

FOR SHORT ANSWERS

See p 1103

FOR LONG ANSWERS

Go to the Education channel on bmj.com



Fig 1 | Lateral view radiograph of the patient's left knee



Fig 2 | Lateral view radiograph of the patient's right knee

PICTURE QUIZ

Doc, my knees give way!

A 50 year old obese man presented to the emergency department with pain in both knees. A week before presentation, he had experienced a sudden acute pain in his left knee while walking in his kitchen. He was not able to bear weight on the affected leg, so he attended the accident and emergency department. He was discharged without a definite diagnosis. When he returned home, he struggled to walk. His right knee suddenly gave way painfully as he pivoted himself to turn. He reported not having any pain in the knees before these incidents.

The patient had no significant medical history. On examination, there was swelling in the suprapatellar region of both knees, with bruising on the left side. He was unable to perform straight leg raise and active extension of either of his knees. Both the knees could be fully extended passively. Active and passive flexion of the knees was limited by pain. Hip examination did not reveal any abnormalities. Knee radiographs were performed.

- 1 What are the radiographic findings?
- 2 What are the differential diagnoses and the most likely diagnosis?
- 3 What classic clinical findings are associated with this type of injury?
- 4 How would you manage this patient?

Submitted by L H Lee and I Gill
Cite this as: *BMJ* 2010;341:c5924

STATISTICAL QUESTION

Skewed distributions II

Researchers investigated the effects of long term treatment with metformin on the risk of vitamin B₁₂ deficiency in patients with type 2 diabetes receiving insulin treatment. A multicentre randomised placebo controlled trial was used. A total of 390 patients were randomly assigned to receive 850 mg metformin or 850 mg placebo three times a day.

Primary outcome measures included percentage change in the serum concentration of homocysteine from baseline at 4, 17, 30, 43, and 52 month follow-up. At baseline, the metformin group (n=196) had a mean homocysteine concentration of 14.4 µmol/l (standard deviation 9.7 µmol/l), compared with a mean concentration of 14.6 µmol/l (standard deviation 10.3 µmol/l) for the placebo group (n=194).

Which of the following statements, if any, are true for the metformin group at baseline?

- a) Approximately 68% or more of the homocysteine measurements were no further than one standard deviation away from the sample mean
- b) Approximately 95% or more of the homocysteine measurements were no further than two standard deviations away from the sample mean
- c) The distribution of homocysteine concentrations was positively skewed
- d) The sample mean of homocysteine concentrations was smaller than the sample median

Submitted by Philip Sedgwick
Cite this as: *BMJ* 2010;341:c6448

ON EXAMINATION QUIZ

Thyroid dysfunction

This week's question is on thyroid dysfunction and is taken from the onExamination revision questions for the MRCP part 1 exam.

A 42 year old woman presents to the clinic with a history of 3 kg weight loss over the course of the past six weeks, heat intolerance, and palpitations. She was referred by her general practitioner because of abnormal findings on her thyroid blood tests. Apparently her mother had an overactive thyroid gland.

On examination, the patient has a BMI of 19. Her blood pressure is 142/72 mm Hg and her pulse is 95 beats/min. She has a fine tremor. Her thyroid is diffusely enlarged.

Investigations show:

- Haemoglobin 130 g/l (normal range 115-165)
- White blood cell count $8.2 \times 10^9/l$ (4-11)
- Platelet count $170 \times 10^9/l$ (150-400)
- Serum sodium 141 mmol/l (135-146)
- Serum potassium 4.2 mmol/l (3.5-5)
- Creatinine 110 µmol/l (79-118)
- Thyroid stimulating hormone <0.05 mIU/l (0.5-5.0)
- Anti-thyroid antibody: Positive

Which of the following findings on examination or investigation would you also expect?

- A Decreased concentration of sex hormone binding globulin
- B Decreased uptake on thyroid scan in one "hot" area
- C Globally decreased uptake on thyroid scan
- D Orange peel skin on both shins
- E Periods of bradycardia on 24 hour tape recording

Cite this as: *BMJ* 2010;341:c6514