

## CLINICAL SKILLS: ASSESSING THE POST OPERATIVE PATIENT

*Both during OSCEs and on the wards, it is very common to come across a patient who is unwell following surgery. It is important to be able to assess them in a timely but thorough manner. During such an assessment, you should consider the complications that can occur following surgery and how you would manage them.*

*A typical scenario could be as follows: "A nurse bleeps you about a patient who has undergone surgery and their observations are abnormal. Please carry out an appropriate assessment".*

### Assessing the background

- Use **SBAR** over the phone to gain more information
  - Situation – ask where the nurse is calling from and why she is concerned. What are the patient's observations?
  - Background – when was the patient admitted? What procedure they have had and when? What is the patient's baseline?
  - Assessment – what has been done for the patient so far?
  - Recommendation – let the nurse know what other bedside tests or investigations are needed. Give an indication of when you will review the patient.
- Ascertain the TYPE of surgery the patient has had and the TIME FRAME (i.e. did the patient have the surgery today? Yesterday? Last week?)
- Is the nurse concerned about this patient?
- Prioritise your patients and review the patient in order of priority – inform the nurse of your plan.

### You arrive at the patient's bedside and the patient looks unwell. How will you proceed?

1. Always start with full "ABCDE" assessment
  - a. See our ['DR ABCDE' resource](#) for a full break down of this assessment
2. Ask for HELP early
3. Use the support of the nurse – ask them to do repeat observations, put up fluids, do an ECG, dip the urine etc.
4. Identify if the patient is septic early – if so, start SEPSIS SIX bundle [*see appendix 1*].
5. Consider hypovolaemia early: many reasons for this, including pre-operative (being nil by mouth), operative (blood loss during surgery), and post-operative (vomiting due to nausea, sepsis)
6. Once patient is stable, look in the notes to find out more on the operation notes, and the post-operative plan to help you.

Once the patient is resuscitated and stable, it is important to understand the cause of their abnormal observations and post-operative complications.

Post-operative pyrexia (>38°C) is one of the most common presentations. This could be a sign of an early or delayed problem. This has been explained below in more detail.

**Examination of a post-operative febrile patient should include:**

- Observation chart, fluid chart, notes and drug chart
- Wound check
- Abdominal examination + digital rectal examination (DRE)
- Legs
- Chest
- Lines
- Drains
- Urine
- Stool

**Investigations should include:**

- Urine: dip + send for culture (MCS)
- Bloods: FBC, U&E, LFTs, G&S, clotting
- Cultures: blood, wound, lines including central venous pressure (CVP) catheter tip/percutaneous peripheral line (PICC)
- Chest xray
- Arterial Blood Gas (ABG)

**Causes of post-operative complications:**

- **Early - 0-5days post-operative**
  - Haemorrhage
  - Urinary retention
  - Physiological - SIRS from trauma 0-24hrs
    - SIRS = systemic inflammatory response syndrome. Defined as 2 or more of:
      - Fever  $>38^{\circ}\text{C}$  or  $< 36^{\circ}\text{C}$
      - Heart rate  $>90$  beats per minute
      - Respiratory rate  $>20$  breaths per minute or  $\text{PaCO}_2 <32$  mm Hg
      - Abnormal white blood cell count ( $>12,000/\text{mm}^3$  or  $<4,000/\text{mm}^3$  or  $>10\%$  bands)
  - Pulmonary atelectasis - 24-48hrs
  - Infection - urinary tract infection (UTI), cellulitis, superficial thrombophlebitis
  - Drug reaction
- **Delayed - >5days post-operative**
  - Pneumonia
  - Wound infection - 5-10days
  - Deep vein thrombosis (DVT) or pulmonary embolus (PE) - 5-10days
  - Anastomotic leak - 7days
  - Wound dehiscence - 10days
  - Collection - 5-20days

**OSCE-Aid Tips**

Try to get in the habit of categorising answers, especially if asked about the causes of a medical issue.

## Differentiating post-operative complications

### **Haemorrhage**

- Ascertain AMOUNT of blood loss, ROUTE of blood loss and COLOUR of blood
- Types:
  - Primary: continuous bleeding starting during surgery
  - Reactive: bleeding at the end of surgery/ early post-op
  - Secondary: bleeding >24hrs post-op. Usually due to infection.
- Management: resuscitate with fluids and blood if blood pressure dropping
  - But management depends on where bleeding is coming from. If internal, may need further imaging, if post-tonsillectomy may need removal of skin clips.
  - Apply pressure if superficial.

### **Post-op urinary retention**

- Causes:
  - Drugs – opioids, epidural/ spinal anaesthesia
  - Pain – sympathetic activation = sphincter contraction
  - Mechanical – blocked catheter, clot retention
- Management:
  - Catheterise
  - Bladder irrigation if risk of clots via 3-way catheter
  - Fluid balance chart

### **Pulmonary atelectasis**

- Occurs after nearly every general anaesthetic
- Mucous plugging and absorption of distal air → collapse
- Pain inhibits respiratory excursion and cough
- Present within 48hrs with mild pyrexia, dyspnoea and dull bases
- Management:
  - Good analgesia to aid coughing
  - Chest physiotherapy

### **Wound dehiscence**

- Preceded by serosanguinous discharge from the wound
- Risk factors:
  - Pre-operative
    - Higher age
    - Smoking
    - Obesity, malnutrition
    - Drugs: steroids, chemotherapy
  - Operative
    - Length and orientation of incision
    - Closure technique
    - Suture material
  - Post-operative
    - Infection
    - Haematoma/seroma formation
    - High intra-abdominal pressure

- Management:
  - Call senior
  - Replace abdominal contents and cover with sterile soaked gauze
  - IV antibiotics – according to hospital guidelines
  - Opioid analgesia
  - Arrange patient for theatre – will need surgical washout and possible debridement

### ***Deep Vein Thrombosis (DVT)***

- Occurs in 25-50% of surgical patients
- Presents with: warm calf, tenderness, erythema, mild pyrexia, pitting oedema
- Calculate Wells score [*see appendix 2*]
- Treat with treatment dose low molecular weight heparin (LMWH) - if vascular patient/bleeding → contact haematologist first!
- Ensure all surgical patients have appropriate venous thromboembolism (VTE) prophylaxis / anti-embolism (TED) stockings

### ***Collection***

- Presents with:
  - Swinging pyrexia
  - Shoulder tip pain (if subphrenic)
- Locations:
  - Pelvic: presents 4-10days post-op
  - Subphrenic: presents 7-21days post-op
  - Paracolic gutters
  - Hepatorenal recess (Morrison's space)
- Management: antibiotics and drainage/washout

## **APPENDIX 1: The SEPSIS SIX Bundle**

3 things taken:

1. Measure lactate level
2. Obtain blood cultures prior to administration of antibiotics
3. Obtain urine output – insert urinary catheter as appropriate

3 things given:

4. Administer oxygen as appropriate (via face mask or nasal cannula)
5. Administer broad spectrum antibiotics
6. Administer 30ml/kg crystalloid for hypotension or lactate  $\geq 4$ mmol/L

To be completed within 3 hours of time of presentation\*

*\* “Time of presentation” is defined as the time of triage in the emergency department or, if presenting from another care venue, from the earliest chart annotation consistent with all elements of severe sepsis or septic shock ascertained through chart review.*

**From:** Surviving Sepsis Campaign, <http://www.survivingsepsis.org/Bundles>

## **APPENDIX 2: WELL'S SCORE**

### **For Deep Vein Thrombosis:**

Active cancer <i>Treatment or palliation within 6 months</i>	1
Bedridden recently >3days or major surgery within four weeks	1
Calf swelling >3cm compared to the other leg <i>Measured 10cm below tibial tuberosity</i>	1
Collateral (non-varicose) superficial veins present	1
Entire leg swollen	1
Localised tenderness along the deep venous system	1
Pitting oedema, confined to systematic leg	1
Paralysis, paresis, or recent plaster immobilization of lower limb	1
Previously documented DVT	1
Alternative diagnosis to DVT as likely or more likely	-2

- Score 0 or lower = DVT unlikely
- Score 1-2 = moderate risk of DVT
- Score 3 or higher = DVT likely → patient should receive diagnostic ultrasound

### **For Pulmonary Embolus:**

Clinical signs and symptoms of DVT	3
PE is #1 diagnosis OR equally likely	3
Heart rate >100	1.5
Immobilization at least 3 days OR surgery in the previous 4 weeks	1.5
Previous, objectively diagnosed PE or DVT	1.5
Haemoptysis	1
Malignancy with treatment within 6 months or palliative	1

- Score 0-4 = PE unlikely
- Score >4 = PE likely → consider CTPA