

ENDGAMES

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PICTURE QUIZ

An unusual case of pneumonia



A 28 year old woman presented with a one week history of increasing shortness of breath on exertion, which was associated with a dry cough and mild pain on the right side of the lateral chest wall. She had also felt feverish and experienced night sweats for three days. Her medical history included mild asthma for five years, which was well controlled on twice daily inhaled beclometasone, and a caesarean section three months before. Her postoperative recovery was uneventful. She was an ex-smoker, rarely drank alcohol, and denied any illicit drug use. In addition, her only recent foreign travel was a trip to France six months ago.

On examination, she was fully alert and oriented but was febrile (38.2°C), with a peripheral oxygen saturation of 95% on room air. On auscultation she had right sided lower zone lung crackles but no wheeze. The lymph nodes were not palpable. Her blood pressure was 96/60 mm Hg and her pulse was 84 beats/min. Initial blood tests showed haemoglobin 127 g/L (reference range 115-165) and the total white cell count $9.3 \times 10^9/L$ (4.0-11.0), with an eosinophil count of $2.3 \times 10^9/L$ (0.0-0.4). C reactive protein and erythrocyte sedimentation rate were raised at 172 mg/L (<5) and 102 mm in the first hour (0-15), respectively. Renal and liver function tests were normal and HIV serology was negative. A plain posterior-anterior radiograph is shown in the figure.

- 1 What does the chest radiograph show?
- 2 What is the differential diagnosis?
- 3 Which further investigations would you perform?

Submitted by Andrew W Barritt and Mark B Jackson

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STATISTICAL QUESTION

Standardisation of outcome measures (z scores)

Researchers investigated the effects of weekly vitamin D supplements on the mortality, morbidity, and growth of low birthweight term infants up to 6 months of age in India. A randomised placebo controlled trial was used. In total, 2079 low birthweight infants born at term (>37 weeks' gestation) were randomised to intervention or control. Intervention consisted of weekly vitamin D supplements for six months at a dose of one recommended nutrient intake per day (35 µg/week) dissolved in a small amount of expressed breast milk (or other milk for non-breastfed infants).

Primary outcomes were admission to hospital or death during the first six months of life. Secondary outcomes included weight, length, mid-upper arm circumference, and head circumference at six months. Each anthropometric measure was transformed to z scores for age and sex using World Health Organization growth reference charts. The researchers reported that a weekly dose of vitamin D in young low birthweight infants resulted in better vitamin D status and benefited the classic vitamin D function of bone growth, although it did not decrease the incidence of severe morbidity or death.

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

- a) The z scores compared a child's anthropometric measurement to the population mean value for his or her age and sex
- b) z scores are always positive in value
- c) The z scores had the same units as the anthropometric measures

Submitted by Philip Sedgwick

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CASE REPORT

Taught a lesson by taut skin

A 45 year old man with a history of ulcerative colitis presented to his general practitioner because of Raynaud's phenomenon and itchy tight skin that had affected his hands and elbows bilaterally over the preceding few months. He was referred to a rheumatologist, who performed a series of immunological tests. The results included a positive antinuclear antibody staining pattern on immunofluorescence, with anti-RNA polymerase III antibodies identified on further testing. Tests for anti-centromere and anti-topoisomerase I (anti-Scl 70) antibodies were negative. The rheumatologist diagnosed a systemic connective tissue disorder.

When the skin symptoms worsened over the next few weeks the patient started to use over the counter ibuprofen to ease the pain associated with his tight skin. He subsequently presented to the emergency department with fatigue. His blood pressure was found to be 210/120 mm Hg. In

addition to the skin abnormalities, bibasal fine inspiratory crepitations were detected on physical examination. Routine laboratory testing showed haemoglobin 75 g/L (reference range 130-180), creatinine 475 µmol/L (80 µmol/L one month previously (80-110), and lactate dehydrogenase 357 U/L (70-250). Electrocardiography showed T wave inversion in the lateral leads. He was excreting 1.15 g of protein in his urine per 24 hours and haematuria was detected on dipstick urinalysis.

- 1 What is the diagnosis?
- 2 What further test might help to confirm the diagnosis?
- 3 What factors predispose to this condition?
- 4 How is the condition treated?
- 5 What is the natural course of the condition?

Submitted by Pierce Geoghegan, Donal J Sexton, Louise Giblin, and Anthony O'Regan

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