Journal of Experimental and Clinical Medicine

Case Report

doi: 10.5835/jecm.omu.31.04.011

Solitary plasmacytoma of the femur: A case report

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ARTICLE INFO

Article History
Received 09 / 11 / 2013
Accepted 29 / 12 / 2013

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Keywords:
Multiple myeloma
Plasma cells
Proximal femur
Solitary plasmacytoma

ABSTRACT

Solitary plasmacytoma (SP) is a rare type of myeloma which is a hematologic malign tumour originated from plasma cells. It is an isolated tumour which myeloma signs are not observed. SP primarily affects axial skeleton and involvement of extremity is seen rarely. We report a case of SP of proximal femur origin in a 52-year-old woman. The patient was treated with cemented modüler tumour prosthesis following tumour excision. In a one year follow up period, no recurrens or multiple myeloma signs were observed and the patient was able to walk without support and without pain so the treatment resulted successfully.

J. Exp. Clin. Med., 2014; 31:251-253

1. Introduction

Plasma cell neoplasms are malignant tumours of the immune system. The most commonly seen plasma cell neoplasm showing diffuse involvement is multiple myeloma (MM). Solitary plasmacytoma (SP) and extramedullary plasmacytoma, which do not show findings of systemic myeloma are isolated tumours formed from malignant plasma cells. The World Health Organisation has classified plasmacytoma as SP of the bone and extrameduallary/outside the bone plasmacytoma (Jaffe, 2009).

SP is often found in the axial skeleton, particularly bone-marrow dense bones such as vertebra. SP is seen at a rate of less than 10% in plasma cell neoplasms. SP has been reported in the femur (Kivioja et al., 1992), tibia (Kumar et al., 2011), jawbone (Agostini et al., 2011) and patella (Lebon et al., 2011). Only one percent of SP are located in an extremity (Homann et al., 2002). A case is presented here of SP in the upper end of the femur which was causing destructive changes and was therefore treated surgically.

2. Case report

A fifty two year-old female patient presented at our clinic with pain in the left hip. The history revealed that the pain had been continuing for several months. There was nothing remarkable complaint apart from the pain on physical examination. On a direct radiograph, a regular edged, multilocular destructive lesion, 11 cm x 4 cm in size, was determined at the upper end of the femur (Fig. 1).

Magnetic resonance imaging (MRI) of the left femur showed destruction of the bone marrow in subtrochanteric region (Fig. 2).

No additional lesion was determined by positron emission

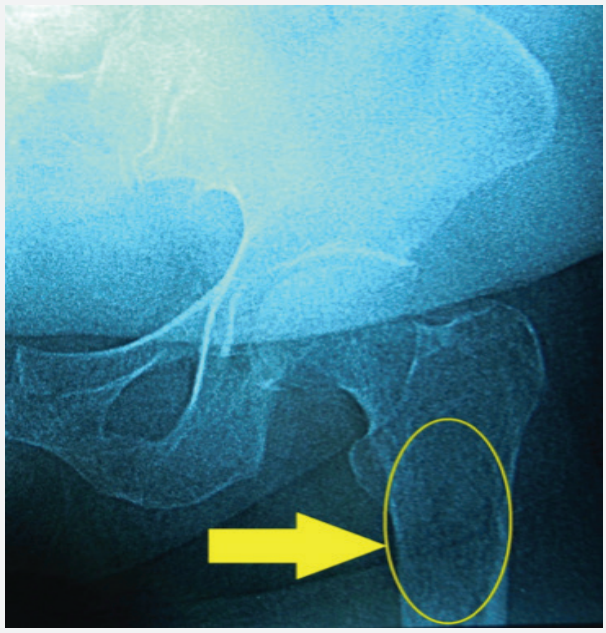

Fig. 1. A regular edged, multilocular destructive lesion located at the subtrochanteric region of femur

tomography (PET) and 3-phase scintigraphy of the skeletal system. There were no pathological findings in the lung and abdominal examination. After evaluation of these results, rather than metastatic disease, primary bone pathology was considered. So bone marrow biopsy, complete blood count, serum electrophoresis, 24-hour urine electrophoresis and C-reactive protein tests were ordered. No pathology was found except a high sedimentation level and a low level of albumin in the protein electrophoresis. A biopsy was performed because of the mass at the upper end of the left femur. The biopsy revealed monoclonal plasma cell infiltration. It was decided to treat the patient surgically. After excision of the mass and femoral head, femoral shaft was evaluated with frozen to limit surgery. Reconstruction was achieved with a cemented resection type prosthesis (Fig. 3). The patient was mobilised with support postoperatively. The patient was monitored by the haemotology and radiation oncology clinic. At the postoperative one-year follow-up, the patient was able to walk without support and without pain. There was no recurrence and no findings of MM.

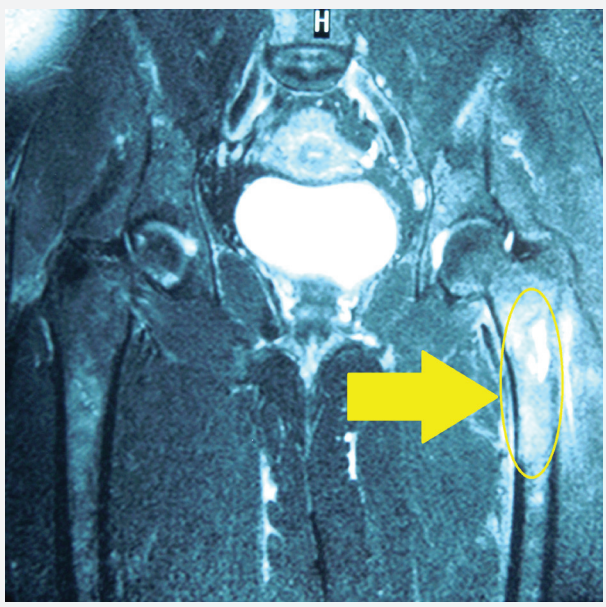

Fig. 2A. Coronal magnetic resonance imaging view of the lesion

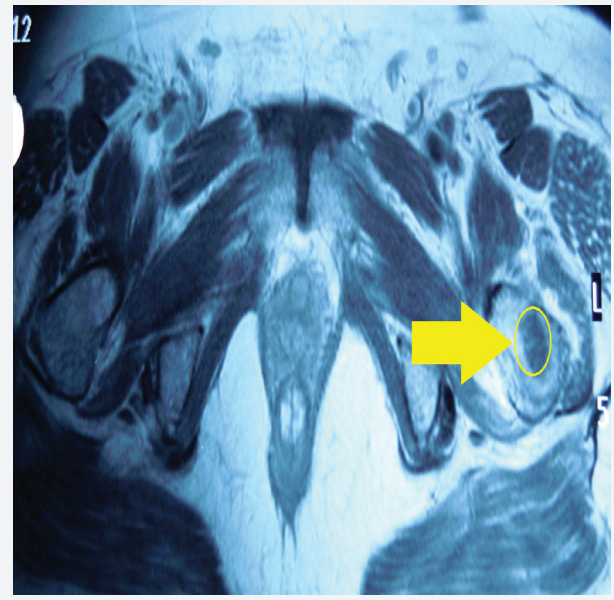

Fig. 2B. Axial magnetic resonance imaging view of the lesion

3. Discussion

SP is a tumour seen twice as frequently in males, at average age 55 years and often showing vertebral involvement (Dimopoulos et al., 2000), which is thought to be a low-grade, precursor of MM. The most common symptom may be pain caused by bone destruction and there may be findings of spinal cord or nerve root compression in vertebral involvement (Terada, 2011). In some cases, detection may be coincidental in radiological tests carried out for a different reason. The case reported here was in the appropriate age range and symptoms were given as complaints of hip pain.

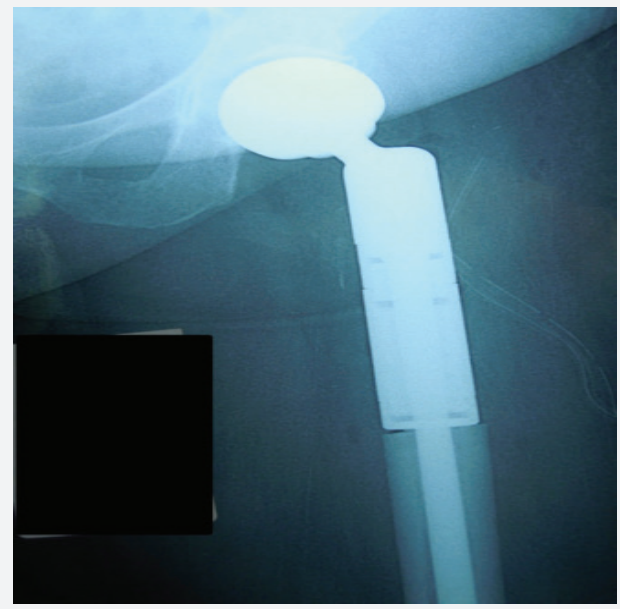

Fig. 3. Direct radiograph after resection and reconstruction with cemented moduler tumour prosthesis.

Diagnostic criteria for SP have been defined as bone destruction in a single area by clonal plasma cells, normal bone-marrow aspiration, no involvement of another bone radiologically, no findings of anaemia, hypercalcemia or renal insufficiency, no M-protein in the serum or urine (Soutar et al., 2004). The case reported here was determined to have involvement in a single area and no additional lesions were detected radiologically. Bone marrow aspiration and laboratory tests were determined as normal. Diagnosis was made on pathological examination of SP.

Radiotherapy is the preferred treatment. Radiotherapy can achieve local control in more than 80% of patients and increases survival in approximately 35% of patients (Weber, 2005). There is a greater possibility of local recurrence with radiotherapy on lesions greater than 5 cm (Tsang et al., 2001). Patients who do not respond to radiotherapy should be treated with chemotherapy. In young patients, this includes high-dosage and autologous hematopoietic stem cell transplantation (Soutar et al., 2004).

In extremity involvement of SP, surgery is recommended when there is structural instability (Soutar et al., 2004; Kumar, 2008). In the case reported here, on evaluation of the mass located in the left subtrochanteric femur, 10 points were scored according to the Mirel criteria (Mirel, 1989) so surgical treatment was applied. With the aim of regaining a pain-free extremity and an early return to daily activities, surgery was applied as extensive resection of the tumour and reconstruction with a cemented modular tumour prosthethis.

In SP cases, although progression to myeloma is seen at mean 2-3 years, survival is 7-12 years longer compared to myeloma early phase patients (Soutar et al., 2004; Weber, 2005; Kilciksiz et al., 2008). The prognosis of SP is worse than that of the extramedullary plasmacytoma (Kilciksiz et al., 2008). Due to the possibility of SP becoming multiple myeloma, patients require life-long follow-up of symptoms, findings and laboratory tests (Soutar et al., 2004). In the case reported here, the treatment was determined to have been sucessful as the one-year follow-up showed no recurrence or findings of MM and the patient was able to walk without support and without pain.

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