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## PICTURE QUIZ A sore red eye with systemic involvement

A 20 year old man was referred to the eye clinic by his general practitioner with a four week history of a sore red left eye (figure). Treatment for conjunctivitis had not resulted in improvement, and he reported that his eye was increasingly painful. He had experienced repeated nose bleeds over the past three months, together



The patient's eye at presentation

with constant left sided nasal stuffiness. He had recently felt generally unwell and had lost 4 kg. On examination, his visual acuity was 6/9 in both eyes. His vital signs were stable, but urinalysis showed blood+++ and protein+.

- 1 What abnormalities are seen in the photograph?
- 2 What is the most likely underlying diagnosis given his extraocular symptoms?
- 3 What further investigations are appropriate?
- 4 What is the pathophysiology of this condition?
- 5 What treatment would you recommend and what is the prognosis?

Submitted by Zaid Shalchi, Susan L Lightman, Charles D Pusey, and Simon RJ Taylor  
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## STATISTICAL QUESTION

### The healthy entrant effect

Researchers investigated the association between individual components of the Mediterranean diet and mortality. A prospective cohort study design was used. Participants were 23 349 men and women living in Greece. Men and women with a diagnosis of cancer, coronary heart disease, or diabetes were not recruited to the study. The primary outcome was length of time until death from any causes.

The cohort was followed for a mean of 8.5 years, during which 1075 deaths from any causes were recorded. Those components of the Mediterranean diet that predicted reduced mortality were moderate consumption of alcohol, low consumption of meat and meat products, and high consumption of vegetables, fruits and nuts, olive oil, and legumes. However, the results of the study were possibly subject to the healthy entrant effect.

Which one of the following best describes the healthy entrant effect?

- a) Cohort members lost to follow-up differed in a systematic way from those not lost to follow-up.
- b) Mortality rates were lower in the initial stages of the cohort study than in the general population.
- c) People who accepted the invitation to be part of the cohort differed in a systematic way from those who refused.

Submitted by Philip Sedgwick  
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## CASE REPORT A 90 year old man with difficulty swallowing and proximal muscle weakness

A 90 year old man presented with progressive dysphagia, generalised weakness, and malaise. He had lost 30 lb (13.6 kg) in the past six months, and his mobility had deteriorated because of progressive leg weakness. He had no visual or constitutional symptoms apart from weight loss and denied any bladder or bowel problems. He had a 25 pack year history of smoking and did not drink alcohol.

Examination showed signs consistent with bilateral pneumonia. His speech was dysphonic, the gag reflex was absent, but other cranial nerves were intact. He had wasting and weakness of the small muscles of the hands and weakness of the proximal muscles of the lower limbs. Reflexes were absent in the lower limbs. Strength in the remaining muscle groups—including ankle dorsiflexion, planter flexion, knee extension, and flexion—was normal. Proximal muscle groups in the upper extremity were strong, although reflexes were

reduced bilaterally. No fasciculations were seen and he had no evidence of fatigable ptosis. Sensory examination was normal. Examination of the cardiovascular and abdominal systems was unremarkable.

Investigations showed a white blood cell count of  $5.9 \times 10^9$  cells/L (reference range 4.0-10.0), haemoglobin 117 g/L (140-180), platelets  $332 \times 10^9$  (320-360), random glucose 10.8 mmol/L (3.6-11), urea 25.3 mmol/L (3.0-7.1), creatinine 191  $\mu$ mol/L (60-130), thyroid stimulating hormone 5.72 mIU/L (0.49-4.67), and free thyroxine 9.2 pmol/L (9.0-19.0). Results of serum electrolytes, creatine kinase, serum protein electrophoresis, urinary Bence Jones proteins, and a short synacthen test were in the normal range.

Computed tomography of the chest, abdomen, and pelvis showed bibasilar consolidation, with associated small pleural effusions. No serious abnormalities were

detected in the abdomen and pelvis—in particular, no evidence of malignancy was seen. Gastroscopy showed a normal oesophagus and stomach and mild duodenitis. Colonoscopy was normal. Pooling of contrast medium in the vallecule was seen with thin and thick liquids, as well as with pudding and mixed solid food on modified barium swallow. Aspiration was seen with sips of thin fluids.

Nasogastric tube feeding was instituted, and after obtaining blood cultures he was started on antibiotics. Further investigations were ordered.

- 1 What is the most likely neurological diagnosis?
- 2 What further investigations would you order to confirm the underlying neurological diagnosis?
- 3 What is the main differential diagnosis?

Submitted by H U Rehman  
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