

## CASE FOUR

**Short case number: 3\_3\_4**

**Category: GIT/Metabolic**

**Discipline: Surgery**

**Setting: Hospital**

**Topic: Post operative fever [SDL]**

### Case:

**Mrs Elise Davis, aged 59 years has an elective hysterectomy 24 hours previously. She has a history of asthma requiring inhaled corticosteroids and ventolin, and had a deep vein thrombosis three years earlier following elective surgery for varicose veins. Post operatively she has been on subcutaneous heparin and TED stockings as prophylaxis. You are called to assess her because she has just spiked a temperature of 38.1° C and feels unwell.**

### Questions

1. How would you manage Mrs Davis in terms of further history, examination and investigations? Provide details of the physical examination that you would undertake in the assessment of surgical patients with a post-operative fever as part of your answer.
2. List common sources of fever in surgical patients..
3. List the endocrine, metabolic, autonomic and behavioural characteristics of the febrile state.
4. Until results were available, what antibiotic regimen would you prescribe in this case and why?

### Suggested reading:

1. Henry MM, Thompson JN, editors. Clinical Surgery. 3<sup>rd</sup> edition. Edinburgh: Saunders; 2012. Chapter 7.
2. Garden OJ, Bradbury AW, Forsythe JLR, Parks RW, editors. Davidson's Principles and Practice of Surgery. 6<sup>th</sup> edition. Philadelphia: Churchill Livingstone Elsevier; 2012. Chapter 9.

1. **How would you manage Mrs Davis in terms of further history, examination and investigations.** Answer this question by using a table. Provide details of the physical examination checklist for surgical patients with a post-operative fever as part of your answer
2. **Post-op causes of a fever**
  - Wound infection
  - Surgical site infection (pelvic collection in this case)
  - UTI
  - Atelectasis
  - Pneumonia
  - Cannula site infection
  - Bacteraemia
  - Pressure area
  - DVT/PE
3. List the endocrine, metabolic, autonomic and behavioural characteristics of the febrile state  
**endocrine & metabolic**
  - increased production of glucocorticoids
  - increased secretion of growth hormone
  - increased secretion of aldosterone
  - decreased secretion of vasopressin
  - decreased levels of divalent cations (necessary for bacterial replication)
  - secretion of acute phase proteins  
**autonomic**
  - shift in blood flow from cutaneous to deep
  - increased pulse and blood pressure
  - increased/ decreased sweating  
**behavioural**
  - shivering
  - search for warmth (chills)
  - anorexia
  - somnolence
  - malaise / lethargy
  - confusion
4. **Until results were available, what antibiotic regimen would you prescribe in this case and why?**
  - If clinically unwell, consider early pelvic infection / chest infection
  - IV Ceftriaxone / Metronidazole – broad spectrum cover
  - Wait if appears well (as below) – inflammatory response vs infection post op.

An antimicrobial agent may not be indicated at this stage as the The Society of Critical Care Medicine has adopted the guideline that a temperature elevation of to  $38.3^{\circ}\text{C}$  is the trigger to initiate an investigation  
 refer below Table 2-22 Physical examination checklist for investigating cause of a fever, from 'Essentials of General Surgery' (4<sup>th</sup> ed.) p 41, by Peter F. Lawrence.

**Table 2-22**

**Physical Examination Checklist for Investigating Cause of a Fever**

Anatomic Site	Clue
<b>Head and Neck</b>	
Sinusitis/Otitis	Nasal/oral instrumentation/facial fracture
Meningitis	Skull fracture/instrumentation/craniotomy/CSF leak
Parotitis	Elderly/periodontal disease/dehydration/oral instrumentation
Periodontal abscess	Periodontal disease
Peritonsillar/pharyngeal abscess	Immunosuppression/facial fracture
Deep neck infection	Surgery/penetrating injury (especially digestive tract)/periodontal disease
<b>Thorax</b>	
Pneumonitis/lung abscess	Intubation/mechanical ventilation/contusion/penetrating injury/aspiration
Mediastinitis	Esophageal injury/sternotomy/neck exploration/penetrating thoracic injury
Empyema	Hemothorax/tube thoracostomy/duration of thoracic instrumentation
Endocarditis	Central vascular access/TPN/valvular disease (e.g., MVP)/periodontal disease
Pericarditis	Sternotomy/pericardial window/penetrating injury
Bronchitis/tracheitis (?)	Instrumentation
Esophagitis (?)	Immunosuppression/broad-spectrum antibiotics
<b>Abdomen and retroperitoneum</b>	
Intraabdominal abscess	Previous celiotomy/splenectomy/visceral organ repair/anastomosis/enteric contamination/bullet tract/possible missed injury
Acalculous cholecystitis	
Ischemic viscera	
Colitis	Age/hypotension/broad-spectrum antibiotics/diabetes
Pancreatitis (necrotizing)	Mesenteric injury/hypotension/pressors
Urinary tract	
Prostatitis	Broad-spectrum antibiotic use/diarrhea
Primary peritonitis	Hypotension/biliary stones/splenectomy/direct injury
Pylephlebitis	
Occult perirectal abscess	Bladder instrumentation/comorbid urinary tract disease/urinary tract injury/diabetes
Diverticular disease/appendicitis	Instrumentation/duration/age
TOA/endometritis	Hepatic failure/cirrhosis/ascites
	Intraabdominal process/abscess
	Hematogenous malignancy/diabetes/immunosuppression/perineal injury
	Preeexisting condition/age/suspicion (?)
	Preeexisting disease/direct injury
<b>Extremities</b>	
Occult compartment syndrome	Unconscious/extremity fracture/casts/hypotensive episodes/immobilization (gluteal compartments)/crush injury
Phlebitis/arteritis	Duration of hospitalization/instrumentation/injury
Wounds (surgical or traumatic)	
Superficial or deep abscess	Presence/contamination/time to definitive management/GI tract injury/diabetes/vascular disease
Necrotizing soft tissue infection	GI injury/diabetes/immunosuppression
Necrotizing myositis/ischemia	Occult compartment syndrome/unconsciousness
Decubitus ulceration/abscess	Immobilization

CSF, cerebrospinal fluid; GI, gastrointestinal; MVP, ; TOA, ; TPN, total parenteral nutrition.