

FEx Net 2022 Collated SAQs- General Surgery

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Question 1

1.

Diagnosis - Pancreatitis

Findings on Exam – soft abdomen, epigastric tenderness, relieved sitting up

Key Investigative Finding – Elevated Lipase

Diagnosis - Acute Cholecystitis

Findings on Exam – Murphy's positive / RUQ peritonism

Key Investigative Finding – Thickened GB wall (>3mm) +/- pericholecystic fluid on USS

Diagnosis – Ruptured AAA

Findings on Exam – pulsatile mass

Key Investigative Finding – Aneurysm on bedside USS, free fluid on CT(A) abdomen

Diagnosis – Cholangitis

Findings on Exam – RUQ tenderness, soft abdomen

Key Investigative Finding - Obstructed CBD on USS (>4mm or >age/10 mm) with loss of tapering

Diagnosis – MI

Findings on Exam – soft, non-tender abdomen

Key Investigative Finding – ECG STEMI

Question 2

1.

Hyponatremia, hypochloraemia – likely GI losses, other possibilities (1 mark)

High anion gap metabolic acidosis (1 mark)

- Renal failure
- Possible lactate from hypoperfusion (1 mark total DDx)

Renal failure – urea/creat suggestive pre-renal – hypoperfusion (1 mark)

Low albumin / normal total protein – acute phase response sepsis (1 mark)

High bilirubin predominantly conjugated – biliary obstruction (1 mark)

LFTS obstructive pattern (GGT and ALP) (1 mark)

2.

Ascending cholangitis with biliary obstruction

Sepsis

End-organ hypoperfusion / shock / dehydration

Question 3

A 38 year old woman presents with right upper quadrant pain and jaundice for 3 days. She has a past history of cholelithiasis and a penicillin sensitivity producing a rash.

Her observations are as follows:

BP	95/70	mmHg
HR	125	/min
RR	24	/min
O ₂ saturations	99%	on room air
Temperature	39.2	°C
GCS	15	

1. What is the presumptive diagnosis?—
 only 1 mark, but hard to split other sections.....)
 Ascending Cholangitis

2points (ideally

2. List four (4) important investigations to obtain in this woman. 2 points

Upper Abdominal Ultrasound – looking for stones/mass/dilated biliary tree

Blood cultures – for ID sensitivities.

LFT's

Lipase *Alternative - (glucose)*

3. List four (4) management priorities.

4points

Fluid resuscitation

IV antibiotics

Analgesia

Surgical review for ?ERCP *Alternative – Ensure U/O > 1ml/kg.*

4. The woman responds to your treatment and her vital signs normalise. You are asked to write ongoing orders for admission. List 4 orders and their doses.

2 points

Ceftriaxone 1g bd (acceptable because of limited cross reactivity). Alternate non penicillin choices also acceptable.

Metronidazole 500mg tds

CSL 1litre 6/24

Morphine 2.5-5mg sc q3/24

Alternatives – Paracetamol, Maxalon,

Bare pass mark – 7/10

Question 4

1.

Due to inflammatory state/sepsis with raised globulins to fight infection at the expense of albumin production (negative acute phase reaction)

Jaundice due to biliary obstruction

Ductal enzymes higher than hepatocellular c/w biliary obstruction

2.

Cholangitis with biliary obstruction

3.

Radiol Ix	Advantages	Disadvantages
CT	- Specific and sensitive for CBD dilation/ obstruction/ cause/level (cholangitis) - Good sensitivity for cholecystitis (wall thickening, peri-cholecystic fluid) - Assesses pancreas/head of pancreas well (if obstruction) - Identifies other pathology (intra abdominal, renal, pneumonia) Must 1st point to get > 1 for this box	- Not as sensitive/specific for gallstones as US - Contrast - Radiation Must mention 1st point to get > 1 mark
USS	- Sensitive + Specific for gallstones/ cholecystitis (investigation of choice) - Sensitive for biliary duct dilation (cholangitis)	- May not define level/cause of obstruction if duct distension/ cholangitis esp if distal - Limited diagnosis other intra-abdominal pathology - Operator dependent/ habitus Must mention 1st point to get > 1 mark this box

Question 5

A 27 year old woman with no significant comorbidities presents to the emergency department with constant right upper quadrant abdominal pain for 16 hours duration. She feels hot and generally unwell and notes that she has had prior episodes of transient RUQ pain following meals but has never had any investigation.

Her vital signs are:

T 38.1

P112

BP 135/86

RR 21

SaO2 99% RA

On examination she has significant RUQ tenderness and you suspect acute cholecystitis. Your intern has some questions relating to biliary disease.

Name 4 features on abdominal ultrasound that are consistent with cholecystitis (4 marks)

GB wall >3mm

Pericholecystic Fluid / hyperaemia

Sonographic murphy sign

Gallstones

What is the normal diameter of the common bile duct? (1 mark)

<8mm

Name 3 causes of extrahepatic biliary obstruction (3 marks)

Choledocholithiasis

Pancreatic mass

cholangiocarcinoma

Name 2 complications of extrahepatic biliary obstruction (2 marks)

Cholangitis

Reduced absorption fat soluble vitamins – most importantly K

Candidate Name: _____

Question 6

Dr Pascal Gelperowicz Dr Victor Lee

1. What is the presumptive diagnosis?

Gastric volvulus (diaphragmatic hernia w/ obstruction)

2. List five (5) important features demonstrated on this x-ray. Include three (3) positive and two (2) negative findings.

- + Hiatus hernia
- + Multiple loops seen intrathoracic suggestive of volvulus
- + Air-fluid level seen within lower loop suggestive of obstruction
- + Some rightward mediastinal/tracheal shift suggestive of mass effect
- No gas under diaphragm - No mediastinal gas - No PTx

3. List four (4) immediate management priorities.

- i. Ascertaining advanced care directives/NFR orders
- ii. Analgesia – Opiate with appropriate dosing, e.g. Morphine 2.5 mg IV prn
- iii. Antiemetic – Ondansetron 4-8mg IV TDS or Metoclopramide 10-20mg IV QID
- iv. IV fluids, correction of electrolytes
- v. Surgical intervention
 - accept conservative – gastroscopy
 - accept aggressive - laparotomy if comment about nursing home
 -

4. What is the role of a nasogastric tube in this patient?

Diagnostic but not therapeutic – unable to pass

Question 7

1.

Intussusception

- Dilated transverse colon with crescent side RUQ (intussusceptum)
- Small bowel gas present centrally

2.

Air enema

Surgical management

3.

IV fluid bolus N/S 20ml/kg

Analgesia – morphine 0.05 - 0.1mg/kg IV (or something else acceptable)

Urgent arrangement of definitive management

4.

Bowel obstruction

Perforation

Intestinal ischaemia

Haemorrhage / GI bleeding

Question 8

1.

Dilated loop of large bowel with telescoping segment – intussusception

Pass 2 of 2 (1 mark for intuss 1 mark for description)

2.

Analgesia – IV morphine aliquots 1mg (2 marks)

IV fluid bolus – N/S 20ml/kg (approx. 340mL) aiming for pulse <120, cap refill <2-3s (2 marks)

Urgent referral to paediatric surgical centre (1 mark)

Pass 3 of 5

3.

Gas insufflation PR – radiological procedure – for uncomplicated cases, first line management

Surgical correction – for failure of gas reduction, for complicated cases ie perforation

1 for option 1 mark for when

Pass 2 of 4

4.

Perforation / sepsis

Intestinal ischaemia

Must have 1 of these , others may be acceptable

Pass 1 of 2

Total pass 8 of 13 corrects to 6/10

Question 9

1

IP free fluid

IP free air

Defect anterior stomach wall

Fat stranding around stomach

Thick walled stomach

Multiple small gallstones

2

Perforated peptic ulcer

3

IV fluid – 1L N/S stat aiming for BP>100, reduction pulse rate / adequate perfusion

Analgesia – morphine 2.5mg aliquots

Urgent surgical attendance for laparotomy

IV Abs – something sensible – amp 1g, gent 5-7/kg, metronidazole 500mg

Question 10

Pass mark 12/18

A 60 year old lady presents to ED with generalised abdominal pain. She was about to have dinner when she noticed onset of constant severe pain. This is associated with nausea without vomiting.

She denies any change in bowel motions or complaints of melaena. She has been well of late with no fevers, chills, rigors or sweats. She has no complaints of urinary symptoms. She has a past medical history of paroxysmal atrial fibrillation, insulin dependent diabetes mellitus and chronic obstructive airway disease. On clinical examination, she is generally tender with no evidence of peritonism. Bowel sounds were present and normal.

Her regular medications include:

- Aspirin 100mg PO OD
- Lantus 30 units SC NOCTE
- Novorapid 10 - 15 units SC TDS
- Salbutamol INH PRN
- Salmeterol/Fluticasone INH BD

Her observations are;

Temp	37.3 degrees
BP	160/80 mmHg
Pulse	110 bpm
O2 Sats.	92% RA
RR	22 breaths/min
GCS	15/15

I. **Based on the assessment above, what is the MOST LIKELY diagnosis?**

(1 mark)

- Mesenteric Ischaemia/Bowel Infarct

An initial abdominal XRAY was performed. Refer to prop booklet. (Image A)

II. Based on this XRAY, list 2 relevant positive and negatives.

(2 marks, 0.5 mark each)

- Positives - Dilated small bowel loops, Thickened bowel wall with "Thumbprint sign"
- Negatives - No portal venous gas, No pneumatosis intestinalis, No faecal loading

III. List three (3) other differential diagnoses that should be considered?

(3 marks)

Needs to be relevant to stem

- Ruptured Abdominal Aortic Aneurysm
- Acute bowel obstruction
- Bowel perforation
- Acute appendicitis
- Renal colic
- Biliary colic

IV. List five (5) important aspects to the management of this patient. (5 marks)

- Supportive care - Analgesia, Keep NBM, IV fluids, NG tube insertion
- Antibiotics - appropriate antibiotic choice
- Heparin infusion
- Early surgical input for laparotomy
- Consideration of interventional approaches - Endovascular stenting, Catheter directed thrombolysis, Intra-arterial vasodilators

A CT abdomen has been performed. Refer to prop booklet (Image B)

V. On this axial image, what does the arrow indicate?

(1 mark)

- Pneumatosis intestinalis

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VI. List 3 other causes of this CT finding. (3 marks)

- Primary - Benign idiopathic conditions 15% of cases - Submucosal/Subserosal cysts
- Secondary - Infectious enteritis, COPD, Coeliac disease, Leukaemia, AIDs, Amyloidosis, Post-Chemotherapy enteritis, Connective tissue disorders

VII. Apart from the above CT finding, list 3 other findings on assessment which would indicate poor prognosis. (3 marks)

- Presence of bloody diarrhoea
- Lactic acidosis
- Presence of portal venous gas
- Thickened bowel wall on imaging

Question 11

Candidate Name:

Pass mark: 8

A 55 year old man is brought to your ED with sudden onset abdominal pain and vomiting. His past medical history includes atrial fibrillation with poor compliance with medications.

He has had 10mg of intravenous Morphine with little relief of his symptoms.

His vitals signs are:

HR 110/min (irregular)

BP 110/70mmHg

RR 20/min

SpO2 93% RA

Questions:

1. List 5 differential diagnoses you would consider for this patient's presentation. (5 marks)

Ischaemic bowel.

Abdominal Aorta Aneurysm.

Aortic Dissection.

Renal colic.

Perforated viscus e.g. Ruptured Appendix.

Pancreatitis

Bowel obstruction (volvulus, hernia)

Biliary Colic

2. List & justify 5 investigations would you request in the ED. (5 marks)

0.5 marks for each box

U&E for AKI, electrolyte disorder such as Hypokalaemia.

FBC for anaemia, leucocytosis.

ABG or VBG for acid-base disturbance.

Lactate for sepsis/marker of gut ischaemia.

ECG for AF and ischaemia (rule out ACS)

AXR for obstruction

Erect CXR for pneumoperitoneum.

USS (Bedside) for dilated aorta/free fluid.

CTA for vascular

occlusion/ischaemia/perforation/obstruction/infarction/collection.

(N.B MRI/MRA not a suitable ED test for this pathology)

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- 3. Despite multiple Morphine boluses of 0.1mg/kg/dose given over an hour, he remains in severe pain. List 3 other options for analgesia that could be provided in the ED? (2 marks)**

Ketamine 0.2mg/kg ivi or 10-20mg over 30mins.

Fentanyl boluses 25-50mcg IVI

NSAID (if Renal colic suspected) e.g. Ketorolac 30mg IV/IM, Indomethacin suppository 100mg PR

Paracetamol as adjunct 1g IV/PR

Question 12

A 10 year old boy presents to the Emergency department with abdominal pain.

What clinical features of the history and examination make a diagnosis of appendicitis more likely? (4 marks)

Right iliac fossa pain, Pain migrating to right iliac fossa, duration less than 3 days, anorexia, vomiting, fever, right iliac fossa tenderness, pain on hopping, pain on coughing, pain on movement or walking

After history and physical examination, you decide the most likely diagnosis is appendicitis but want to exclude other causes of abdominal pain in children. List four tests and the diagnosis they would exclude in the table below (4 marks)

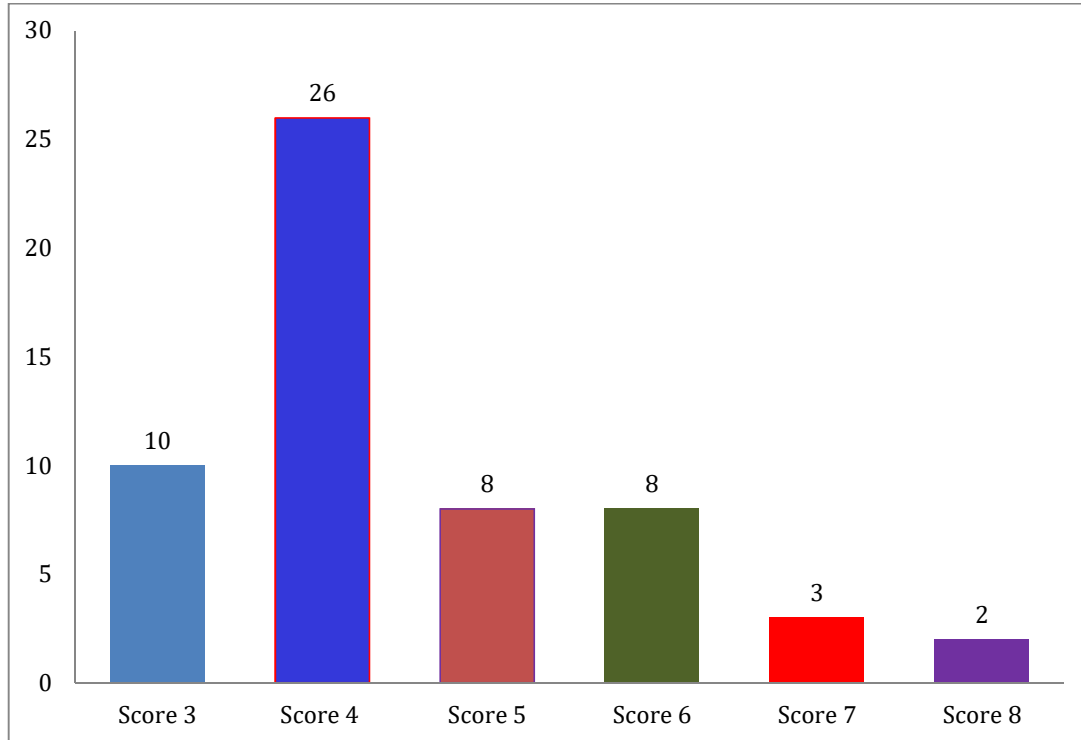
<u>Test</u>	<u>Diagnosis</u>
serum glucose	Diabetes Mellitus / diabetic ketoacidosis
urine analysis (dipstick)	urinary tract infection
liapase / amylase	pancreatitis
Chest xray	Perforation / LRTI
ultrasound	intussusception

After referral to the Surgical registrar on call you are asked to keep the child nil by mouth. Please prescribe maintenance fluid in the table below for the next 12 hours. Assume only 1000ml bags of intravenous fluid are available (2 marks)

Date	Route	Type of fluid	Additive and dose	Total volume	Rate (ml/hr)
	IV	Normal Saline + 5% Dextrose (Glucose) 0.9% Saline + 5% Dextrose (Glucose) 0.45% Saline + 5% Dextrose (Glucose)	20-40mmol Potassium chloride	1000	78 - 82 mls/hr

Question 13– George Braitberg

Distribution of scores



Why?

- I judged this as a good final year medical student question
- Most candidates answered Qs 1, 2, 3 well, so question 4 became the discriminator:
- “List 5 features that will help determine prognosis on admission”
- At the FACEM exit level I wanted:
 - An indication of whether a prognostic value went up or down, hence glucose was not enough
 - A value assigned to a prognostic indicator,
 - e.g. a bad prognosis is when the blood glucose >10 mmol/L

Who got an 8?

- 1, 2, 3 answered well.
- Q3 teased out the main IMPORTANT complications (not low glucose or low calcium)
 - e.g. local complications of pancreas such as pseudocyst or necrosis
 - systemic complications such as SIRS or sepsis

Lessons learnt

- If you don't know the abnormal values turn the prognosis question into defining the normal state.
 - i.e. state that the best prognosis is a normal LDH and you may get away without having to recall the Ranson criteria for an abnormal LDH (>350)
- If you don't know the abnormal values avoid listing them - state "acute renal injury" rather than state a creatinine, if this works for the question

Question 14 :

A 60 year female presents to your ED with a clinical history and examination suggesting acute pancreatitis.

1) List 6 potential aetiologies of this condition (3 marks)

- Gallstones
- EtOH
- Idiopathic
- Dyslipidaemia
- Hypercalcaemia
- Sphincter of Oddi dysfunction
- Drugs (azathioprine, septrin)
- Toxins
- Post ERCP
- Traumatic
- Post-operative

2) List 1 biochemical severity scoring systems used to predict this condition with 4 criteria (4 marks)

Scoring system

RAISON'S (>3 severe)	GLASGOW (>3 severe)
Age > 55 years	PaO ₂ <60 mmHg
Glucose >10mmol/L	Albumin <32 g/L
WCC >16,000/mm ³	Calcium <2mmol/L
LDH >350 IU/L	WCC >15,000/mm ³
ALT >250 IU/L	AST >200 IU/L
	LDH >600 IU/L
	Glucose >10 mmol/L
	Urea > 16mmol/L

3) List 3 local and 3 systemic complications of this condition (3 marks)

LOCAL	SYSTEMIC
Pancreatic pseudocyst	Shock/SIRS
Abscess	Hypocalcaemia
Ileus	Metabolic acidosis
Splenic vein thrombosis	Pleural effusion
Duodenal obstruction	ARDS
Chronic Pancreatitis	Multi-organ dysfunction

Question 15:

1- List six (6) potential causes of acute pancreatitis to enquire about in the history

(6 Marks)

Answer:

alcohol;

gallstones;

pancreatic / periampullary cancer;

trauma;

post ERCP;

hypercalcaemia;

hyperlipidaemia [types I, IV, V - types not essential]

2- List three features on CT scan associated with severe disease: (3 Marks)

Answer: focal or diffuse enlargement; fat stranding; single fluid collection; multiple fluid collections; necrosis; [+ accept necrosis < 33%, and >50% as two different features] (Balthazar criteria).

3- He is admitted to hospital, and his wife asks what complications might be expected?

List four potential complications: (4 Marks)

Answer: (Local): pancreatic pseudocyst; abscess; portal/splenic vein thrombosis [accept either or both as one answer]; duodenal obstruction

(Systemic): organ failure; ARDS; hypocalcaemia; pleural effusion; progression to chronic pancreatitis

Question 16

(I) 1 mark - Wound Dehiscence (Significant) - midline/paramedian laparotomy wound

(ii) 6 marks

Patient	Surgical
Age > 65	Too much wound tension
Infection	Inappropriate knot/technique
Diabetes/anaemia/malnutrition	Inappropriate suture material
Obesity /steroid use	Hematoma at surgical site
Increased abdominal pressure/coughing/vomiting	Foreign body
Emergency laparotomy	Knot was tied loosely
Perforated viscous /contamination	

(iii) 2 marks - should be fairly straight forward marks

- FBC
- PCT
- CRP
- Wound Swab
- Blood Cultures
- BSL / HBA1c

- For individual examiners to ammend as necessary

(iv) Wound Closure - 5 marks

Method	Pros	Cons
Tissue adhesive	Cosmetic results are as good as suturing. No difference in infection rate compared to suture Quick	Risk of Wound dehiscence Can not use deep or irregular wound or increased wound tension
Suture	Good wound approximation/less wound dehiscence	Time consuming/need local anesthetics/need suture removal
Steristrips	Easy to apply Quick Simple wound need approximation Allow drainage	Risk of Wound dehiscence Can't apply where tension/movement Need to keep dry 72 hrs
Staple	Speed	Cosmetic

Question 17

List two likely diagnoses (2 marks)

- Aortoenteric fistula
- Supratherapeutic anticoagulation
- Embolic mesenteric ischemia

List four investigations you would order, and for each, provide one rationale. (8 marks)

Investigation	Rationale
FBC	Assess Hb and platelet count to guide product resuscitation
Coagulation studies/ROTEM	Assess coagulopathy secondary to blood loss requiring product replacement
Thrombin time/dilute thrombin time/ecarin clotting time	Assess coagulopathy due to dabigatran necessitating antidote or enhanced elimination
Blood cultures	Identification of bacteria and sensitivity will guide antibiotic selection and duration
CT angiogram of abdomen	Define aortoenteric fistula and determine ongoing bleeding Confirm mesenteric ischemia Establish other cause for bleeding ie tumour requiring resection/embolisation

List one drug that may be used to reverse the effect of dabigatran. (1 mark)

- Idarucizumab
- Ciraparantag

List three organisms which may cause vascular prosthetic infection. (3 marks)

- S. aureus
- Coagulase-negative Staphylococci
- Enterococcus
- E. coli
- Salmonella spp.
- Coxiella burnettii/Q-fever

Question 18

XR Abnormality

- Rectal foreign body
- No obvious evidence of perforation / insensitive Ix (supine AXR without diaphragms visible)

List 2 complications that may arise from this condition (2 marks)

- Rectal mucosa abrasion/laceration: Bleeding – 40%
- Perforation 6% (iatrogenic perforation 1%)

List patient factors that necessitate this condition be handled in the operating theatre (4 marks)

- Sharp/potentially dangerous object
- Failed extraction ED
- Unsuitable for attempt in ED / anaesthetic risk
- Proximal to sigmoid
- Signs suggestive of perforation

Outline your options for anaesthesia for removal of the foreign body in the ED (2 marks)

- Procedural sedation e.g. propofol / fentanyl
- Regional anaesthesia – perianal block

List 3 techniques for removing this foreign body (3 marks)

- Valsalva manoeuvre with generous lubricant
- Gentle traction with generous lubricant
- Foley catheter with 50mL balloon / traction

Question 19

1.

Small bowel obstruction

2.

Dilated loops of bowel

Many air/fluid levels

Small bowel – plicae circulares, central location, no large bowel gas

3.

Adhesions – abdominal wall scars from previous surgeries

Inguinal herniae – presence of inguinal hernia on examination

4.

Metabolic complication	Cause
Metabolic alkalosis	Loss of HCl through vomiting
hyponatremia	3 rd spacing in to gut
Lactic acidosis	From hypoperfusion due to dehydration through 3 rd space losses in to gut

Probably many others here acceptable

Question 20

1.

Adhesions – previous abdominal surgeries, abdominal scars

Herniae – presence of inguinal or other hernia on exam

Malignancy – known Hx malignancy, wt loss

Stricture – Hx Crohns disease

2.

Ischaemia, Perforation – urgent surgery, antibiotics

Hypovolemia – IV fluid replacement

Electrolyte abnormalities eg hypokalaemia – replace K

Others may be OK

Question 21

1.

Sigmoid volvulus (1 mark)

- Massively dilated loop sigmoid colon (1 mark)
- Axis to LIF (1 mark)
- No rectal gas, proximal dilated large colon (1 mark for either part of this)

2.

- per rectal deflation – rectal tube or sigmoidoscope
- laparotomy
- percutaneous deflation

3.

Pt wishes if competent

Advanced health care directive

Substitute decision maker if pt incompetent

Pt's quality of life

Potential reversibility of condition

Nature of intervention required

(some other stuff likely to be OK)

Question 22

1.

Sigmoid volvulus – massively dilated loop of sigmoid colon with axis pointing to LIF (**CRITICAL**)

LBO – dilated large bowel proximal to volvulus with no gas distal (ie rectum)

1 mark for each diagnosis, 1 mark for explanation

Pass 2 of 4

2.

Per rectal tube decompression

Laparotomy

Conservative (ie no management)

Percutaneous drainage initially

Pass 2 of 3

3.

Analgesia – IV opiate morphine 1-2mg aliquots, fentanyl 10-20mcg aliquots

IV fluid – N/S 20ml/kg boluses to correct shock then maintenance fluid titrated to UO

Communication – explanation to pt/ substitute decision maker

1 for each concept 1 for explanation

Pass 2 of 4

4.

Pt competence to make decisions

Presence of advanced health directive

NOK wishes if pt not competent

Baseline level of function

Pass 2 of 3

Total pass 8/14 corrects to **5.5/10**