



GI Emergencies

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Objectives



COMMON GI
PRESENTATIONS



EXAMINATION
FINDINGS



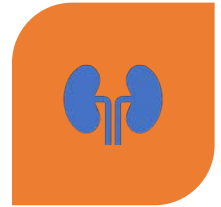
INVESTIGATIONS (WHY
ARE WE DOING THEM)



PHARMACOLOGY



RADIOLOGY




ANATOMY



CLINICAL TOOLS

Setting the scene

- 7pm
- Just finished handover
- A waiting room full of patients
- You are the F2 allocated to Majors


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Patient 1: Alexia

21 year old Female





Presenting Complaint

- Right lower abdominal Pain
- Sharp in nature
- 8/10
- Started at 12pm but then suddenly got worse in the last hour
- Has taken Paracetamol but not helping
- Nausea and vomiting

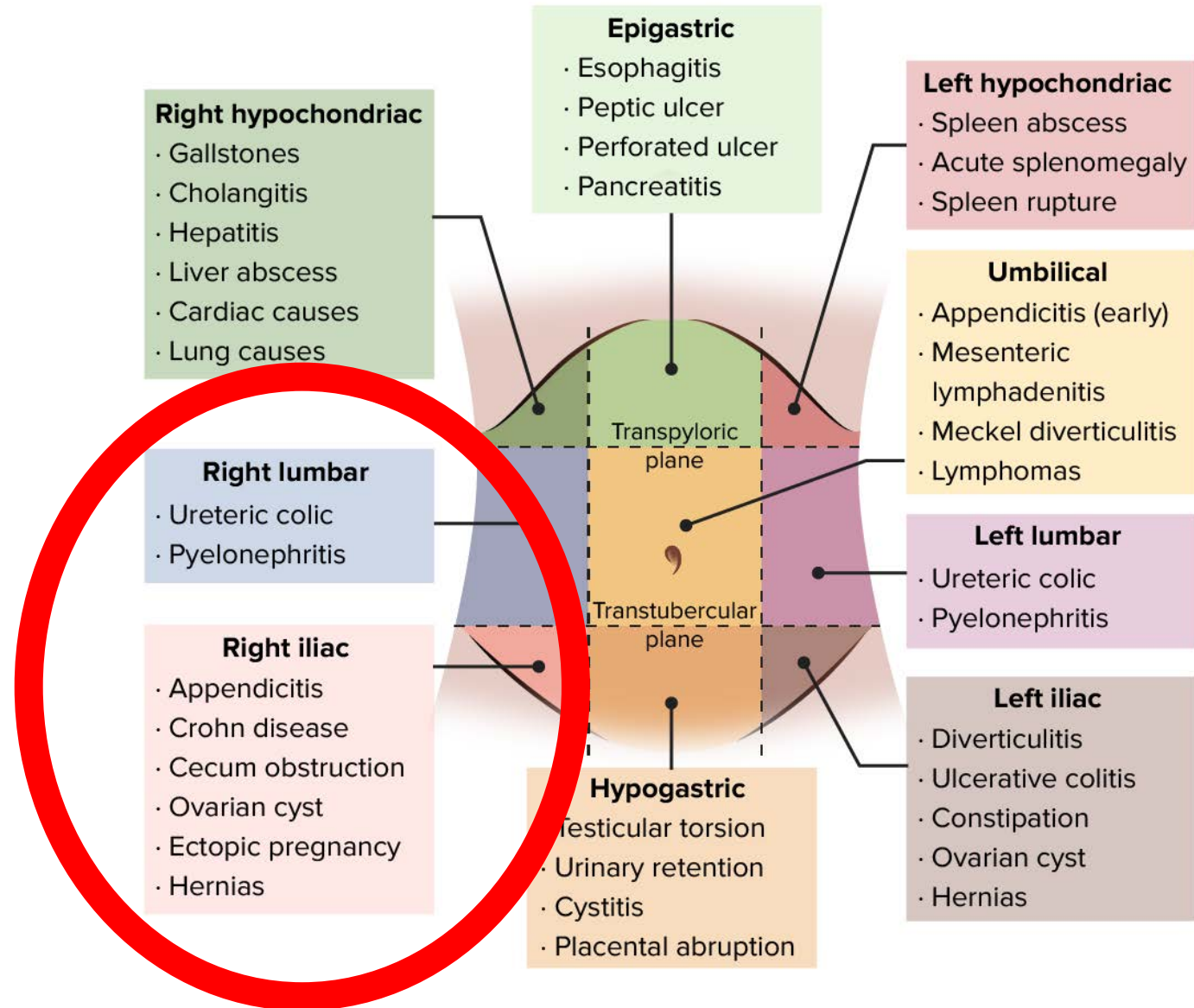


Question

What other questions would you like to ask?

Given the location of the pain which set of differentials must be considered?

Differentials



Alexia - Examination

Obs

RR – 22

SpO2 – 98% on RA

HR – 110

BP – 98/60

Temp – 38.0

Examination

HS

S1 + S2 + 0

Chest

Clear

Abdo

Pain in the RIF on superficial palpation
Pain is also felt in the RIF when the LIF is
palpated

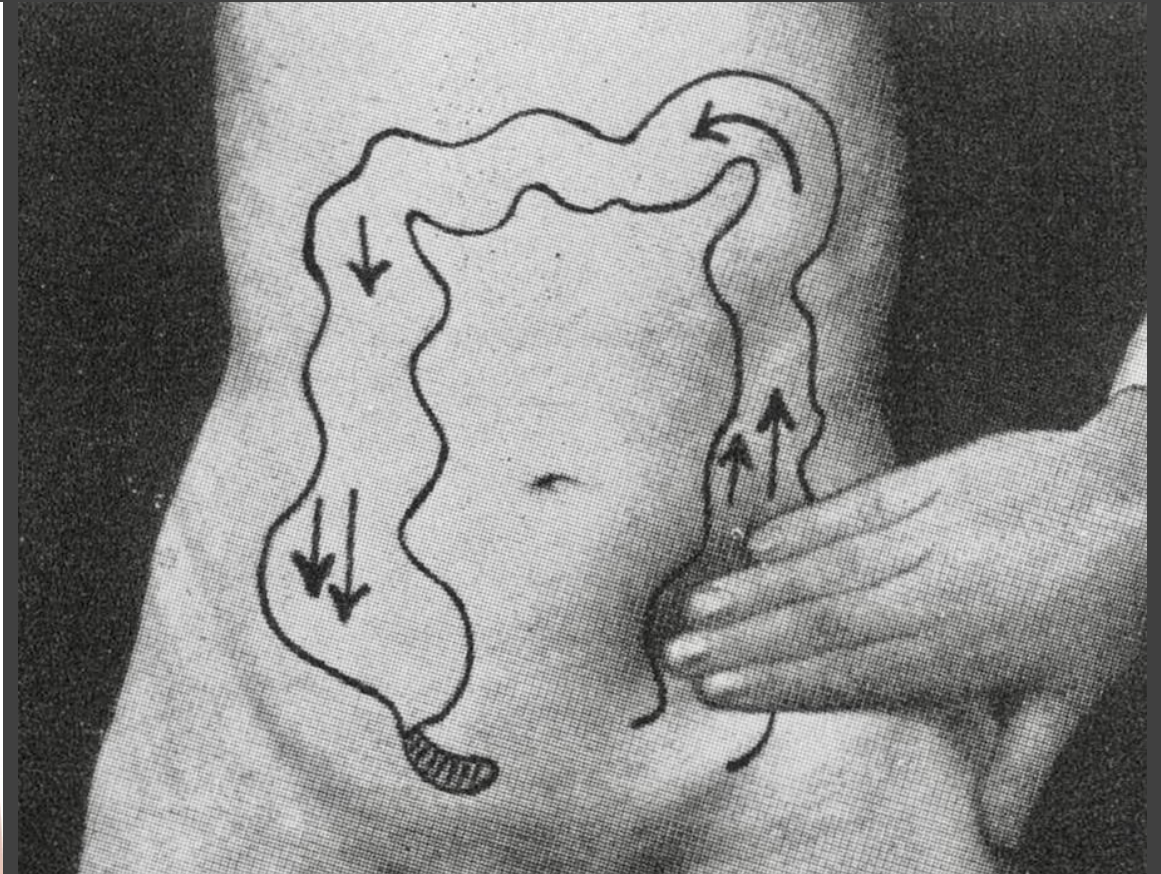
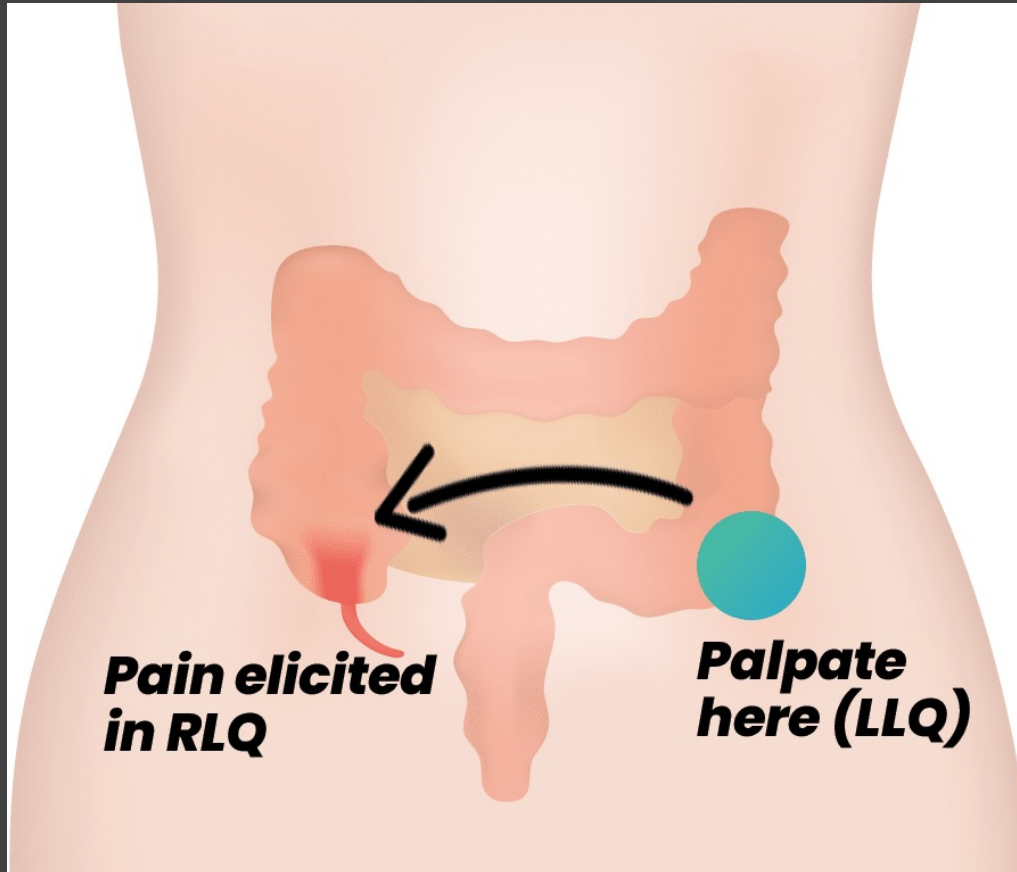


Question

What is the name of the sign when pain is experienced in the Right Iliac Fossa, when the left Iliac fossa is palpated

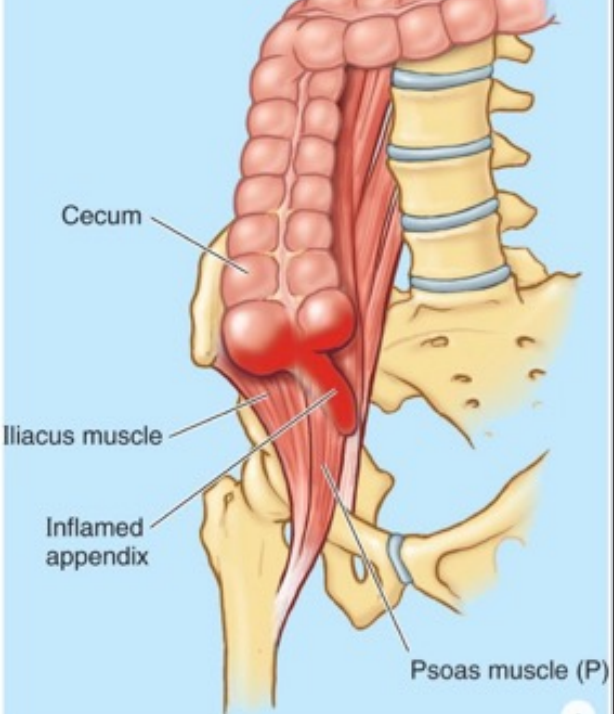
- A. Rovsing's Sign
- B. Psoas Sign
- C. Murphy's Sign
- D. Cullen's and Grey Turner's Sign

Rovsing's sign



Other signs that
can be seen in GI
pathologies



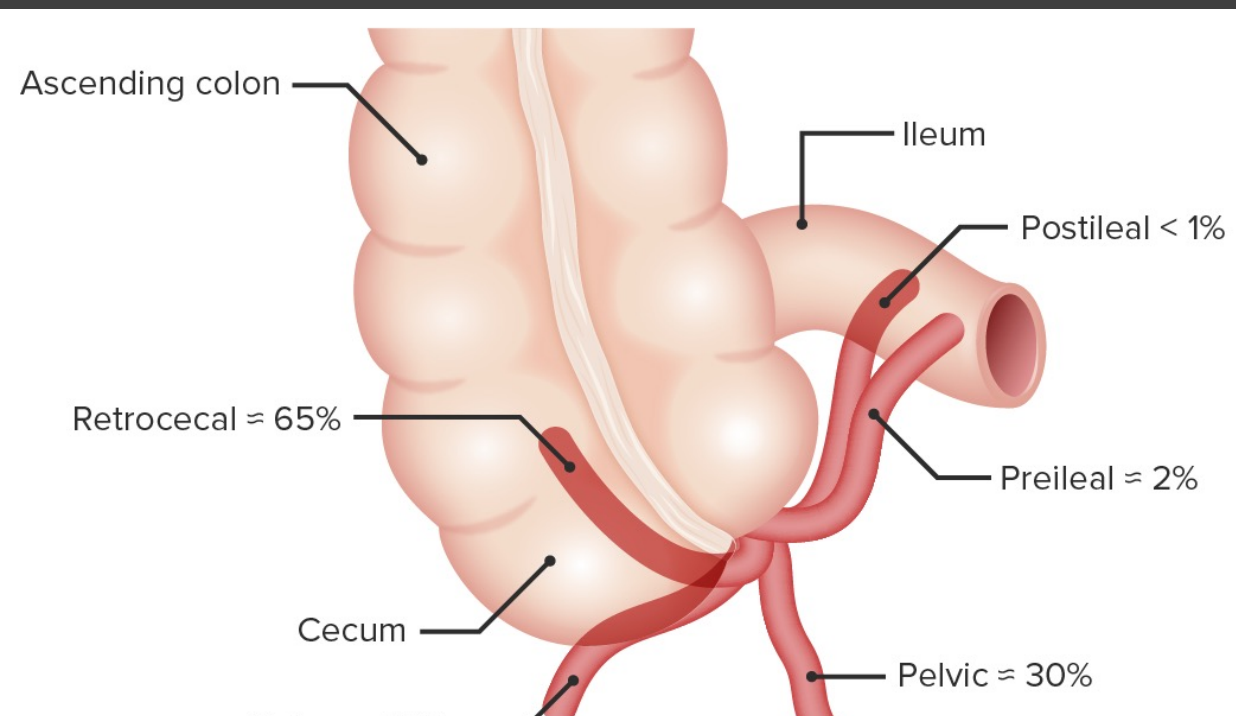


Psoas Sign

- Patient extends the right hip
- Abdominal (RIF) pain felt

Mechanism:

- Majority of the population appendix is retrocaecal
- Causes friction on the psoas muscle

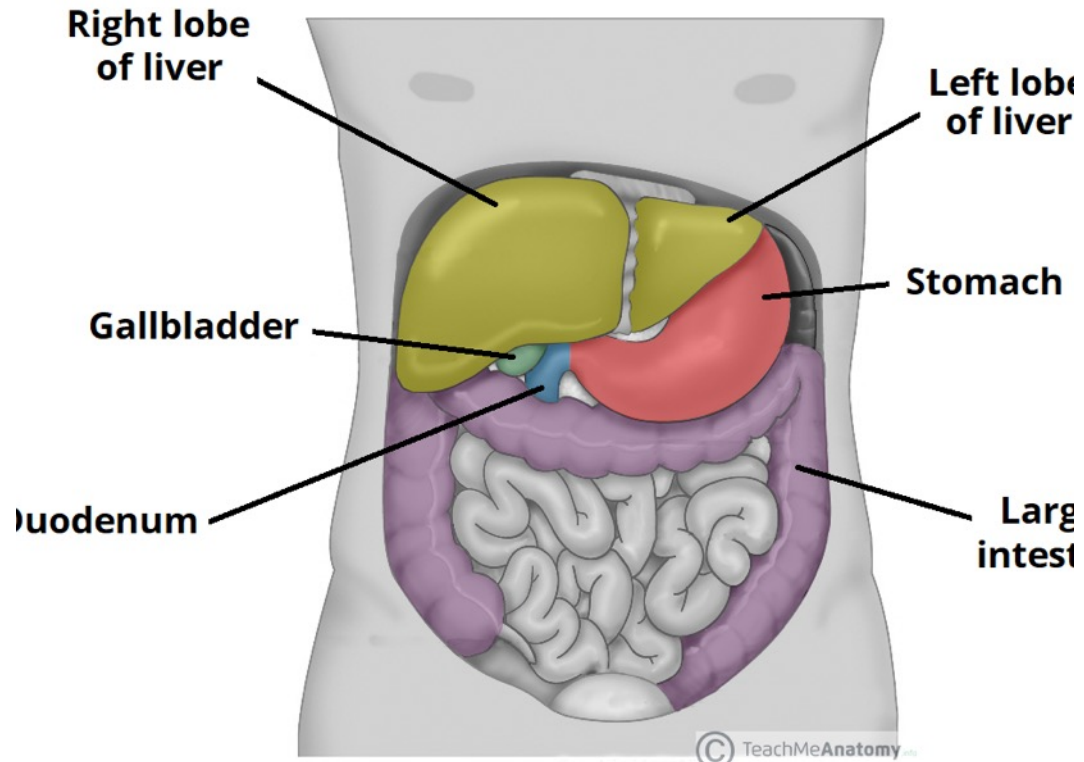


Murphy's sign

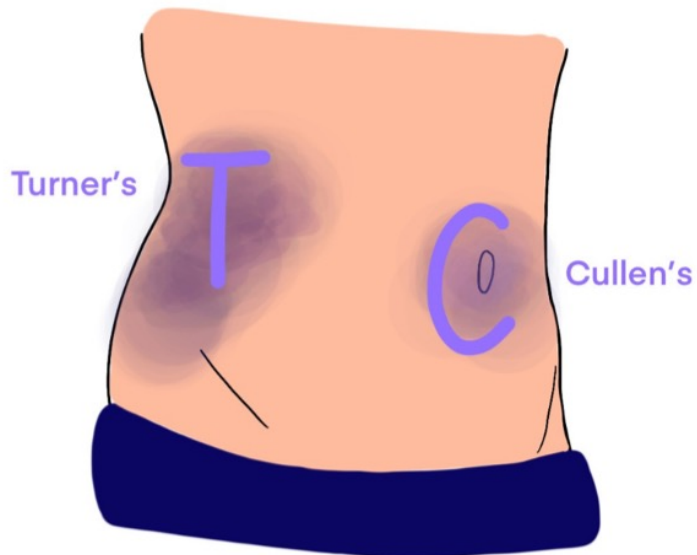
- Pain is elicited on palpation of the right upper quadrant whilst patient breathes in
- Pain causes them to 'catch their breath'

Significance:

- Inflamed gallbladder (Cholecystitis)



Cullen's and Grey Turner's Sign



- Signs of retro-peritoneal bleeding

Retro-peritoneal organs

S = Suprarenal (Adrenal) glands

A = Aorta

D = Duodenum (2nd +3rd Segment)

P = Pancreas

U = Ureters

C = Colon (Ascending and Descending)

K = Kidneys

E = Esophagus

R = Rectum

<u>Investigation</u>	<u>Specific elements</u>	<u>Rationale</u>
Bedside	Urinalysis, Pregnancy test	Pregnancy, Bacteruria
Bloods	FBC, CRP, Group and screen, U&E, LFT, Pregnancy	Bleeding, Infection, Baseline, Pregnancy
Imaging	Ultrasound (Transabdominal/transvaginal) CT scan	Abnormalities in the genitio- urinary tract, GI system

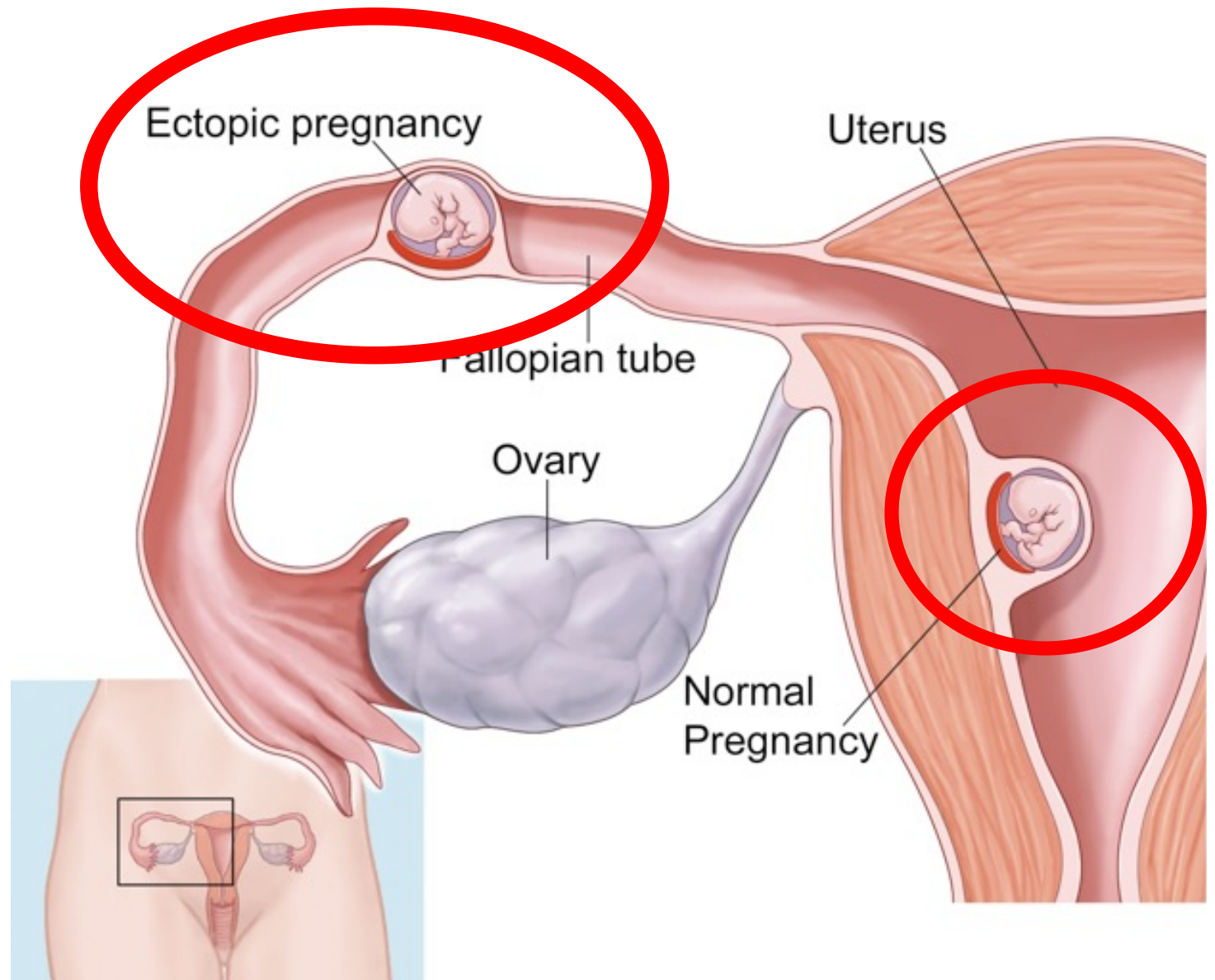
Alexia – Investigations

**Important
Point!**

**In any female of
reproductive age
presenting with
abdominal pain, it's
important to rule
out pregnancy**

Ectopic pregnancy

- Risk of rupture and life threatening bleeding
- Damage to fallopian tube
- Infertility/ Sub-fertility issues



Question

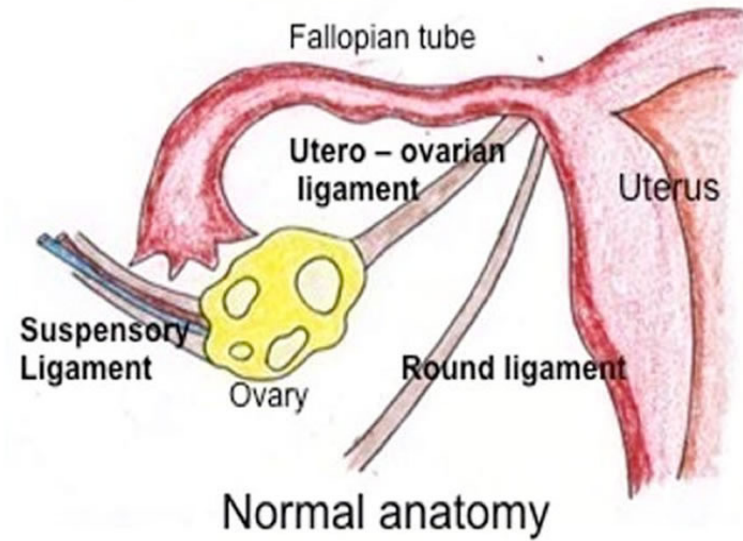
What hormone is detected in serum or urine to confirm pregnancy

- A. Alpha Feto Protein (AFP)
- B. B- Human Chorionic Gonadotrophin (B-HCG)
- C. Inhibin A
- D. Pregnancy Associated Plasma Protein A (PAPPA)

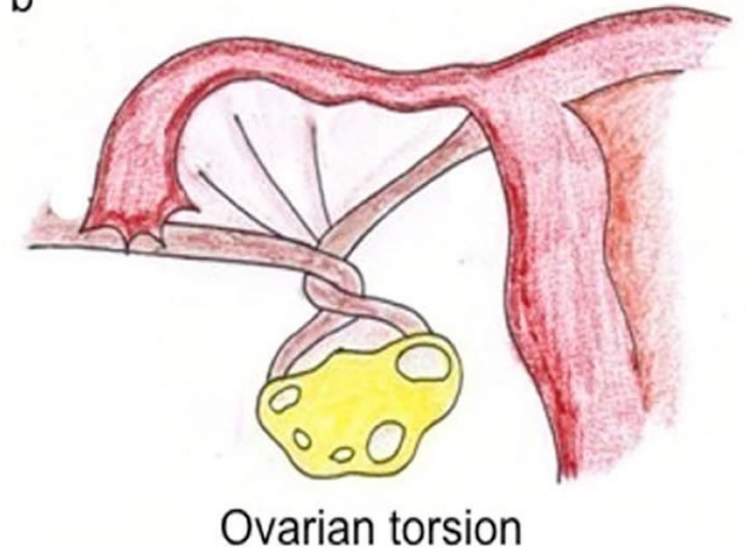
Other Gynaecological causes of abdo pain

- Ovarian cyst rupture
- Ovarian torsion

a



b



Alexia – Results

- Urine Dipstick – NAD, Pregnancy Test negative
- Bloods- Elevated WCC, Elevated CRP
- U/S – Normal ovaries and the appendix is not visualised

Most likely diagnosis?

Appendicitis



Do we need imaging to diagnose appendicitis?

- Imaging is not essential to diagnose an appendicitis, as cases can be a **clinical diagnosis**.
- Ultrasound scan or CT imaging are often requested if the clinical features are inconclusive and an alternative diagnoses are equally as likely

Celiac

Splenic v

SMA

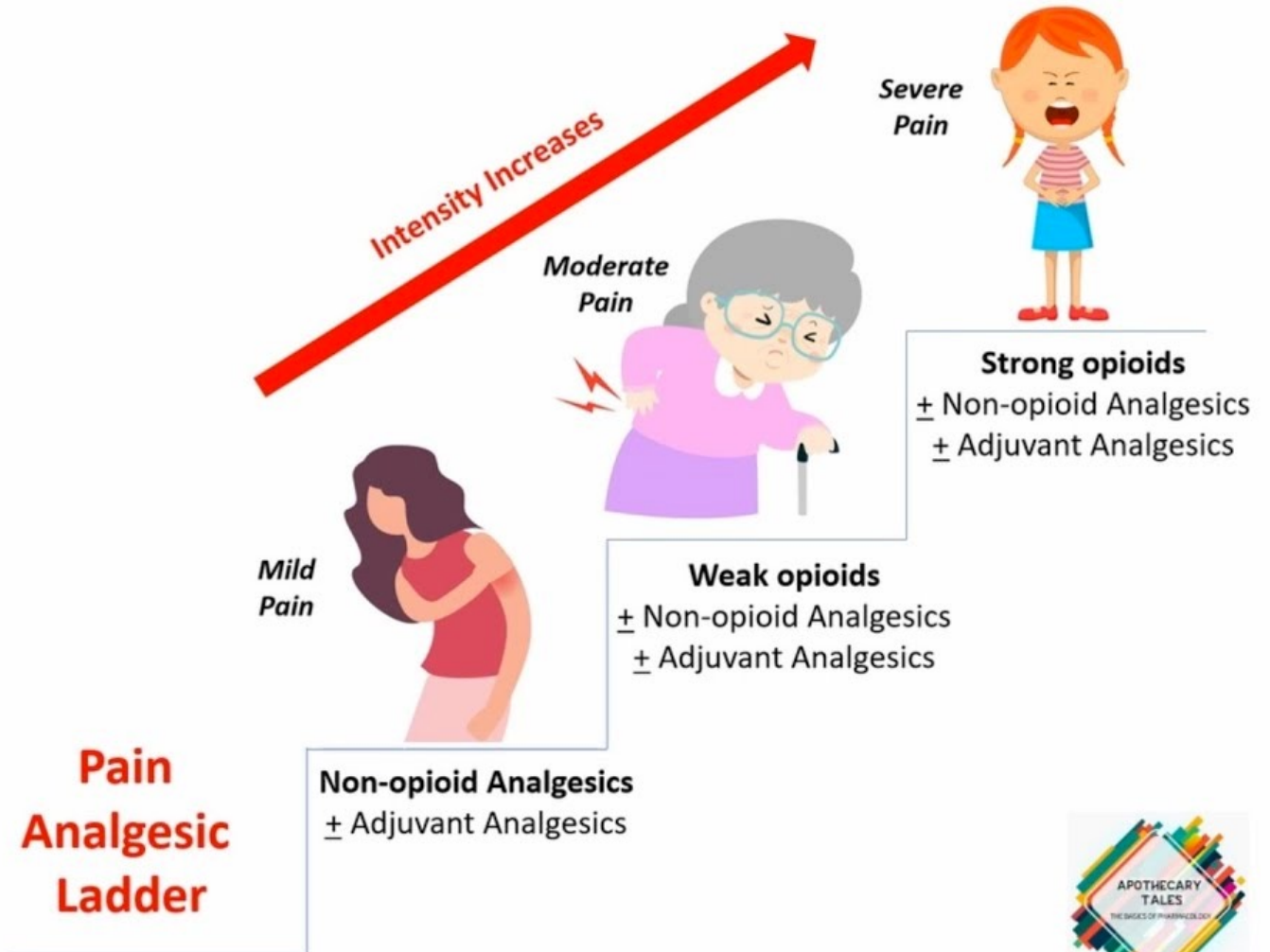
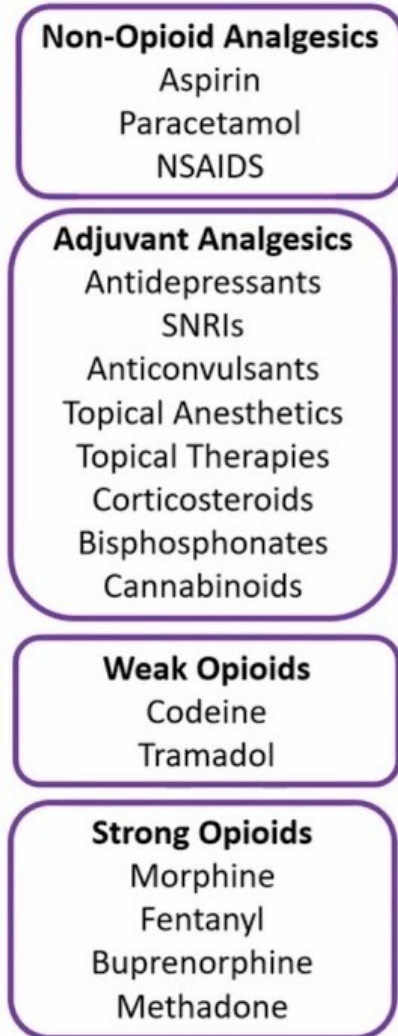
Aorta



Alexia – Management

- You refer to the surgeons for management of her appendicitis
 - Appendectomy
- As they are waiting you prescribe Alexia some analgesia as she still in a lot of pain

Who Analgesic Ladder



Question

What are the most common side effects associated with opioid medication?

- A. Nausea and vomiting
- B. Tachycardia
- C. Diarrhoea
- D. Tachypnoea

Opioids

In those with a poor renal function, opioids can accumulate

Naloxone is used as the reversal agent in overdose

Route


Orally, Sub-Cut, IM, IV, Transdermal

Pharmacokinetics

Renal excretion

Adverse Drug Reactions

- N&V
- Constipation
- Sedation and confusion
- Respiratory Depression


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Patient 2: Harold

65 year old Male





Harold – Presenting complaint

- Abdominal pain
 - Generalised
 - Sharp in nature
 - Waves of excruciating pain
 - Started off as discomfort yesterday but now is very painful
 - Relieved by vomiting
 - Unable to tolerate food and drink
- Abdominal distension
- Has previously had constipation in the last 2 months, followed by some diarrhoea
 - Now hasn't opened his bowels in 2 days!

Harold – Examination

Examination

Harold looks very cachexic

Obs

RR – 22

SpO₂ – 95% on RA

HR – 103

BP – 91/63

Temp – 37.8

HS

S1 +S2 + 0

Chest

Clear

Abdomen

Clear Distention

No scars



Abdominal pain

Vomiting

Abdominal distention

Absolute constipation

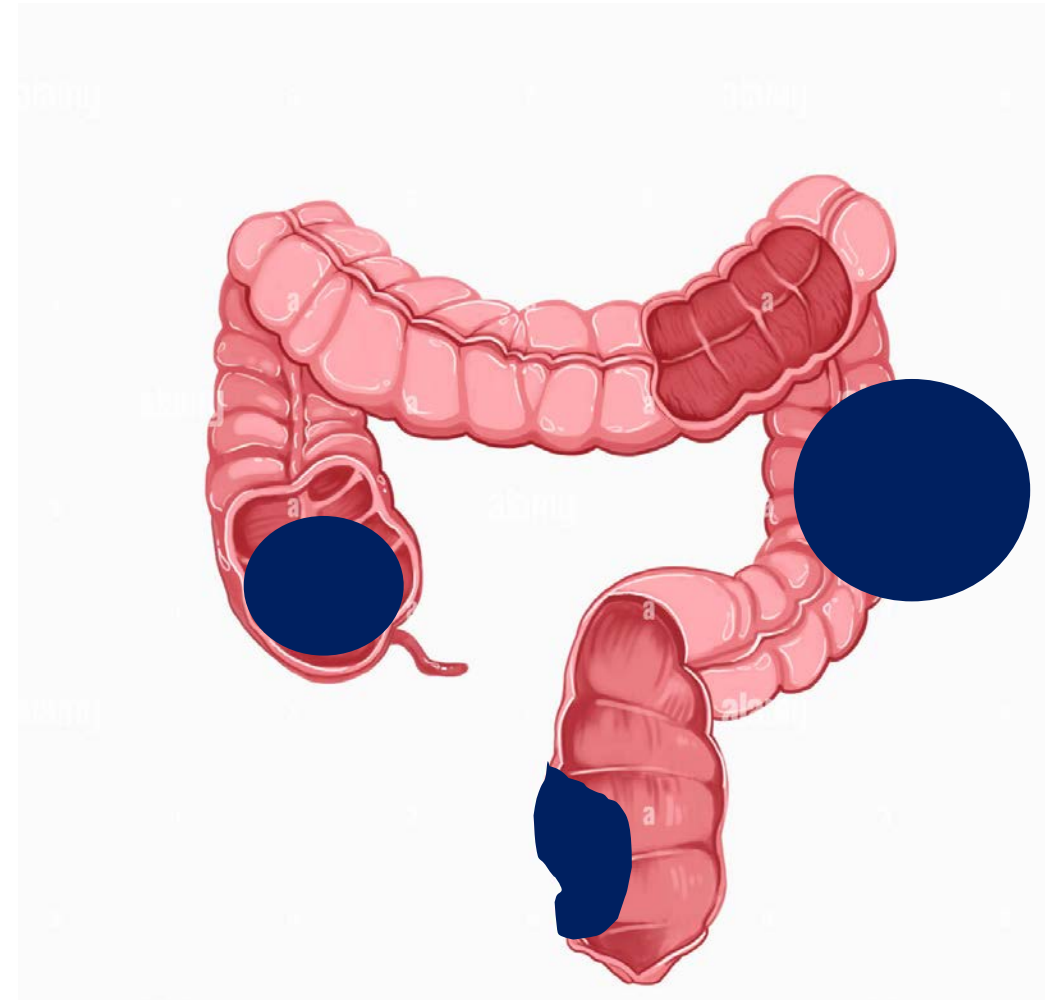
These are 4 cardinal symptoms of which emergency GI presentation?

Bowel
Obstruction

Causes of bowel obstruction

- Intra luminal – Foreign body, faecal impaction
- Mural – Cancer, inflammatory strictures, Intussuseption
- Extramural – Hernia, adhesions, volvulus

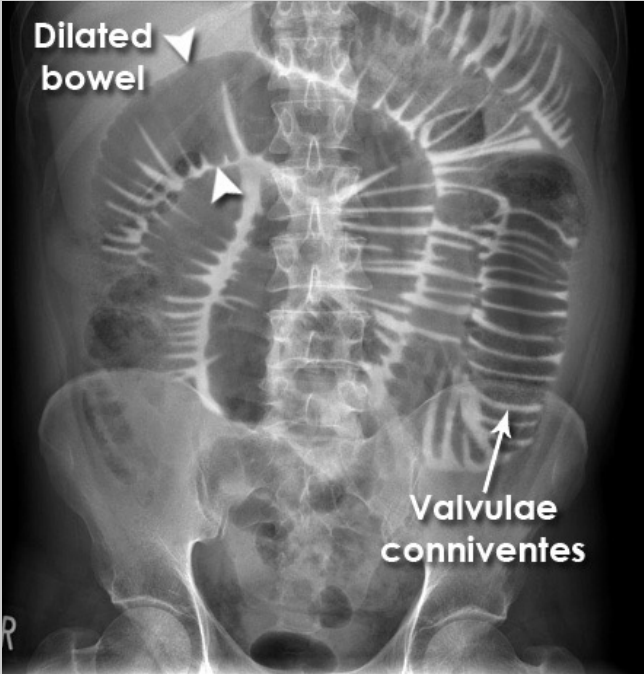

Important to identify and treat as it can causes ischemia, infection



Harold – Investigations

<u>Investigation</u>	<u>Specific</u>	<u>Rationale</u>
Bedside	ECG	Cause of tachycardia
Bloods	FBC, CRP, Group and screen, U&E, VBG,	Anaemia, Infection, Electrolyte imbalance, Baseline
Imaging	Abdo CT, Abdo X-ray	Looking for masses, changes in bowel

Abdominal x-rays of small vs large bowels

	Small Bowel	Large Bowel
Location	Central in the abdomen	Peripheral in the abdomen
Anatomical features	Valvulae conniventes (lines that runs through the bowel)	Haustra (Lines do not cross the whole bowel)
Image	 <p>This abdominal x-ray shows the small bowel in the central region. Two white arrowheads point to areas of dilated bowel. A white arrow points to the valvulae conniventes, which are the characteristic transverse lines that run across the entire width of the small bowel. A small 'R' marker is visible in the bottom left corner.</p>	 <p>This abdominal x-ray shows the large bowel in the peripheral region. A small 'R' marker is visible on the left side of the image.</p>

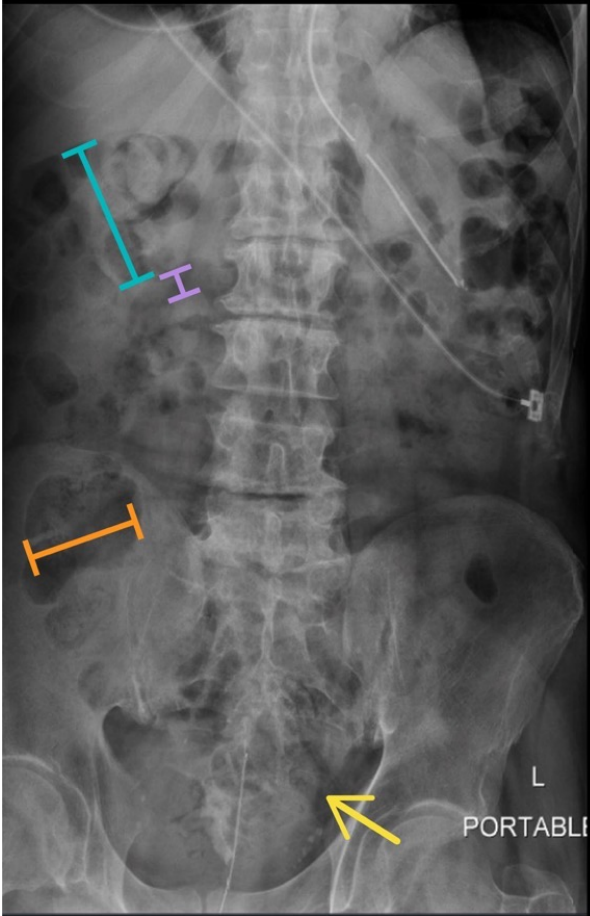
Question

When measuring bowel diameter, over which measurements is the bowel considered to be 'dilated'

	Small Bowel	Large Bowel	Caecum
A	>1cm	>2cm	>4cm
B	>2cm	>4cm	>6cm
C	>3cm	>6cm	>9cm
D	>4cm	>8cm	>12cm

3 6 9 rule

#READINGROOM



The image is an AP abdominal radiograph. It features several color-coded annotations: a cyan line and a purple line in the upper abdomen indicating measurements of small bowel and colon diameter; an orange line in the lower abdomen indicating a measurement of the cecum; and a yellow arrow in the lower right quadrant pointing to the rectum. The text 'L' and 'PORTABLE' are visible in the bottom right corner of the radiograph.

CORE
IM

Diameter/Dilation:
Follows the **3-6-9 rule**

- Small bowel < 3 cm
- Colon < 6 cm
- Cecum < 9 cm

Distribution:

1. **Start at rectum** ↗
 - rectal gas = bowel motility
2. **Identify pattern of gas**
 - small bowel (central)
 - colon (peripheral)
 - diffuse (both equal)

Normal bowel gas pattern:

1. **No abnormal dilation**
2. Gas distribution **mostly in colon** rather than small bowel
3. **Rectal gas present**



Evaluation of bowel gas patterns:

The two most important components are diameter and distribution.



Harold – CT Scan results

“Free fluid is seen in the abdomen and pelvis

There is marked dilatation (>8cm) of the transverse and ascending colon proximal to a 6cm mass in the sigmoid colon, probable of cancer”



Management of the bowel obstruction



Patient to be kept Nil-By-Mouth (NBM)



IV Fluid resuscitation



NG Tube insertion



Analgesia

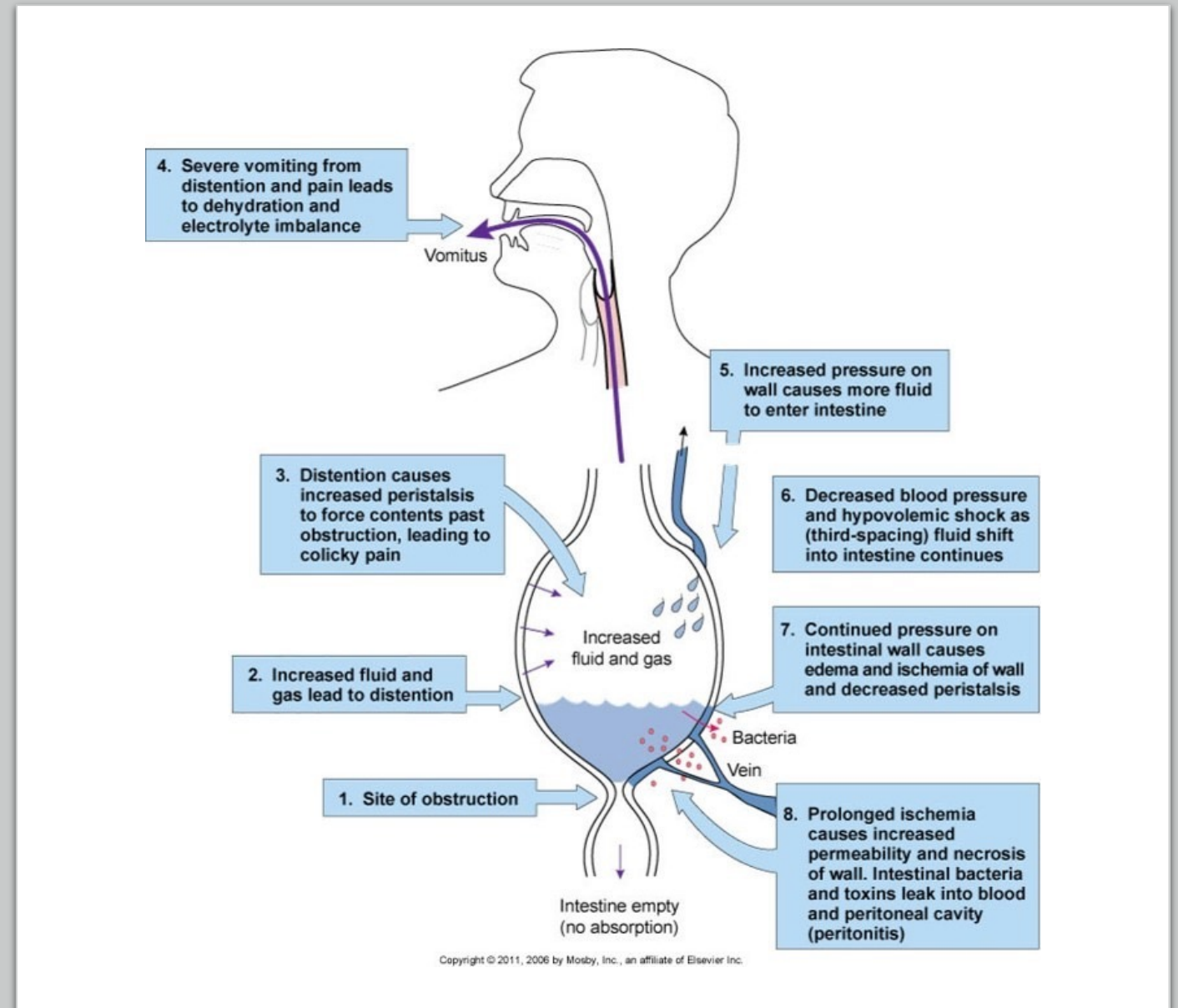


Referral to general
surgeons

(Bowel resection)

Why give IV fluids - Dehydration in bowel obstruction

- Vomiting
- 'Third spacing'
 - Movement of fluid into the lumen of the bowel



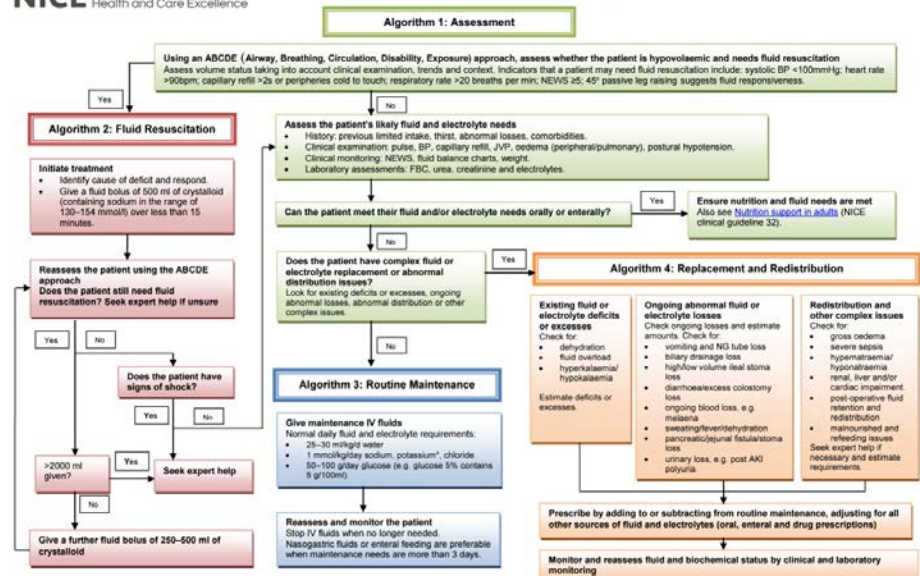
Fluid Management

Does this patient need fluids?

1. Resuscitation
2. Maintenance
3. Replacement and redistribution

NICE National Institute for Health and Care Excellence

Algorithms for IV fluid therapy in adults



*Weight-based potassium prescriptions should be rounded to the nearest common fluids available (for example, a 67 kg person should have fluids containing 20 mmol and 40 mmol of potassium in a 24-hour period). Potassium should not be added to intravenous fluid bags as this is dangerous.

Intravenous fluid therapy in adults in hospital, NICE clinical guideline 174 (December 2013, Last update December 2016)

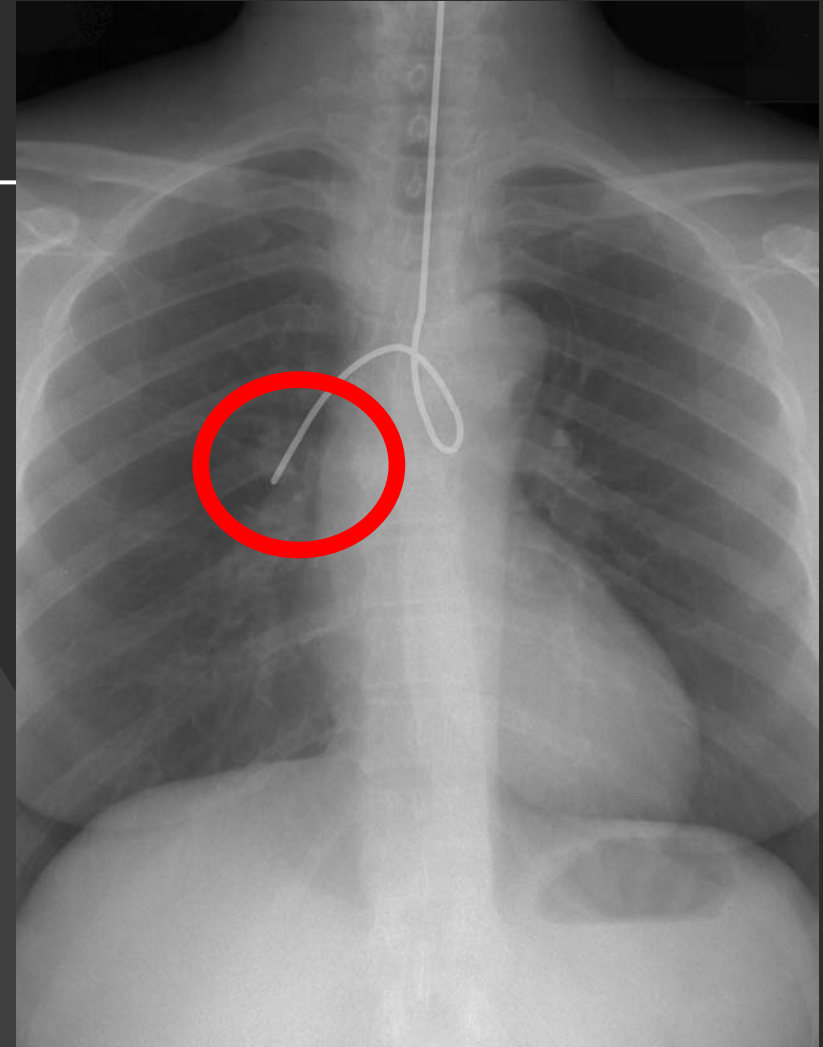
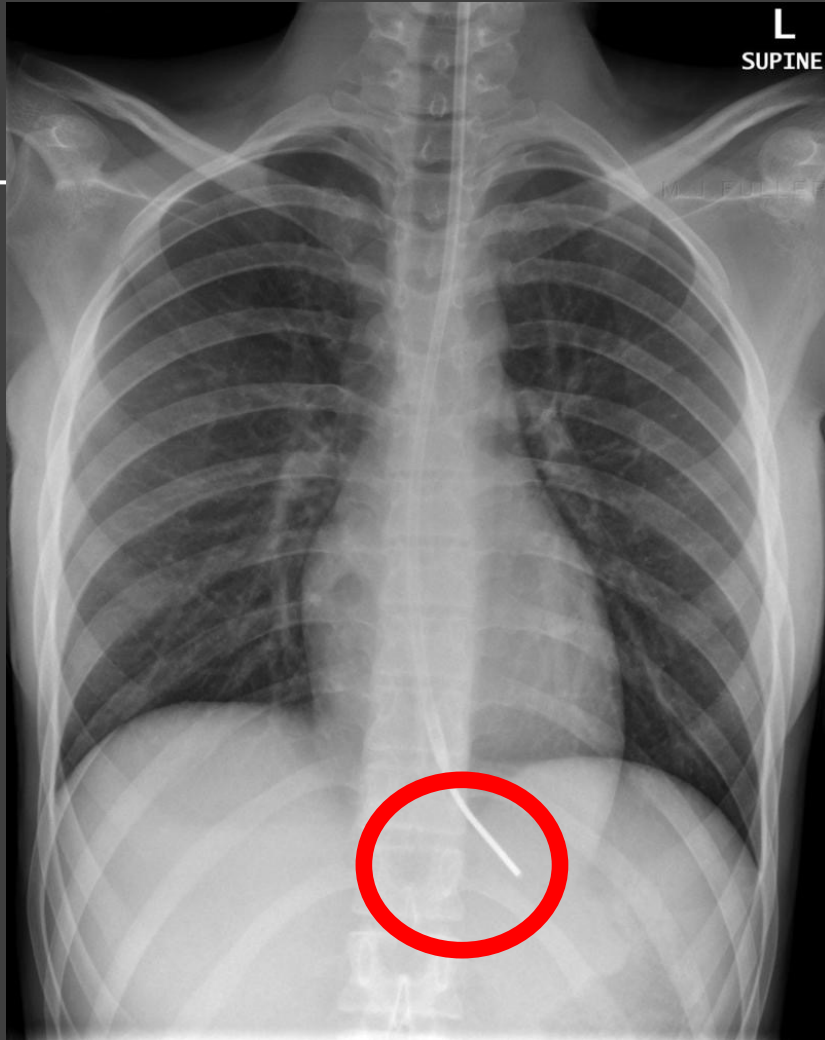
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Principles of fluid resuscitation

- A-E assessment
 - Decreased BP (<90 SBP)
 - Increased Heart rate (>100 bpm)
 - Dry mucous membrane
 - Capillaries >2 seconds
- 500ml crystalloid over 15 mins
 - Can be repeated until 2000ml given
- Reassess response
 - Seek help early

NG tube – Ensuring correct positioning



Harold

“The pain is now 10/10. I can’t move because it’s so painful. Something is wrong...”



Re-examining him:

- Rebound tenderness
- Guarding
- Percussion tenderness

Question

What does the guarding and rebound tenderness suggest

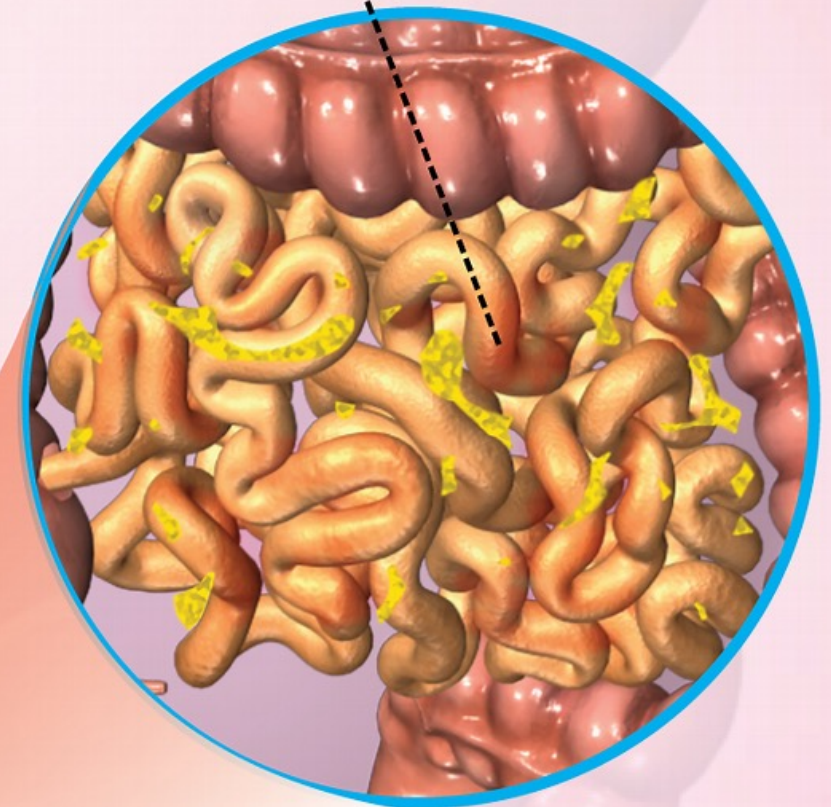
- A. Colitis
- B. Intussusception
- C. Peritonitis
- D. Herniation

What has caused the peritonitis?

Peritonitis

- Increased inflammation
 - Increased permeability of the gut mucosa
 - Bacteria translocation
 - Bacteria causing inflammation of the peritoneum
- Ischemia leading to bowel wall necrosis
 - This leads to perforation
 - Spilling of gut content into the abdomen

Inflammation of the Peritoneum





Question

A VBG is repeated. Which of the following results would indicate continuing deterioration?

- A. Decreasing potassium
- B. Increasing creatinine
- C. Decreasing sodium
- D. Increased lactate



Differential diagnosis

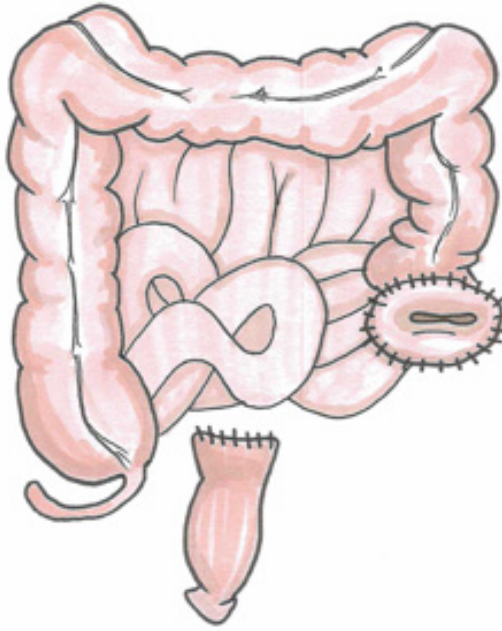
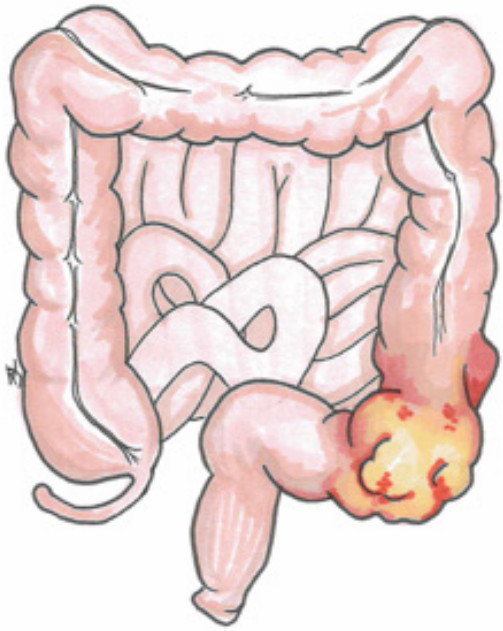
Bowel obstruction > Bowel Ischaemia



Peritonitis/Bowel perforation management

- High chance of infection
 - Sepsis 6
 - IV antibiotics
 - IV fluids
 - Oxygen (if needed)
 - Take bloods/cultures
 - Measure urine output
 - Measure lactate
- Surgical management

Emergency Surgical management



Emergency bowel surgery for bowel obstruction or perforation is called a Hartmann's procedure



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Patient 3: Ingrid

34 year old Female

A close-up photograph of a person's face, showing a large amount of bright red blood on their forehead and around their nose. The person appears to be in a state of distress or medical emergency. The image is partially obscured by a dark grey diagonal overlay on the right side.

Ingrid – Presenting Complaint

- Vomiting blood earlier
 - Around '1 mug full'
 - Bright red blood
 - Not mixed in vomit
- Drinks 25 units of alcohol a week
- Not on any regular medication and does not take anything over the counter
- No abdominal pain
- No history of weight loss
- Known liver disease



Ingrid – Examination

Which of the following signs does the picture refer to

- A. Caput medusa
- B. Spider naevi
- C. Kayser-Fletcher rings
- D. Dupytren's contracture

Spider Naevi

- Can be normal
 - Pregnancy
 - Women on combined oral contraceptive
- Pathological if >5 are present
 - Liver cirrhosis





Other physical signs seen in GI pathologies

Caput Medusae

- Engorged para-umbilical veins
- Associated with portal hypertension





Kayser-Fletcher Rings

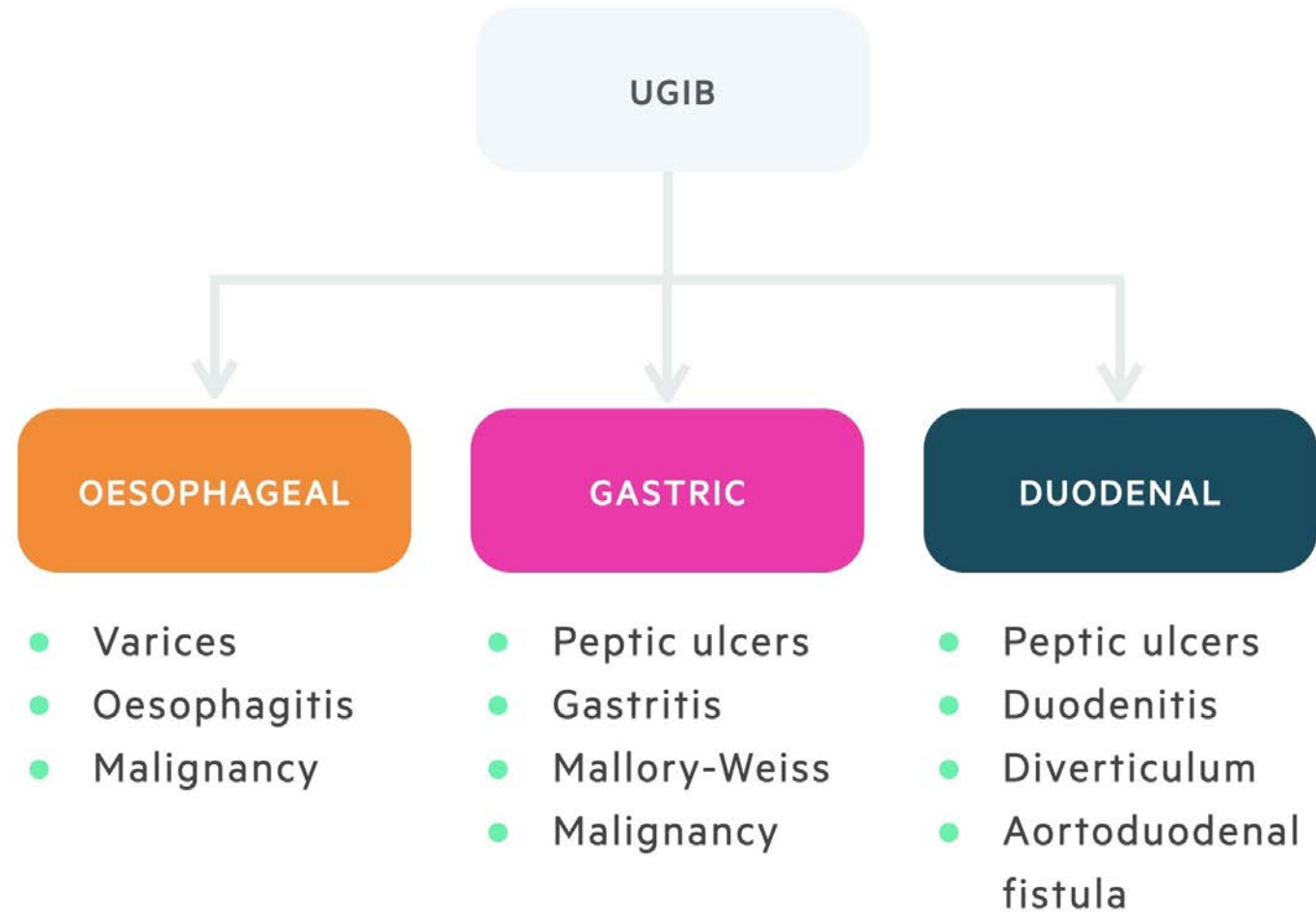
- Dark rings around the iris
- Associated with Wilson's disease
- Accumulation of copper deposits in the liver causes cirrhosis

Dupytren's Contracture



- Thickening of palmar fascia
- Multiple associations
 - Genetic
 - Increasing age
 - Diabetes
 - Excessive alcohol use

Different causes of AUGIB



Question

Which of the following scoring system is used before endoscopy to determine the risk of having a catastrophic upper GI bleed

1. Rockall score
2. Glasgow-Blatchford score
3. Child-Pugh Score
4. ASA score

⑤ Low-risk AUGIB?

Tick any applicable criteria below & record total Glasgow-Blatchford score (GBS)

Urea (tick one box if raised)

- | | | |
|-------|---|--------------------------|
| > 6.5 | 2 | <input type="checkbox"/> |
| > 8.0 | 3 | <input type="checkbox"/> |
| >10 | 4 | <input type="checkbox"/> |
| >25 | 6 | <input type="checkbox"/> |

Haemoglobin (tick one box if low)

- | | | |
|------------------------|---|--------------------------|
| <130 in male patient | 1 | <input type="checkbox"/> |
| <120 in female patient | 1 | <input type="checkbox"/> |
| <120 in male patient | 3 | <input type="checkbox"/> |
| <100 | 6 | <input type="checkbox"/> |

Systolic BP (tick one box if low)

- | | | |
|------------------|---|--------------------------|
| <110 at any time | 1 | <input type="checkbox"/> |
| <100 at any time | 2 | <input type="checkbox"/> |
| < 90 at any time | 3 | <input type="checkbox"/> |

Heart rate >99 at any time

1

Melaena (spontaneous or on PR)

1

Presenting with syncope

2

Heart failure (known history, clinical signs or on ECHO)

2

Liver disease

2

(known history, clinical signs or laboratory data; see also box 1)

Yes – as GBS is 0

No – as GBS is >0

Glasgow-Blatchford

- Score based on the clinical presentation of the patient
- No endoscopy needed
- Used to differentiate low vs. high risk suspected Upper GI bleeds
- Can be used to aid management
 - Further referral
 - Discharge

Other scoring systems used in GI



Rockall Score

- Post endoscopy score
- Risk of re-bleeding and overall mortality
- Score of >6 is high risk

Variables	Points
Age (years)	
<60	0
60–79	1
≥80	2
Hemodynamic shock	
Heart rate >100bpm	1
Systolic blood pressure <100mmHg	2
Coexisting illnesses	
Heart failure, ischemic heart disease	2
Renal failure, hepatic failure, metastatic cancer	3
Endoscopic signs (diagnostic)	
No lesion observed, or Mallory–Weiss tear	0
Peptic ulcer, erosive disease, esophagitis	1
Cancer of the upper gastrointestinal tract	2
Endoscopic signs (hemorrhagic)	
Clean-base ulcer or flat, pigmented spot	0
Visible blood, active bleeding, visible vessel, adherent clot	2
Scores range from 0 to 11 and are divided into three categories of risk: low risk ≤2, moderate risk 3–5, high risk ≥6. Permission obtained from BMJ Publishing Group Ltd © Rockall, T. A. <i>et al.</i> <i>Gut</i> 38 , 316–321 (1996).	

Child-Pugh Score

Child-Pugh Scoring Interpretation

Measure	1 Point	2 Points	3 Points
Total bilirubin (mg/dL)	< 2.0	2.0-3.0	> 3.0
Serum albumin (g/dL)	> 3.5	2.8-3.5	< 2.8
INR	< 1.70	1.71-2.30	> 2.30
Ascites	None	Mild	Mod/Severe
Hepatic encephalopathy	None	Grade I-II	Grade III-IV

- Indication of the severity of liver cirrhosis
- Helps to aid prognosis
- Mixture of biochemical and clinical factors
- Score between 5-15

ASA score

- American Society of Anaesthesiologists score
- Classifies the physical status of patients prior to surgery
- Helps to determine peri-operative risk along with other factors

ASA Classification	Definition	Examples
ASA I	A normal healthy patient	Healthy, non-smoking, no or minimal alcohol use
ASA II	A patient with mild systemic disease	Mild diseases only without substantive functional limitations. Current smoker, social alcohol drinker, pregnancy, obesity (30<BMI<40), well-controlled DM/HTN, mild lung disease
ASA III	A patient with severe systemic disease	Substantive functional limitations; One or more moderate to severe diseases. Poorly controlled DM or HTN, COPD, morbid obesity (BMI ≥40), active hepatitis, alcohol dependence or abuse, implanted pacemaker, moderate reduction of ejection fraction, ESRD undergoing regularly scheduled dialysis, history (>3 months) of MI, CVA, TIA, or CAD/stents.
ASA IV	A patient with severe systemic disease that is a constant threat to life	Recent (<3 months) MI, CVA, TIA or CAD/stents, ongoing cardiac ischemia or severe valve dysfunction, severe reduction of ejection fraction, shock, sepsis, DIC, ARD or ESRD not undergoing regularly scheduled dialysis
ASA V	A moribund patient who is not expected to survive without the operation	Ruptured abdominal/thoracic aneurysm, massive trauma, intracranial bleed with mass effect, ischemic bowel in the face of significant cardiac pathology or multiple organ/system dysfunction
ASA VI	A declared brain-dead patient whose organs are being removed for donor purposes	

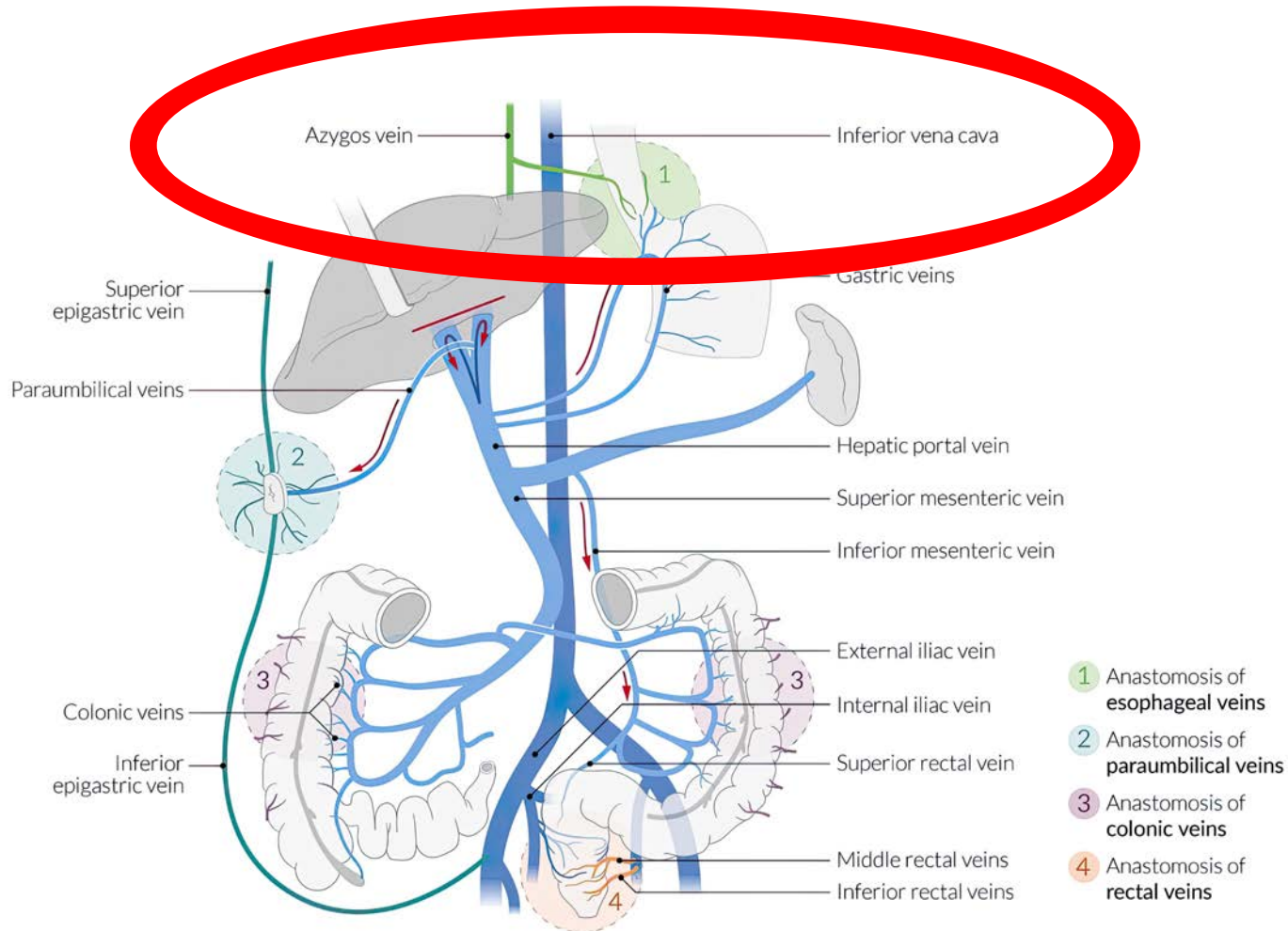
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Given the history, presentation and clinical signs, what is the most likely cause of her upper GI bleed?

Oesophageal Varicies

Variceal bleed



- Varices are dilatations of the portosystemic anastomosis
- Increased pressure can cause these to rupture

Variceal bleeding Investigations and Management

Investigations

- Bloods
 - G&S, FBC, INR, LFT, U&E

Management

- Fluid resuscitation
- Transfusion if Hb <80
- Reverse any anti-coagulation
- Escalation to appropriate teams (GI, ITU, Anaesthetics)

UHL
Initial management of acute upper GI bleeding (AUGIB)
Version 64

For adults experiencing haematemesis, melæna or coffee-ground vomit

NB: there is NO place for PPI prior to endoscopy

Document history and clinical findings as usual

Disclaimer:
This is a clinical template; clinicians should always use judgment when managing individual patients

Created by: Martin Wise and Robha Ramiah
Re-approved by IED guidelines committee chair: 04/Apr/20
Review due 06/23 - Trust Ref: C188/2016

Patient details

Full name
DOB
Livr number

(use sticker if available)

Resuscitation bundle

Tick off each item below when completed

- Manage in safe environment (in ED: resuscitation room)
- Involve senior doctor **NOW**
- DO NOT** yet request OGD at this stage
- Insert IV access x2
- Take blood for FBC, VBG, U&E, LFT, INR, clotting screen and G&S
- Call blood bank to X-match 6 units of RBC
- Give appropriate crystalloid bolus
- Monitor vital signs / NEWS every 15min
- Monitor fluid balance
- Maintain Hb (in general >70g/L; or >80g/L if variceal bleed suspected)
- If Hb below target level, transfuse
- If Hb above target level, do not transfuse
- Reverse anticoagulation where relevant
- If any of the below, reverse anticoagulation
 - On Warfarin **AND** INR > 1.5
 - On LMWH - contact on-call haematologist
 - On DOAC (rivaroxaban/apixaban/dabigatran)
 - If none of the above, no action required
- Restore haemostatic competence if needed
 - Platelets <50 and likely still bleeding
 - INR > 1.5
 - APTT > 1.5
 - Fibrinogen <1g/L
 - If all four normal, no correction needed
- After resuscitation, repeat FBC and VBG

Variceal bleed suspected?

Yes - as none of the above

No - as none of the above

(For OGD, return to PO after 24hr if possible)

4 AUGIB referral data set

Convey information concisely using SBAR

- Age, sex
- Whether or not variceal bleed suspected
- Whether or not patient on anticoagulant
- Clinical frailty score (CFS)
- Cognitive function
- Vital signs
- GI signs

5 Low-risk AUGIB?

Tick any applicable criteria below & record total Glasgow-Blatchford score (GBS)

Urea (tick one box if raised)	2
> 6.5	3
> 8.0	4
> 10	5
> 12	6
Haemoglobin (tick one box if low)	1
<130 in male patient	1
<120 in female patient	2
<120 in male patient	3
<100	6
Systolic BP (tick one box if low)	1
<110 at any time	2
<100 at any time	3
< 90 at any time	3
Heart rate >99 at any time	1
Melaena (spontaneous or on PR)	2
Presenting with syncope	1
Heart failure (known history, clinical signs or on ECHO)	2
Liver disease (known history, clinical signs or laboratory data; see also box 1)	2

Yes - as GBS is 0

No - as GBS is >0

Flowchart:

Haemodynamically normal? (Y/N)

Near-patient Hb (e.g. on VBG) <70? (Y/N)

Deliver resuscitation bundle (see box 1)

Consider 2 units of O NEG blood STAT and inform blood bank so blood is replaced ASAP

Is a variceal bleed suspected (see box 2)? (Y/N)

Reassess

Persistent or recurrent haemodynamic compromise or bleeding? (Y/N)

Variceal bleed bundle (see box 3)

Patient critically unwell? (Y/N)

Low-risk AUGIB (see box 5) AND no other reason to admit? (Y/N)

No inpatient OGD needed

Usually OGD within 24h

Request assistance from ACB registrar

Contact GI team

Request assistance from ITU and / or anaesthetics

Bleep 'second on-call' anaesthetic registrar on 6104 (will coordinate assistance from ITU and / or anaesthetics)

Clearly state what assistance is requested for (i.e. stabilise or OGD)

Patient to undergo urgent OGD? (Y/N)

From ED: Discharge home. Send off GP letter on the back of this proforma

From ED: Admit to AMU/AFU (ACB if variceal bleed)

For inpatients: Monitor overnight. Refer to GI team mane

From ED: Admit to ACB unless ceiling of care below ACB

For inpatients: Monitor closely or move to ACB if appropriate

NB: Patients who deteriorate while awaiting OGD on a non-ITU ward MUST be escalated rapidly to the anaesthetic and GI teams unless an end-of-life care plan has been agreed

• Bleep 'second on-call' anaesthetic registrar on 6104 (will coordinate assistance from ITU and / or anaesthetics)

• Continue resuscitation bundle

• Declare 'massive' haematemesis

• Direct communication between GI team & support specialties is key

• Additional treatments might also include interventional radiology

• If patient takes low-dose aspirin for secondary prevention of vascular events, continue once bleeding stopped

• Stop any other NSAIDs (including COX-2 Inhibitors) during admission; endoscopist will advise on future use

• If patient takes clopidogrel (or any other thienopyridine antiplatelet drugs), discuss risks and benefits of continuing once bleeding stopped with a cardiologist or stroke specialist (as applicable) and with the patient

This patient was managed by

Print name	Signature	Position	Date	Time completed
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Question

What additional medications are given when resuscitating someone with oesophageal varices prior to definitive treatment?

- A. Prednisolone + Mesalazine
- B. Amoxicillin + Metronidazole + Omeprazole
- C. Terlipressin + Co-Amoxiclav
- D. Chlordiazepoxide + Thiamine

Terlipressin and Prophylactic antibiotics

③ Variceal bleed bundle

Tick off items below when completed

- Terlipressin 2mg IV STAT
(unless contraindicated); then QDS for 72h
- Antibiotic prophylaxis for 72h
 - Unless allergic to penicillins:
Co-amoxiclav 1.2G IV TDS
 - If penicillin-allergic:
Ciprofloxacin 400mg IV BD
(for both, switch to PO after 24h if possible)

Terlipressin

Vasoconstricts splanchnic blood vessels, **reduces blood flow into the portal vein** and, thus, reduces portal venous pressure and blood flow through porto-systemic shunts

Prophylactic Antibiotics

Increased risk of infection which leads to poor prognosis

Common medication combinations in gastroenterology

<u>COMBINATION</u>	<u>INDICATION</u>
Prednisolone + Mesalazine	Flare up of ulcerative colitis
Amoxicillin + Metronidazole + Omeprazole	H. Pylori eradication in peptic ulcer disease
Chlordiazepoxide + Thiamine	Alcohol withdrawal



- Abdominal signs on examination
- Differentials for Iliac fossa pain
- Appendicitis
- Pharmacology – Opioids
- Differentials for bowel obstruction
- Radiology – Abdominal X-rays
- IV Fluid management
- NG tube placement
- Peritonitis
- Physical signs on GI exam
- Differentials on an Upper GI bleed
- Scoring systems used in GI
- Variceal bleeds
- Medications used in GI

Topics we've covered