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STATISTICAL QUESTION

Analysing case-control studies: adjusting for confounding

A case-control study examined the association between chronic *Helicobacter pylori* infection and coronary heart disease at young ages. In total, 1122 survivors of suspected acute myocardial infarction at age 30-49 years were recruited. For each case, a control matched for age and sex with no history of coronary heart disease was enrolled.

Chronic infection with *H pylori* was confirmed serologically. Information on other risk factors for coronary heart disease was collected, including smoking behaviour, indicators of socioeconomic status, obesity, and blood lipid concentrations. Controls were asked about their current habits and history, whereas cases were asked about their habits and history just before their index myocardial infarction. Blood samples were obtained from cases within 24 hours of the onset of symptoms and from controls after collection of the information about risk factors.

Early onset myocardial infarction was significantly associated with seropositive *H pylori* infection antibodies (odds ratio 2.28 (99% confidence interval 1.8 to 2.9)). The odds ratio was reduced to 1.87 (1.42 to 2.47) after adjustment for smoking and indicators of socioeconomic status and to 1.75 (1.29 to 2.36) after additional adjustment for blood lipid concentrations and obesity. Therefore, a moderate association existed between coronary heart disease and *H pylori* infection seropositivity that could not be fully explained by other risk factors.

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

a) Matching ensured that any differences between cases and controls were not due to differences in age and sex.

b) The case-control study estimated the population at risk.

c) The adjusted odds ratios could have been derived using logistic regression.

d) The association between *H pylori* seropositivity and coronary heart disease was independent of smoking and indicators of socioeconomic status.

Submitted by Philip Sedgwick

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PICTURE QUIZ

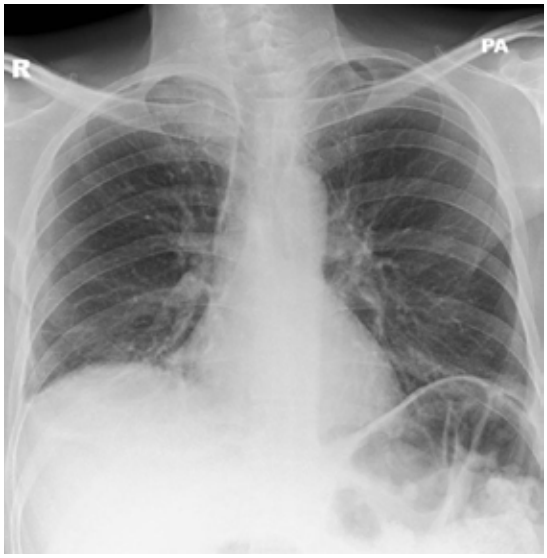
A sinister cause of shoulder pain, with numbness and weakness in the ipsilateral hand

A 41 year old patient with insulin dependent diabetes presented with a one month history of progressively worsening pain, numbness, and weakness of his right shoulder and arm. His history included peripheral vascular disease, chronic renal failure, and chronic pancreatitis. He was also a smoker with a 60 pack year history.

On general inspection, he appeared cachectic. On closer inspection of the right upper limb, he had wasting of the intrinsic muscles of the hand. Finger abduction and adduction in the right hand was weak, as was flexion of the right ring finger and right little finger. Tone and reflexes were normal; however, sensation along the right little finger and the ulnar aspect of the upper limb on the right side was reduced. On examination, his elbow and shoulder were normal.

He underwent chest radiography (figure), followed by computed tomography of his chest and abdomen.

1 What are the radiological findings?
2 What condition do these findings probably represent?
3 What further investigations would you request?
4 What are the common presenting symptoms of this condition?
5 How would you manage this condition?



Anteroposterior radiograph of patient's chest

Submitted by Ravi Popat, Josh Derodra, Stella Vig, and Eric Lim

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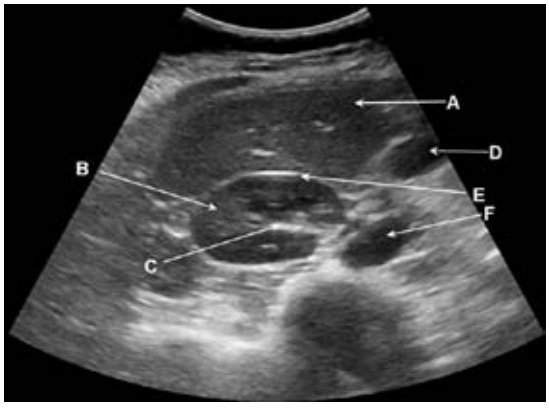
ANATOMY QUIZ

Ultrasound scan of the right upper quadrant of the abdomen, transverse plane

Identify the structures labelled A-F in this ultrasound scan of the right upper quadrant of the abdomen, transverse plane.



Submitted by Sumit J Karia, Rahil H Kassamali, and Stephen Kletzenbauer

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