ENDGAMES

We welcome contributions that would help doctors with postgraduate examinations
See bmj.com/endgames for details

FOLLOW ENDGAMES ON TWITTER
@BMJEndgames
FOR SHORT ANSWERS See p 43
FOR LONG ANSWERS
Go to the Education channel on bmj.com

PICTURE QUIZ

A man with hypertension and two murmurs

Fig 1 | Posteroanterior chest radiograph

A 34 year old white man was referred by his general practitioner to our cardiology clinic with hypertension and a six month history of intermittent lower midsternal chest pain. The pain radiated to the left side of his back and was unrelated to physical exertion. He also reported two episodes of sudden onset dyspnoea, which lasted a few minutes, occurred at rest, and was not associated with chest pain or cardiac symptoms. He had not experienced such symptoms previously. His exercise tolerance was normal.

On examination, he was comfortable at rest. His heart rate was regular, at 80 beats/min. He had a large volume "collapsing" pulse, a prominent carotid pulse, and bounding peripheral pulses. His jugular venous pressure was not raised. There was no radioradial delay but radiofemoral delay was noted. His blood pressure was 210/70 mm Hg. The apex beat was visible and displaced 3 cm left of the midclavicular line in the fifth intercostal space. A left parasternal heave was noted. On auscultation, a loud early diastolic murmur and a systolic murmur were heard. Examination of the respiratory, abdominal, and neurological systems was unremarkable. Figure 1 shows his chest radiograph.

1 On the basis of the clinical findings and chest radiograph, what diagnoses can be made?
2 What investigations might help you confirm the suspected diagnoses?
3 What are the management options and long term prognoses?

Submitted by Stuart C G Rison, Toby P Locke, Eric Rosenthal, and Sandeep Gandhi
Cite this as: *BMJ* 2012;344:e956

CASE REPORT

A man with a blistering eruption and tuberculosis

A 59 year old Chinese man was admitted for a blistering eruption. He had stopped using injected drugs and drinking alcohol three years ago after having previously drunk two cans of beer, equivalent to 2-3 units of alcohol, a week. Two years ago, he had been diagnosed with chronic hepatitis C virus (HCV) infection and had recently been diagnosed with pulmonary tuberculosis, for which he was started on isoniazid 600 mg, rifampicin 600 mg, ethambutol 1.5 g, and pyrazinamide 2 g three times a week.

Three days after starting this treatment, he developed a progressive blistering eruption over his neck and both upper limbs, which affected his lateral arms and forearms but spared the oral mucosa and other parts of his body. Nikolsky's sign was negative. He stopped all the drugs two weeks later because of a suspected drug eruption.

He had a normal blood cell count with a haemoglobin of 120 g/L (reference range 124-168). Liver enzymes were raised, with alanine aminotransferase at 65 U/L (7-36), aspartate aminotransferase at 96 U/L (14-30), alkaline phosphatase at 158 U/L (32-93), and γ-glutamyl transferase at 648 U/L (11-62), as was total bilirubin at 63 µmol/L (14-23). Liver ultrasound was normal and his serum α fetoprotein was 2 ng/ml (<4).

No antibodies against intercellular substances and dermoepidermal junction antigens were found in his blood. A skin biopsy of a blister on his forearm showed subepidermal bullae, but immunofluorescence for hemidesmosomal protein at the dermoepidermal junction was negative.

1 What are the differential diagnoses?
2 What further investigations are needed to confirm the diagnosis?
3 What risk factors does this patient have that predispose him to the development of the disease?
4 What treatment would you recommend?

Submitted by Chi-Ho Lee, Michele M A Yuen, Wing-Sun Chow, Annette W K Tso, Chi-Keung Yeung, Johnny C Y Chan, Chi-Hung Chau, and Karen S L Lam
Cite this as: *BMJ* 2012;344:d8351

STATISTICAL QUESTION Cohen's coefficient κ

Chest radiographs are the best method for diagnosing pneumonia but are often not available in developing countries. Therefore, in 1990 the World Health Organization developed guidelines for diagnosis of non-severe pneumonia that comprised clinical symptoms of fast breathing alone. However, fast breathing can have causes other than pneumonia, and thus children who are given a diagnosis of non-severe pneumonia on the basis of fast breathing alone may receive antibiotics unnecessarily.

Children aged 2 to 59 months with non-severe pneumonia diagnosed on the basis of the WHO guidelines were invited to participate from outpatient departments of six hospitals in Pakistan. In total 2000 children were enrolled, for whom 1848 chest radiographs were available for assessment. Two consultant radiologists used standardised criteria to evaluate the chest radiographs, with no clinical information available to them. The primary outcome was diagnosis of pneumonia (absent or present) from chest radiographs.

Cohen's coefficient κ for agreement between the two radiologists in their diagnoses was 0.46. A small number of children were given a diagnosis of bronchiolitis. The researchers concluded that most children with non-severe pneumonia diagnosed on the basis of the current WHO definition had normal chest radiographs.

Which of the following statements, if any, are true?

a) Cohen's κ was calculated as the proportion of overall agreement between radiologists in their diagnoses.
b) If no agreement existed between the radiologists, κ would equal zero.
c) The agreement between the radiologists in their diagnoses can be interpreted as very good.

Submitted by Philip Sedgwick
Cite this as: *BMJ* 2012;344:e1178