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PICTURE QUIZ

A case of loin pain: a cause close to the heart

A 44 year old man with type 2 diabetes presented with sudden onset severe pain in the left loin, which was associated with several episodes of vomiting. Although he reported exertional chest discomfort in the preceding year, he had not experienced chest pain or breathlessness in the weeks leading up to the admission.

On examination, he was normotensive, with a heart rate of 80 beats/min and an oxygen saturation of 98% on air. He was tender in the left renal angle, but the rest of his clinical examination was unremarkable.

Electrocardiography showed deep anterior T wave inversion. Laboratory tests showed a raised white cell count (13.9×10^9/L; reference range 4-11), C reactive protein (65.1 mg/L; <10mg/L; 1 mg/L=9.52 nmol/L), and troponin I (0.29 µg/L; <0.05). Renal and liver function tests were within normal limits. A clinical diagnosis was confirmed by imaging (figure).

1 What type of imaging was used and what were the findings?
2 What is the next most appropriate investigation?
3 What are the causes of intracardiac thrombosis?
4 What is the unifying diagnosis?
5 How can this condition be managed?

Submitted by T J Cahill, K Nagaratnam, R Browning, S Anthony, and J Dwight

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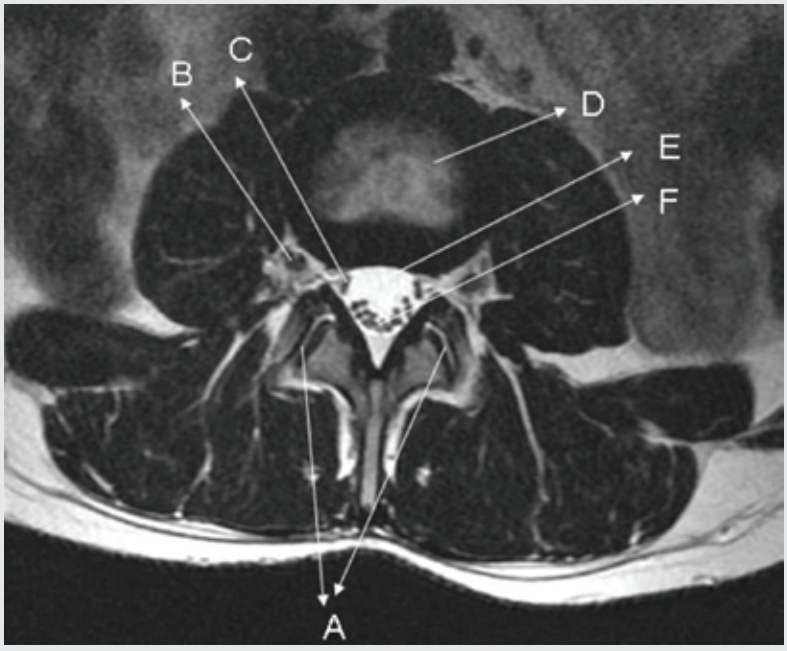

ANATOMY QUIZ Magnetic resonance imaging of lumbar spine

Identify the structures labelled A to F in this axial T2 weighted magnetic resonance image of the L4/5 disc.

Submitted by Mostayn Alam, Angelos G Kolias, and Rikin A Trivedi

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STATISTICAL QUESTION

Parametric statistical tests for independent groups: numerical data

Researchers investigated whether a school based educational programme aimed at reducing consumption of carbonated drinks prevented excessive weight gain in children. A cluster randomised controlled trial study design was used.

The intervention, which was delivered over one school year, included focused education promoting a healthy diet together with discouragement of carbonated drink consumption. The control group received no intervention. Children were followed for three years from baseline.

The main outcome measures included body mass index (BMI) converted to age and sex specific z scores. A total of 644 children aged between 7 and 11 years from six schools were recruited. Measurements were obtained from 434 children three years after baseline. Distributional assumptions of normality in the BMI z scores were verified.

At follow-up the age and sex specific BMI z scores had increased in the control group by a mean of 0.1 (SD 0.53) but decreased in the intervention group by 0.01 (SD 0.58). The mean difference between treatment groups was not significant (0.1 (95% confidence interval 0 to 0.21); P=0.06).

Which one of the following statistical tests was most likely used to compare treatment groups in the mean difference in mean change in BMI z score over three years from baseline?

a) Paired *t* test
b) Student's *t* test
c) Wilcoxon rank sum test
d) Wilcoxon signed ranks test

Submitted by Philip Sedgwick

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