Feeling a little faint (answers on page 43)

Part one

Ingrid, a 21-year-old European student on an exchange scheme in your local university fainted in the middle of her final oral examination. Although she recovered quickly and was more embarrassed than obviously ill, one of her examiners, a medic, felt that she looked paler than normal, even for her very fair northern European complexion. Taking her pulse, he found it to be racing, though regular, at 116/minute. She recovered quickly enough to continue with the exam, and did well, but the examiner decided to take her aside and probe a little further into why she might have fainted.

Ingrid admitted that for the last six weeks or so she had been feeling more tired than usual and had been becoming breathless when exerting herself, such as running and even when going upstairs. She had never been ill, her periods had been normal, with no excessive bleeding, and she had been eating her 'normal student food'. She had no neurological symptoms or signs. Her stools were normal and she had not noticed any bleeding. Her parents were still alive and healthy: there was no family history of illness of note. Her blood pressure was normal and she had a BMI of 23, well within the normal range of weight for height. Even after resting for half an hour, her pulse rate was still 110 per minute. A fingerprick blood test showed a haemoglobin of 48g/litre, so she was asked to come into the clinic for further tests. A preliminary blood smear showed a mean red cell volume of 112fL. The red cells were of irregular shape with clear unpigmented central areas, and the slide showed some fragmented red cells, an occasional large nucleated red cell, and large hypersegmented neutrophils.

Q1 What are your preliminary thoughts having seen these results?

(a) She may have serious bone marrow disease and needs admission for further tests.
(b) The short history and apparently otherwise good health suggests a possible dietary cause.
(c) The lack of bowel symptoms tends to rule out malabsorption as a cause.
(d) You must ask about her diet in more detail – what is 'normal student food?'
(e) A lack of neurological signs rules out Vitamin B12 or folate deficiency.

Part two

Q2 Ingrid admits that she 'doesn't like vegetables much' and that her diet consists mostly of fast foods, almost completely without fresh fruit or vegetables. She has been eating like this since she left her home country six months previously. How significant do you think this admission is for your diagnosis and aetiology?

(a) Not at all significant: she is of normal weight and you have no reason to believe that the cause of her anaemia is dietary.
(b) Macrocytic anaemia like this in a young woman is likely to have an endogenous cause such as pernicious anaemia.
(c) Before considering diet as a cause you must consider others such as infection, bone marrow dysplasia, and reaction to drugs.
(d) Her dislike of vegetables is hugely significant in her case.

Part three

Q3 How do you now proceed with investigating and treating Ingrid's macrocytic anaemia?

(a) Without delay give intramuscular vitamin B12.
(b) Give vitamin B12 plus oral folate and iron.
(c) Consider blood transfusion to 'top up her haemoglobin'.
(d) Arrange for malabsorption studies.
(e) Screen for blood levels of drugs that might have caused a macrocytic anaemia.

Part four

Q4 Leaving aside Ingrid's case, which of the following can cause macrocytic anaemia with a blood picture like hers?

(a) Coeliac disease
(b) Inflammatory bowel disease
(c) Pernicious anaemia
(d) Methotrexate
(e) Hypothyroidism
(f) Liver disease
(g) Myelodysplasia