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PICTURE QUIZ A 43 year old woman with a 40 year history of exertional chest pain

Exercise tolerance electrocardiogram

A 43 year old Asian woman was referred to the cardiology outpatient clinic with recurrent episodes of chest pain, which she had experienced since early childhood. She described the chest pain as a central tightness that occurred when she exercised. She had recently developed paroxysms of fast regular palpitations, which had prompted her referral. Her only known coronary risk factor was a family history of premature coronary disease. Physical examination was unremarkable and her blood pressure was 110/56 mm Hg. Routine haematology and biochemistry tests, including her thyroid stimulating hormone concentration, were all within normal limits. A 12 lead electrocardiogram (ECG) showed normal sinus rhythm. A 24 hour Holter ECG showed sinus rhythm with occasional supraventricular ectopic beats and no suggestions of any ST segment change (no diary entries). Chest radiography, echocardiography, and pulmonary function tests were unremarkable. She went on to have a Bruce protocol exercise tolerance test. Her ECG at peak exercise (eight minutes) is shown (fig 1).

1 What does the exercise tolerance ECG show?
2 What are the possible underlying causes of the ECG changes?
3 Computed tomography coronary angiography showed an anomalous right coronary artery emanating from the left coronary sinus. Why is this a problem and how does it explain the ischaemia?
4 What further investigations should be considered?
5 How might this condition be managed?

Submitted by P D Morris, K J Trevest, A Y Butt, and E D Grech

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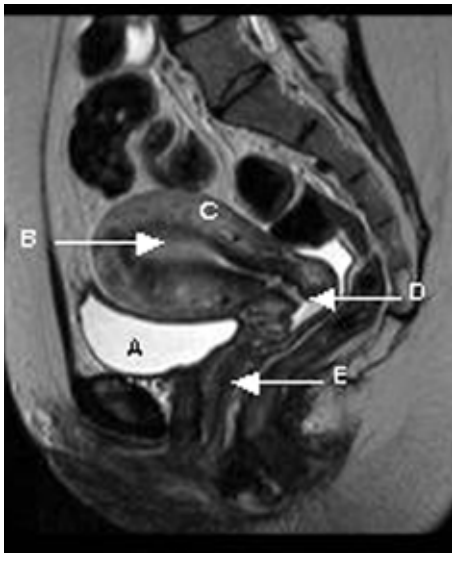

ANATOMY QUIZ
Anatomy of the female pelvis

Identify the structures labelled A, B, C, D, and E in this sagittal T2 weighted midline magnetic resonance image of the female pelvis.

Submitted by M Thomas and I T H Au-Yong

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STATISTICAL QUESTION One way analysis of variance

Researchers investigated current trends in the use of bariatric surgery in England. In particular, they looked at the surgical techniques used and factors that influenced postoperative outcomes. A population cohort study was performed. All NHS adult patients with a primary diagnosis of obesity who had undergone a primary elective bariatric procedure (gastric bypass, gastric banding, or sleeve gastrectomy) in England between April 2000 and March 2008 were studied. The main outcome measures included mortality at 30 days and one year after surgery, unplanned readmission to hospital within 28 days, and duration of stay in hospital.

In total, 3649 gastric band procedures, 3191 gastric bypasses, and 113 sleeve gastrectomies were performed. Patients' characteristics at time of surgery were compared between the procedures to establish differences that might have influenced postoperative outcome. The patient characteristics compared included age. No significant difference was reported between surgical procedures in mean age (gastric bypass 42.25 years (standard deviation 9.50), gastric banding 42.44 (9.79), sleeve gastrectomy 44.18 (8.96); one way analysis of variance P=0.364).

The researchers reported that the number of bariatric surgical procedures had increased in England in recent years. Gastric banding and gastric bypass were the most prevalent procedures, with sleeve gastrectomy first recorded in 2006. Patients selected for gastric banding had lower postoperative mortality and readmission rates plus a shorter length of stay than those selected for gastric bypass.

Which of the following statements, if any, are true for one way analysis of variance?

a) It is a non-parametric statistical test
b) It was assumed that the three surgical groups were sampled from populations with a common variance for age
c) The null hypothesis involved pairwise comparisons between surgical groups in mean age

Submitted by Philip Sedgwick

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