

ENDGAMES

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PICTURE QUIZ A South African man with renal failure and pulmonary shadowing

A 37 year old black South African man, who had been in the United Kingdom for about eight years, presented to the emergency department with a grand mal seizure that lasted 15 minutes. He had a one week history of feeling non-specifically unwell, a non-productive cough, and breathlessness, but no history of headaches, previous seizures, myalgia, arthralgia, adenopathy, or rashes. On examination, he had hypertension (177/108 mm Hg), tachycardia (102 beats/min), and a normal temperature (37.0°C). A chest examination was normal, as was the rest of the examination, and he was not dehydrated. Initial investigations showed raised creatinine (1949 µmol/L), urea (43 mmol/L), potassium (6 mmol/L), and C reactive protein (60 mg/L) concentrations. He was anaemic, with a haemoglobin of 93 g/L. Urinalysis showed proteinuria (3+) and haematuria (2+). In addition, arterial blood gases on air showed a metabolic acidosis (pH 7.29, partial pressure of oxygen 10.5 kPa, partial pressure of carbon dioxide 3.99 kPa, and base excess -11.2 mmol/L).

Chest radiography was performed (figure). He was started on intravenous

antibiotics for his respiratory symptoms. According to local hospital guidelines, combination treatment with piperacillin and tazobactam (Tazocin), clarithromycin, and co-trimoxazole was given to cover bacterial, atypical, and opportunistic organisms.

In view of the seizure, we performed computed tomography of the head and a lumbar puncture. Both were normal, and the patient's uraemic state was thought to be the most likely cause of his seizure.

The raised urea, acidosis, and borderline hyperkalaemia were considered grounds for immediate haemodialysis and fluid removal.

- 1 What does the chest radiograph show?
- 2 What differential diagnoses should be considered?
- 3 How would you confirm the diagnosis?
- 4 What further investigations are needed in view of the renal failure?
- 5 What long term management needs to be started once the diagnosis is confirmed?

Submitted by Neil Chanchlani, Elizabeth Neale, and Paul B Rylance

Cite this as: *BMJ* 2012;344:e2789

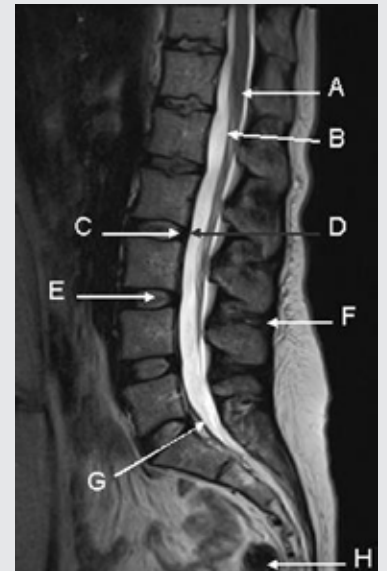


ANATOMY QUIZ

Magnetic resonance imaging of the lumbar spine

Identify the structures labelled A to H in this sagittal T2 weighted image of the lumbar spine.

Submitted by Suki C Brown
Cite this as: *BMJ* 2012;345:e4461



STATISTICAL QUESTION

Statistical tests for independent groups: time to event data

Researchers assessed the effectiveness of low dose, high frequency ultrasound when combined with standard care in healing venous leg ulcers that had previously been hard to heal. A multicentre randomised controlled trial with a study period of 12 months was performed. Ultrasonography was given for 12 weeks, after which participants returned to standard care alone. Control treatment was standard care alone.

Trial participants were recruited if they had at least one venous leg ulcer of more than six months' duration or greater than 5 cm² in area and an ankle brachial pressure index >0.8. In total, 168 people were randomised to ultrasound and standard care and 169 to standard care alone. The primary outcome was time from randomisation until healing of the largest eligible leg ulcer, referred to as the reference ulcer. The researchers reported that no significant difference existed between treatment groups in the time until healing of the reference leg ulcer (P=0.61).

Which one of the following statistical tests would have been used to compare treatment groups in the time until healing of the reference leg ulcer?

- a) χ^2 test
- b) Fisher's exact test
- c) Log rank test
- d) Logistic regression

Submitted by Philip Sedgwick

Cite this as: *BMJ* 2012;345:e5257