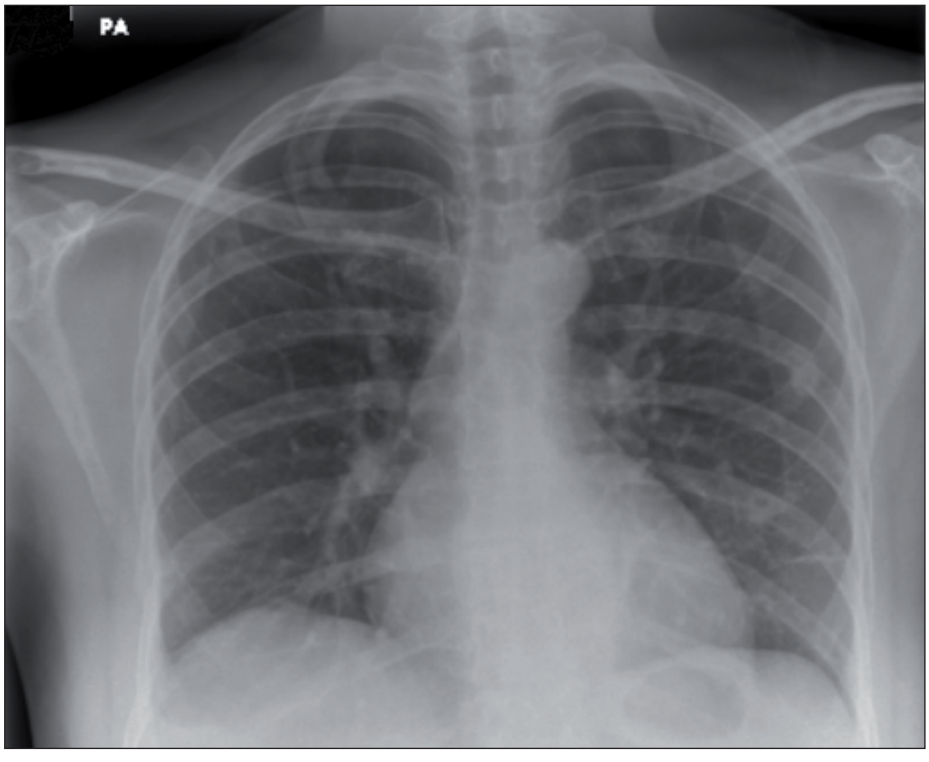
Myeloma in a very young woman presenting with bone pain

Introduction

Multiple myeloma is generally considered to be a disease of those in their late middle age or latter years. This article describes a case where myeloma was diagnosed in a woman of only 29 years of age and briefly discusses the epidemiology, diagnosis and management of this condition.

Figure 1. Chest radiograph of patient on admission to hospital showing bone lucencies.



Case Report

Figure 1 shows the chest X-ray of a 29-year-old Ethiopian woman who presented to the accident and emergency department with a 9-day history of vomiting and a 3-month history of chest and back pain. She had been previously fit and healthy and had no past history of any illnesses. On examination she appeared dehydrated and had lower abdominal tenderness with no palpable organomegaly. Palpation of the ribs themselves was particularly uncomfortable for the patient.

The chest X-ray (*Figure 1*) shows fractures with callus formation in the posterior left 6th rib, the left 10th and the right 7th rib posterolaterally. In addition there is abnormal bone texture in virtually all the thoracic bones, particularly the clavicles and the ribs. There are multiple lucent areas within the marrow, causing endosteal scalloping of the cortex. There are similar lucencies in the scapulae. There is also a band of atelectasis in the left lung base.

Blood tests revealed a haemoglobin of 91 g/litre (the mean cell volume was normal at 87 fL), erythrocyte sedimentation rate 57 mm/h, potassium 3.1 mmol/litre, creatinine 233 umol/litre, albumin 23 g/litre and a corrected calcium 3.29 mmol/litre. Subsequent investigations showed a paraprotein band consisting of immunoglobulin G kappa at 62 g/litre. A bone marrow aspiration and trephine confirmed the diagnosis of multiple myeloma with approximately 50% of the cells thought to be plasma cells on the aspirate. Immunophenotyping of the bone marrow showed CD138 expression of 24% and kappa chain restriction.

Treatment was started with a regimen of cyclophosphamide, thalidomide and dexamethasone, with a view to subsequent autologous bone marrow transplantation.

Discussion

The diagnosis is multiple myeloma which is B-cell malignancy characterized by clonal proliferation of abnormal plasma cells. Multiple myeloma constitutes 1% of all cancers and accounts for about 15% of all haematological disorders (Child et al, 2005). The annual incidence in the UK is 6 per 100 000, with approximately 3700 new cases per year. The median age at diagnosis is 60–65 years with fewer than 2% of myeloma patients under the age of 40 years (Alexander et al, 2007). Some studies have suggested the incidence in patients under 40 years of age is as low as 0.18–0.3% (Blade et al, 1996a). It is even rarer in those less than 30 years of age (Blade et al, 1996b). It is commoner in men than in women.

A consistent finding in epidemiological studies is of familial clustering of the disease and of an increased risk in persons with a family history of haematological malignancies (Alexander et al, 2007). The disease has a higher incidence in the Afro-Caribbean population, again more evident in men. Reasons postulated to explain this difference include HLA antigens, obesity and exposure to immunological challenges (Benjamin et al, 2003).

The disease is characterized by one or more of the following: osteolytic lesions, hypercalcaemia, anaemia and renal impairment. In all patients suspected of having myeloma, the following tests are necessary:

- Full blood count
- Urea, creatinine, albumin and calcium
- Beta-2 microglobulin
- Protein electrophoresis and paraprotein quantification.

Dr Simon W Dubrey *is Consultant Cardiologist in the Department of Cardiology and* **Dr Ketan Patel** *is Consultant Haematologist in the Department of Haematology, Hillingdon Hospital, Uxbridge, Middlesex UB8 3NN*

Correspondence to: Dr SW Dubrey

More specifically, a 24-hour urine collection for light chains (Bence–Jones protein) and a radiographic skeletal survey should be scheduled.

Patients with symptoms or signs of cord compression will require an urgent magnetic resonance image scan. A bone marrow aspirate and trephine biopsy allows quantification and, more recently, cytogenetic analysis of the plasma cells.

Initial management will usually require intense hydration and administration of an intravenous bisphosphonate to treat the hypercalcaemia. Bisphosphonates will also help alleviate bony pain, which this patient exhibited in the form of rib tenderness. The patient will also require adequate analgesia to treat discomfort. Non-steroidal anti-inflammatory agents should be avoided as they may worsen the renal impairment. Any underlying infections should be vigorously treated.

Initial treatment of the myeloma (in someone of this age) usually comprises steroids (commonly dexamethasone) together with a combination of agents that frequently incorporates cyclophosphamide, vincristine and adriamycin (CVAD) or cyclophosphamide and thalidomide (CTD). This is then usually followed by an autologous bone marrow transplant.

The prognosis in most patients is poor. The disease remains essentially incurable and the average lifespan from diagnosis to death is approximately 2–4 years (Child et al, 2003).

Conclusions

This article has described a case of multiple myeloma in a very young woman who presented with signs and symptoms of hypercalcaemia and bony pains. The differential diagnoses included hyperparathyroidism, sarcoidosis, metastatic malignancy, adult T-cell leukaemia and lymphoma. Multiple myeloma was low on this differential list in view of her age. This case demonstrates that, even in young patients, a diagnosis of multiple myeloma should be excluded in any patient who presents with hypercalcaemia or bony pain. BJHM

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Opacity on the chest X-ray: plait

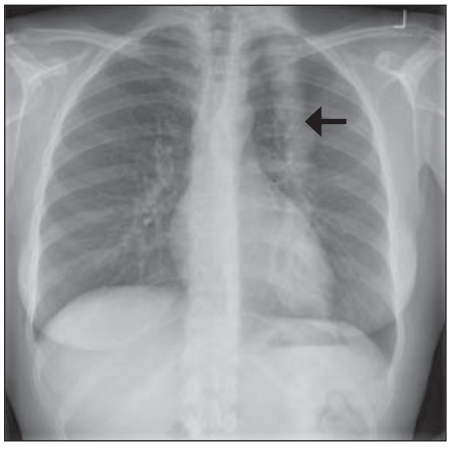

Figure 1. Chest X-ray showing odd opacity (arrow) in left hemithorax.

Dr Kathryn A Ramsdale *is House Physician, Wythenshawe Hospital, Manchester M23 9LT,* **Dr Ewan McKay** *is House Physician, Victoria Hospital, Blackpool and* **Dr David R Ramsdale** *is Consultant Cardiologist, The Cardiothoracic Centre, Liverpool*

Correspondence to: Dr KA Ramsdale

A 26-year-old woman presented with a 3-month history of palpitations. Physical examination, electrocardiogram and echocardiography were all normal. The chest X-ray (*Figure 1*) showed an odd opacity running down the left hemithorax (arrow). Her appearance shows the cause of the opacity to be an unusually long and thick plait of hair (*Figure 2*). With the plait held over her head, a repeat chest X-ray looks normal (*Figure 3*).

Although 'once seen, never forgotten', this unusual and potentially puzzling appearance on a chest X-ray, is easy to interpret when in the presence of the patient. BJHM

Figure 2. The cause of the opacity is an unusually long and thick plait of hair.

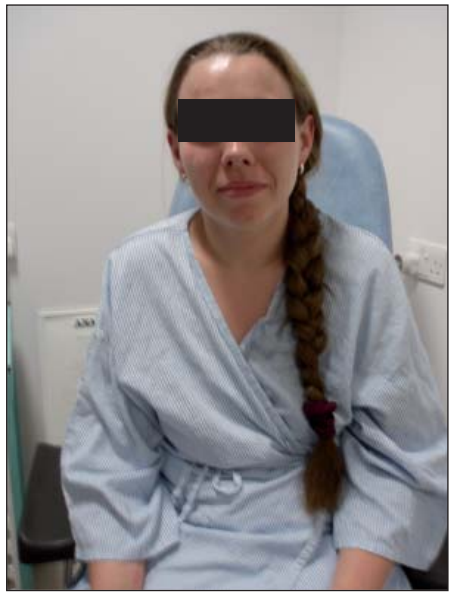

Figure 3. After lifting up the plait, the chest X-ray then looks normal.