CASE REPORT

Primary Lymphoma of the Bone — The Bone Lesion Difficult to Place Your Finger On

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ABSTRACT

Primary lymphoma of the bone is a rare cause of bone tumour. It is often overlooked and mis-diagnosed due to its rarity, uncommon presentation and indistinctive radiographic features. We report a patient who had a slow progressing primary bone lymphoma whose final diagnosis was only made after an open biopsy.

Keywords: Primary lymphoma of the bone

INTRODUCTION

Primary lymphoma of the bone (PLB) is defined as non-Hodgkin lymphoma that primarily occurs in the bone without involvement of the lymph nodes or soft tissues. It is a rare cause of bone tumour; less than three percent of primary bone tumours and less than two percent of all lymphomas in adults[1]. It has a predominance male to female ratio ranging from 1.2 to 1.8[2]. Primary lymphoma of the bone usually occurs in adults above 30 years old with more than half of them above the age of 60[2]. The majority of patients present with persistent bone pain[3] not relieved by rest or pathological fracture. It is a diagnostic challenge from the radiological point of view because the presentation can be extremely variable, ranging from subtly periosteal reaction with mottled bone, and all through to pathological fractures. We would like to report a patient who had a rare slow progressing primary bone lymphoma whose final diagnosis was only made after an open biopsy.

CASE PRESENTATION

A 54 year-old woman, with known hypertension for four years, presented to the casualty department after sustaining a fall a week prior. There was gnawing pain at her left hip since the fall, which worsened upon presentation, impairing her mobility. A similar fall was recalled six months ago when she consulted a doctor for disturbing left hip pain. X-rays of the left hip (Fig. 1) did not show any abnormalities and she was prescribed analgesia. There was residual on and off left thigh pain since then but the patient did not seek a second opinion. She also reported a 10kg weight loss over three months with poor appetite. There was no history of any night sweats or chronic cough.

Physical examination revealed a medium built non-cachexic woman. Generalised tenderness was noted over her left thigh and hip flexion was restricted to 45 degrees due to pain. Examination of the left knee and right lower limb were unremarkable. No abdominal mass, cervical or inguinal lymph nodes were palpable.

Radiographs of her left hip and pelvis were carried out, revealing permeative bone lesion at the femoral diaphysis with associated periosteal reaction (Fig. 2). Blood investigation was unremarkable, with negative myeloma screen and no raised tumour markers, normal inflammatory markers, normal parathyroid hormone and calcium level. Tuberculin test was negative. MRI scan of the left hip and femur showed patchy ill-defined enhancing lesion in the femoral neck extending to the proximal

half diaphysis with laminated periosteal reaction (Fig. 3). Radionuclide bone scan (99m TC MDP) revealed increased bone uptake in proximal two thirds of left femoral shaft, right parietal and frontal region of the skull vault and right sacroiliac joint (Fig. 4). CAT scans of thorax, abdomen and pelvis were carried out to screen for possible metastatic bone malignancy.

An open biopsy of the left femur revealed the histology with tumour cells showing immunopositivity for CD 10 and bcl6, as well as focal immunopostivity for bcl2 and MUM.1, with features consistent with diffuse B-cell lymphoma primarily from bone. Chemotherapy was then commenced by the oncologist to treat the lymphoma. Her condition improved after three months of chemotherapy.

DISCUSSION

Primary lymphoma of the bone (PLB) is a rare condition of non-Hodgkin lymphoma (NHL) accounting for less than two percent of adult NHL. Most primary lymphomas of the bone are of the diffuse large B-cell lymphoma sub-type[3]. It generally involves the axial skeleton and long bones[4] particularly the femur bone. A majority of them present with persistent bone pain without antecedent trauma[5]. They can also present with pathological fractures, spinal cord compression, palpable mass and systemic B symptoms. Diagnosis of primary lymphoma of the bone can be made by Coley's critera[6]: a primary focus in a single bone, positive histological diagnosis and no evidence of distant soft tissue or lymph nodes involvement. Being one of the least common in primary bone malignancies (less than 5%), PLB had been a diagnostic challenge due to its variable radiographic presentations. In a review by Mulligan et al[7], the most common radiographic features include permeative, lytic pattern of bone destruction, metadiaphyseal location, periosteal reaction and soft-tissue mass. However, some patients may have no detectable abnormality in initial radiographs. In terms of MRI scan, a PLB typically signal lower than muscle on T1-weighted sequences and higher or brighter than muscle on T2-weighted sequences. They generally demonstrate diffuse heterogeneous to homogenous enhancement when IV contrast is used[8]. CAT scan, by contrary, is of little value when diagnosing a PLB.

Despite knowing the common presentation of PLB, it is still often being overlooked or misdiagnosed. In a case series reviewed by Jeorg Mika et al[9], three patients were treated initially as osteomyelitis which turned out to be primary lymphomas of the bone. There were also cases reported as PLB mimicking chronic synovitis[10], monoarthritis[11], chondroblastoma[12], fibrous dysplasia[13] and Ewing's sarcoma[14]. In our case, the initial x-ray showed near normal appearance without suspicion of any possible lesion. A repeat x-ray six months later revealed permeative lesion with significant periosteal reaction which could be mistakenly interpreted as an infective process, rather than bone malignancy. The diagnosis of primary bone tumour remained elusive even after multi-modality investigative imaging such as radionuclide bone scan, MRI and CAT scans were carried out. Biopsy of the bone lesion remained as the gold standard in diagnosing primary lymphoma of the bone.

Primary lymphoma of the bone has good prognosis with 5- and 10-year overall survival rate of up to 61% and 41%, respectively[4]. With appropriate intervention, the disease-free five-year survival of patients younger than 60 years old can be up to 90%[15]. However, a delay in diagnosis can adversely affect the prognosis of the disease in which the stage of disease is considered as a more important prognostic indicator. Therefore, patients with persistent bone pain without significant cause should be monitored closely. Serial x-rays should be advocated if the pain is persistent to monitor possible emergence of new radiographic abnormalities. When doubtful lesions arise in radiographs, biopsy with culture is mandated to provide a definitive diagnosis. Blum[16] was quoted as saying "…surgeons should return to basics of culturing all suspected tumours and obtaining a biopsy specimen of all presumed infections, even in instances of positive cultures or negative biopsy specimens."

CONCLUSION

Primary lymphoma of the bone being one of the rare bone tumours had been often overlooked by medical practitioners. It remains a diagnostic challenge due to its nature of variable radiographic appearances. Thorough history and clinical examination with serial radiographs should be carried out for patients with persistent bone pain. All suspected infections or tumours should

have both cultures and biopsy done to ensure early establishment of diagnosis and hence, early intervention towards the disease course.

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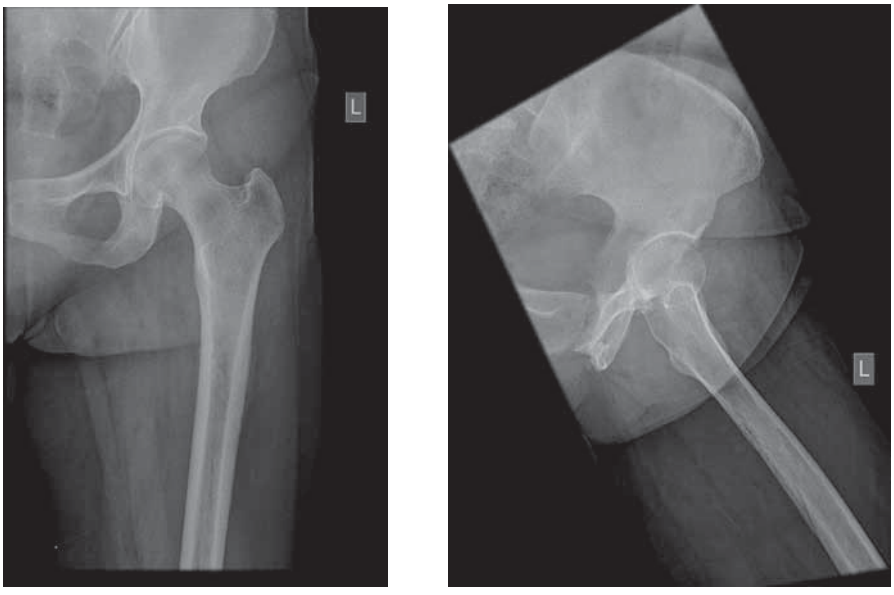


(a) (b)

Fig. 1. Anteroposterior (a) and lateral (b) radiographs of left hip, 6 months prior to current presentation showing no significant abnormality.

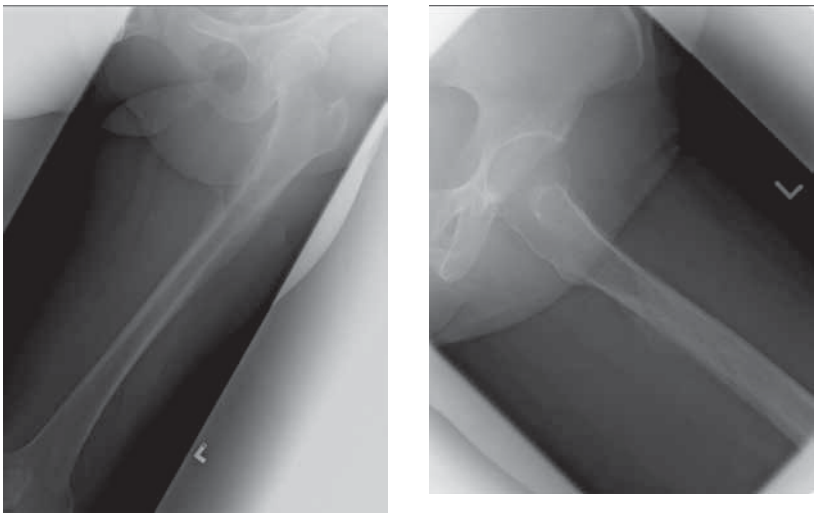
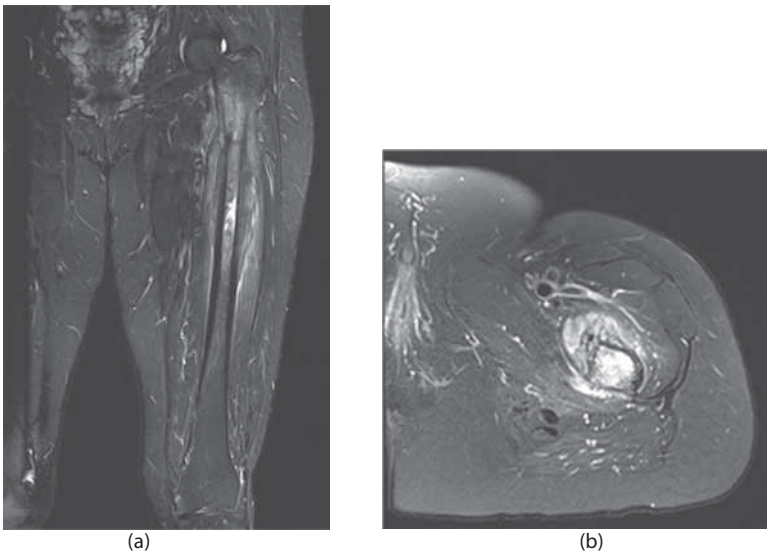


Fig. 2. X-rays of left hip and femur on admission. Permeative lesion with periosteal reaction was seen.



(a) (b)

Fig. 3. MRI scan; coronal cut (a) and transverse (b) of left femur. T2-weighted image showed patchy ill-defined lesion with periosteal reaction.

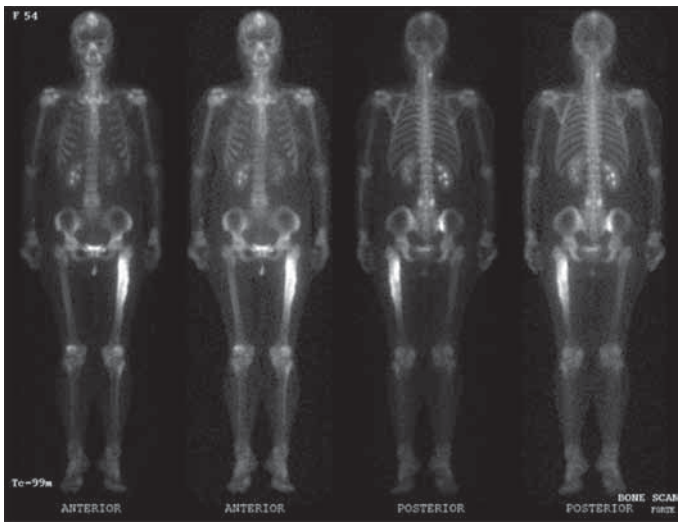


Fig. 4. Raidonuclide scan (99m YC MDP) of the patient showing increased uptake at proximal two third of left femur, skull vault and right sacroiliac joint.