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1. A 39-year-old woman was admitted with upper abdominal pain and a small amount of hematemesis. She was known to have a cardiac murmur. She was treated with proton pump inhibitors and was scheduled to have an upper gastrointestinal endoscopy. She had been under cardiology follow-up for the cardiac murmur and had had an echocardiogram 2 months ago. She was asymptomatic from the cardiac point of view.

Echocardiogram showed mitral valve prolapse with moderate mitral regurgitation, LV end diastolic diameter 42 mm (39–53), LV ejection fraction 65% (55-70%), pulmonary artery systolic pressure 26 mmHg (15–30), other valves are normal. Electrocardiogram: sinus rhythm and no abnormalities

**What is the most appropriate course of action?**

**#**

a. Chlorhexidine mouthwash for infective endocarditis prophylaxis prior to endoscopy

b. Intravenous amoxicillin 2 g (30–60 minutes) prior to endoscopy

c. No infective endocarditis prophylaxis is required \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

d. Oral amoxicillin 2 g (30–60 minutes) prior to endoscopy

e. Due to the history of bleeding and valve disease, barium meal is a better alternative

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2. A 43-year-old man was referred to the emergency room after a fall. He sustained a fracture and dislocation of his left ankle, but could not remember how the fall had happened. In the past he had had a few episodes of palpitations. The dislocation was reduced under opiate analgesia. His only other significant past medical history was hypertension and was maintained on amlodipine 10 mg once daily.

On examination, his pulse was 80 beats per minute, blood pressure 150/90 mmHg and respiratory rate 16 breaths per minute. The rest of the physical examination was normal.

Investigations: haemoglobin13.4 g/dL, white cell count 8,000, neutrophils 65%, platelets 295,000, sodium 140 mEq/l, potassium 4.5 mEq/l, urea 45 mg/dl, creatinine 0.8 mg/dl. ECG: sinus rhythm and left ventricular hypertrophy. Later on in the evening, he was taken to the theatre for an open reduction and internal fixation of the fracture. However, on induction of anaesthesia, his blood pressure rose up to 280/150 mmHg and the operation was abandoned.

**What is the most appropriate next investigation?** **#**

a. 24-hour urine free cortisol

b. 24-hour urine metanephrines \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

c. Plasma aldosterone : renin ratio

d. Thyroid function tests

e. Urine porphobilinogen

#

3. A 34-year-old man presented to the emergency department with severe weakness of all four limbs of 6 hours’ duration. On further questioning, he has had some muscle aches over the past 2 days. On the day of presentation, he had woken up with muscle aches, especially in the thigh and around the shoulders. By mid-day he found it difficult walking or climbing stairs and could not get up from the chair and called the ambulance. He had no visual, sensory or bladder/bowel symptoms. He did, however, give a history of increased sweating, tremulousness, anxiety and palpitations over the last 2 months. He had no significant past history of note and was not on any medications.

On examination, he had hypotonia, grade 3 power proximally and grade 4 power distally with reduced reflexes in all four limbs. Sensory examination was normal and plantar reflex was flexor.

Investigations: sodium 138 mEq/l, potassium 2.8 mEq/l, urea 25 mg/dl, creatinine 0.7 mg/dl, albumin 4.3 mg/dl, bilirubin 0.7 mg/dl, ALT 21, AST 32, calcium 10.2 mg/dl, CK 155.

He was started on potassium infusion and his symptoms improved.

**Which test would confirm the diagnosis?** **#**

a. Fasting blood sugar

b. Lumbar puncture and protein analysis with microscopy

c. MRI of cervical spine

d. Nerve conduction studies

e. Thyroid function tests \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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4. A 34-year-old man, admitted with diabetic ketoacidosis, gave a 2-day history of headache, nasal congestion, periorbital swelling and a blood-stained nasal discharge. Over the subsequent 48 hours he became drowsy and unresponsive despite correction of his hyperglycaemic state. ENT examination revealed black, necrotic lesions on a perforated nasal septum.

Investigations: haemoglobin 14.5 g/dl; white cell count 9,400; neutrophils 8,600; platelets 553,000; serum glucose 110 mg/dl; urea, electrolytes and liver function tests were normal. CT of the head showed no brain abnormality, marked paranasal sinus mucosal thickening with no bony destruction. Cerebrospinal fluid: white cell count 1, red cell count 4, protein 0.31 g/L (0.15–0.45), glucose 95 mg/dl. Nasal swab: Streptococcus pneumoniae and Staphylococcus aureus

**What is the most likely diagnosis?** **#**

a. Dental abscess

b. Nasal diphtheria

c. Orbital cellulitis

d. Rhinocerebral mucormycosis \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

e. Severe maxillary sinusitis

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5. A 24-year-old man presented with a 2-day history of fever and a generalized blistering rash. He had been taking prednisolone 20 mg daily for more than 2 weeks because of severe asthma. His son had had chickenpox 2 weeks previously.

On examination, he was low in mood. His temperature was 38.5°C, his BP was 118/76 mmHg and his respiratory rate was 14 breaths per minute. His oxygen saturation was 96% on room air. He had a widespread eruption consisting of vesicles and pustules. Examination of his chest showed a few wheezes but no crackles.

Investigations:

|  |  |
| --- | --- |
| Haemoglobin | 128 g/L (130–180) |
| white cell count | 15.2 × 109/L (4.0–11.0) |
| neutrophil count | 13.8 × 109/L (1.5–7.0) |
| lymphocyte count | 1.0 × 109/L (1.5–4.0) |
| platelet count | 189 × 109/L (150–400) |
|  |  |
| chest X-ray | normal |

**What is the most appropriate next management step?** **#**

a. Antipyretic

b. Intravenous acyclovir \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

c. Intravenous flucloxacillin

d. Oral valaciclovir

e. Varicella zoster hyperimmune globulin

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6. A 27-year-old woman attended the emergency department with a one week history of progressive dyspnea and cough, and a 2-day history of left basal thoracic pain on inspiration and haemoptysis. She had a history of bronchiectasis. She was a non-smoker. She had recently returned from a holiday in Canada, and was taking co-amoxiclav and prednisolone prescribed by her general practitioner for an exacerbation of her bronchiectasis. She was a non-smoker.

On examination, she was thin. Her temperature was 37.3°C, her pulse was 115 beats per minute and regular, her BP was 128/78 mmHg and her respiratory rate was 22 breaths per minute.

Investigations:

|  |  |
| --- | --- |
| Haemoglobin | 157 g/L (115–165) |
| white cell count | 18.0 × 109/L (4.0–11.0) |
|  |  |
| serum CRP | 68 mg/L (<10) |
|  |  |
| arterial blood gases, breathing air: |  |
| PO2 | 63 mm Hg |
| PCO2 | 35 mm Hg |
| pH | 7.40 |
|  |  |
| Bicarbonate | 22 mmol/L (21–29) |
|  |  |
| ECG | sinus tachycardia |
|  |  |
| chest X-ray | cystic changes at left base |

**What is the most appropriate next investigation?** **#**

a. CT pulmonary angiography \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

b. D-dimer

c. Echocardiography

d. Ultrasound scans of legs and pelvis

e. Ventilation/perfusion isotope lung scan

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7. A 75-year-old man presented with widespread aches and pains. He had a 20-year history of haemodialysis for end-stage renal disease.

An X-ray of his hand was performed (see image).



**What is the most likely diagnosis?** **#**

a. Dialysis-related amyloidosis

b. Gout

c. Primary hyperparathyroidism

d. Secondary hyperparathyroidism \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

e. Systemic sclerosis

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8. A 36-year-old man attends the out-patient clinic with his wife after failing to conceive after ten years of marriage.

On examination: a tall, thin man with bilateral gynecomastia. Investigations revealed high levels of urinary gonadotrophins.

**What is the most likely diagnosis?** **#**

a. Homocystinuria

b. Acromegaly

c. Kleinfelter’s syndrome\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

d. Gaucher’s disease

e. Noonan’s syndrome

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9. A 68-year-old woman attended the emergency department after a 15-minute episode of left arm weakness. She had no significant past medical history. On examination: heart rate was 100 beat per minute and irregular, and her blood pressure was 150/90 mmHg. Her arm weakness had resolved and she had no speech impairment. Her ECG showed atrial fibrillation.

**What should her management include? #**

a. Clopidogrel 75 mg daily

b. A diffusion-weighted MRI scan of brain within one week

c. An echocardiogram within 24 hours

d. Low molecular weight heparin until fully anticoagulated

e. Referral for carotid endarterectomy within one week of symptom onset if there is significant carotid stenosis \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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10. An 83-year-old man was referred to the acute medical unit by his family doctor with increasing shortness of breath and a cough with green sputum. On further questioning, he complained of choking on his food for a number of months and double vision for even longer. On examination, he had a left partial ptosis, but otherwise his cranial nerve examination was normal. He was generally weak in all muscle groups; his reflexes were normal.

**Which is the most important investigation? #**

a. Acetylcholinesterase antibodies

b. Chest X-ray

c. MR scan of brain

d. Spirometry \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

e. Thyroid function tests