Surgery For Finals

Pre-Course Work

The aim of Surgery for Finals is to cover the essentials in a single day, allowing you to organise your knowledge and refresh your memory of the common surgical conditions appearing in the final examination.

This pre-course material is designed to help you gain maximum benefit by covering some important surgical emergencies in advance.

- Please spend about an hour on the questions
- You'll learn most if you test yourself first and then read the outline answers, which are provided in note form.

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Surgery

Consider the following three case histories, which describe three different emergencies.

Case 1
A 64 year old man, who has previously been well, is involved in a high speed road traffic accident on the nearby motorway. He is brought into casualty. There is no evidence of bony injury and he is fully conscious. He complains of upper abdominal pain and is found to have some superficial bruising. He is admitted to the ward for observation and your registrar goes to see him.

a) You are bleeped to assist the registrar who says he is developing signs of haemodynamic shock. What are these signs?

b) He deteriorates and an emergency laparotomy is performed and a contused and bleeding spleen is removed. He makes a good post-operative recovery. What prophylactic treatment is required?
Case 2

A 60 year old man presents with upper abdominal pain and persistent vomiting for 3 hours. There is no significant previous medical history. The GP says that he has signs of peritonitis.

a) What are these signs?

b) What urgent investigations would you arrange for this man?

The serum amylase is 2000, which supports the clinical suspicion of acute pancreatitis.

c) What are the causes of this condition?

d) Outline the initial management

e) Outline the risk factors for a severe attack included in the Glasgow (Imrie) scoring system
Case 3

Three days previously a 60 year old woman has had a right hemicolectomy for a Duke’s stage B carcinoma of the colon. The nursing staff call you at 3am because they have checked her fluid chart and noticed that she has not passed urine for 24 hours. (She had a urinary catheter during the operative and immediate post-operative period but this was removed as her urine output was quite satisfactory on day 1.)

a) What are the possible causes?

b) Describe your clinical assessment.

You discuss your findings with your registrar who agrees that the signs you have noted make systemic sepsis the most likely cause.

c) How would you manage her?

Case 4

What is this and what is the most likely reason for it?

Outline the complications of stomas.
Answers

Case 1
• 64 year old in RTA with upper abdominal pain and signs of haemodynamic shock

Pale anxious shocks!
• S  sinus tachycardia
• H  hypotension
• O  oliguria
• C  cold
• K  klammy
• S  slow capillary refill

Post-splenectomy
• Pneumococcal vaccination
• Meningococcal vaccination
• Haemophilus (HIB) vaccination
• Penicillin V 250mg 2bd for at least 2 years (usually for life)
• Medicalert card /bracelet and full information to patient about fever

Case 2
• 60 year old man with upper abdominal pain and persistent vomiting
• Signs of peritonitis

Trapped by Peritonitis
• T  tenderness (and tachycardia)
• R  reflex guarding (progresses to rigidity)
• A  absent bowel sounds (or reduced)
• P  pyrexia
• P  percussion pain (better than “rebound”)
• E  extremely unwell (with shallow resps)
• D  distant-local sign (distant palpation-local tenderness eg Rovsing’s sign)

Urgent investigations
• FBC, U+E, Amylase, Supine AXR, Erect CXR

Acute pancreatitis
• Causes: Gall stones, Alcohol abuse, Idiopathic
• Treat: “Drip and suck”; ie IV fluids, nil by mouth or nasogastric tube
• Pain control + intravenous antibiotics if severe attack
Modified Glasgow Scoring System (Imrie)
Based on eight prognostic factors identified in first 24 hours. Serum amylase is NOT predictive. Three or more of the following suggest a severe attack:
- Age >55 years
- White cell count (WCC) > 15/10^9
- Urea > 16mmol/l
- Calcium < 2mmol/l
- Albumin <32g/l
- pO2 <8kPa
- AST >200 iu/l
- Glucose >10mmol/l

Mnemonics

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<tr>
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<tr>
<td>A</td>
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<td>N</td>
<td>Neutrophil count (WCC)</td>
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<td>C</td>
<td>Calcium</td>
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<td>Renal function (urea)</td>
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<td>E</td>
<td>Enzymes (AST)</td>
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<td>Age</td>
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<td>Sugar (glucose)</td>
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<td>L</td>
<td>Lactate dehydrogenase</td>
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<td>A</td>
<td>Albumin</td>
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In other words, a seriously ill patient, with shock, renal impairment and hypoxia (adult respiratory distress syndrome). Low albumin and low calcium due to acute inflammation with exudation of protein rich fluid. However, the corrected calcium may also be low due to fat necrosis causing calcium deposition (“intraperitoneal saponification”). High WCC and glucose are markers of necrosis. Contrast enhanced CT scan very helpful in assessing degree of necrosis as well as complications such as pseudocyst.

Case 3
- 60 year old woman post op right hemicolectomy- Duke stage B
- Urinary catheter removed: no urine recorded for 24 hours

Causes
- Clerical/ observational error
- Pre-renal failure- dehydration or septicaemia
- Renal failure- acute tubular necrosis (including drug toxicity)
- Obstructive uropathy

Assessment
- Clarify fluid balance; general and cardiovascular examination
- Check abdomen for bladder
- Check for surgical complications eg anastomotic leak, infection, bowel obstruction

Systemic sepsis
- Admit to High Dependency Unit or Intensive Therapy Unit
- Investigations: U+E, creatinine, blood gases, CXR
- Cultures- urine, sputum, wound, blood
- Abdominal ultrasound - ? collection ? renal obstruction
Sepsis six

Three things out

• Urine output
• Blood cultures
• Lactate

Three things in

• Oxygen
• Fluids
• Antibiotics

Case 4

Urostomy or ileal conduit; most likely reason is invasive carcinoma of bladder (T2 and T3-penetrating muscle) with radical cystectomy.

Examination of a stoma

• Where? (colostomy usually left iliac fossa; ileostomy usually right iliac fossa)
• Is there a spout (ileostomy) or is it flush (colostomy)?
• Is it producing solid faeces (colostomy), liquid faeces (ileostomy), urine (urostomy)?
• Is there one opening or two (loop stoma)?
• “Site, spout and what comes out”

Complications of stomas

• Fluid loss
• Odour
• Ulceration of skin
• Leakage
• Stenosis
• Herniation (parastomal hernia) or prolapse
• Ischaemia
• Terminal ileum loss- failure to absorb bile salts and B12
• Sexual and psychological problems

Urostomy or ileal conduit

• Exposure to urine leads to skin maceration, so it needs to be directed into a bag
• Length of ileum (the conduit) is isolated from small bowel, but left on its vascular pedicle
• Re-anastomosis of the two ends of ileum from which conduit has been detached
• After removal of bladder, the two ureters are implanted into one end of ileal reservoir,
• Distal end of conduit brought out as an ileostomy (with typical spout -everted end)
• The spout ensures urine goes into the bag