

SAQ 5

A 30 year old man undergoes a lumbar puncture in the emergency department for investigation of fever, headache and vomiting. His cerebrospinal fluid and serum glucose results are as follows:

| | | | | Reference Range |
|------------------|-------------------|---------------------|-------------------------------|-----------------|
| Opening pressure | 220 | mm H ₂ O | (supine) | (50-200) |
| Colour: | mildly turbid | | | |
| WCC | 400 | /ml | (predominance of lymphocytes) | (0-2) |
| RBC | 10 | /ml | | (0) |
| Protein: | 1.2 | g/L | | (0.2-0.5) |
| CSF glucose | 2.2 | mmol/L | | |
| Gram stain | No organisms seen | | | |
| Serum glucose | 6.2 | mmol/L | | (3.0-8.0) |

a. List 4 key features of the patients CSF sample results (4 Marks)

1/2 Mark each from:

- Mild increase in opening pressure
- Raised WCC / Lymphocytosis
- RBC minimal raise given this range, Hedge's lists up to 10 RBC as normal, not bloody tap, RBC do not explain WCC rise
- Low CSF glucose or low CSF /serum glucose ratio (ratio is ~0.35)
- No organisms seen

b. List 6 potential complications associated with lumbar punctures (6 Marks)

Acute:

- Post procedural headache
- Superficial bleeding e.g. site haematoma
- Deep bleeding e.g. epidural haematoma, SAH
- Procedural failure / Dry tap
- Anaphylaxis - cleaning solution or LA
- Radicular symptoms
- Superficial infection
- Deep infection e.g. epidural abscess
- Central infection / meningitis
- LA toxicity
- Epidermoid tumour
- Retroperitoneal abscess
- CN VI palsy

c. List 5 potential causes from this patient's CSF result (5 Marks)

1 Mark for each of:

- Viral meningitis - mumps and HSV both give low CSF glucose
- Bacterial meningitis +/- partially treated

1 Mark up to 3 marks for any from:

- TB meningitis
- Fungal meningitis
- Toxoplasma
- Syphilis
- Sarcoidosis
- Drug induced aseptic meningitis
- Malignant meningitis
- Chemical meningitis

Question adapted from FACEM VAQ question 2011.2.6

Answers taken from Robert's & Hedges Clinical Procedures in Emergency Medicine, 6th Edition, Chp 60.