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Large giant cell tumour of distal femur in 88 year old male patient: A rare case report and review of literature

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Abstract
Giant cell tumour is a locally aggressive benign tumour of bone predominantly involving age group 20-40 years. We are reporting a case of giant cell tumour of distal femur in an 88 year old male which was treated with extended curettage and bone cement. At two years follow up the patient is disease free with no recurrence or metastasis and achieved 80 degree of knee flexion.

Keywords: Case report, clinico-pathologic-radiological, cell tumour, proximal tibia

Introduction
Giant cell tumour (GCT) is a benign to aggressive lesion which is frequently encountered in orthopaedic practice with distinct clinico-pathologic-radiological features and has a tendency for local recurrence and spread, potential for malignant transformation and metastasis [1]. They constitute approximately 5% of primary bone tumours, most commonly involving the distal femur and proximal tibia [2]. Distal Radius, proximal humerus, fibula and the pelvic bones are the other common sites of involvement [3]. In their most frequent presentation giant cell tumour of the bone are solitary neoplasm, occurring eccentrically in the epi-metaphyseal region of young adult bones [4]. Involvement of small bones is rare [5]. It is commonly encountered in population with age ranging from 20-40 years, but it has also been reported in children as young as 2 years [6] as well as in elderly population with rare incidence in patients older than 55years [7].
We report an unusual presentation of giant cell tumour in left distal femur in an 88 years old male patient. We discuss whether giant cell tumours in elderly patients behave differently than those that occur in the usual age group. In addition, we outline what are the common differential diagnoses encountered in such elderly patient.

Case Report
We are reporting an 88 years old male patient who presented with swelling and pain around the lateral aspect of left knee for 6 months along with decreased range of movements. There was no history of trauma or any systemic symptoms. His general physical examination was unremarkable. On local examination the patient had local tenderness with a firm to hard localized swelling of size 5 x 4 cm on the lateral aspect of distal thigh. Swelling was warm, had well defined margins, firm consistency and was adherent to the underlying structures. Knee range of motion was from 0-20 degrees of flexion. Routine blood investigations were unremarkable. Plain roentgenogram (Fig-1) showed an expansible eccentric osteolytic lesion with breached out lateral cortex involving supracondylar femur and lateral femoral condyle region. Biopsy was done and histopathological diagnosis of GCT was confirmed. The tumour was graded as Campanacci grade III. Chest radiograph was normal with no evidence of lung metastasis at that time. MRI imaging revealed poorly demarcated lobulated lesion involving distal end of femur (epiphysis, metaphysis), predominantly lateral condyle with intraosseus and extraosseus components (with breach in lateral cortex) extending into surrounding soft tissues, with surrounding my of ascial edema.
The tumour was approached with lateral incision over distal thigh. Pathological fracture of lateral cortex was seen and the tumour was extending anteriorly outside the bone. The tumour was grey-white in appearance was firm in consistency. Extended curettage was performed after making a large cortical window over the lesion scooping out with sharp

curettes (Fig-2). The cavity was enlarged back to normal host bone in each direction with a power burr followed by fulguration of the residual tumour tissue by electro cautery. Finally, the cavity was copiously irrigated to remove any debris and tumour cells. The cavity was filled with bone cement (PMMA). Histopathological examination of the excised specimen showed multinucleated giant cells and pleomorphic spindle cells (Fig-3). Post-operative period was uneventful and patient was put on physiotherapy after one month (Fig 4).

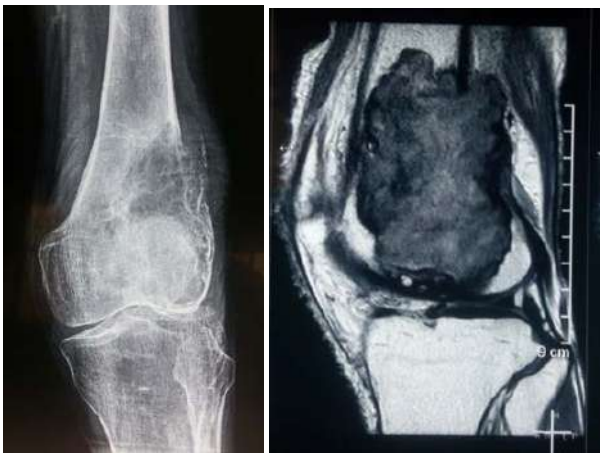

Fig 1: X-ray and MRI of patient showing lytic lesion in distal end of femur with breach in lateral cortex

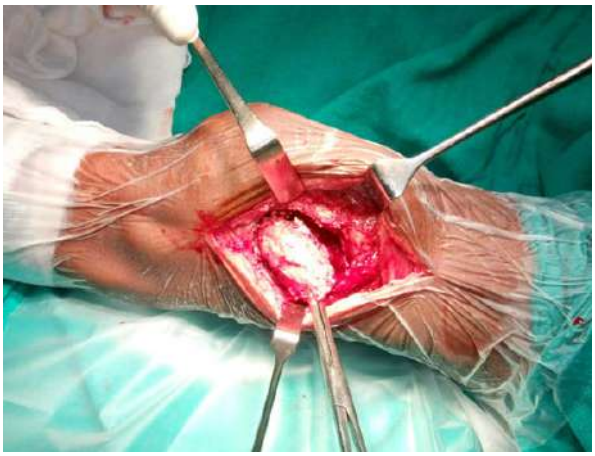

Fig 2: Intra-operative picture showing a large cortical window over the lesion for curettage

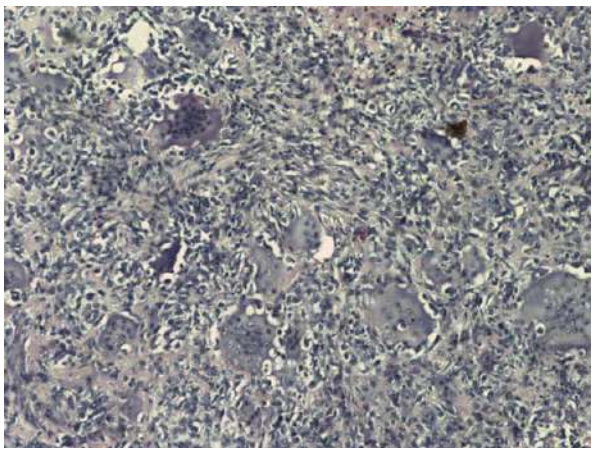

Fig 3: Histopathological analysis showing mononuclear ovoid and spindle-shaped cells associated with multinucleated giant cells and macrophages characteristic of giant cell tumour of bone

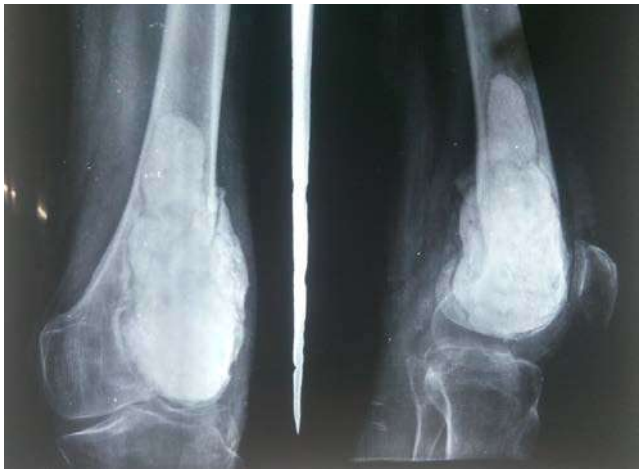

Fig 4: Post op x-rays showing cavity filled with bone cement after extended curettage

Fig 5: Full range of movements at 2 years follow up

The patient is still on our routine follow-up since last 2 years with no evidence of any local recurrence or distant metastasis as of now. There was an improvement in knee range of motion from initial 0-20 degrees to 0-80 degrees of active flexion with Musculoskeletal Tumor Society Rating Scale (MSTS) score of 28 (Fig 5).

Discussion

Earlier studies on GCT included few elderly patients but there was no distinctive mention of tumour behaviour and management in elderly patients in these studies [8, 9, 10, 11]. McCarthy *et al.* [7] reported in a series of ten cases (age ranging from 62-78 years) that the behaviour of giant cell tumour in elderly patients is no different from lesions occurring in more commonly involved younger patients. In the present case report, the location of tumour is one of the commonest known sites observed in the younger population. Also the radiographic features and behaviour of the lesion is identical to the giant cell tumour in younger patients. Lesion is well defined and involves the epi-metaphysis of femur.

Many modalities of treatment have been described for management of GCT. Intra-lesional curettage with cementing or bone grafting done in our case is recommended as a standard treatment [12].

The differential diagnoses of giant cell tumour in elderly patients are Metastatic carcinoma, Pigmented villonodular synovitis (PVNS) and Paget's disease (rarely).

Metastatic carcinoma arising from breast, kidney, lung and pancreas has high likelihood in elderly patients. Although it mainly involves axial skeleton but to rule out, confirmation by biopsy is must. Another less common differential diagnosis is PVNS. PVNS involving bone is almost always epiphyseal and metaphysical with bone destruction pattern similar to GCT. A pre-operative MRI will help eliminate this diagnostic confusion because PVNS will show

extensive synovial membrane involvement and secondary bone invasion [7].

Giant cell tumour is a rare complication of Paget's disease in older patients. Therefore, any elderly patient with a giant cell tumour should be ruled out for the possibility of Paget's disease [7, 13, 14].

Conclusion

Giant cell tumour of bone is a rare entity in elderly patients and possibility of metastasis should always be kept in mind. A preoperative biopsy is essential for confirming the diagnosis. However once diagnosis of GCT is confirmed, treatment modalities remains the same irrespective of the age.

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Conflicts of Interest

There are no conflicts of interest.

References

1. Dahlin DC, Unni KK. Bone tumours. Giant cell tumour (Osteoclastoma) Springfield, Charles C Thomas. 4th Ed 1986, 119-140.
2. Zahid M, Asif N, Sabir AB, Siddiqui YS, Julfiqar M. Metachronous multicentric giant cell tumour of the upper extremity in a skeletally immature girl: A rare presentation Acta Orthop Belg. 2010; 76:694-8.
3. Dhillon M, Prasad P, Virk MS, Aggarwal S. Multicentric giant cell tumour involving the same foot: A case report and review of literature Indian J Orthop. 2007; 41:154-7.
4. Dhillon M, Prasad P. Multicentric giant cell tumour of bone. Acta Orthop Belg. 2007; 73:289-99.
5. Unni KK. Dahlin's bone tumours: General aspects and data on 11087 cases 5th ed Lippincott-Raven: Philadelphia; 1996, 263-83.
6. Kamoshima Y, Sawamura Y, Imai T, Furukawa H, Kubota K, Houkin K. Giant Cell Tumor of the Frontal Bone in a Girl Neurologia Medico-Chirurgica. 2011; 51(11):798-800.
7. McCarthy EF, Weber KL. Giant cell tumor of bone in elderly patients: A study of ten patients, The Iowa Orthopaedic Journal. 2009; 29:79.
8. Balke M, Schremper L, Gebert C, Ahrens H, Streitbuerger A, Koehler G *et al*. Giant cell tumor of bone: Treatment and outcome of 214 cases J Cancer Res Clin Oncol. 2008; 134:969-78.
9. Campanacci M, Baldini N, Boriani S, Sudanese A. Giant-cell tumor of bone J Bone Joint Surg. 1987; 69(1):106-13.
10. Goldenberg RR, Campbell CJ, Bonfiglio M. Giant-Cell Tumor of Bone J Bone Joint Surg. 1970; 52(4):619-64.
11. McDonald DJ, Sim FH, McLeod RA, Dahlin DC. Giant-cell tumor of bone. J Bone Joint Surg. 1986; 68:235-42.
12. Xing R, Yang J, Kong Q, Tu C, Zhou Y, Duan H. Giant cell tumour of bone in the appendicular skeleton: an analysis of 276 cases Acta Orthop Belg. 2013; 79:731-7.
13. Mirra J, Bauer FCH, Grant TT. Giant Cell Tumor with Viral-like intranuclear inclusions Associated with Paget's disease Clin Orthop Relat Res. 1981; 158:243-51.
14. Hoch B, Hermann G, Klein MJ, Abdelwahab IF, Springfield D. Giant cell tumor complicating Paget disease of long bone Skeletal Radio. 2007; 36:973-8.