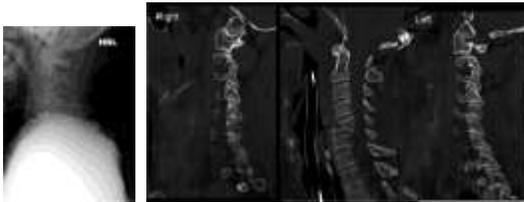


## Intercollegiate Specialty Examination in Neurosurgery

### Investigation of Neurosurgical Patient incl. Neuroradiology

**Theme:** Spinal Injury

**Scenario:** A 72 year old woman falls down stairs and strikes her head against a wall at the foot of the stairs. The A & E registrar refers the patient to you commenting that she 'refuses' to move her arms and legs. She is fully conscious and is able to recall the incident.



**Introductory question: (e.g. integration of information presented/application of basic principles to the situation described in the scenario/differential diagnosis)**

What is the initial investigation?

**Key Points for Discussion:**

Lateral plain film of cervical spine.

**Question 2: (e.g. management, relevant applied pathophysiology, anatomy)**

Interpret the film.

**Key Points for Discussion:**

Adequacy, alignment, soft tissue shadow, bone structure.

Techniques for obtaining better plain films - pull shoulders

Show CT and ask for an interpretation.

Should see wedge compression fracture, likely due to flexion and compression.

Consider MRI.

**Question 3: (complications of management)**

Discuss the stability of the injury.

**Key Points for Discussion:**

Two column injury, facets to be considered, ligamentous injury to be considered, loss of height angulation, healing potential in setting of possible underlying osteoporosis.

**Competence Guide:**

**Appropriate:**

Identifies level.

Knows that film is inadequate and can suggest other imaging strategies.

Understands correlation between films and mechanism of injury.

Fluently discussed assessment of spinal stability.

**Inappropriate:**

Fails to investigate the spine.

Misses the appropriate points.

Suggests stable injury for conservative treatment.

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No exhibits

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End of Item D18027

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## **Intercollegiate Specialty Examination in Neurosurgery**

### **Non-operative practice incl. Applied Basic Sciences**

**Theme:** Cerebral blood flow and its control and measurement

**Scenario:** A patient 6 days post ictus and coiling of an aneurysm deteriorates with a fall in conscious level. The urea and electrolytes, blood gases and full blood count is normal and a CT scan rules out hydrocephalus. A lumbar puncture has been done which had an opening pressure of 10mmHg of CSF and rules out meningitis.

**Introductory question: (e.g. integration of information presented/application of basic principles to the situation described in the scenario/differential diagnosis)**

What is the likely cause of this deterioration?

**Key Points for Discussion:**

Delayed cerebral ischaemia/cerebral vasospasm.

**Question 2: (e.g. management, relevant applied pathophysiology, anatomy)**

How does this condition influence CBF?

What is the normal cerebral blood flow?

Are there regional differences in CBF in the normal brain?

What factors influence CBF in the normal brain and how is this likely to be disordered in this patient?

How are you going to improve perfusion of the brain in this patient?

**Key Points for Discussion:**

Flow metabolism coupling, autoregulation, effect of PaO<sub>2</sub> and PaCO<sub>2</sub> (draw graph), temperature, autonomic control, drugs

Normal mean CBF 50ml/100g/min. Grey matter CBF 80ml/100g/min, white matter

20ml/100g/min reflecting different metabolic needs.

SAH patient, loss of autoregulation, cerebral vasospasm (focal/global), other factors affecting perfusion (e.g. ICP)

Principles of hypervolaemic hypertensive treatment.

**Question 3: (complications of management)**

What techniques are available for measuring CBF clinically and what are their limitations?

**Key Points for Discussion:**

Kety Schmidt technique and xenon washout methods (Fick principle), transcranial Doppler, PET, fMRI.

None particularly easy in sick patients.

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No exhibits

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End of Item D29601

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## **Intercollegiate Specialty Examination in Neurosurgery**

### **Operative Surgery incl. Surgical Anatomy**

**Theme:** Colloid cyst IIIrd ventricle

**Scenario:** A 33 year old female is admitted under your care with a sudden onset of headache associated with blurred vision. A CT scan shows a colloid cyst and dilated ventricles.

**Introductory question: (e.g. integration of information presented/application of basic principles to the situation described in the scenario/differential diagnosis)**

How are you going to manage her?

**Key Points for Discussion:**

Surgery needed with this presentation?...and why?

Options – drain ventricles, urgent surgery to remove cyst

**Question 2: (e.g. management, relevant applied pathophysiology, anatomy)**

You decide to treat the cyst definitively, what surgical procedures are available to you?

You have opted for endoscopy and are in the ventricle with an endoscope, and suddenly all you see is blood, lots of it...what would you do now?

The CSF clears and you're in a blind alley of CSF space with no veins or choroid....what would you do now?

**Key Points for Discussion:**

Endoscopic resection, trans-callosal, trans-cortical, stereotactic aspiration, bilat shunts. Unilateral shunt and pellucidotomy. Pros and cons of each.

Find veins, choroid plexus/ avoid fornix...follow to foramen

Irrigate/ suck/wait

**Question 3: (complications of management)**

You are doing an endoscopic procedure to remove the cyst, find that the cyst is large, stuck in the foramen and bleeds every time it's manipulated; what would you do?

What are the pros and cons of leaving an EVD?

**Key Points for Discussion:**

Come back with scope and re-check anatomy (in occipital pole).

Bipolar the capsule, evacuate and then take pedicle and capsule.

Option of converting an endoscopic to open procedure.

**Competence Guide:**

**Appropriate:**

Needs surgery.

Knows different options and complications.

Possibility of recurrence.

Sensible stratagems for dealing with the posed operative problems.

Awareness of important structures to avoid.

Safely can manage complications during an endoscopic procedure.

**Inappropriate:**

Deferring surgery.

Unaware of the anatomy and consequences of forniceal damage, and different surgical options.

Difficulty in dealing with the problems posed and stratagems to cope with them.

Unaware of anatomical characteristics of a colloid cyst.

Does not know how to deal with intra –operative complications.

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No exhibits

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End of Item D22785

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