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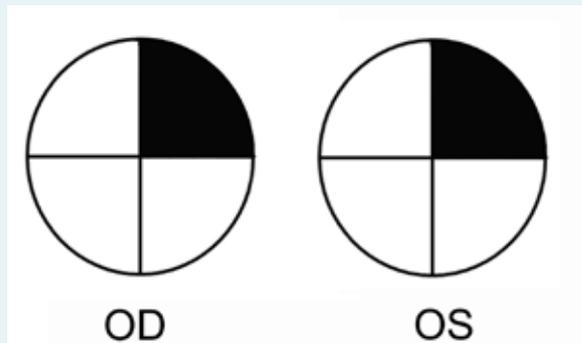
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PICTURE QUIZ

Visual impairment

A 66 year old man with diabetes presented to the emergency service six hours after the acute onset of visual loss in his left eye. The figure shows the only neurological deficit that was elicited during bedside clinical examination. Serial electrocardiography showed an intermittent fast rhythm (which lasted for several hours), characterised by varying R-R intervals and absence of P waves, followed by a return to sinus rhythm. Cranial magnetic resonance imaging showed an area of infarction with haemorrhagic transformation. His medical history included episodes of palpitation and dizziness, for which he received a diagnosis of non-valvular atrial fibrillation.



Schematic representation of the clinical findings seen during bedside finger perimetry. OD=right visual field; OS=left visual field

- 1 What clinical finding is depicted in the figure?
- 2 On the basis of the clinical sign seen in the figure, can you localise the lesion (infarct)?
- 3 How would you prevent recurrence of this patient's new neurological symptoms?

Submitted by Ramachandiran Nandhagopal
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CASE REPORT

A man with pain in his right ear

A 48 year old man presented to the accident department with a three day history of right ear pain, yellow ear discharge, and mild hearing loss. He had seen his general practitioner two days before and had been prescribed oral antibiotics (amoxicillin 500 mg three times a day) and analgesia. However, over the past 24 hours the pain had got much worse and he was feeling generally unwell. His right pinna and surrounding skin had become red and tender.

He had no relevant medical history, was taking no regular drugs, and had no known allergies.

His right pinna was erythematous, with oedema visible at the external auditory meatus and concha. There was discharge in the intertragal notch and crusted debris over the lobule. Some erythema extended into the neck, inferior to the pinna. He was afebrile and the tympanic membrane was partly visualised and appeared normal. The external auditory canal was about 80% stenosed and there was discharge within the canal. He had no signs of meningism, no evidence of mastoiditis, and no cervical lymphadenopathy. Blood tests showed a white cell count of $12 \times 10^9/L$ (reference range $4-11 \times 10^9$) and a C reactive protein of 100 mg/L (<5 mg/L; 1 mg/L=9.52 nmol/L).

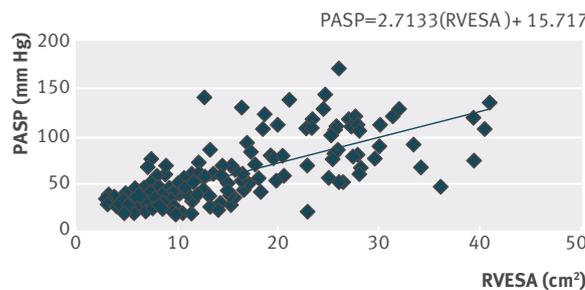
- 1 On the basis of the history and examination findings, what is the likely diagnosis?
- 2 What are the common predisposing risk factors for this condition?
- 3 What are the most common causative organisms?
- 4 How is this condition managed?

Submitted by Leigh Sanyaolu, Sarah Farmer, and Ali Raza
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STATISTICAL QUESTION Simple linear regression

Researchers investigated the association of right ventricular size and function with varying degrees of pulmonary hypertension. A cross sectional study design was used. Participants were 190 patients referred to a pulmonary hypertension clinic.

Measurements of right ventricular size included right ventricular end systolic area (RVESA) recorded echocardiographically. The extent of pulmonary hypertension was indicated by pulmonary artery systolic pressure (PASP). A scatter plot of pulmonary artery systolic pressure against right ventricular end systolic area was presented (figure). Linear regression analysis was used to examine the association between right ventricular size and degree of pulmonary hypertension. The resulting fitted linear regression line was given by $PASP=2.7133RVESA+15.717$.



Which of the following statements, if any, are true for the linear regression line?

- a) Pulmonary artery systolic pressure can be predicted given a value of right ventricular end systolic area
- b) Right ventricular end systolic area can be predicted given a value of pulmonary artery systolic pressure
- c) It was assumed that the variation in pulmonary artery systolic pressure was equal for all values of right ventricular end systolic area
- d) The line can be extrapolated outside the observed range of values for right ventricular end systolic area

Submitted by Philip Sedgwick
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