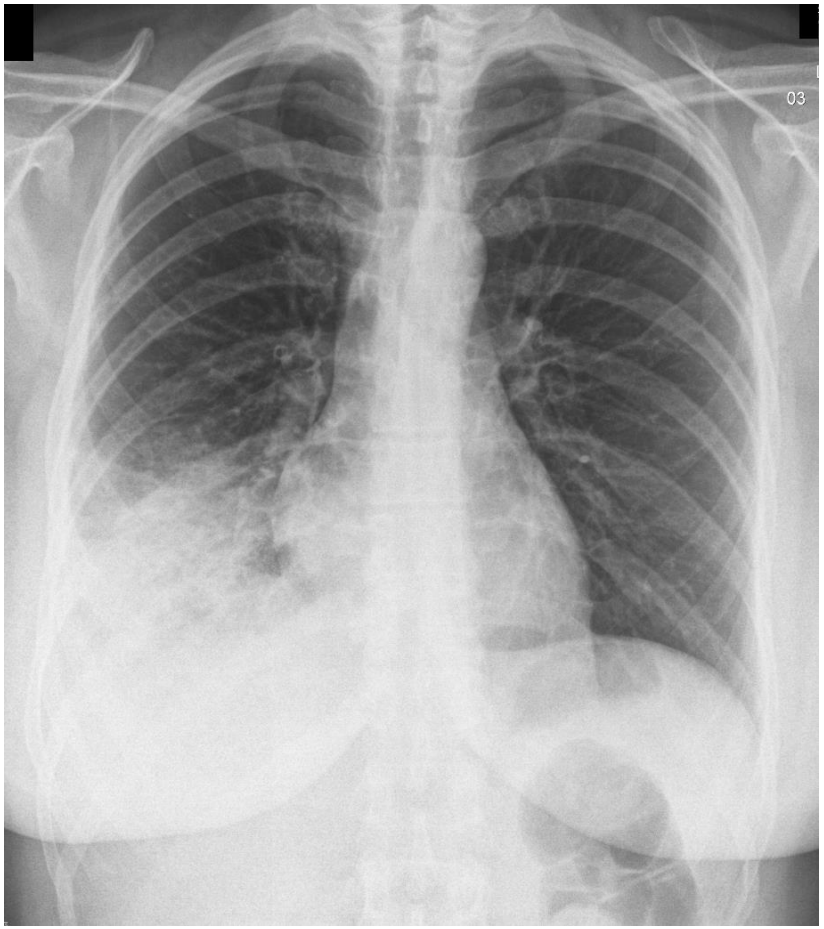
Investigations

- Bloods
- Imaging
- Other

SIMPLY FINALS

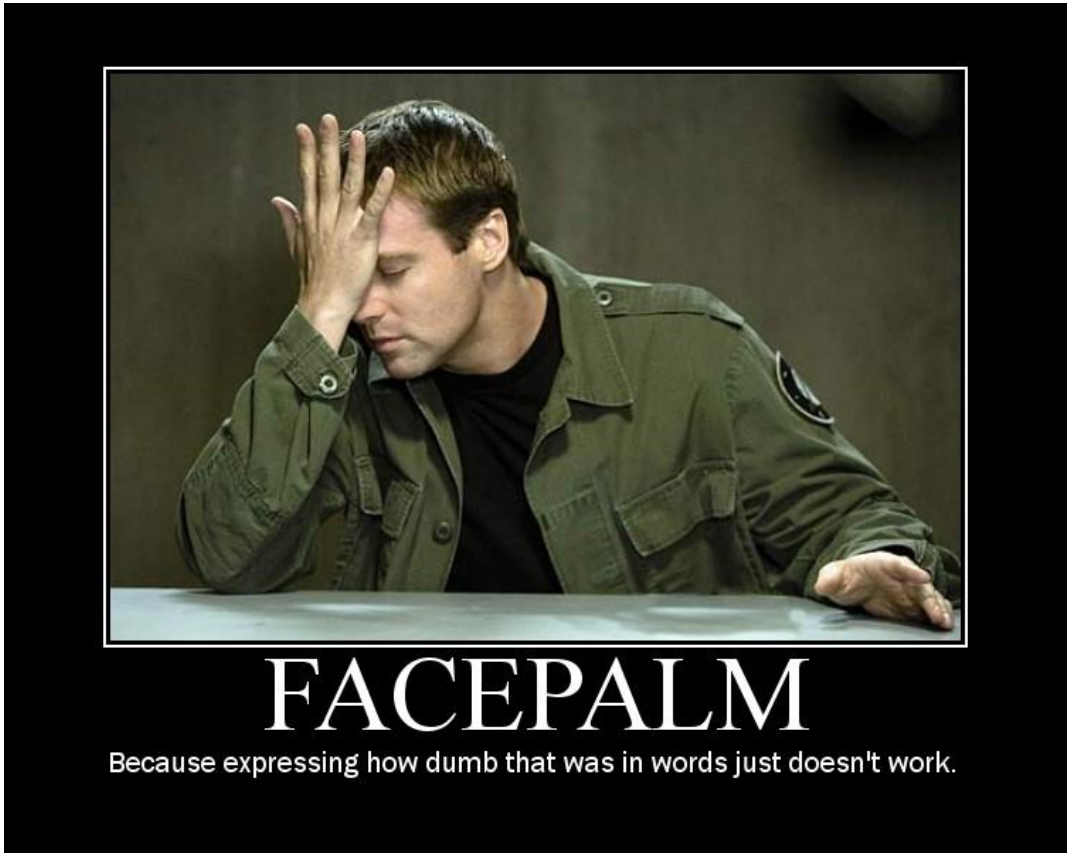


SIMPLY FINALS



SIMPLY
FINALS

Think about ‘non-surgical’ causes



SIMPLY FINALS

‘Medical’ causes of the acute abdomen

- Epigastric pain - Acute MI
- RUQ/LUQ – LRTI
- Suprapubic/loin – UTI

- Gastroenteritis
- DKA
- etc etc

SIMPLY FINALS

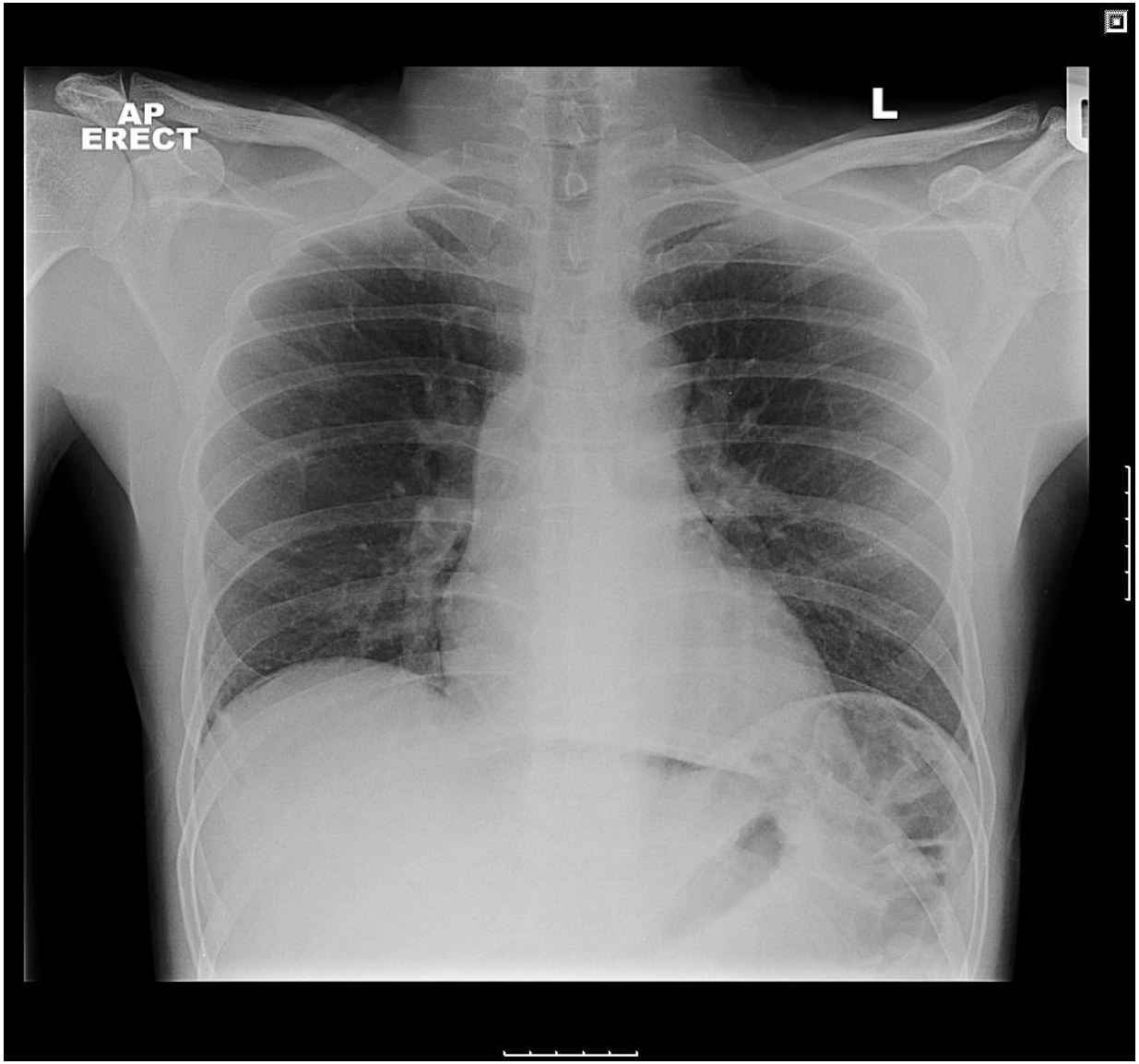
Investigations

- Bloods
  - ABG
  - FBC
  - U+E
  - (LFT)
  - Amylase
  - (CRP)
  - Glucose
  - Clotting
  - G+S
- Imaging
  - Erect CXR
  - USS Abdo
  - CT
- Other
  - ECG
  - (Urinalysis)

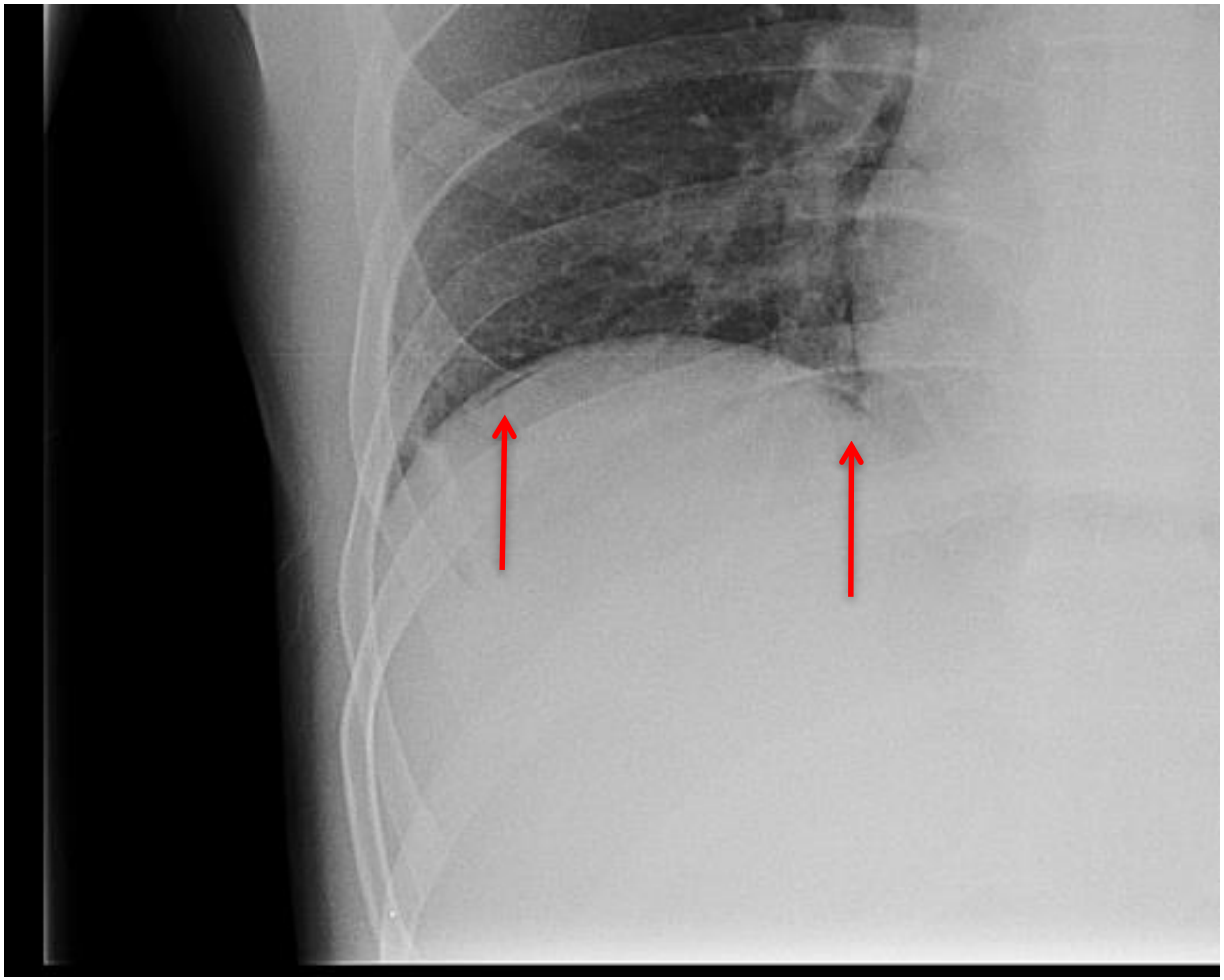
SIMPLY FINALS

Investigations

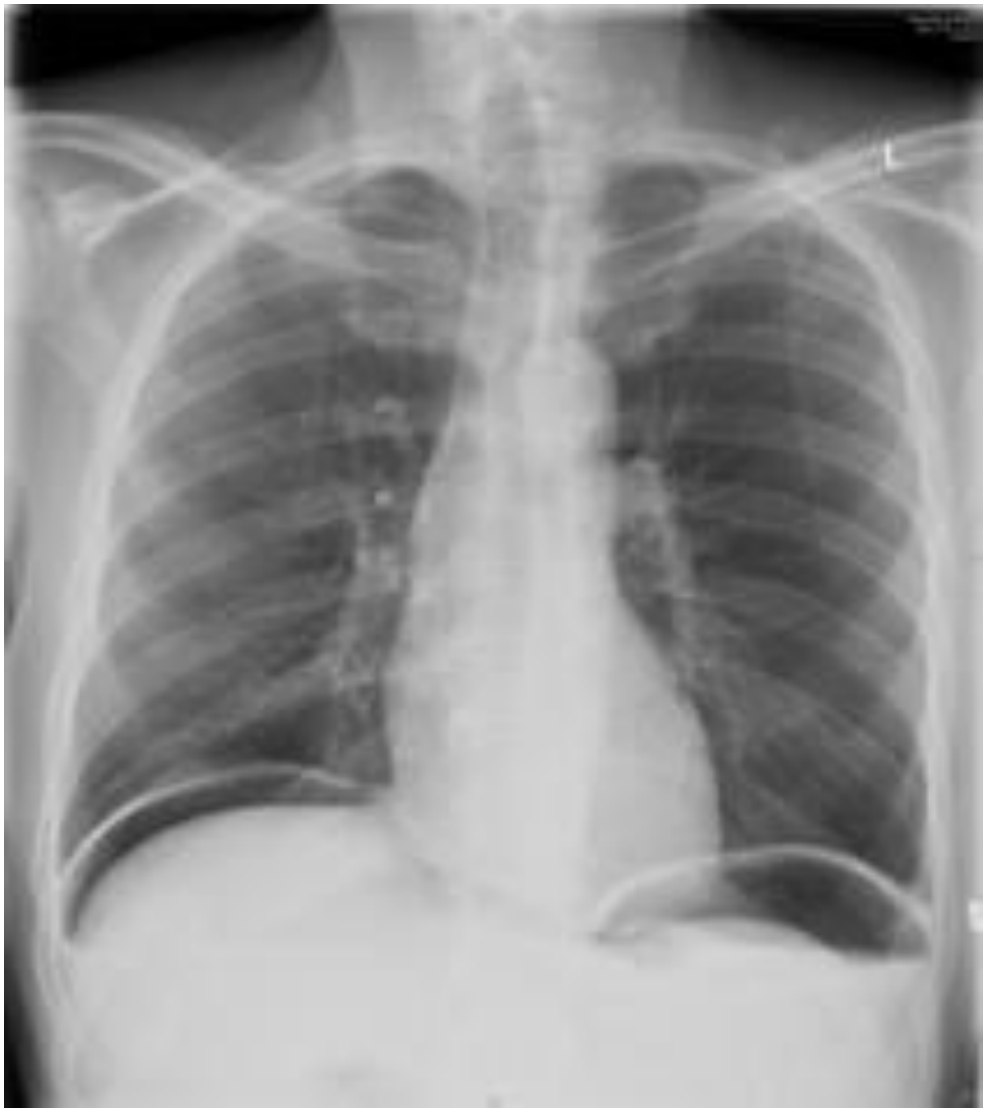
- Bloods
  - WCC 17.6
  - Hb 13.9
  - Plts 249
  - Ur 9.6
  - Cr 119
  - Na 134
  - K 4.5
  - Bili 19
  - ALT 24
  - ALP 124
  - Amy 190
  - CRP 175
  - Clotting N



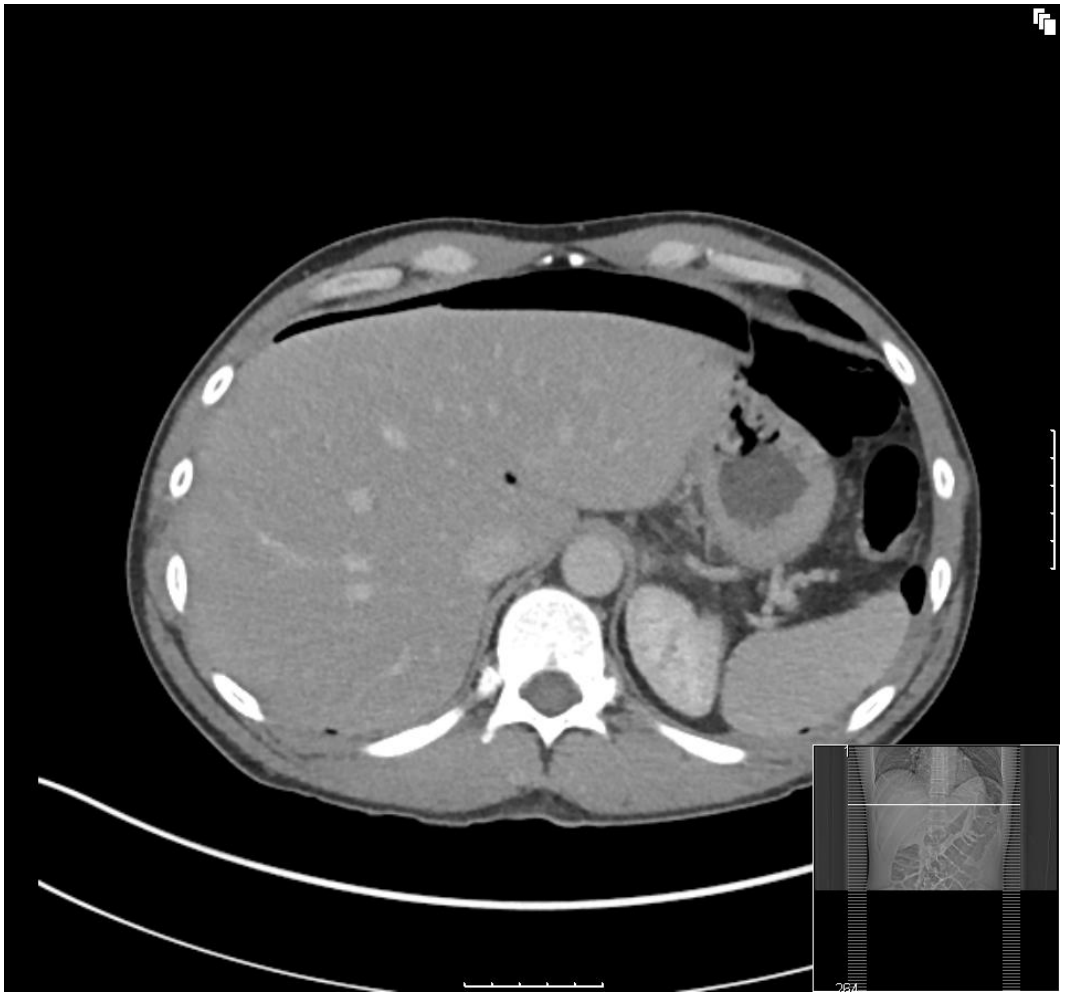
SIMPLY
FINALS



SIMPLY FINALS



SIMPLY
FINALS



SIMPLY
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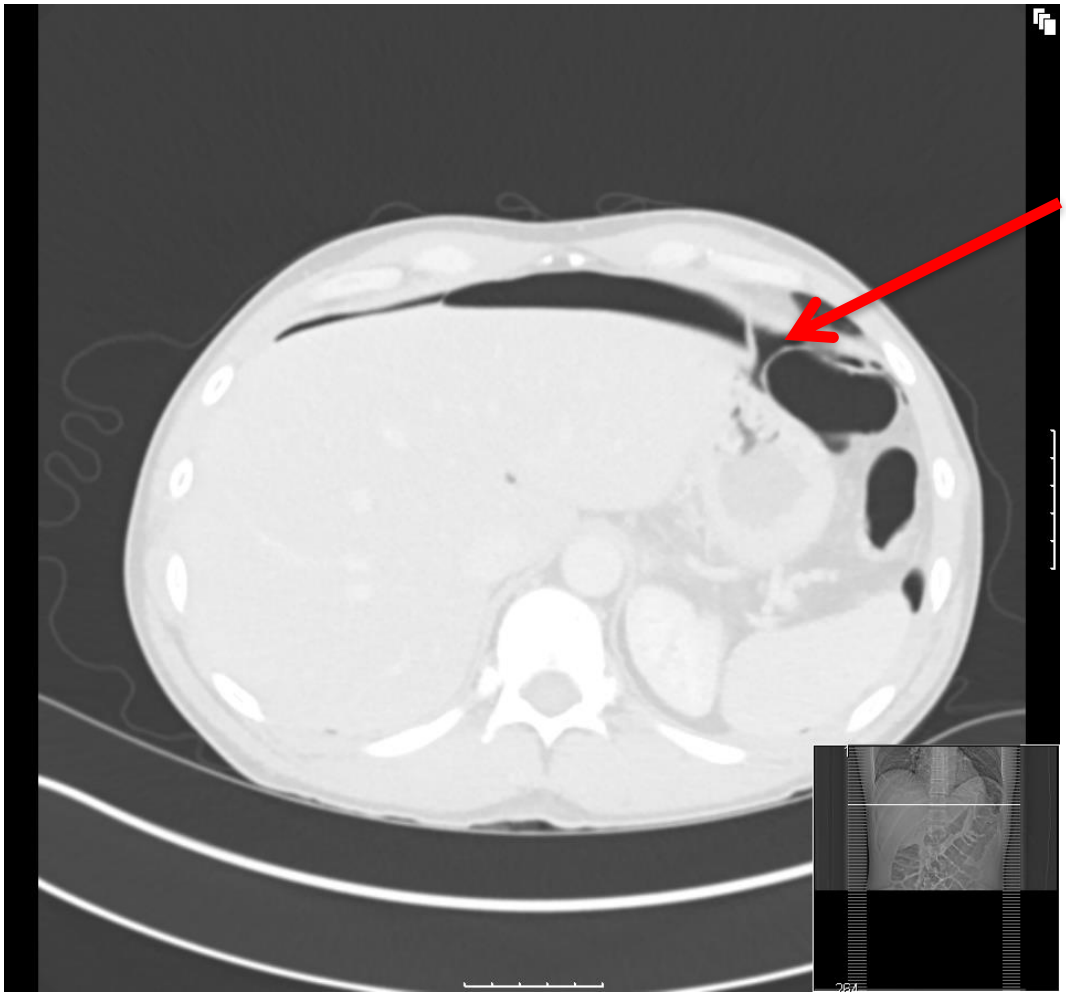


SIMPLY FINALS

What now?

- A
  - SM
- B
  - RR 24/min
  - SaO2 95%
- C
  - CRT 2secs
  - HR 110/min
  - BP 160/90
- D
  - Alert
- E
  - T 37.4
  - Abdomen
    - Tender epigastrium and RUQ
    - Guarding
    - Percussion tenderness

Management

- ABCDE
- Oxygen…

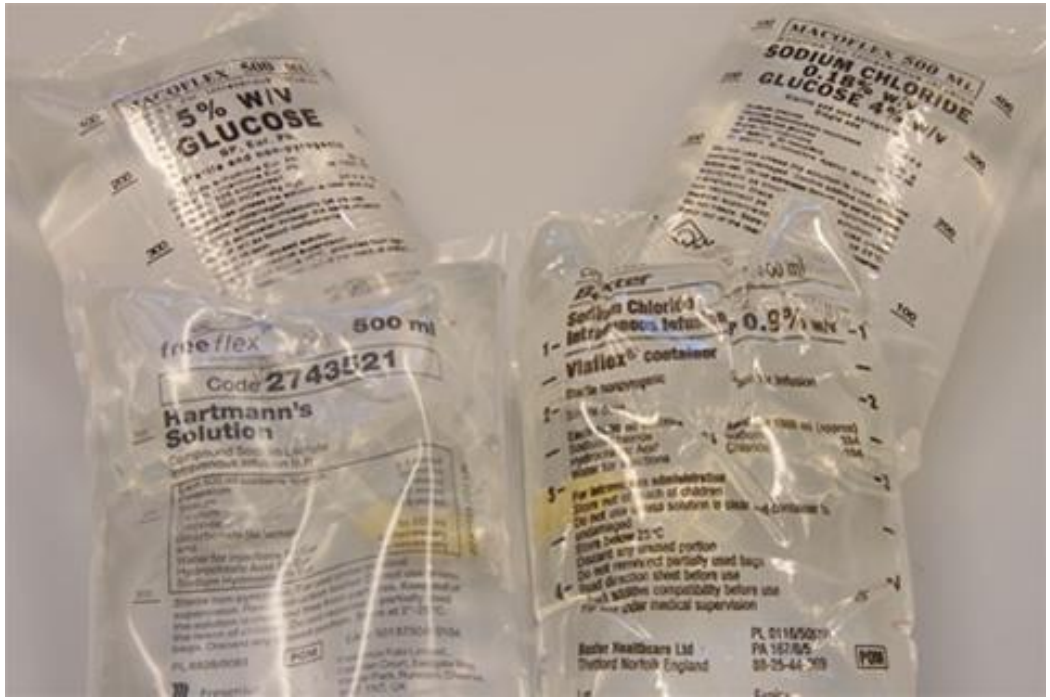
Management

- ABCDE
- Oxygen…
- IV access

SIMPLY FINALS

Management

- ABCDE
- Oxygen…
- IV access
- IV Fluid



SIMPLY
FINALS

Management

- ABCDE
- Oxygen…
- IV access
- IV Fluid
- Antibiotics

Management

- ABCDE
- Oxygen…
- IV access
- IV Fluid
- Antibiotics
- VTE prophylaxis
- Symptoms
  - Analgesia
  - Anti-emetics

Perforated Viscus

Upper GI

Lower GI

Perforated Viscus

Upper GI

- Peptic (DU/GU)
- Bad
- Sick

- IV Fluid
- PPI
- Antibiotics
- Urgent surgery

Lower GI

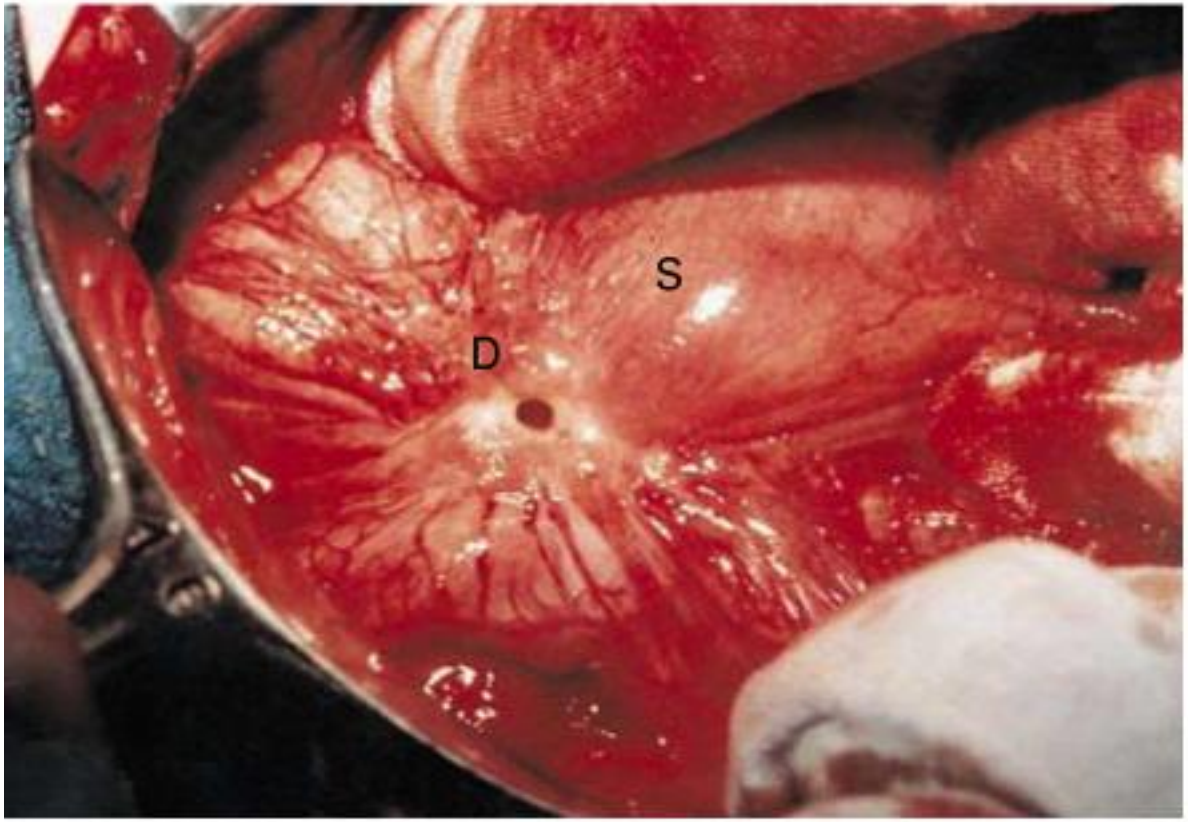
- Diverticular/malignancy
- Very bad
- Very sick

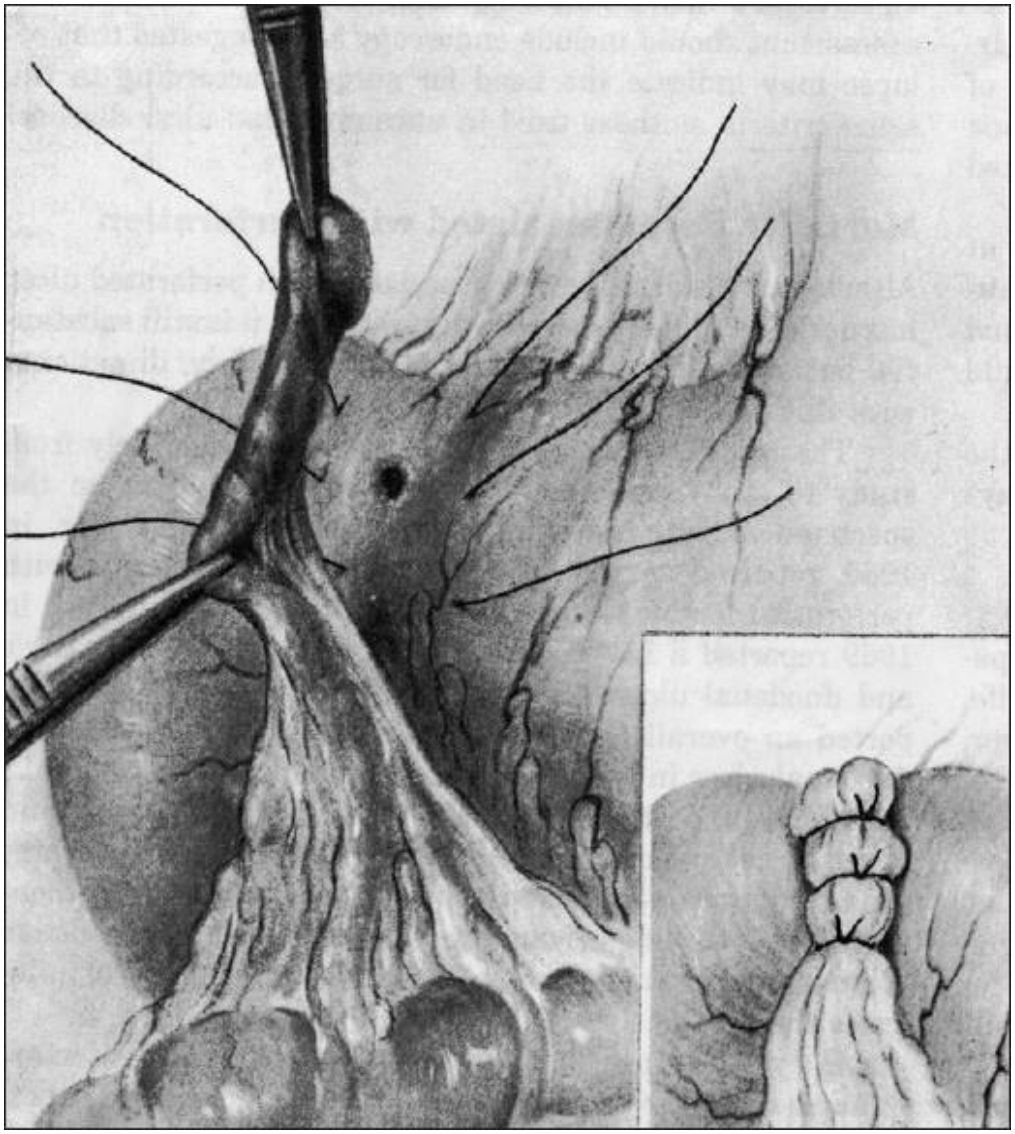
- IV Fluid
- Antibiotics
- Urgent surgery…

SIMPLY FINALS

Perforation– Upper vs Lower

- Age
- Risk factors
  - PUD
    - NSAIDS
    - Smoking
- Location of pain
- Clinical findings
- Radiology





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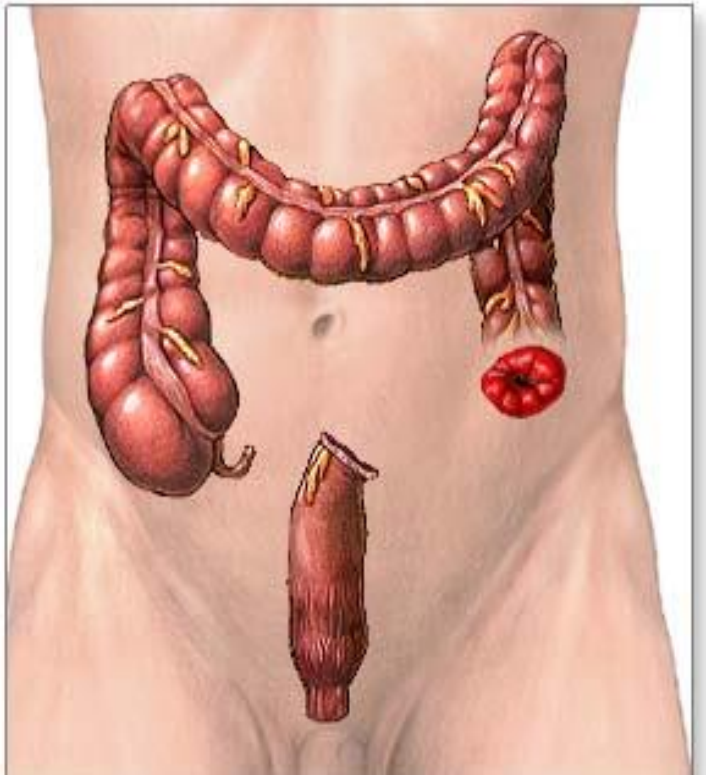
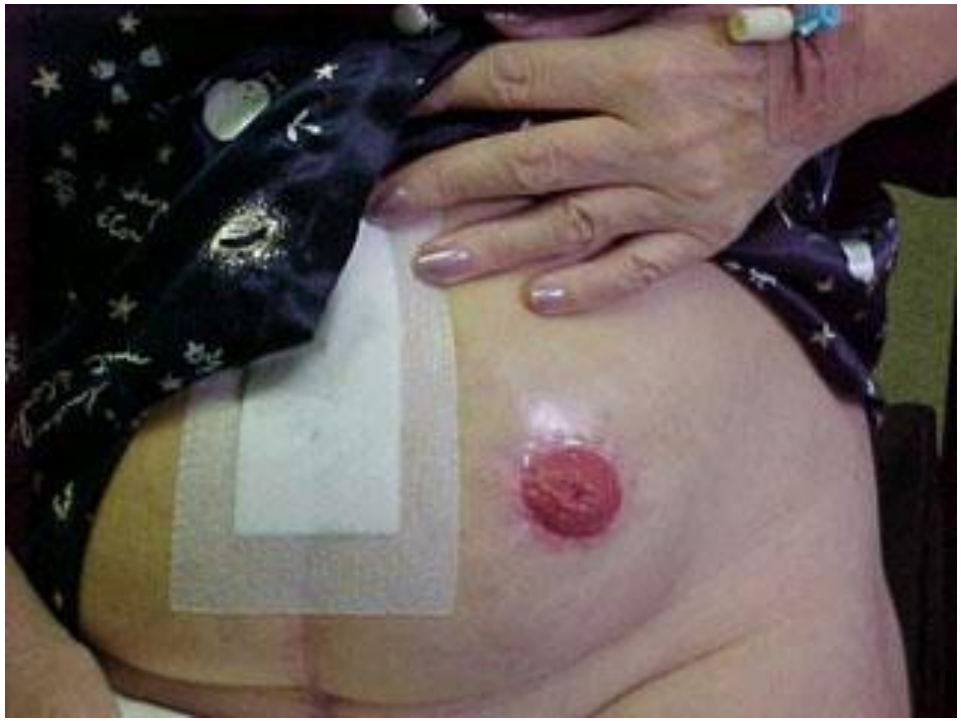
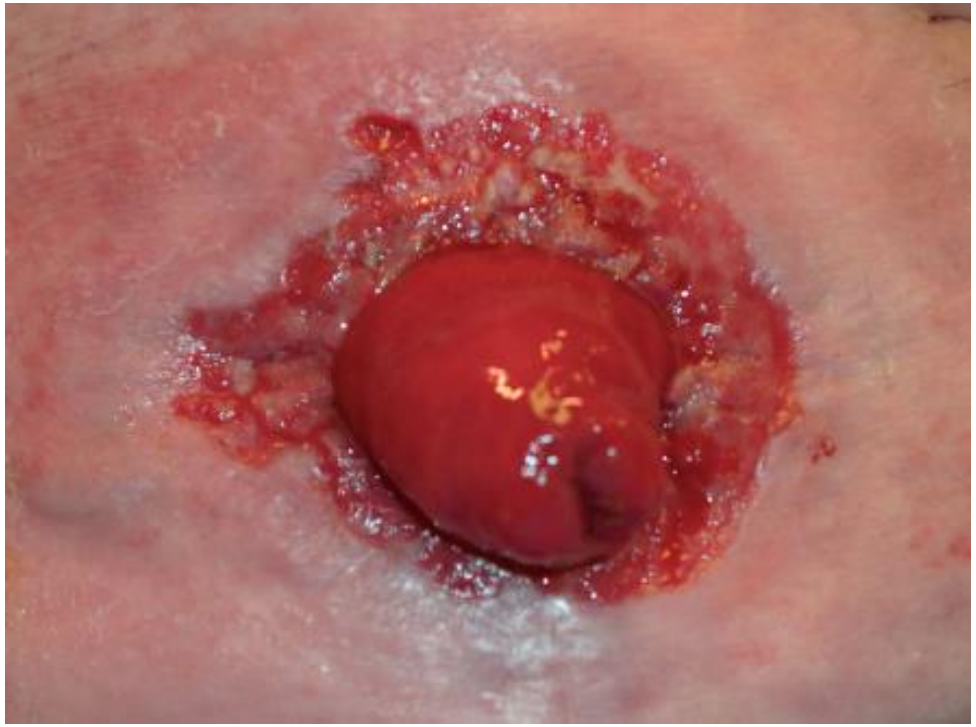


SIMPLY
FINALS

A quick word on stomas



SIMPLY FINALS



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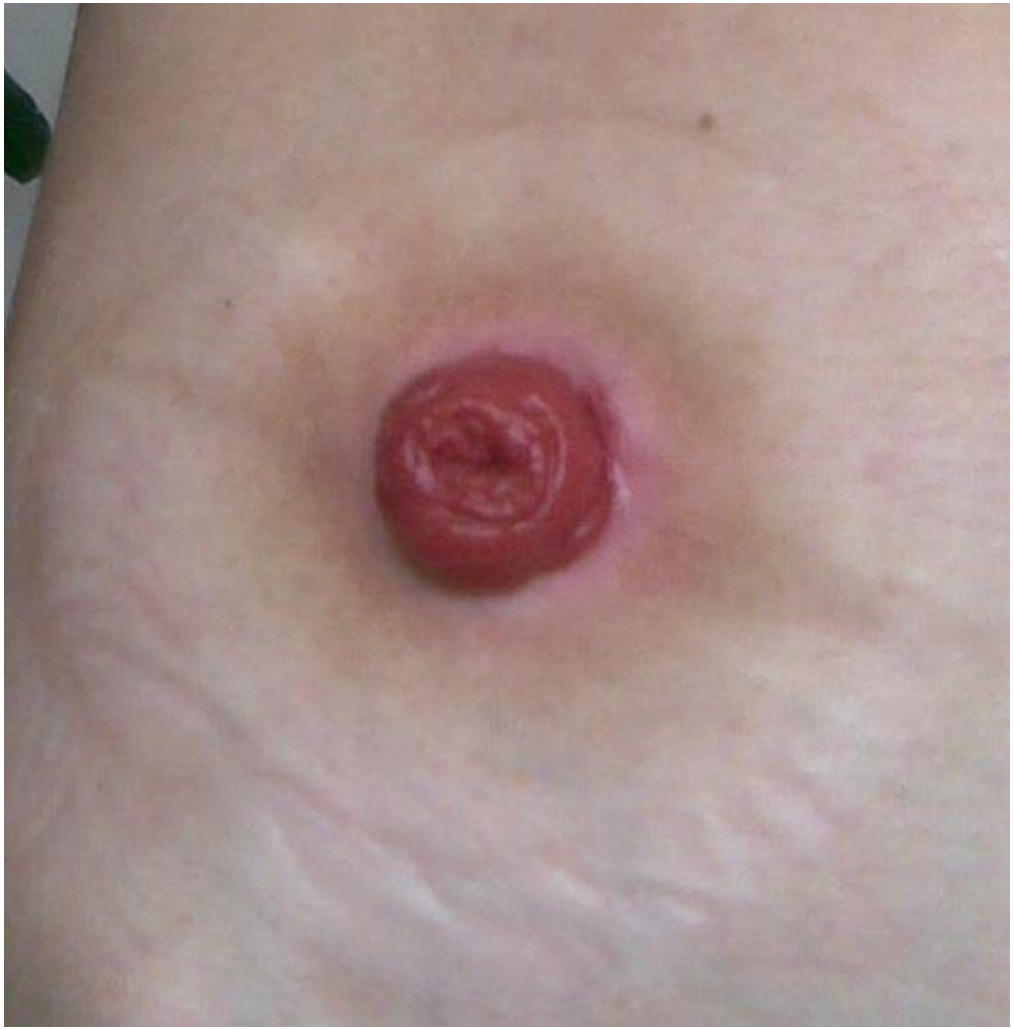
FINALS



SIMPLY
FINALS

Examining a stoma

- Location
- Size
- Output
- Number of lumens
  - End
  - Loop
- Skin condition

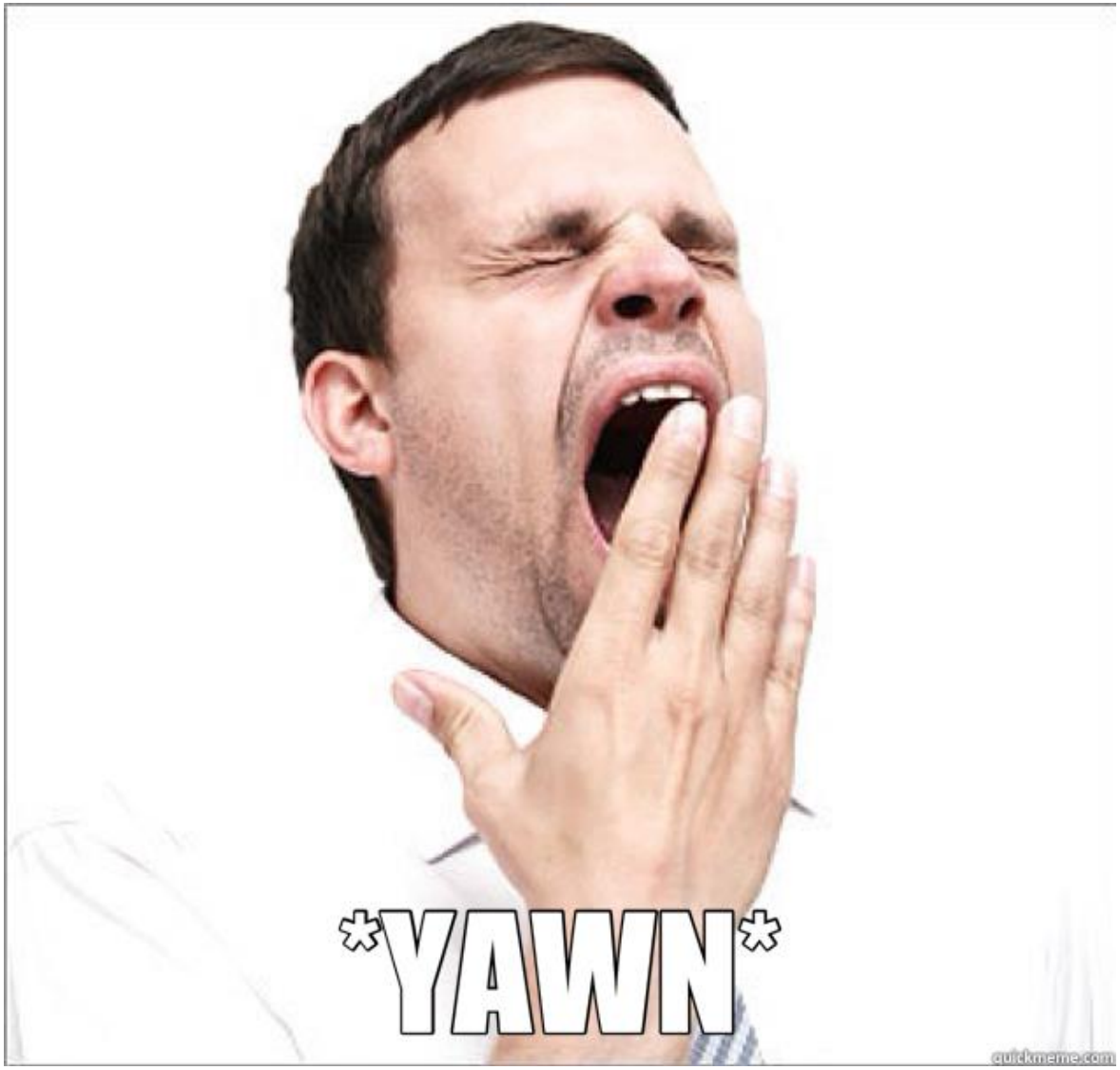
SIMPLY FINALS

Types of Stoma

- **Colostomy**
  - Usually LIF/RUQ
  - Flush with skin
  - Larger lumen
  - Faecal output
  - Common operations:
    - Hartmann's
    - Abdominoperineal resection
    - Decompression (inoperable distal malignancy)
- **Ileostomy**
  - Usually RIF
  - Spouted
  - Smaller lumen
  - Liquid output initially
  - Common operations:
    - **Loop**
      - After anterior resection
    - **End**
      - After total/subtotal colectomy
- **Urostomy (ileal conduit)**

Complications of Stomas

- Early
  - High output
  - Ischaemia
  - Retraction
- Late
  - Prolapse
  - Parastomal hernia
  - Psychosocial



SIMPLY
FINALS

Case 2

- 78F
- Under medics with chest infection
- **PMH** Dementia, COPD
- Two days of
  - Profuse vomiting
  - Central abdominal pain

SIMPLY FINALS

Case 2

- Profuse vomiting
- Central abdominal pain
  - ‘comes and goes in waves’
- BNO for 5/7
- No flatus

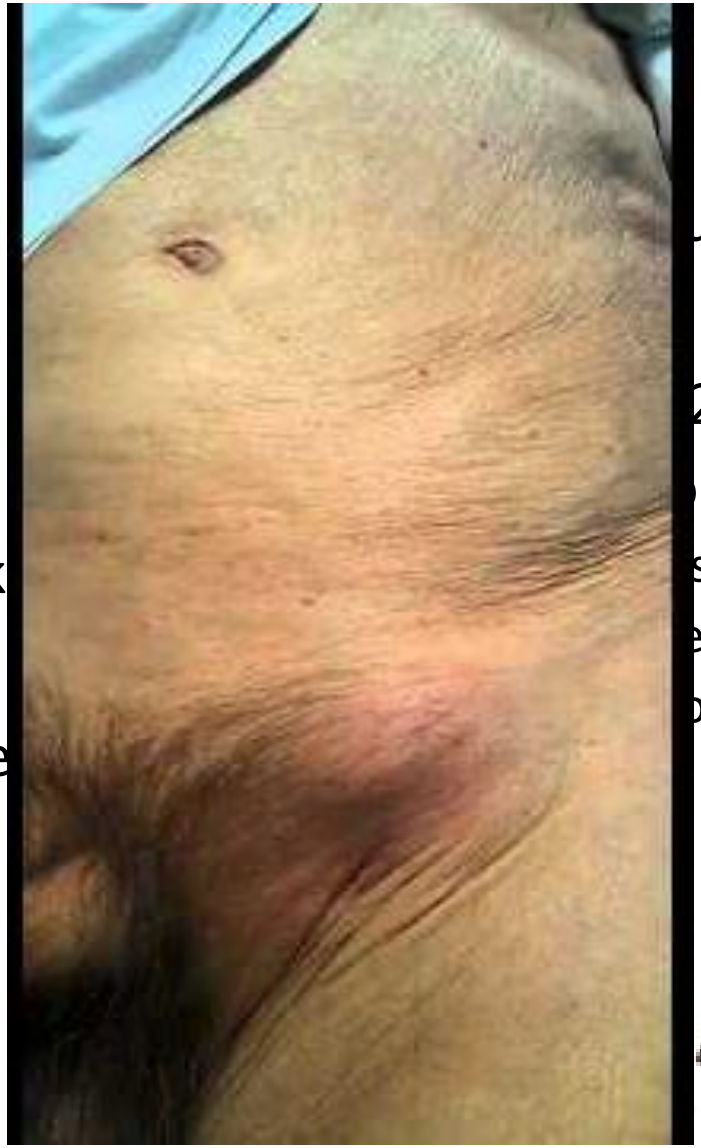
On examination

- A
  - SM
- B
  - RR 24/min
  - SaO2 92%
  - Coarse crackles Rt base
- C
  - Cool peripheries
  - HR 110
  - BRP 120/75
- D
  - Confused
- E
  - T 37.2
  - Abdomen
    - Distended
    - Generally tender
    - Not peritonitic
    - BS active

SIMPLY FINALS

On examination

- A
  - SM
- B
  - RR 24/min
  - SaO2 92%
  - Coarse crack
- C
  - Cool periphe
  - HR 110
  - BRP 120/75



used

2

men

stended

enerally tender

t peritonitic

SIMPLY FINALS

What next?

Investigations

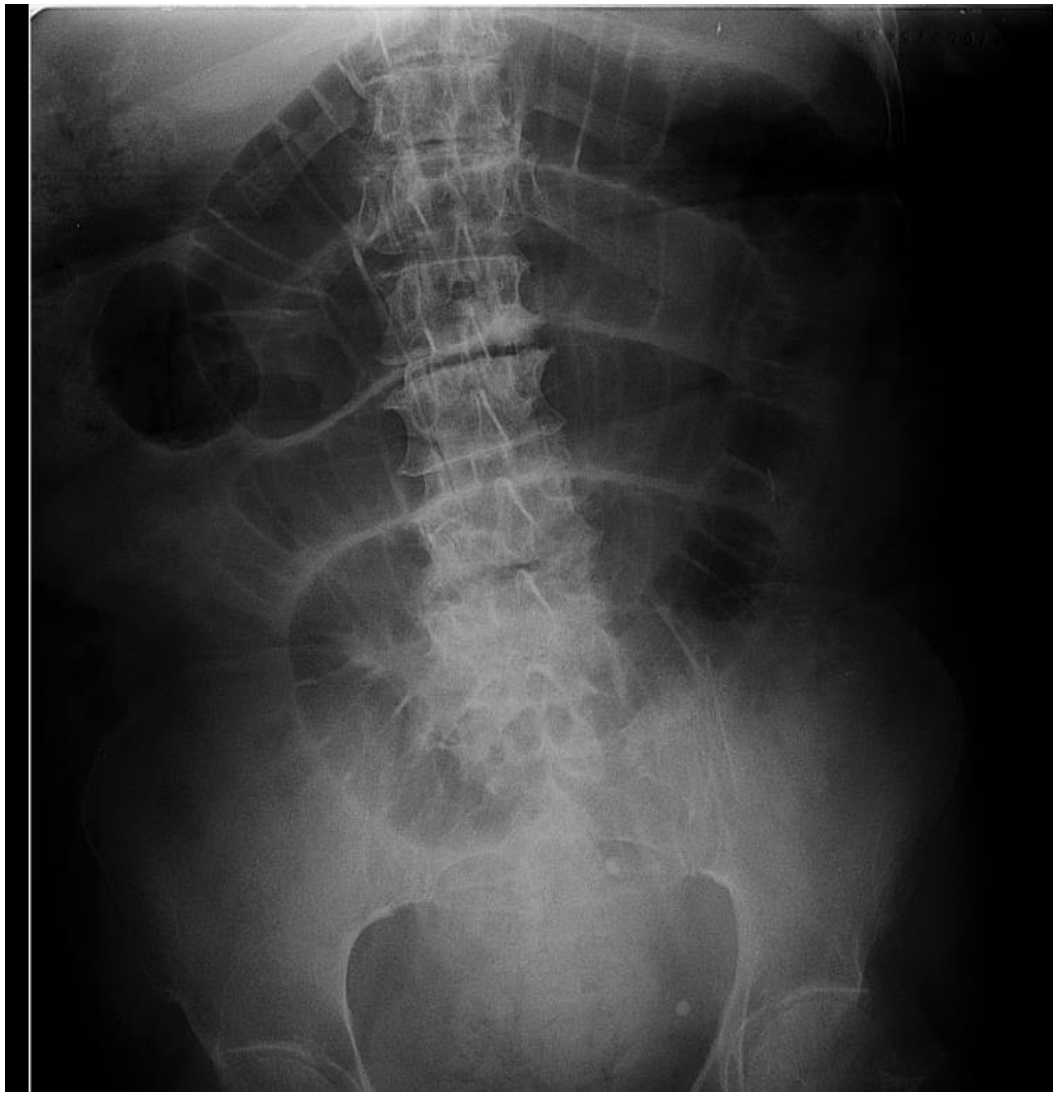
- Bloods
  - FBC
  - U+E
  - (CRP)
  - Clotting
  - G&S
  - **ABG**
- Imaging
  - AXR/CXR
  - CT?
- Other
  - ECG
  - Urine

SIMPLY FINALS

Investigations

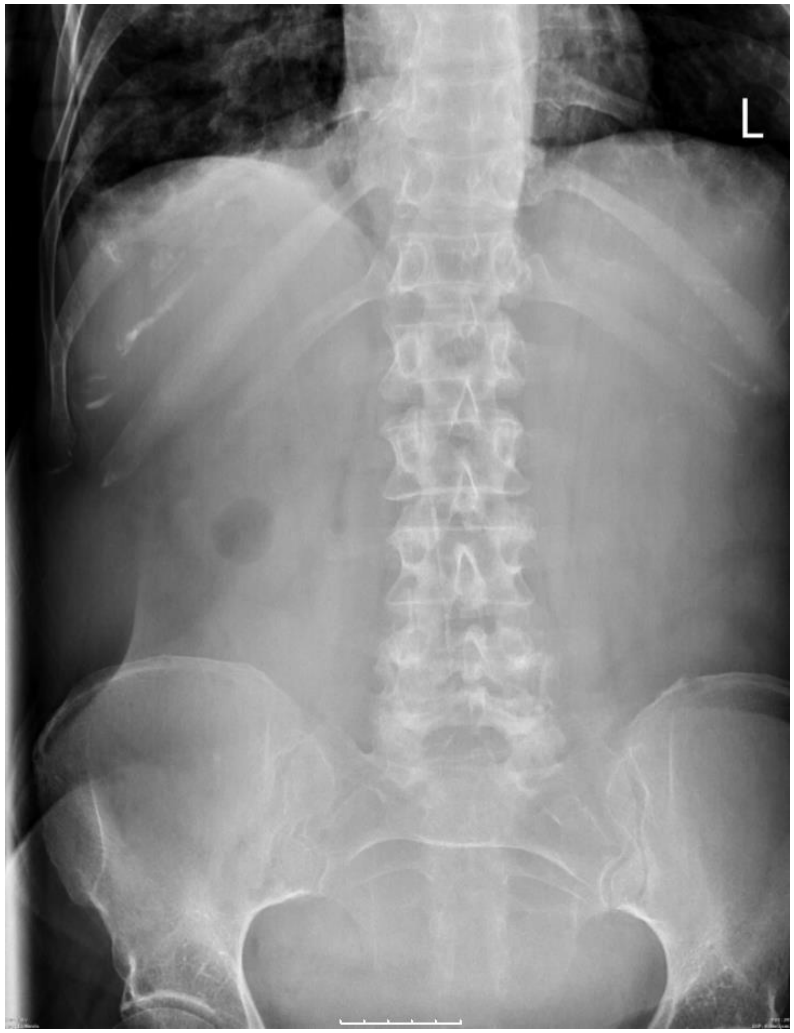
- Hb 12.4
- WCC 16.4
- Plts 252
- Urea 12.4
- Creat 110
- Clotting N

- ABG (on 4L)
  - pH 7.33
  - PCO2 4.0
  - PO2 10.2
  - BE -5.8
  - Lac 2.9



SIMPLY
FINALS

The real X-ray!



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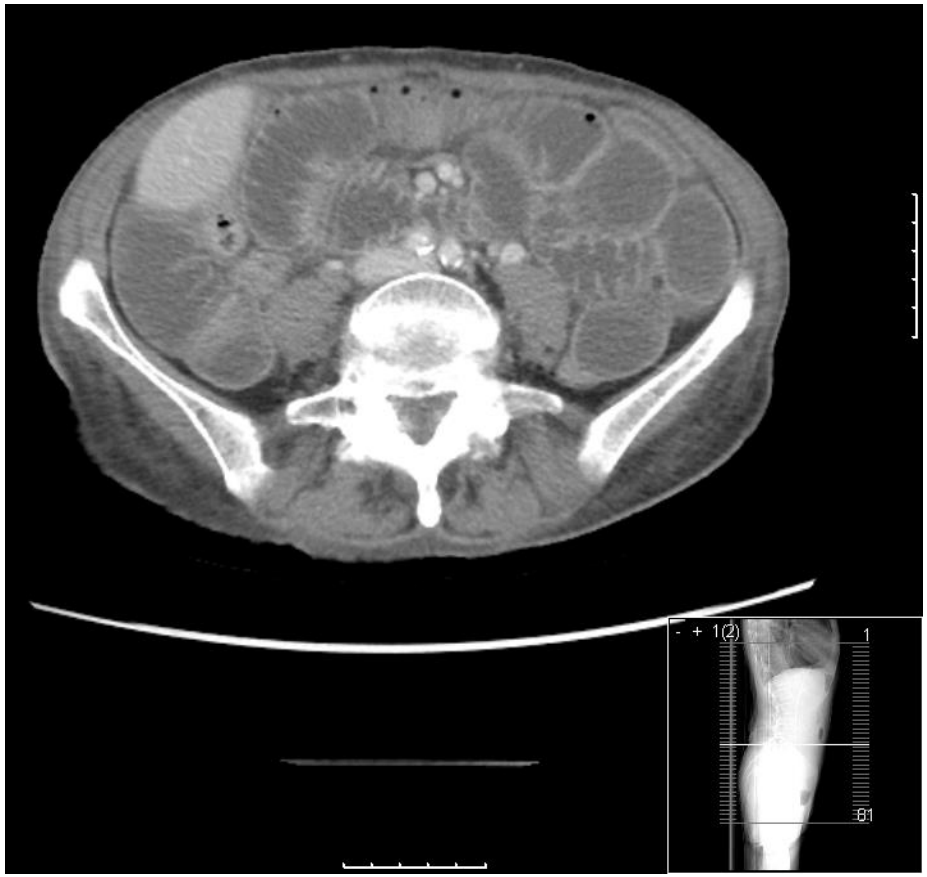
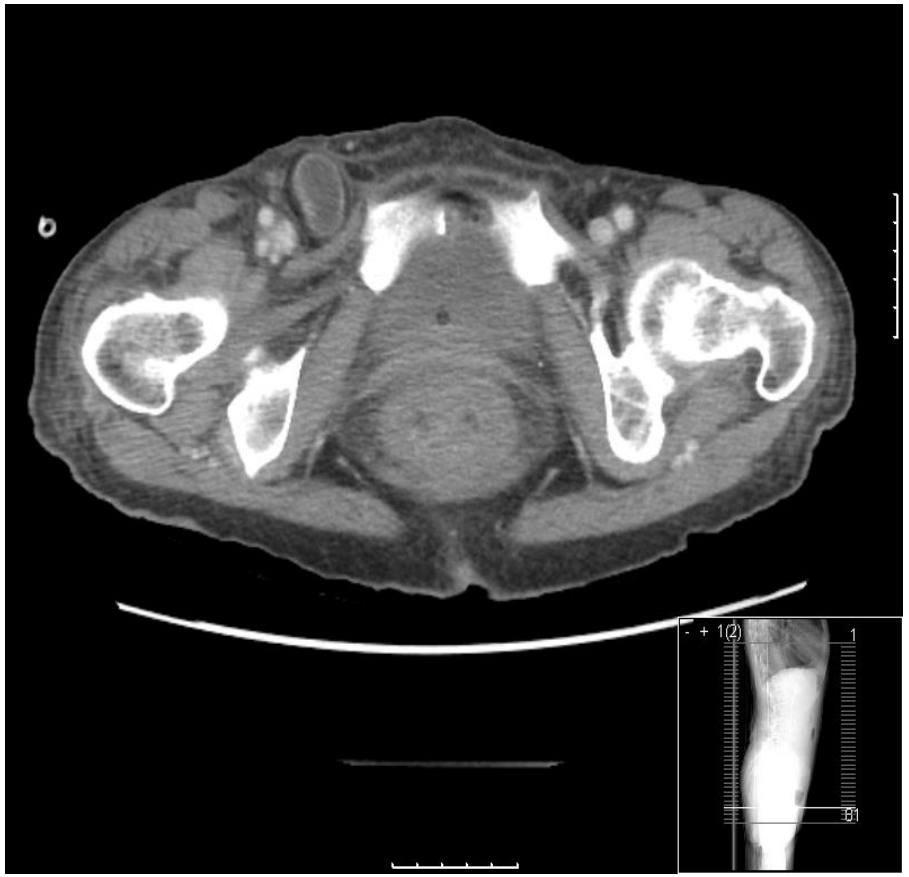
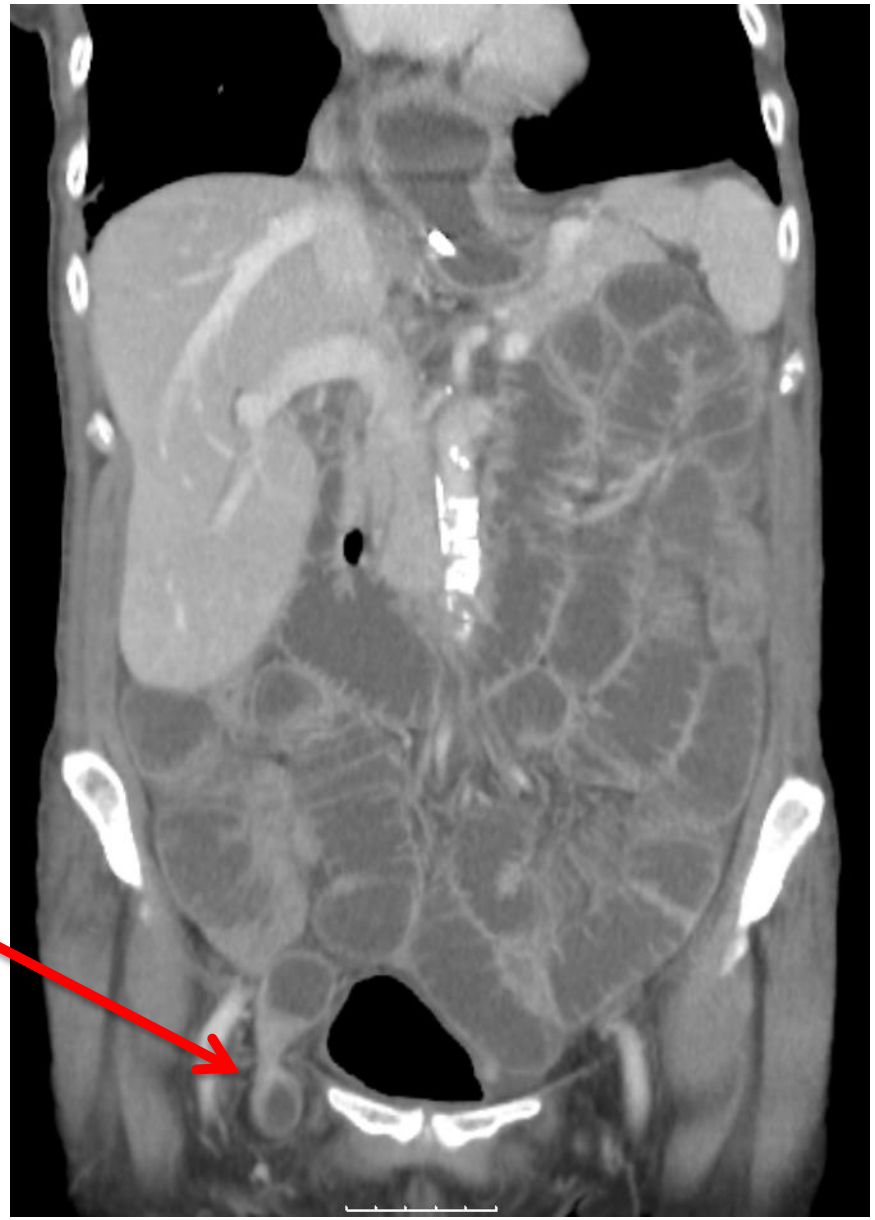




SIMPLY
FINALS



SIMPLY FINALS

What next?

Initial Management

- ‘Drip and Suck’
  - NBM
  - NGT
  - **IV fluid**
  - Urinary catheter

- Definitive management
  - Depends on cause

SIMPLY FINALS

Bowel Obstruction – 4 symptoms

- Vomiting
- Colic
- Distension
- Constipation/obstipation

Bowel Obstruction – Aetiology

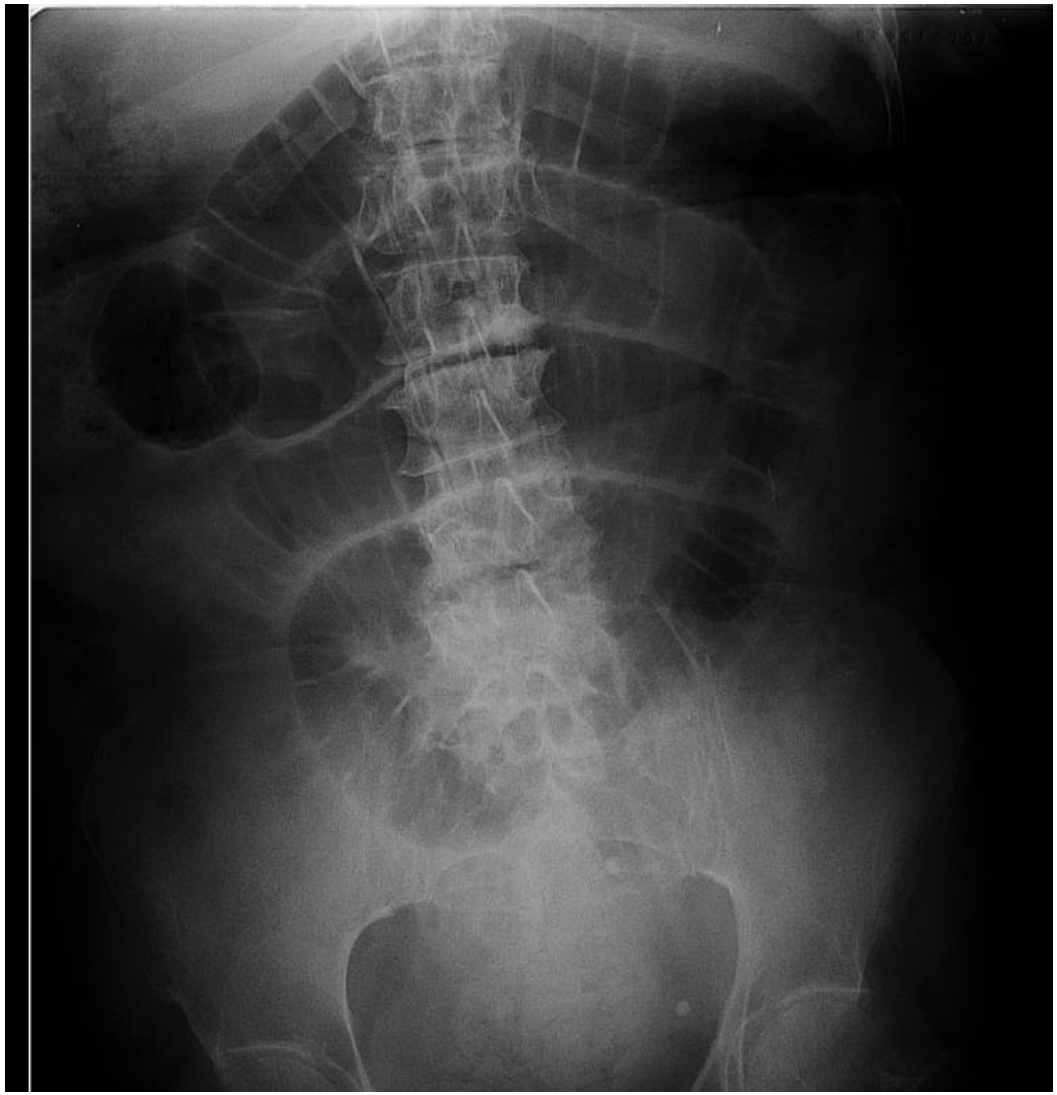
SBO

- **Adhesions**
- Hernias
- Crohn's

LBO

- **Cancer**
- Volvulus
- Diverticular stricture

SIMPLY FINALS



SBO

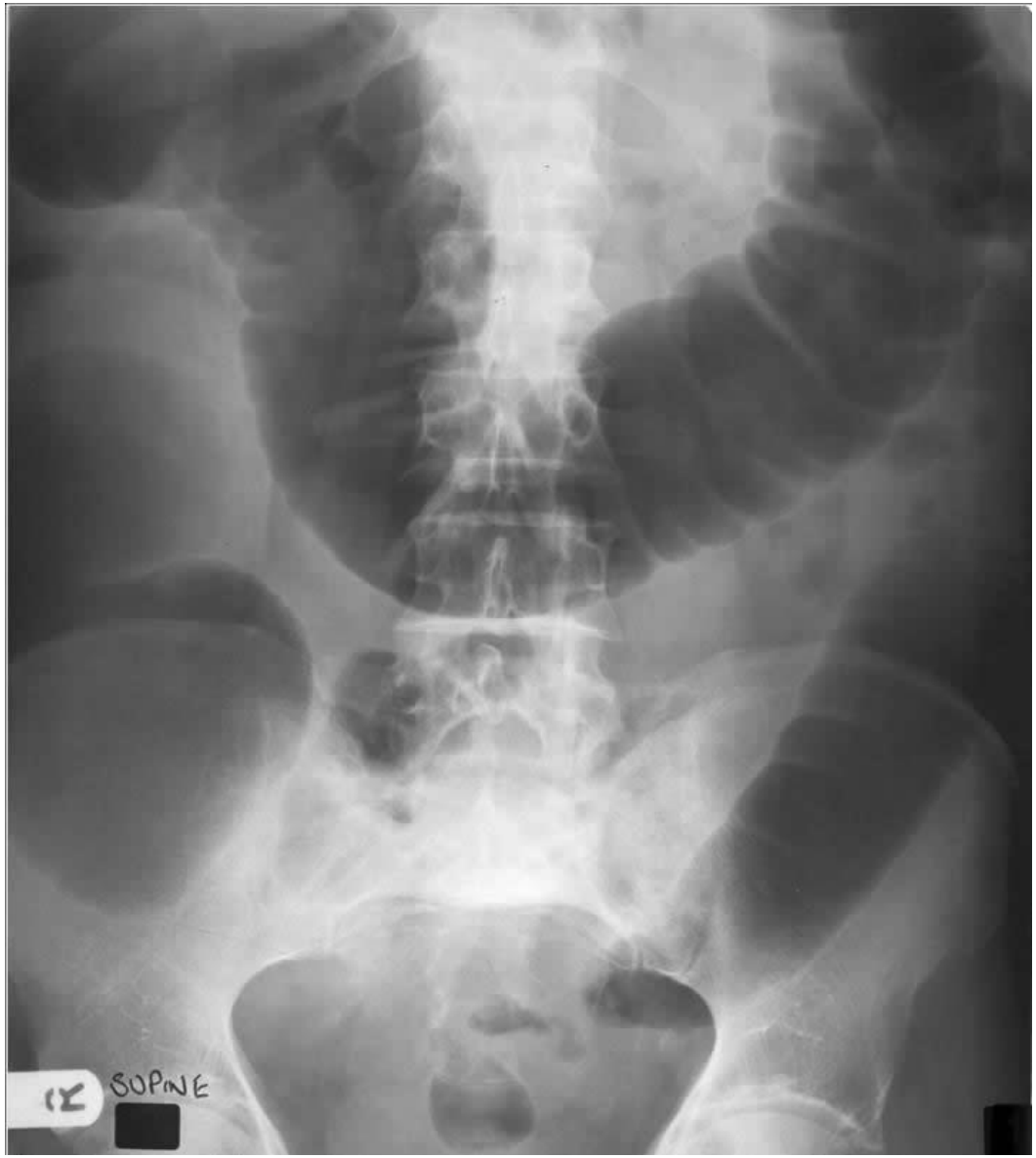
Central distribution

Multiple loops

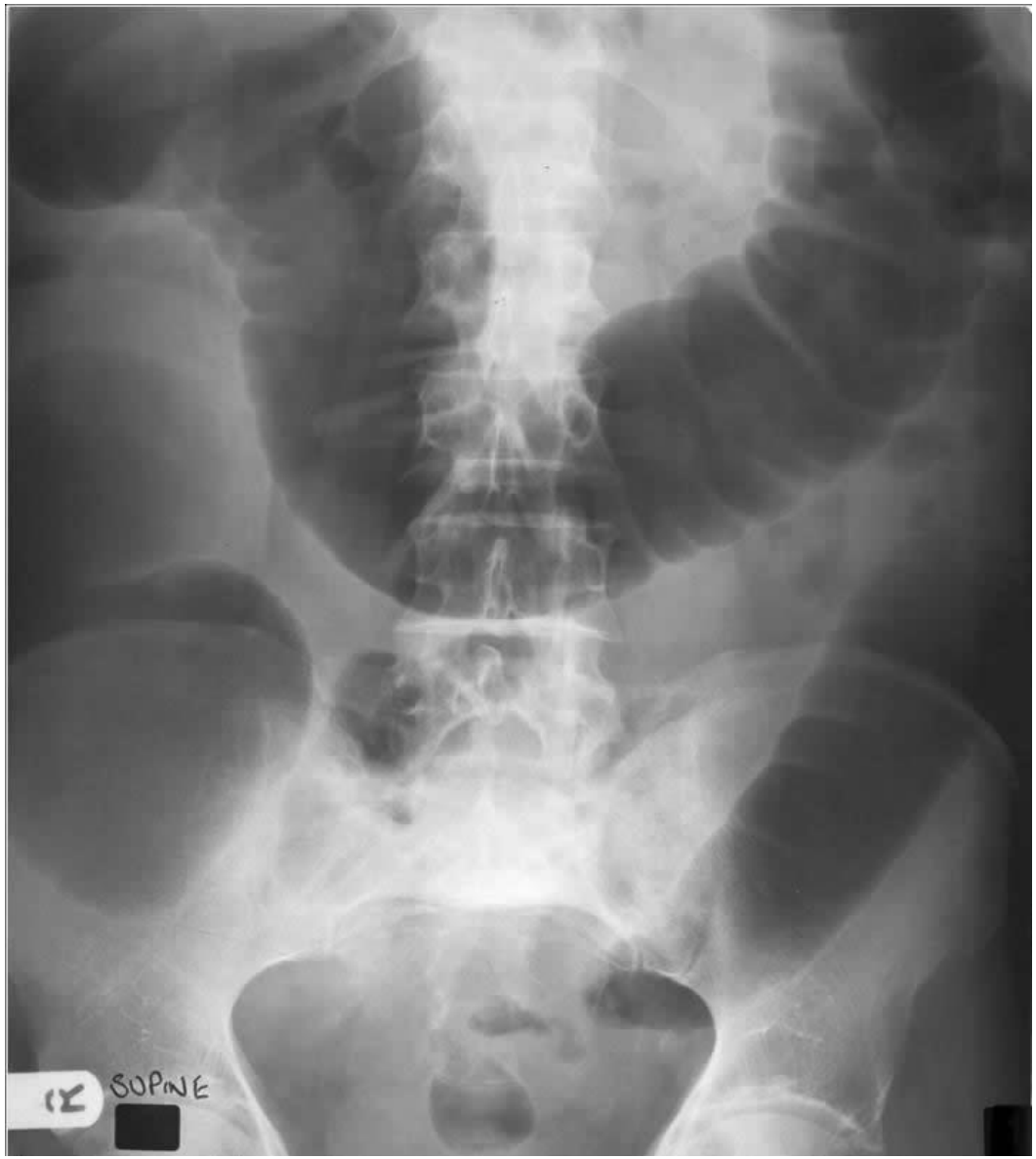
Valvulae conniventes

>3cm

SIMPLY FINALS



SIMPLY
FINALS



LBO

Peripheral distribution

Haustrae

Colon >6cm

Caecum >9cm

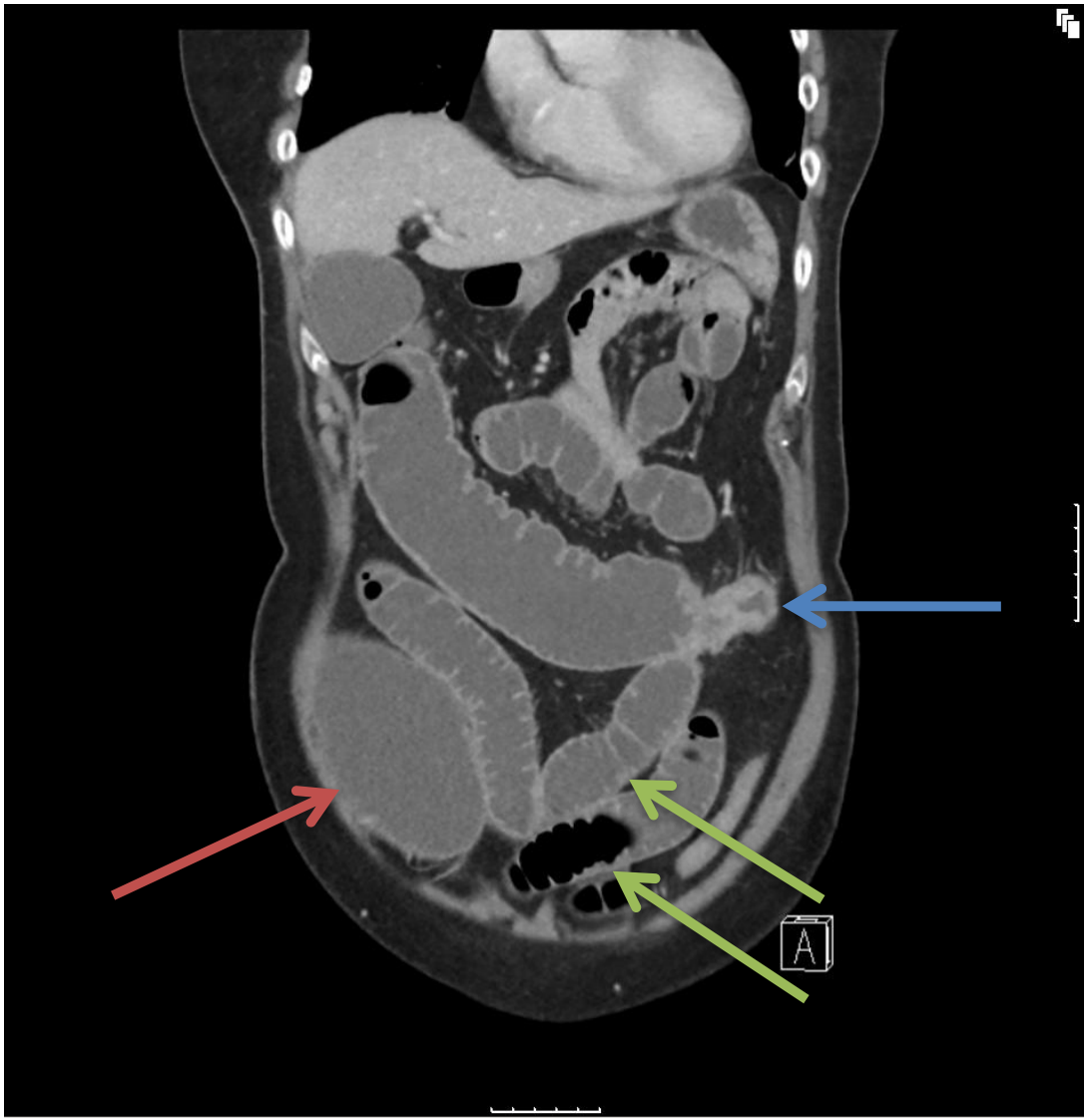
SIMPLY FINALS

Definitive Management

- SBO
  - Adhesional
    - Trial of conservative management
    - UNLESS signs of ischaemia/peritonism
  - Hernia
    - Surgery required

Definitive Management

- LBO
  - CT usually helpful
  - Volvulus
    - Sigmoidoscopy → decompression
    - UNLESS signs of ischaemia
  - Cancer
    - Laparotomy + resection
    - Urgency depends on competence of ileocaecal valve

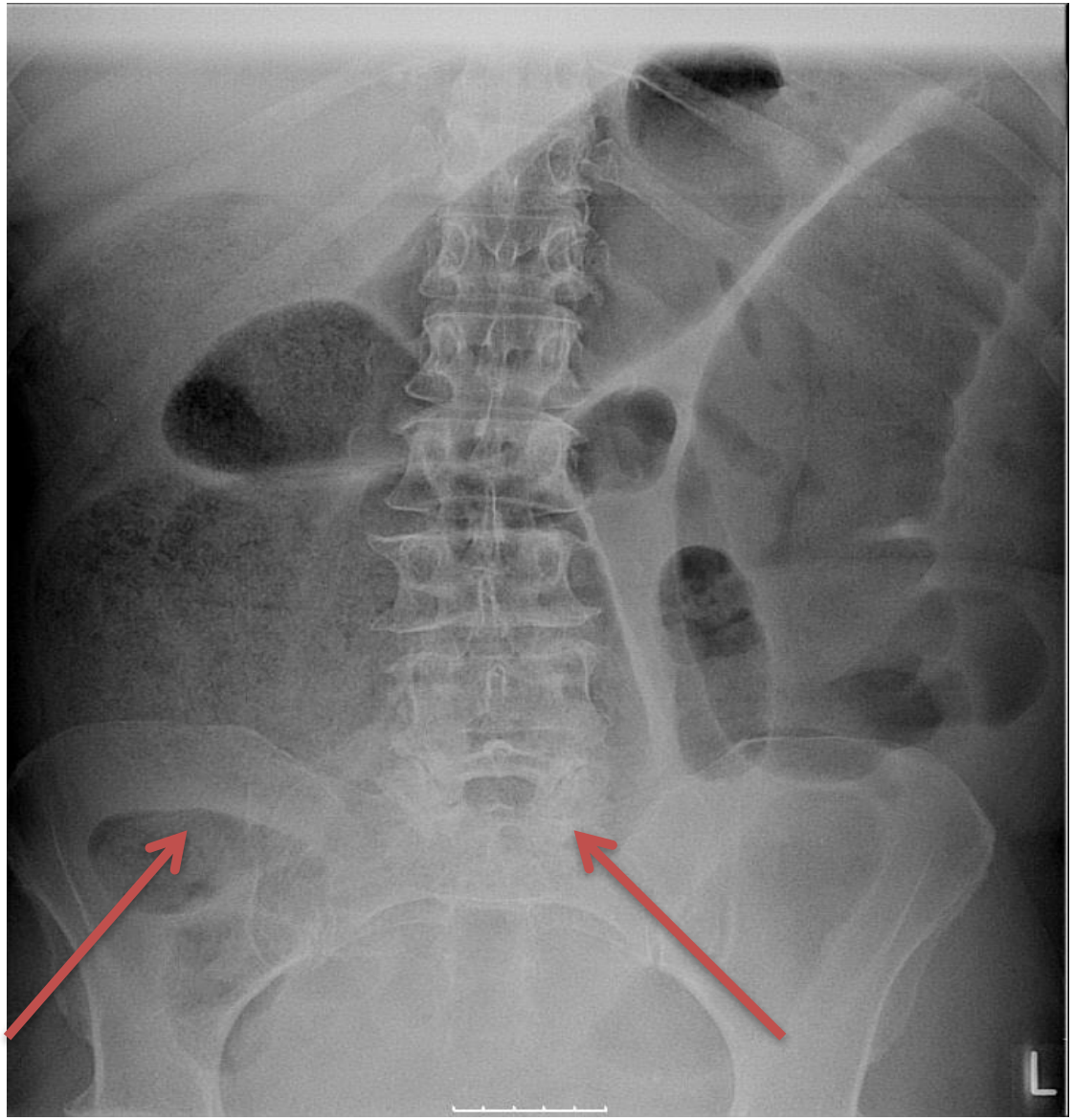


Dilated large and small bowel
Slightly distended caecum (<10cm)

OPEN LOOP LBO (INCOMPETENT ILEOCAECAL VALVE)

LOW RISK OF CAECAL PERFORATION

SIMPLY FINALS



Hugely dilated caecum (>10cm)

No small bowel dilatation

CLOSED LOOP LBO

HIGH RISK OF CAECAL PERFORATION

SIMPLY FINALS

Obstruction – key points

- Assess for signs of ischaemia/perforation
- Aetiology determines management
- Closed loop vs open loop

SIMPLY FINALS

Obstruction – key points

- Assess for signs of ischaemia/perforation
- Aetiology determines management
- **Closed loop vs open loop**

LBO with competent Ileocaecal valve
Volvulus
Hernia

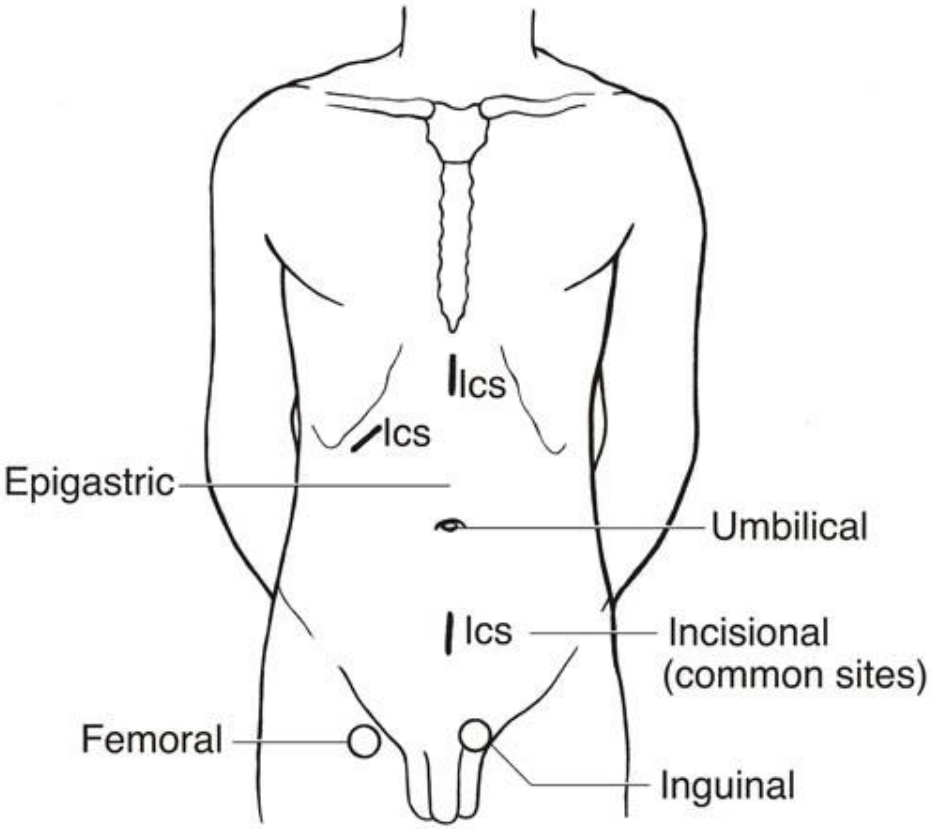
SIMPLY FINALS

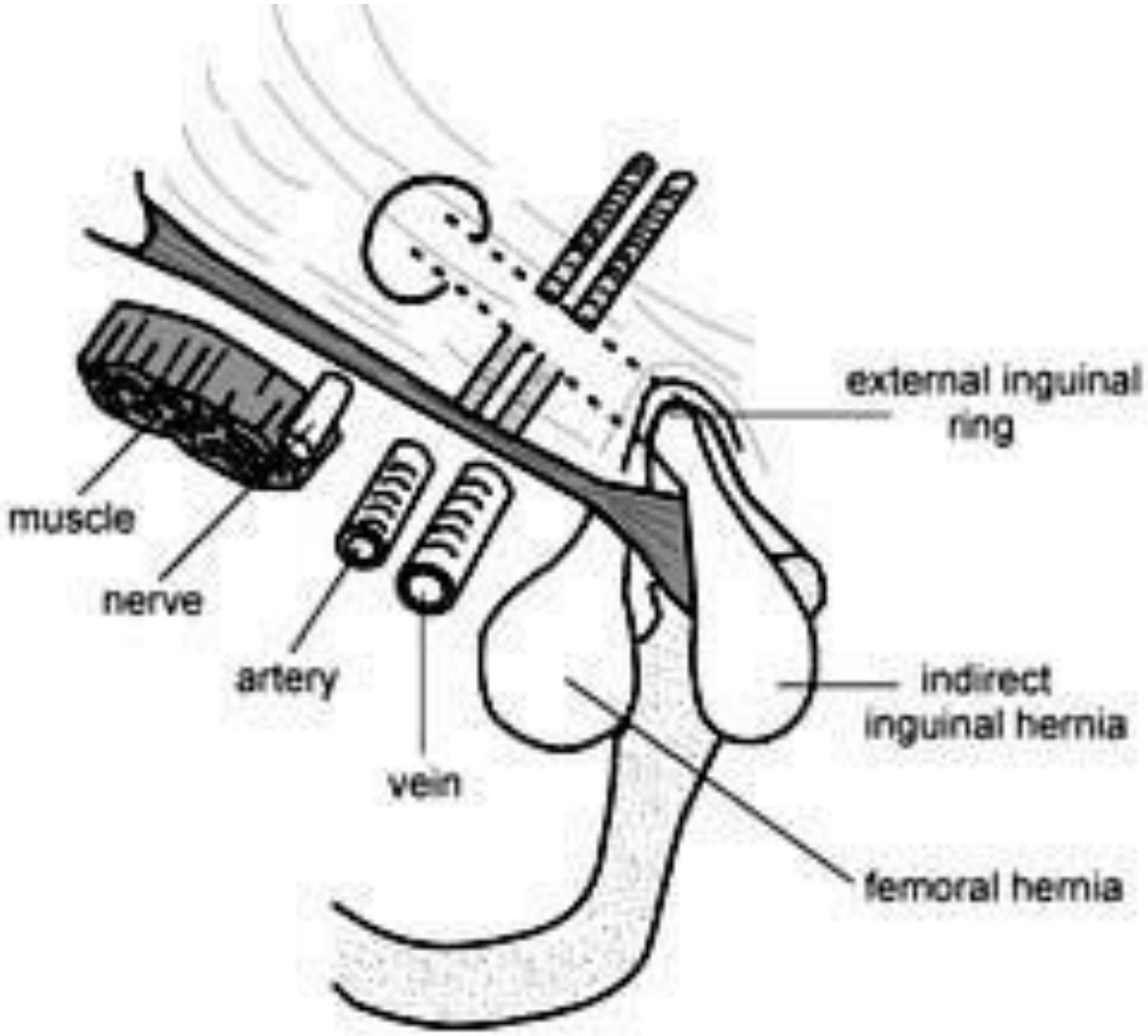
Any questions?

SIMPLY FINALS

Hernias

- Protrusion of part or all of a structure through another structure and ending up in the wrong anatomical location





GROIN AND HERNIAS

SIMPLY FINALS

Examining a Hernia

- **Question 1** - Is there a hernia?
  - Start with patient standing
  - Inspect first
  - Palpate for cough impulse
- **Question 2** – Is it reducible?
  - Ask patient to reduce
  - If difficult – lie flat

Examining a Hernia

- **Question 3** – What type of hernia is it?
  - Find the pubic tubercle
  - Reduce the hernia
  - *Cough*
    - Below and lateral to PT = Femoral hernia
    - Above (and medial) to PT = Inguinal Hernia
- **Question 4 –** Inguinal only – Direct or Indirect?
  - Reduce hernia
  - Occlude Deep Ring
  - *Cough*
    - Hernia protrudes = DIRECT
    - Hernia doesn't appear = INDIRECT

SIMPLY FINALS

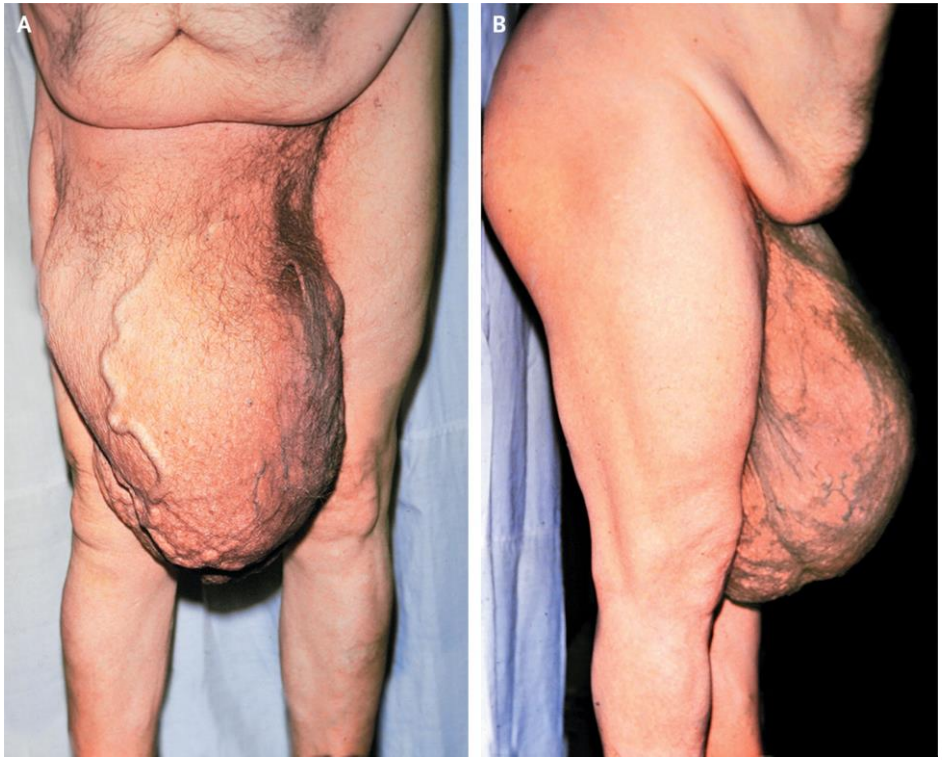
Hernias – Key Points

- **Inguinal hernia**
  - **Indirect**
    - More common
    - moderate strangulation risk
  - **Direct**
    - Less common
    - Scrotal extension
    - low strangulation risk
  - M>F
- **Femoral hernia**
  - High risk of strangulation
  - F>M

Hernias

- **Complications**
  - Incarceration
  - Obstruction
  - Strangulation

Any Questions?



SIMPLY FINALS

Case 3

- 21F

- PC
  - RIF pain for 2/7
  - No vomiting
  - Not hungry
  - Loose stool for 1/7

On Examination

- A
  - SM
- B
  - RR 18/min
  - SaO2 100%
  - Equal A/E
- C
  - Dry tongue
  - HR 90bpm
  - BP 140/80
- D
  - Alert
- E
  - T 37.5
  - Abdomen
    - Tender RIF
    - Guarding

What next?

- Additional questions?
- Possible diagnoses?
- Any investigations?

SIMPLY FINALS

Investigations

- Urine
  - **bHCG Negative**
  - leuk ++ Nit –ve
- Bloods
  - WCC 14.2
  - CRP 112
  - U+E/LFT N
  - VBG N

SIMPLY FINALS

Investigations

- Imaging
  - USS Abdo/pelvis
    - ‘Normal appearance of tubes and ovaries’
    - ‘trace of free fluid in pouch of Douglas’
    - ‘Appendix not seen’

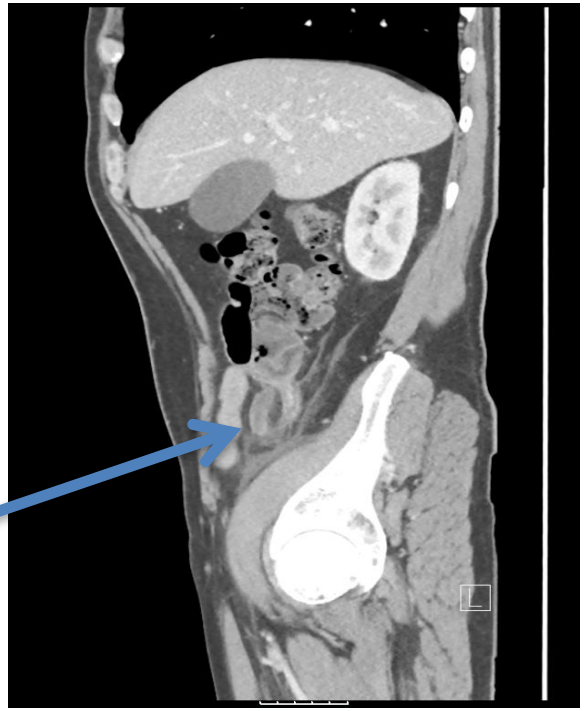
Investigations

- Imaging
  - USS Abdo/pelvis
    - ‘Normal appearance of tubes and ovaries’
    - ‘trace of free fluid in pouch of Douglas’
    - ‘Appendix not seen’

USS TO RULE OUT GYNAE PATHOLOGY

Investigations

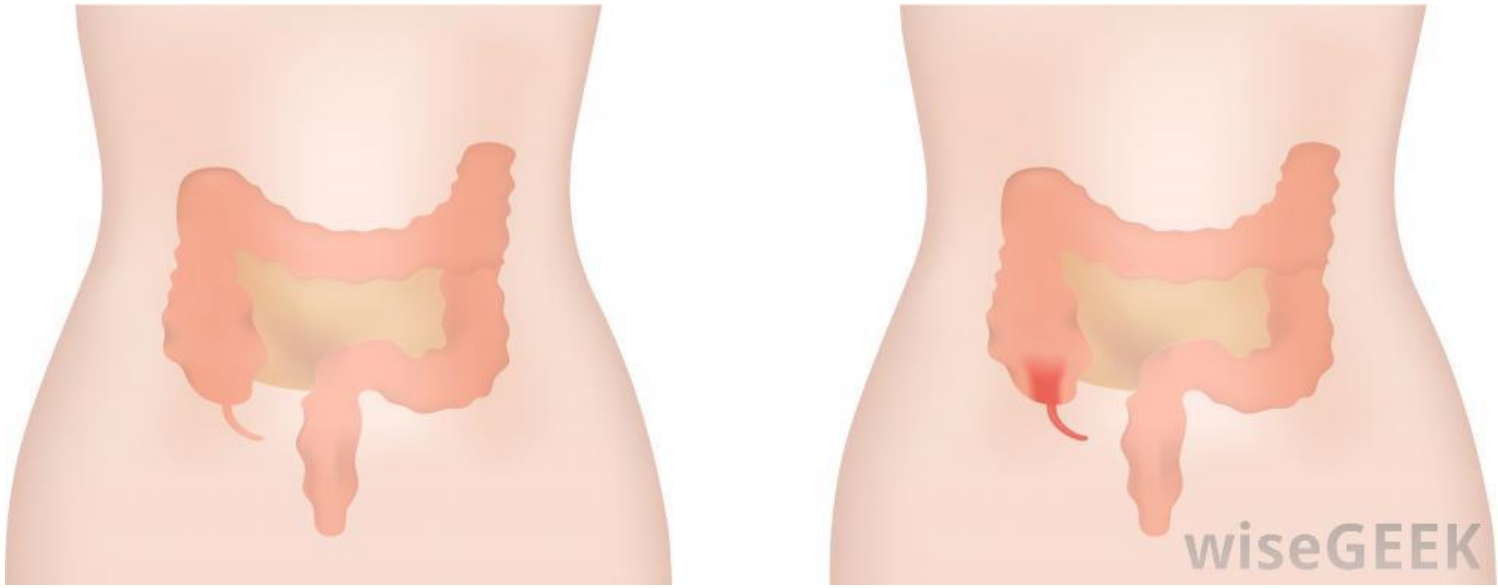
- Imaging
  - CT scan
    - Useful in older patients



Appendicitis

Healthy

Inflamed Appendix



SIMPLY FINALS

Acute Appendicitis

- Clinical diagnosis

- History
  - **Migration** of pain
  - Duration of symptoms
  - Anorexia is common
  - Urinary symptoms
  - Gynae symptoms
  - LMP

Acute Appendicitis

- Clinical diagnosis

- History
  - **Migration** of pain
  - Duration of symptom
  - Anorexia is common
  - Urinary symptoms
  - Gynae symptoms
  - LMP

Can affect any age
Perforation risk ↑ with age
Older patients – suspect cancer

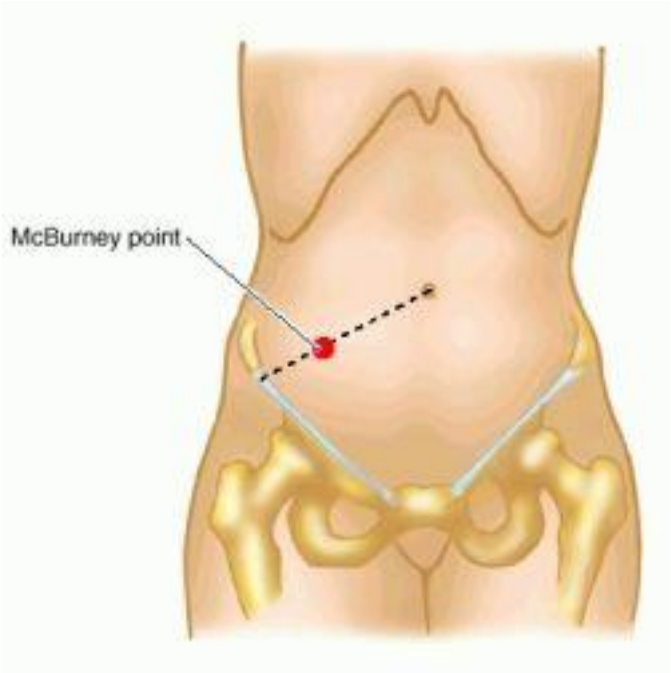
SIMPLY FINALS

Acute Appendicitis

- Examination
  - McBurney's point

Acute Appendicitis

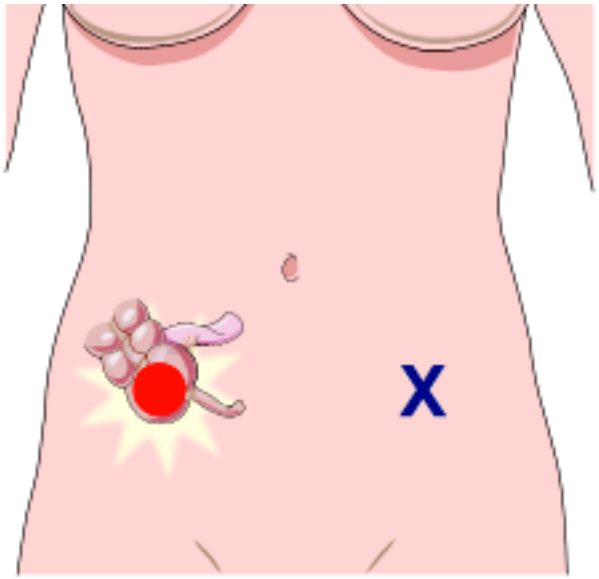
- Examination
  - McBurney's point
  - Percussion tenderness
  - Rovsing's sign



SIMPLY FINALS

Acute Appendicitis

- Examination
  - McBurney's point
  - Percussion tenderness
  - Rovsing's sign
  - Psoas sign
  - Obturator sign



SIMPLY FINALS

Acute Appendicitis

- Examination
  - Perforation
    - Signs of sepsis
    - Peritonism
      - Localised vs generalised

Acute Appendicitis - DDx

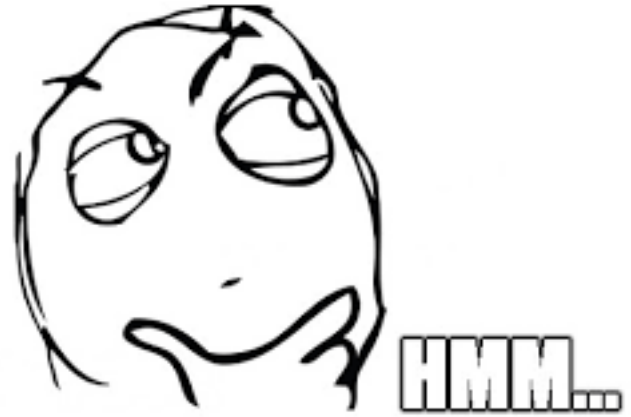
- Gynaecological
  - **ECTOPIC PREGNANCY**
  - Ovarian cyst accident
  - PID
- Genitourinary
  - **TESTICULAR TORSION**
  - Pyelonephritis
  - Ureteric colic
- Other
  - ‘Non specific abdominal pain’
  - Mesenteric adenitis
  - Meckel’s diverticulitis

SIMPLY FINALS

Case 3 – What next?

Case 3 - Management

- IV fluids
- Symptomatic relief
  - Opioids?
- Antibiotics?
- Operation?

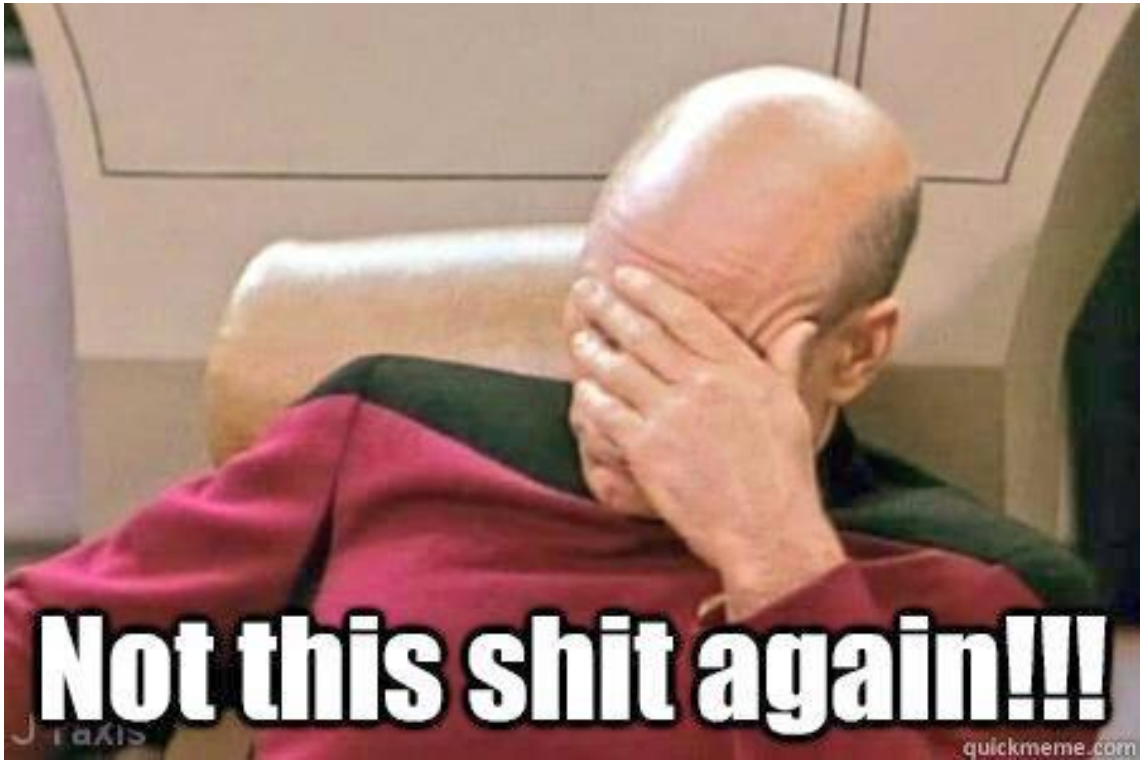


SIMPLY FINALS

Case 3 - Management

- Admit and observe if diagnosis in doubt
- Antibiotics if…
  - Patient is septic
  - You are booking for theatre
- Operation – when and how?
  - Laparoscopic vs open

Case 4 – More abdominal pain



SIMPLY FINALS

Case 4 – More abdominal pain

- 38F

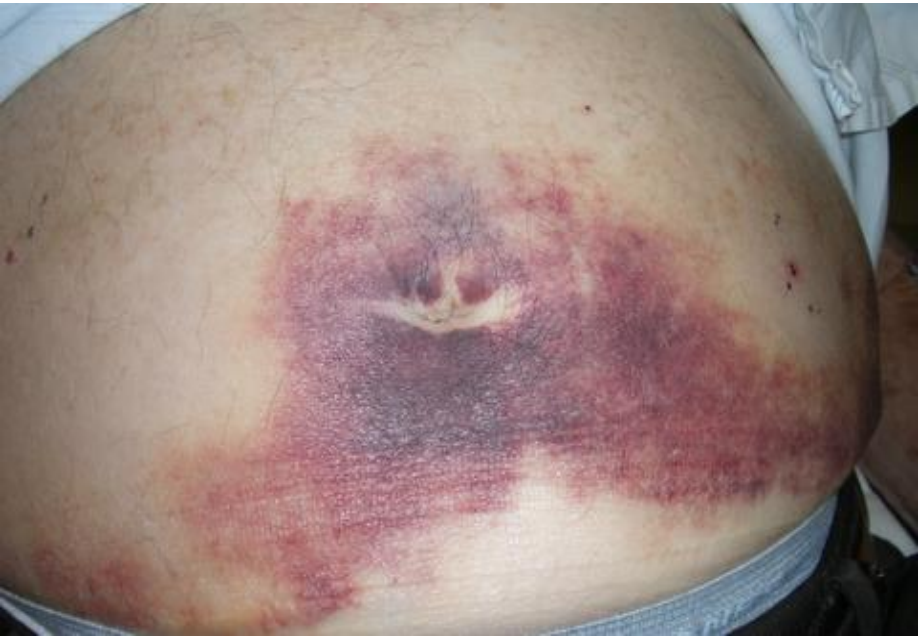
- Severe central abdo pain for 1/7
- Constant
- Radiating to back

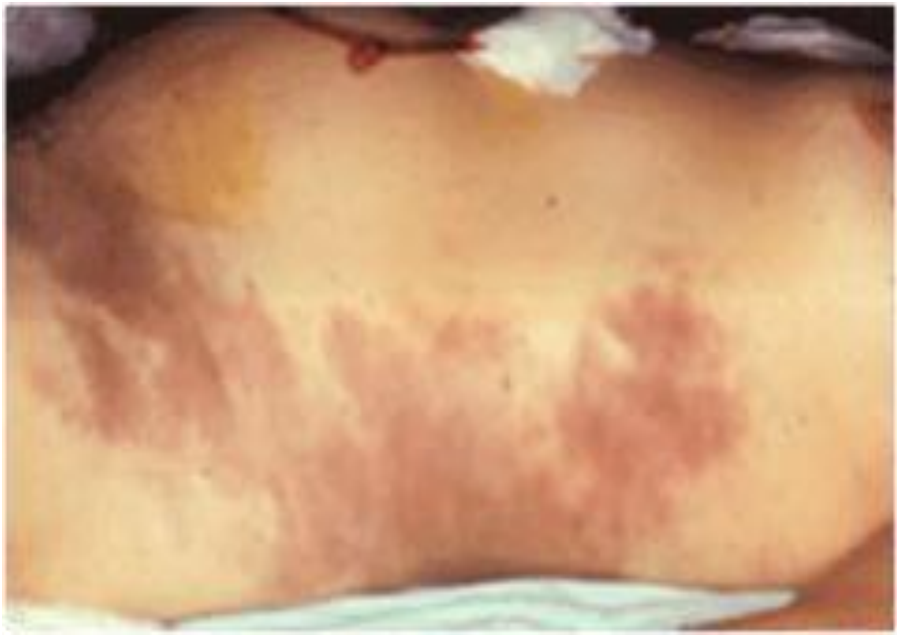
Examination

- A
  - SM
- B
  - RR 24/min
  - SaO2 93% (RA)
  - Chest clear
- C
  - Dehydrated
  - HR 120bpm
  - BP 110/50
- D
  - Alert
- E
  - T 37.6
  - Abdomen
    - Sitting forward
    - Tender ++ periumbilical, epigastrium & RUQ

SIMPLY FINALS

On closer inspection…

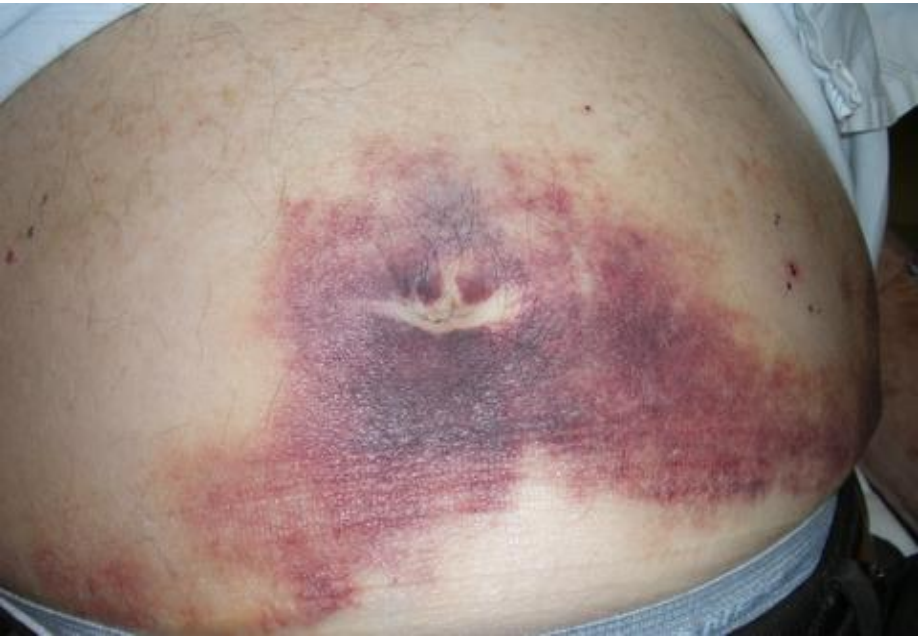




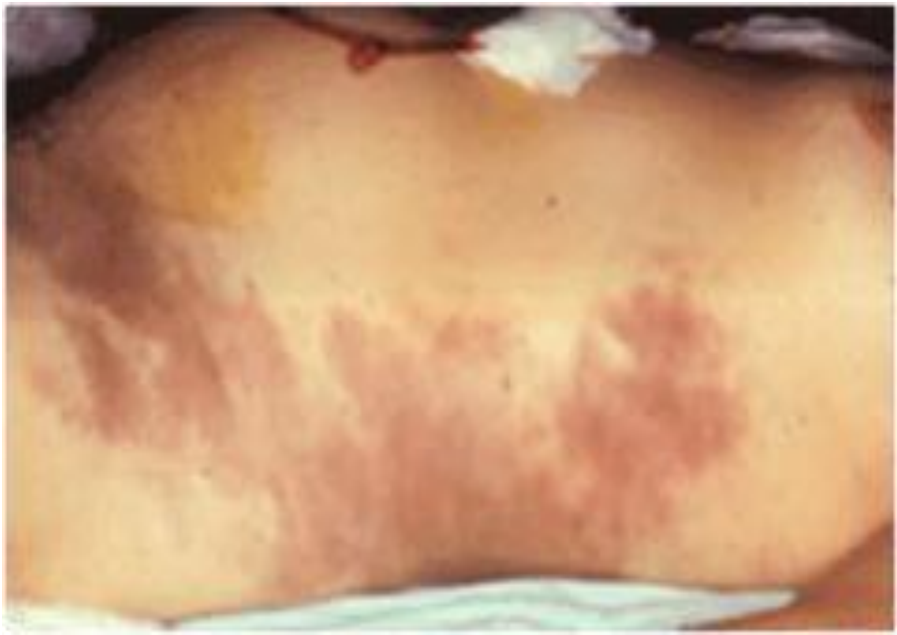
SIMPLY FINALS

On closer inspection…

Cullen's



Gray-Turner's



SIMPLY FINALS

Investigations

Investigations

- FBC
- U+E
- LFT
- **Amylase**
- G+S
- eCXR/AXR
- **Bedside USS**
- ABG

Investigations

- FBC
- U+E
- LFT
- Amylase
- G+S
- eCXR/AXR
- Bedside USS
- ABG

	ABG
pH (7.35-7.45)	7.298
pCO2 (4.5-6kPa)	4.07
pO2 (>13kPa)	9.31
Base Excess (-2– 2)	-10.7
HCO3 (22-26mmol/L)	16.0
Lactate (0-1)	5.4
Na (135-145)	142
K (3.5-5.0)	4.6

Investigations

- WCC 21.0
- Hb 9.6
- Creat 240
- Ur 18
- Bili 46
- ALP 420
- ALT 300
- Amylase 2300

- Bedside USS
  - No AAA
- eCXR
  - No pneumoperitoneum

Investigations

- Imaging
  - Rule out other causes
  - USS Abdomen
    - ?Gallstones
    - ?intra/extrahepatic duct dilatation
  - CT abdomen
    - Usually not needed initially…
    - …unless diagnosis still in doubt
    - After 5-7 days if still unwell
      - To assess for complications

Acute Pancreatitis - Aetiology

- **Gallstones**
- **Ethanol**
- **T**rauma
- **S**teroids
- **M**umps
- **A**utoimmune
- **S**corpion…
- **H**yperlipidaemia
- **E**RCP
- **D**rugs

Acute Pancreatitis

- **Gallstones**
- **Ethanol**
- **T**rauma
- **S**teroids
- **M**umps
- **A**utoimmune
- **S**corpion…
- **H**yperlipidaemia
- **E**RCP
- **D**rugs

Alcohol/drug History

USS Abdomen

Clever tests
(IgG4, lipid profile etc)

Acute Pancreatitis - Assessment

Table 1 - Severity categories following the Revision of Atlanta Classification[3].

Acute pancreatitis severity	Organ failure and local or systemic complications
Mild acute pancreatitis	- No organ failure - No local or systemic complications
Moderately severe acute pancreatitis	- Transient organ failure (resolves in 48 hours) Local or systemic complications without persistent organ failure
Severe acute pancreatitis	- Persistent organ failure (single or multiple)

Acute Pancreatitis - Assessment

- Organ dysfunction
  - Lungs
    - CXR
    - ABG
  - Kidneys
    - Urea and creatinine
    - Urine output – put in a catheter
  - Global perfusion
    - Serial blood gases

Acute Pancreatitis - Assessment

- Glasgow score

Acute Pancreatitis - Assessment

- Glasgow score
  - PANCREAS mnemonic

Glasgow Imrie Criteria for Acute Pancreatitis	
3 or more of the below in first 48hrs indicates a severe attack	
PaO2	<8KPa
Age	>55 years
Neutrophils	>15x10^9/L
Calcium	<2mmol/L
Renal Function	Urea >16mmol/L
Enzymes	LDH >600iU/L / AST >2000iU/L
Albumin	<32g/L
Sugar	Glucose >10mmol/L

Acute Pancreatitis - Assessment

- Glasgow score
- Ranson
- APACHE II
- Organ dysfunction
- CT criteria

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Acute Pancreatitis - Assessment

- Glasgow score
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Sugar	Glucose >10mmol/L

ALL PATIENTS NEED SCORING
IF SEVERE – EARLY CRITICAL CARE INVOLVEMENT

SIMPLY FINALS

Acute Pancreatitis – Immediate Management

- Big IV access
- **Fluid, fluid, fluid**
- Opiate analgesia
- Anti-emetics
- Urinary catheter and monitoring
- Antibiotics?

Acute Pancreatitis – Immediate Management

- Big IV access
- **Fluid, fluid, fluid**
- Opiate analgesia
- Anti-emetics
- Urinary catheter and monitoring
- Antibiotics?
  - No role in early management
  - If established pancreatic necrosis:
    - Carbapenem

Acute Pancreatitis – Ongoing Management

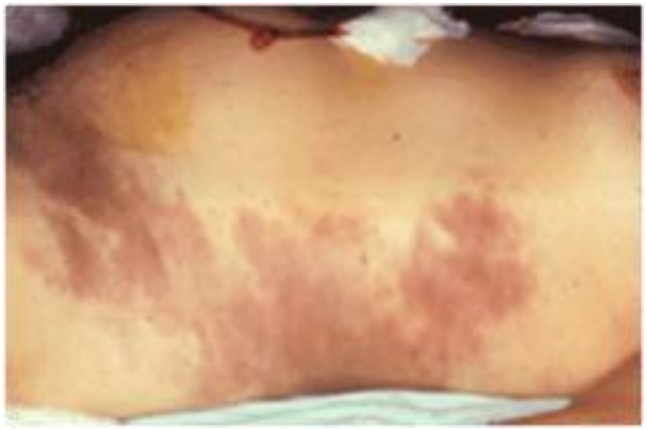
- Organ support
  - Cardiovascular
  - Respiratory
  - Renal
- Nutrition
  - Early enteral nutrition improves outcome
- Treat cause…
  - ERCP
  - Steroids
- Surgery?

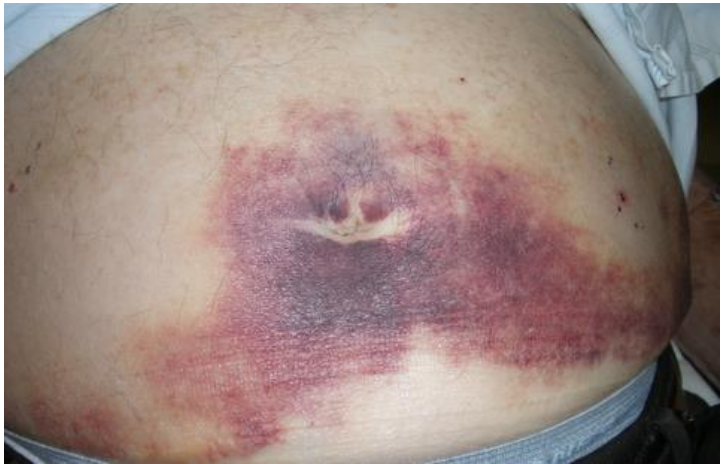
Acute Pancreatitis – Ongoing Management

- Organ support
  - Cardiovascular
  - Respiratory
  - Renal
- Nutrition
  - Early enteral nutrition improves outcome
- Treat cause…
  - ERCP
  - Steroids
- Surgery?
  - Necrosectomy
  - Cholecystectomy

Acute Pancreatitis - Complications

- Early
  - Hypovolaemia/SIRS → AKI
  - ARDS
  - MODS
  - Haemorrhagic pancreatitis

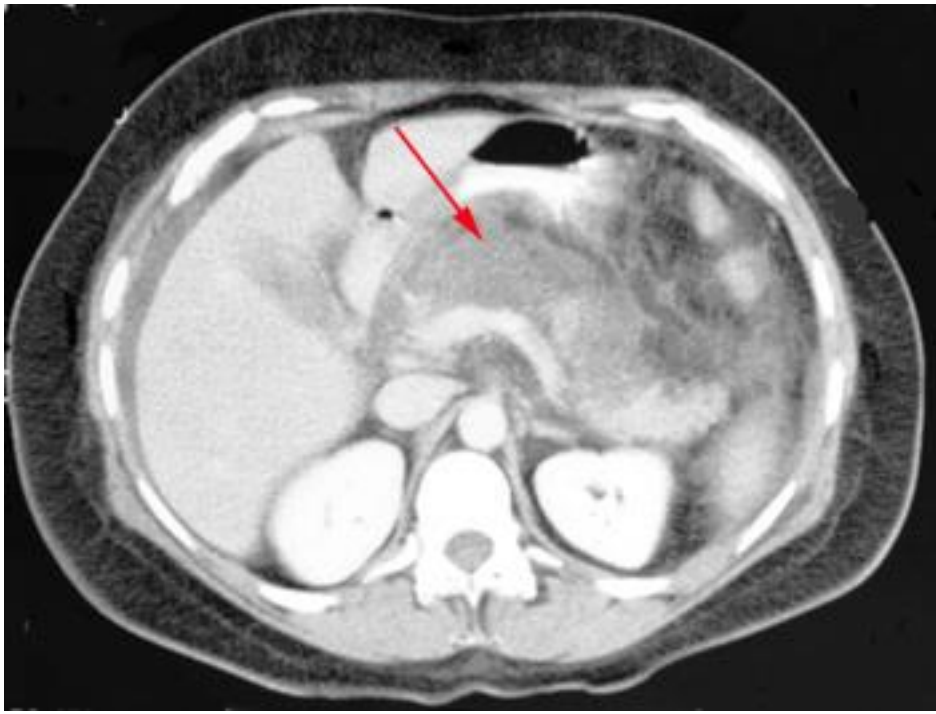




SIMPLY FINALS

Acute Pancreatitis - Complications

- Late
  - Pancreatic necrosis
    - Second week
    - Infected necrosis – high mortality

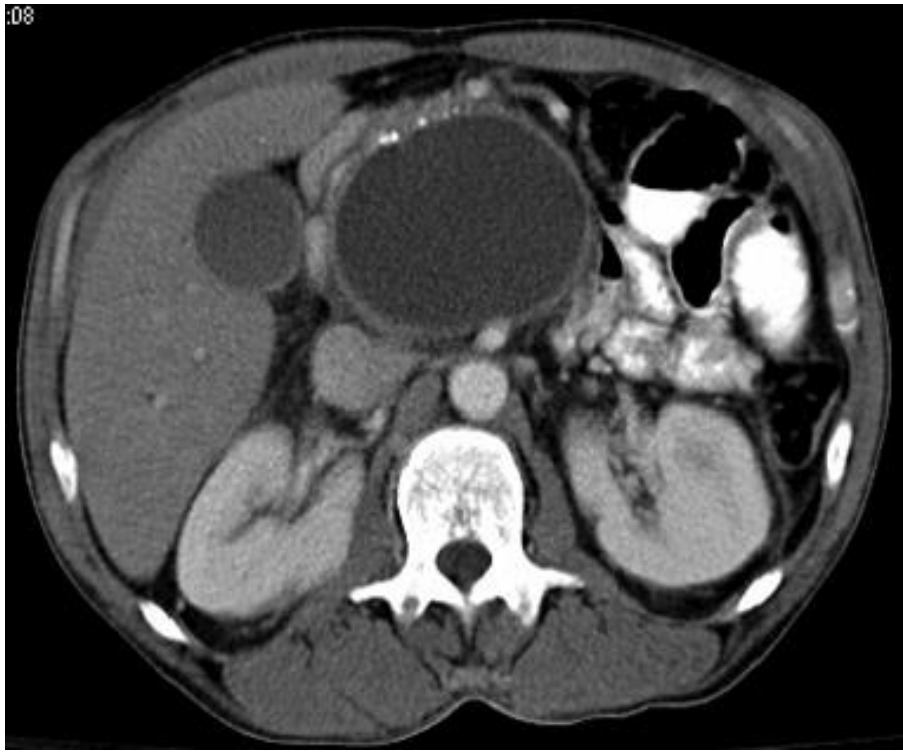


Acute Pancreatitis - Complications

- Late
  - Pancreatic necrosis
  - Splenic vein thrombosis

Acute Pancreatitis - Complications

- Late
  - Pancreatic necrosis
  - Splenic vein thrombosis
  - Pseudocyst



SIMPLY FINALS

Case 5 – I’ve gone yellow doc!

SIMPLY FINALS

Case 5 – I've gone yellow doc!

- 45M
- 'big boned'
- Partner noticed yellowing of eyes
- c/o intermittent abdominal pain for 2 months
- Worse for last 3 days

SIMPLY FINALS

Further Questions?

Further Questions?

- Symptoms of gallstones
  - Post-prandial RUQ pain
- Symptoms of obstructive jaundice
  - Dark urine
  - Pale stools
  - Pruritus
- Weight loss/anorexia
  - Malignancy
- **Fever/rigors**
- Drug history
- Alcohol

Case 5 – I've gone yellow doc!

- c/o intermittent abdominal pain for 2 months
- Worse for last 3 days
- Feels unwell
  - Hot and cold
  - 'shivering'
- No recent weight loss
- Dark urine

SIMPLY FINALS

Examination

- A
  - SM
- B
  - RR 18/min
  - SaO2 99% (RA)
  - Chest clear
- C
  - CRT 4 secs
  - HR 102bpm
  - BP 100/50
- D
  - Alert

- E
  - T 38.4
  - Jaundiced
  - Abdomen
    - Tender RUQ
    - No mass
    - **Murphy's sign?**

SIMPLY FINALS

Investigations

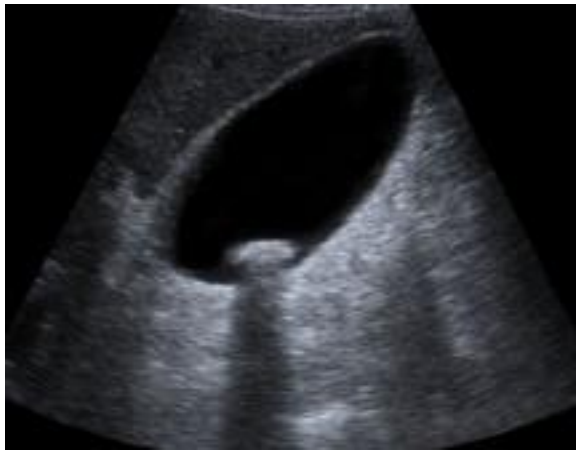
- FBC
  - WCC 19.1
  - Plts 130
- U+E
  - Creat 170
  - Ur 14
  - Na/K Normal
- LFTs
  - Bili 150
  - ALP 832
  - ALT 304
  - Alb 34
  - Amy 80
- Clotting
  - INR 1.3

Investigations

- FBC
  - WCC 19.1
  - Plts 130
- U+E
  - Creat 170
  - Ur 14
  - Na/K Normal
- LFTs
  - Bili 150
  - ALP 832
  - ALT 304
  - Alb 34
  - Amy 80
- Clotting
  - INR 1.3

Investigations

- **USS**
  - 1st line modality of choice
  - Gallstones?
  - Dilated ducts
    - CBD >6mm
  - Signs of cholecystitis
    - Thick walled GB
    - Sonographic Murphy's sign
    - Pericholecystic fluid

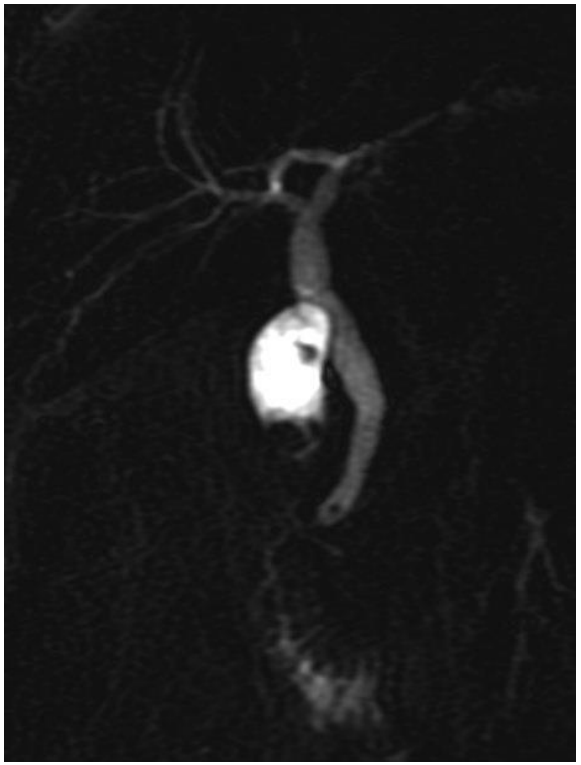


SIMPLY FINALS

Investigations

- **MRCP**
  - 2nd line
  - More sensitive for CBD stones
  - eg dilated ducts but cause unclear

- **ERCP**
  - Diagnostic +/- therapeutic
  - Decompression
    - Stent/sphincterotomy
  - Samples for cytology
  - Complications
    - Pancreatitis
    - Perforation
    - Cholangitis



SIMPLY FINALS

Jaundice

- Pre-hepatic
  - Haemolysis
  - Drugs
  - Gilbert's
- Hepatic
  - Cirrhosis
  - Hepatitis
  - Drugs
  - Budd-Chiari

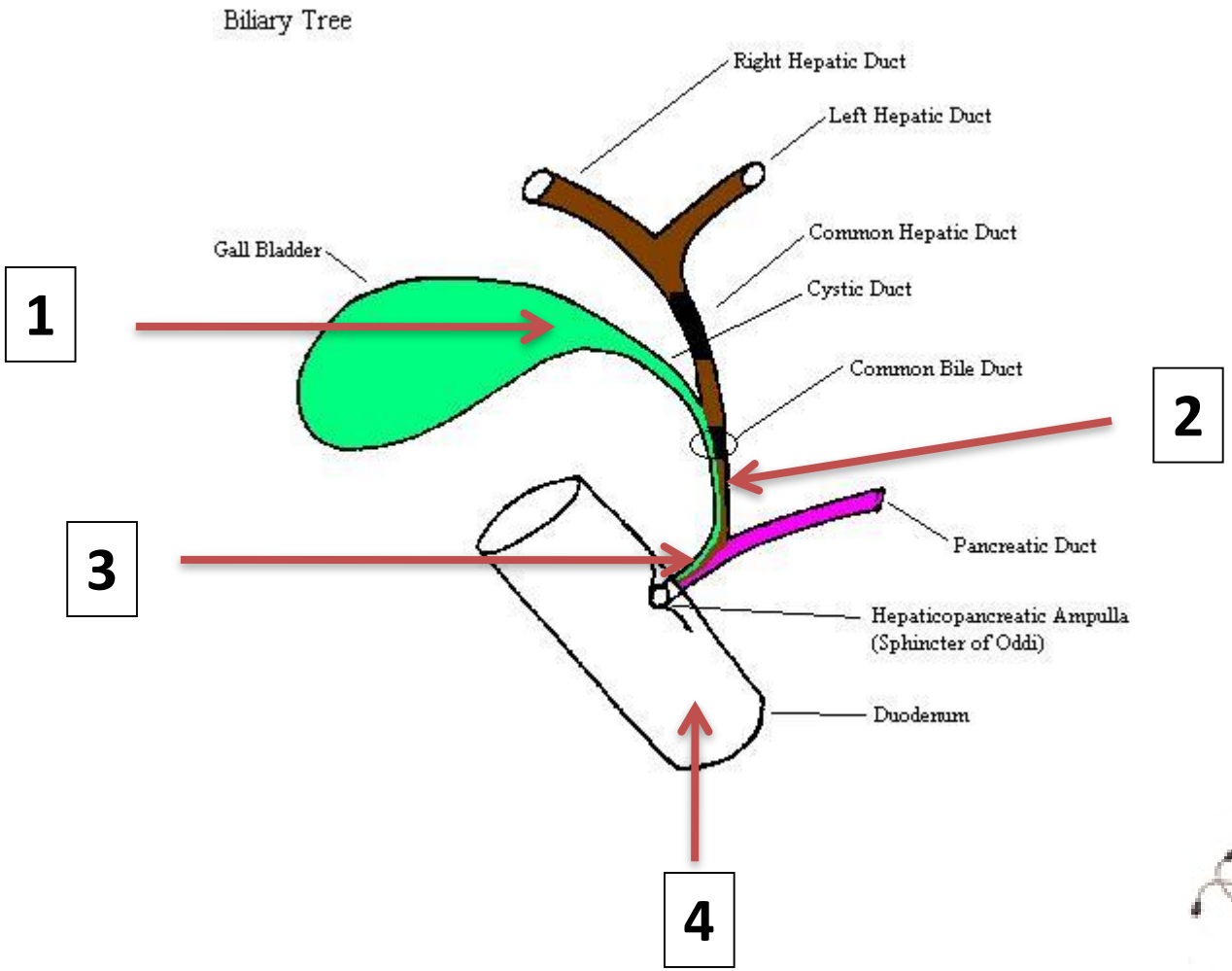
- **OBSTRUCTIVE**
  - **In the lumen**
    - Gallstones
  - **In the wall**
    - Cholangiocarcinoma
    - PSC
  - **External compression**
    - Pancreatic Ca
    - Lymph nodes

Gallstone Disease

- ‘Fat, Female, Fertile, Forty’
- Can affect any age

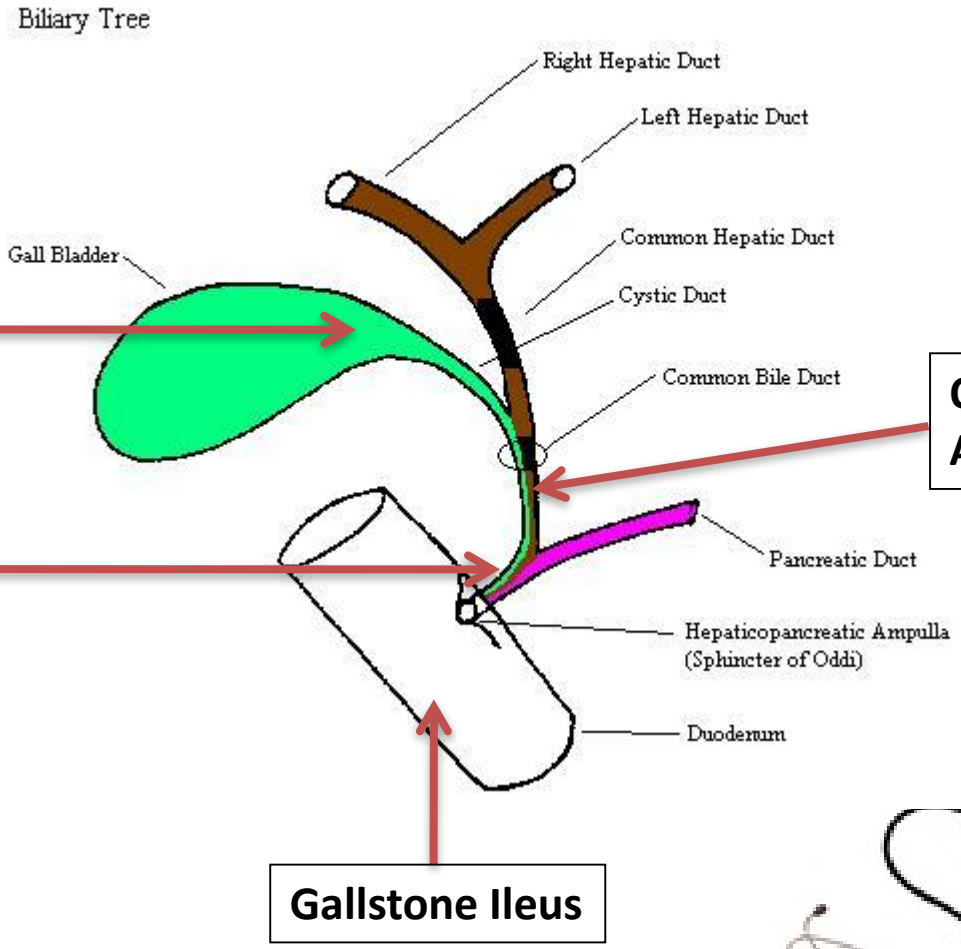
- Cholesterol (15%)
- Pigment (5%)
- Mixed (80%)

Gallstone Disease



SIMPLY FINALS

Gallstone Disease



Acute cholecystitis
Biliary colic
Empyema

Pancreatitis
Obstructive Jaundice
Ascending Cholangitis

Obstructive jaundice
Ascending cholangitis

Gallstone Ileus

SIMPLY FINALS

Stones in the Gallbladder

- **Biliary colic**
  - Impaction of stone at the neck of the gallbladder
  - Mechanical – contraction causes pain
  - RUQ pain +/- vomiting
  - May be provoked by fatty meal
  - **Rx** Analgesia, antiemetics

Stones in the Gallbladder

- **Cholecystitis**
  - Impaction of stone
  - **Inflammatory/infective**
  - RUQ pain + fever&malaise
  - **Rx** Antibiotics
- **Empyema**
  - Occlusion of GB outlet
    ➔proliferation of organisms
    ➔abscess formation
  - Distended GB on imaging + Septic – think empyema
  - **Rx** Abx **+** Drainage (Cholecystostomy)

SIMPLY FINALS

Stones in the Gallbladder

- **Biliary Colic**
  - Murphy's sign –ve
  - Apyrexial
  - Inflammatory markers normal or mildly elevated
  - Analgesia
  - Antiemetics
  - Low fat diet
  - Early cholecystectomy
- **Cholecystitis**
  - **Murphy's sign +ve**
  - May be pyrexial
  - Elevated WCC/CRP
  - Analgesia
  - Antiemetics
  - Low fat diet
  - **Antibiotics**
  - Early cholecystectomy

Stones in the CBD

- **Obstructive jaundice**
  - Courvoisier's law
    - 'obstructive jaundice in the presence of a palpable GB is not due to stones'
  - Prophylactic antibitoics
  - Early ERCP and sphincterotomy/stent
- **Cholangitis**
  - Charcot's triad
    - RUQ pain
    - Jaundice
    - Rigors
  - Often very unwell
  - IV Abx + urgent ERCP
- **Pancreatitis**

Case Revisited

- IV fluid
- Antibiotics
  - eg Tazocin 4.5g IV TDS
- USS
- ERCP
  - Biliary trawl
  - Sphincterotomy

- Interval cholecystectomy

Quick Cases

- 64M

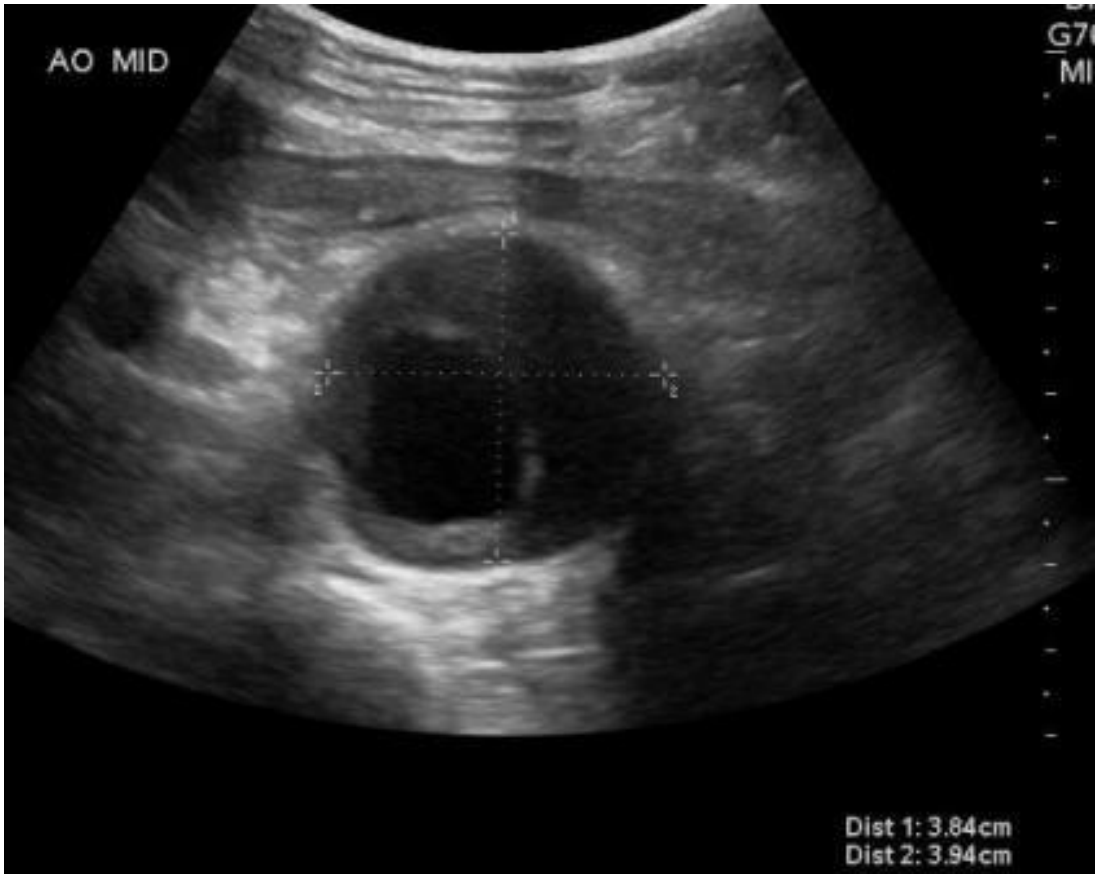
- Left loin pain for 8hrs
- Radiation to back
- Initially intermittent, now constant

- PMH
  - HTN, T2DM

Examination

- A
  - SM
- B
  - RR 28/min
  - SaO2 96%
  - Chest clear
- C
  - Cool peripheries
  - CRT 4 secs
  - HR 120bpm
  - BP 100/75
- D
  - Alert but anxious
- E
  - T 36.9
  - Abdomen
    - Mildly tender central/Lt Loin

- Differential?
- What next?



SIMPLY FINALS

Abdominal Aortic Aneurysm

- Aneurysm = dilatation >150% of normal diameter
  - AAA = diameter >3cm
- True aneurysm = all three layers of vessel wall
- False (pseudoaneurysm) = swelling contained by adventitia
- Majority Infra-renal
- Aetiology:
  - **Atherosclerosis**
    - CVS risk factors
  - Connective tissue
  - Mycotic

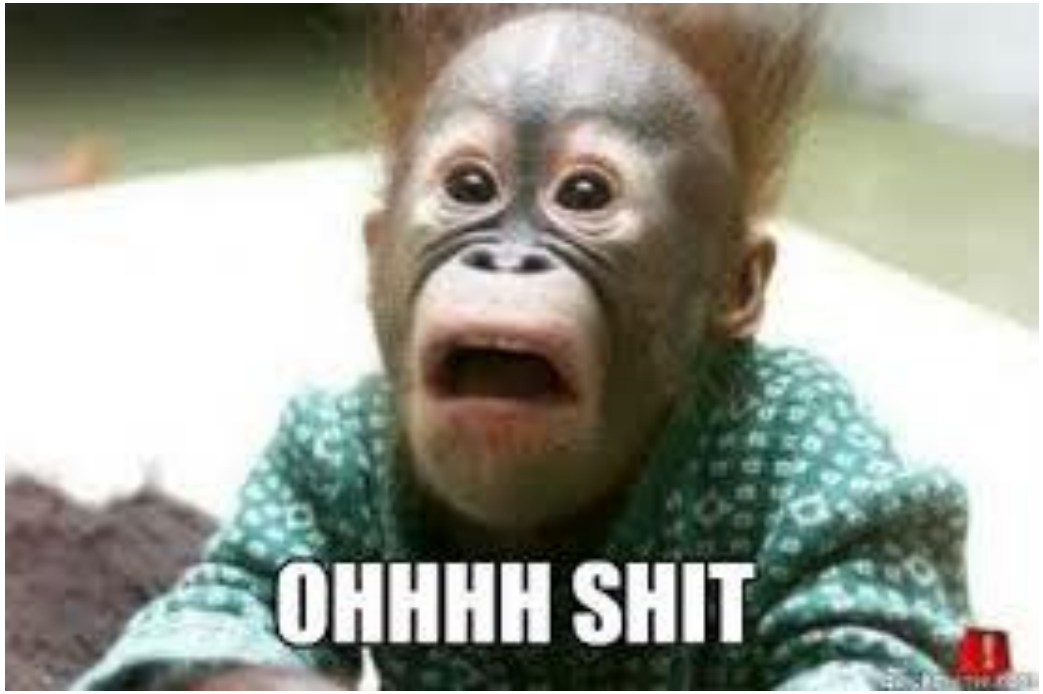
Abdominal Aortic Aneurysm

- Unruptured
  - 3% >50years
  - Often aysmptomatic
  - Abdo/back pain
  - Screening

  - **Indications for repair**
    - Diameter >5.5cm in men, >5cm in women
    - Rapid growth
    - Symptomatic

BUT need to consider individual risk

Ruptured AAA



SIMPLY FINALS

Case Revisited

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SIMPLY FINALS

Haemorrhagic Shock

Class of haemorrhagic shock				
	I	II	III	IV
Blood loss (mL)	Up to 750	750–1500	1500–2000	> 2000
Blood loss (% blood volume)	Up to 15	15–30	30–40	> 40
Pulse rate (per minute)	< 100	100–120	120–140	> 140
Blood pressure	Normal	Normal	Decreased	Decreased
Pulse pressure (mm Hg)	Normal or increased	Decreased	Decreased	Decreased
Respiratory rate (per minute)	14–20	20–30	30–40	> 35
Urine output (mL/hour)	> 30	20–30	5–15	Negligible
Central nervous system/ mental status	Slightly anxious	Mildly anxious	Anxious, confused	Confused, lethargic

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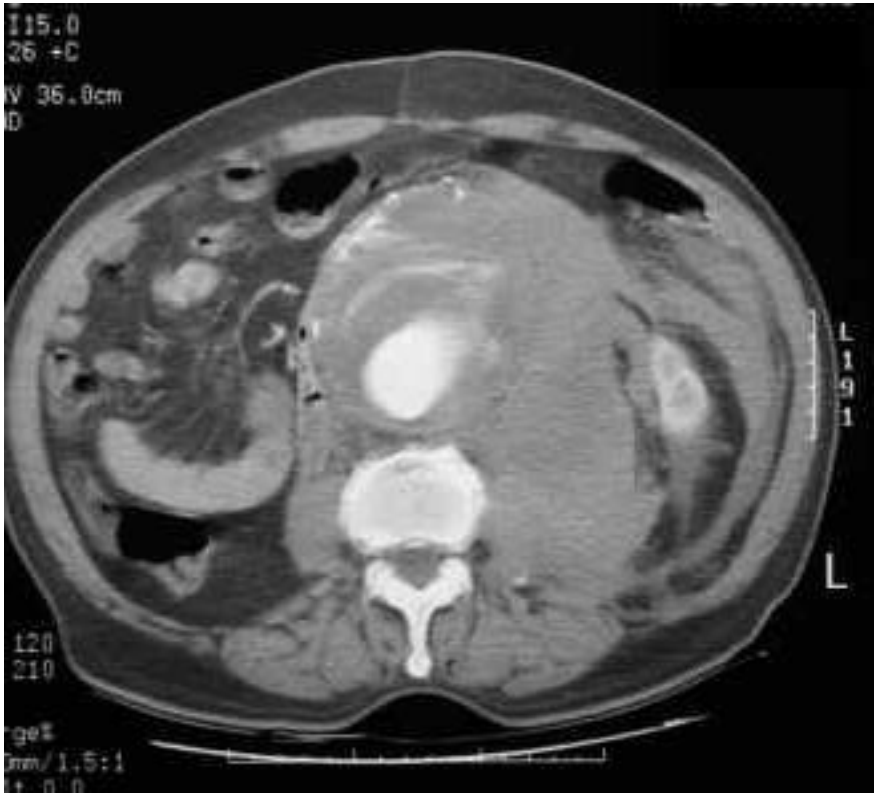
Management

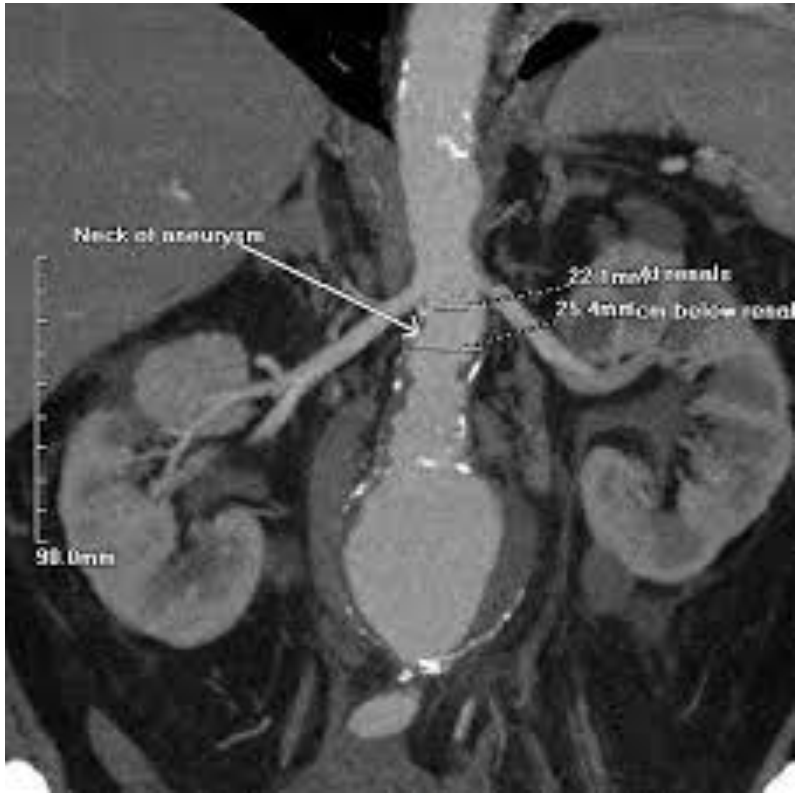
- FBC/U+E/Clotting
- XM – blood and FFP
- Big IV access x2
- Urinary catheter
- **Permissive hypotension**
  - Don't 'pop the clot'
  - Keep sBP <100mmHg

SIMPLY FINALS

Imaging?

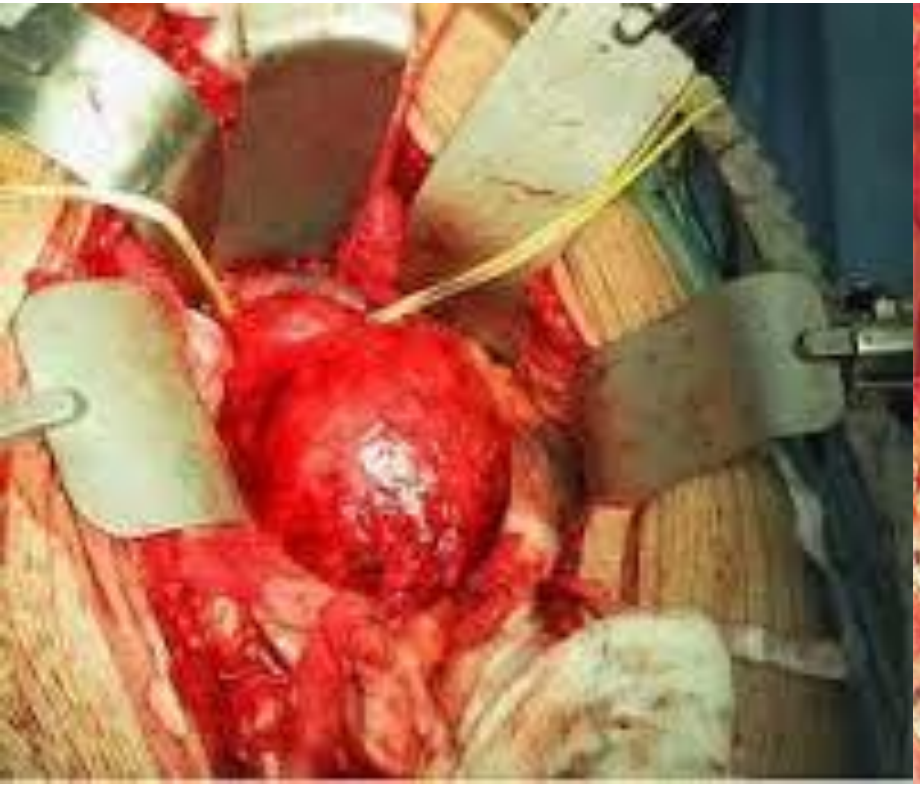
Imaging?

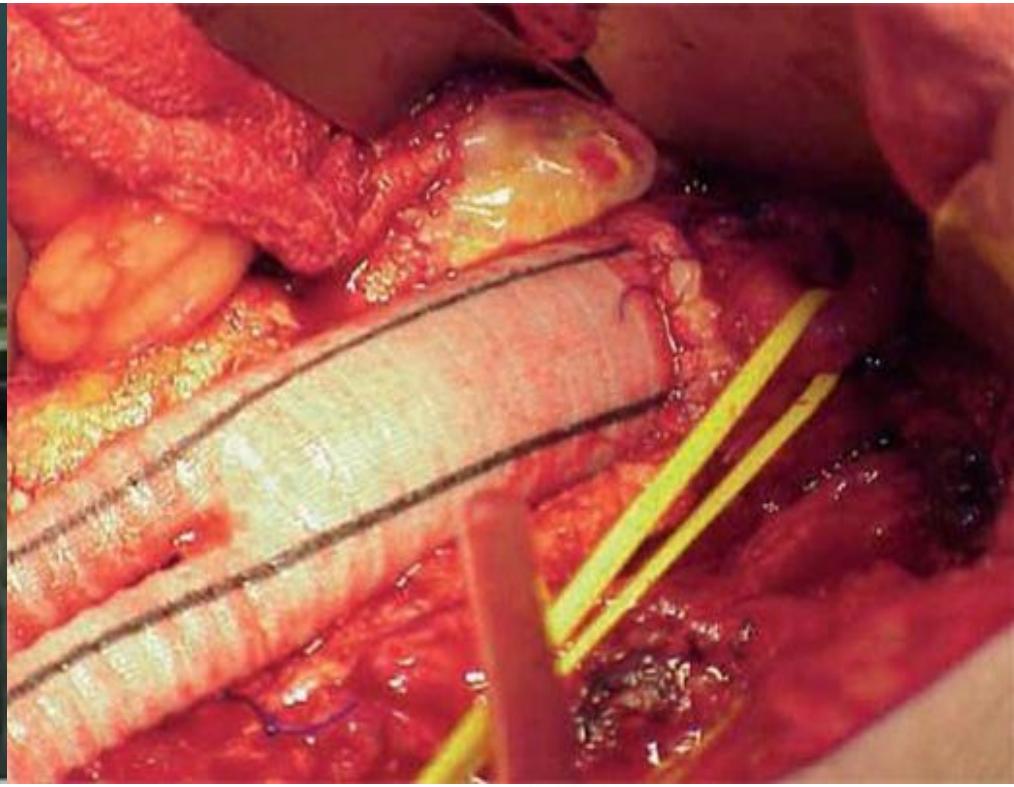




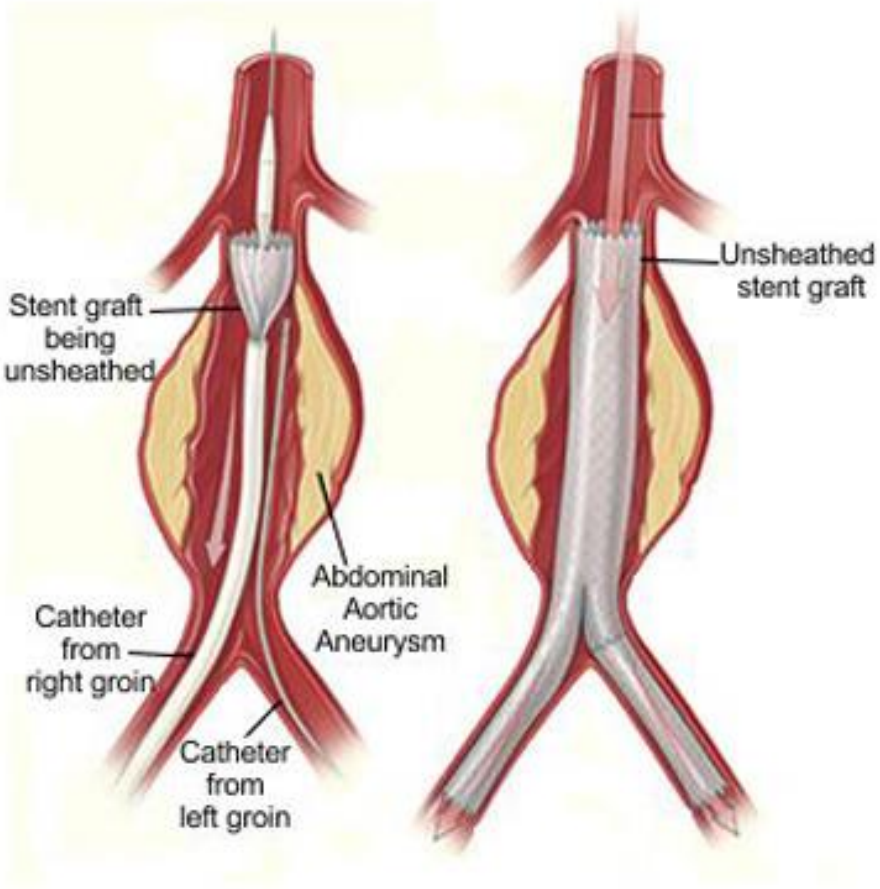
SIMPLY FINALS

Open Repair





Endovascular Repair

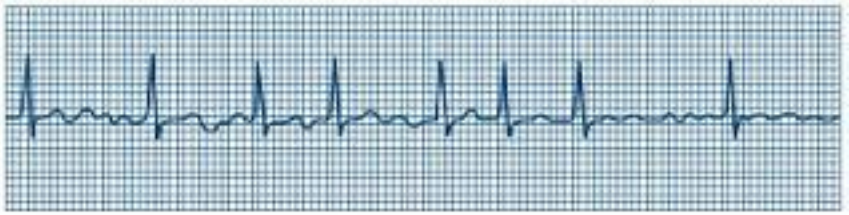


SIMPLY FINALS

80F - Resus

- Care home resident
- Central abdominal pain and vomiting

- O/E
  - HR 135bpm Irregular
  - BP 95/60
  - Abdomen
    - Generalised tenderness
    - No peritonism



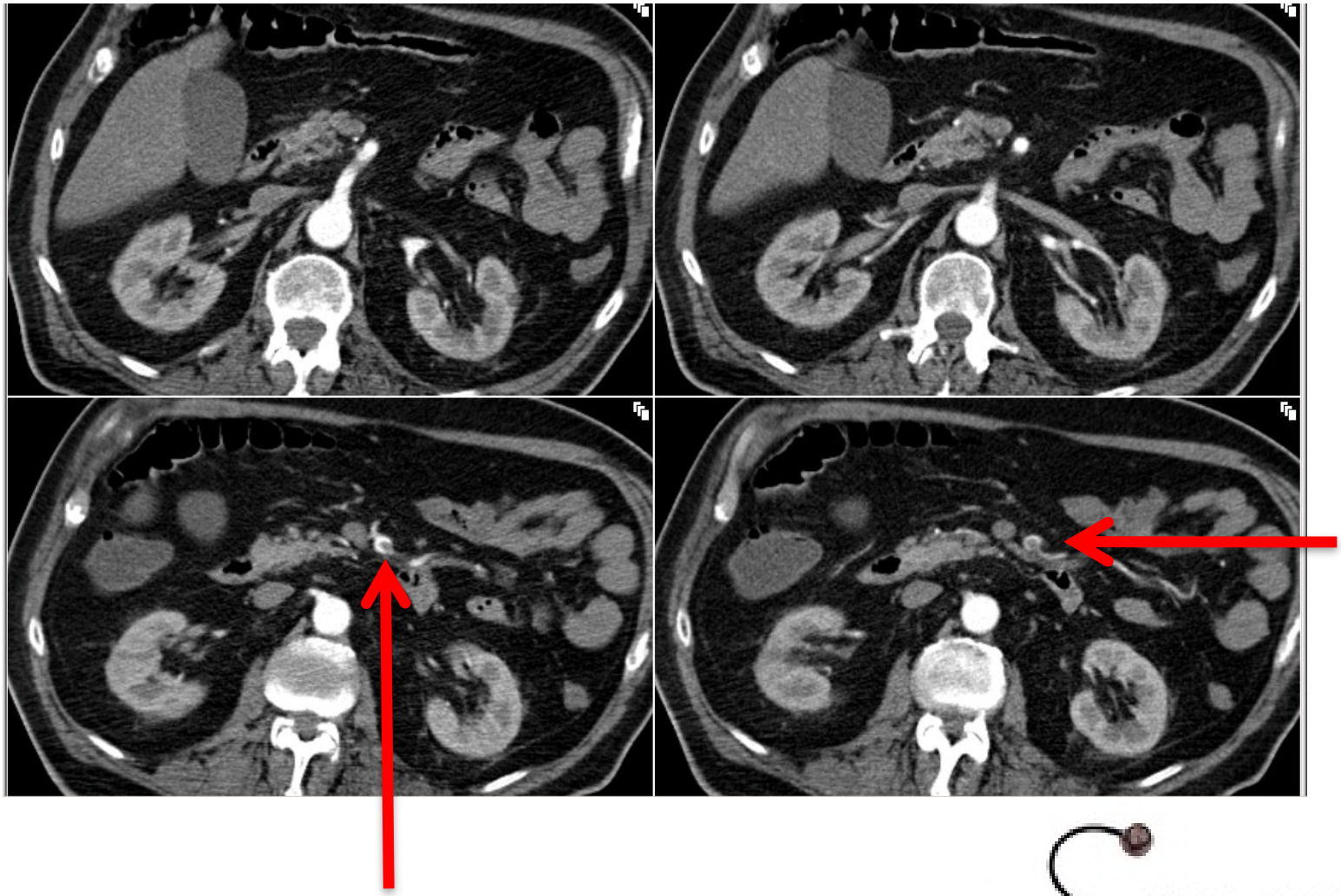
SIMPLY FINALS

Mesenteric ischaemia

- AF + abdominal pain

  = Mesenteric ischaemia until proven otherwise

- Pain out of proportion to clinical signs
- Elevated serum lactate
- CT mesenteric angiography is investigation of choice
  - If stable…



SIMPLY FINALS

Mesenteric ischaemia

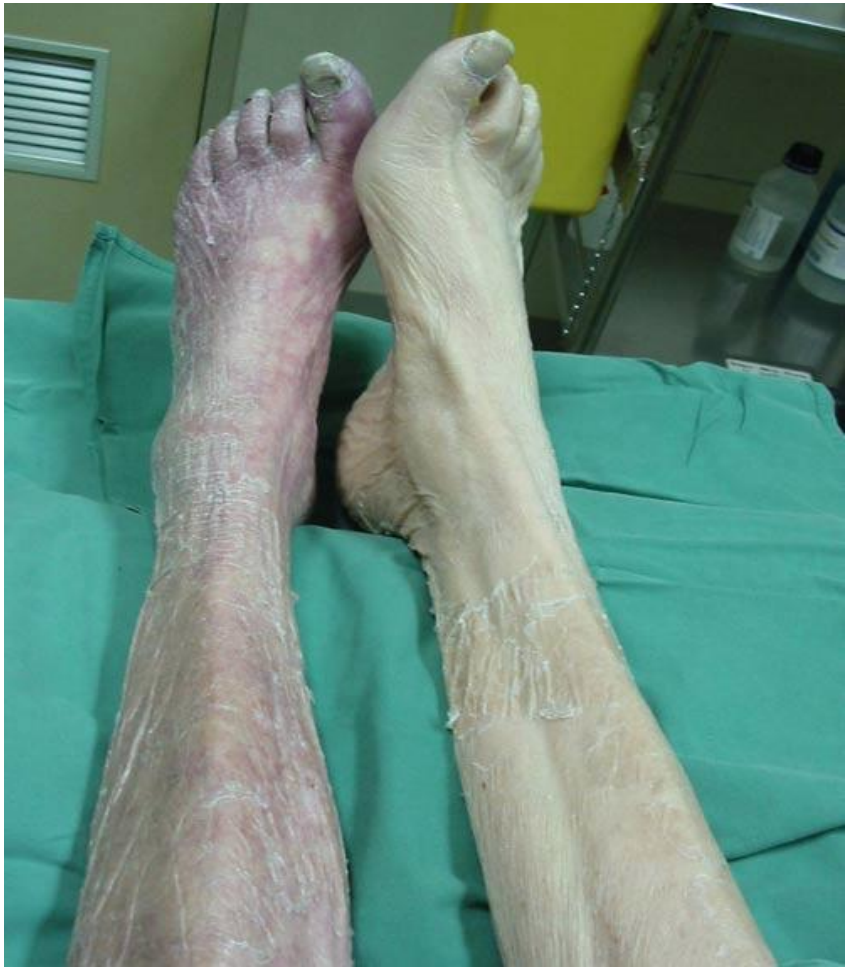
- **Management**
  - Oxygen
  - IV Fluids
  - Antibiotics
  - Consider anticoagulation – IV heparin
- **Embolus vs thrombus**
  - Onset
  - Preceding symptoms
    - Mesenteric angina
  - Pattern of ischaemia
- **Imaging findings**
  - Non specific
  - Small bowel dilatation
  - Intramural gas
- **Urgent surgery**
  - Resection
  - (Revascularisation)

More cases

- 86F

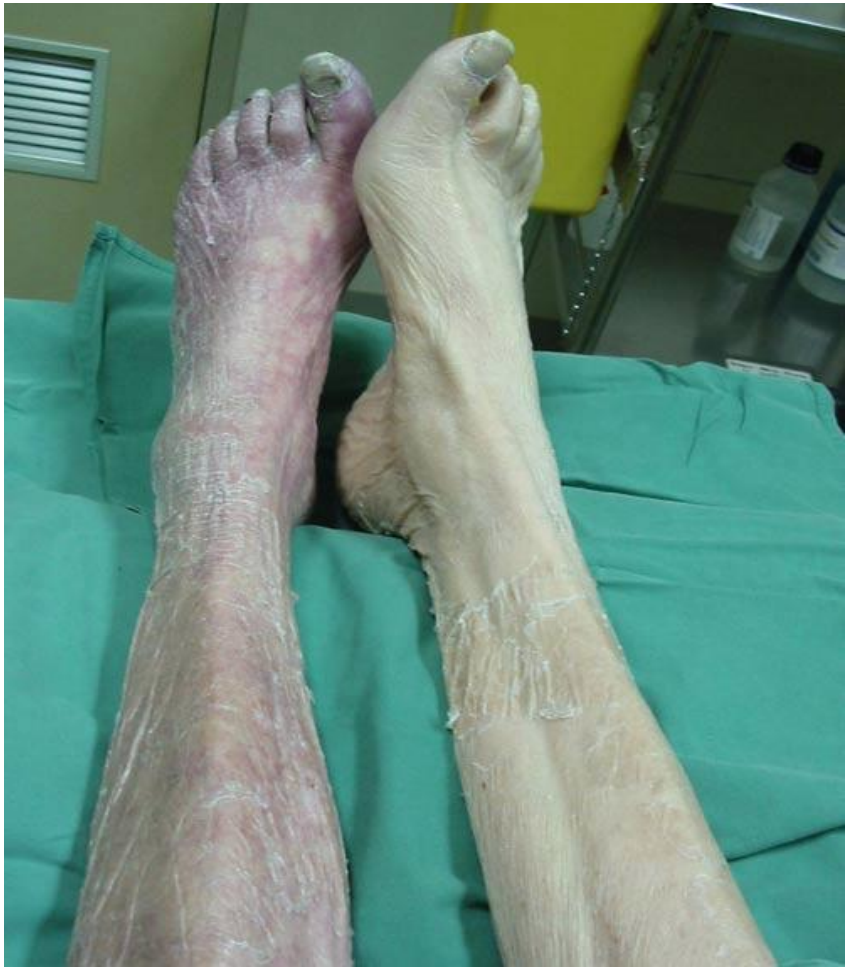
- Painful right leg
- Onset of pain four hours ago

- PMH
  - HTN, Previous MI, AF



SIMPLY
FINALS

Acute Limb Ischaemia



- P
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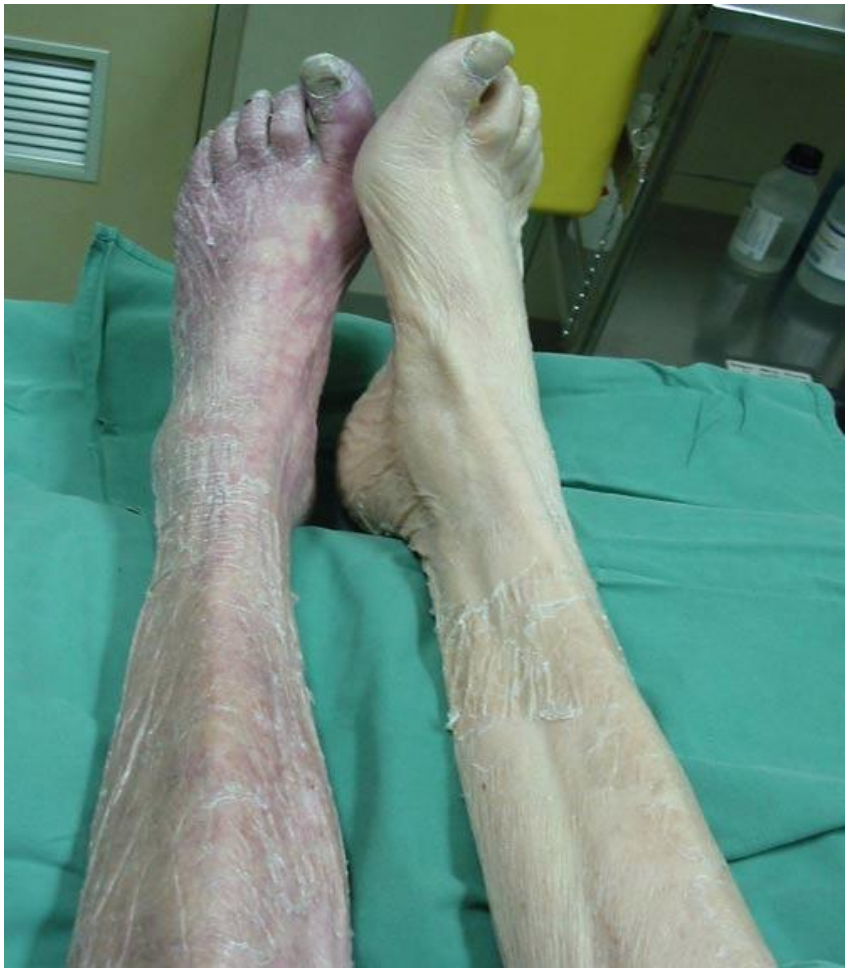
SIMPLY FINALS

Acute Limb Ischaemia



- Pain
- Pallor
- Pulselessness
- Paralysis
- Paraesthesia
- Perishing cold

SIMPLY FINALS

Acute Limb Ischaemia

- **Embolus**
  - Sudden onset
  - No preceding symptoms
  - Contralateral pulses present
  - Source
    - Cardiac
      - Post Mi
      - AF
    - Aneurysm
- **Thrombus**
  - May be more gradual onset
  - Preceding symptoms
    - Claudication
    - Rest pain
  - Absent contralateral pulses

Acute Limb Ischaemia

- Oxygen
- IV fluid
- IV heparin
- Analgesia
- Investigate
  - But don't delay!
  - Duplex USS
  - CT angiogram
  - Source of embolus

- Revascularisation
  - **<6hrs**
  - Embolus - Embolectomy
  - Thrombus - Bypass/endarterectomy

SIMPLY FINALS

SIMPLY
FINALS