The Egyptian Journal of Hospital Medicine (January 2018) Vol. 70 (3), Page 436-438

Primary Giant Cell Tumor of Soft Tissues: A Case Report and Literature Review

Furat Abdulrahman Almayouf
College of Medicine, Qassim University, Saudi Arabia
Corresponding author: Furat Abdulrahman Almayouf, Phone: +966546848999, E-Mail: Forat.a.m@gmail.com

ABSTRACT
Giant cell tumor of soft tissue (GCT-ST) is a rare tumor of low malignant potential. Grossly and histologically similar to its bone counterpart. Majority has benign clinical course and rarely metastasizes. This is a case of a 46-year-old woman with a giant cell tumor of soft tissue of the knee. This tumor was not suspected clinically and was initially diagnosed as septic infra-patellar bursitis. The diagnosis of GCT-ST was made after histopathological examination. Herein, we describe the clinical, histologic, and immunohistochemical features of this rare neoplasm.
Keywords: Giant cell tumor of soft tissue; Giant cell tumor of bone; giant cell rich soft tissue neoplasms.

INTRODUCTION

Primary giant cell tumor of soft tissue (GCT-ST), also known as soft tissue giant cell tumor of low malignant potential (GCTST-LMP) [(1)], was first described in the literature by Salm and Sissons [(2)] in 1972, a case series of 10 primary soft tissue tumors that run a relatively benign clinical course although some exhibit local recurrence. However, Guccion and Enzinger [(3)] in same year reported a 32 case series with two distinct variants, a largely benign and a few having low malignant potential. This type of tumors occurs in a broad age range with no sex predilection [(4, 5)]. The main presenting feature was a painless growing mass [(4)]. GCT-ST, is a relatively rare entity, and is clinically and histologically similar to its bone counterpart [(2, 3)]. This rarity makes it difficult for clinicians to diagnose accurately before biopsy, resection of tumor [(6, 7)]. Herein, we report a rare case of GCT-ST with comprehensively review 72 cases of GCT-ST that have been reported in the English-language literature [(3, 4, 8)].

CASE PRESENTATION

A 46 -year-old woman was admitted to King Saud Hospital in Qassim region for evaluation of a 2-months history of painful swelling and restricted movement in her left knee. The patient denied any direct trauma on this area. The clinical diagnosis was septic infra-patellar bursitis. MRI show well defined soft tissue lesion with no bony destruction. An excisional biopsy was subsequently performed and the histologic features were compatible with the diagnosis of primary GCT-ST. Postoperatively, the patient symptom free and in good health.

Pathological finding

On gross examination, the excisional biopsy revealed a well circumscribed oval firm to hard mass of grey tissue measuring 3 x 2 x1 cm. Cut section shows cystic lesion with grey white tissue along with bony tissue.

Microscopically, sections reveal well circumscribed lesion surrounded by fibrocollagenous tissue, bone trabeculae enclosing hypocellular marrow spaces. Towards the center, rim of metaplastic bone/osteoid tissue formation is seen. Center of the lesion is formed of proliferative small to medium cells having rather bland plump oval/spindle nuclei, inconspicous nucleoli, ill-defined cytoplasm with mitotic rate up to 1-2/HPF in the most active areas but no atypical mitosis and no significant cellular atypia. Numerous scattered osteoclast-like giant cells (figure 2), focal tiny hemorrhage are seen. No necrosis in examined section.

Immunohistochemical stains for vimentin, smooth muscle actin (SMA), CD68, Ki67 were positive.

Received: 19/10/2017
Accepted: 29/10/2017
DOI: 10.12816/0043483

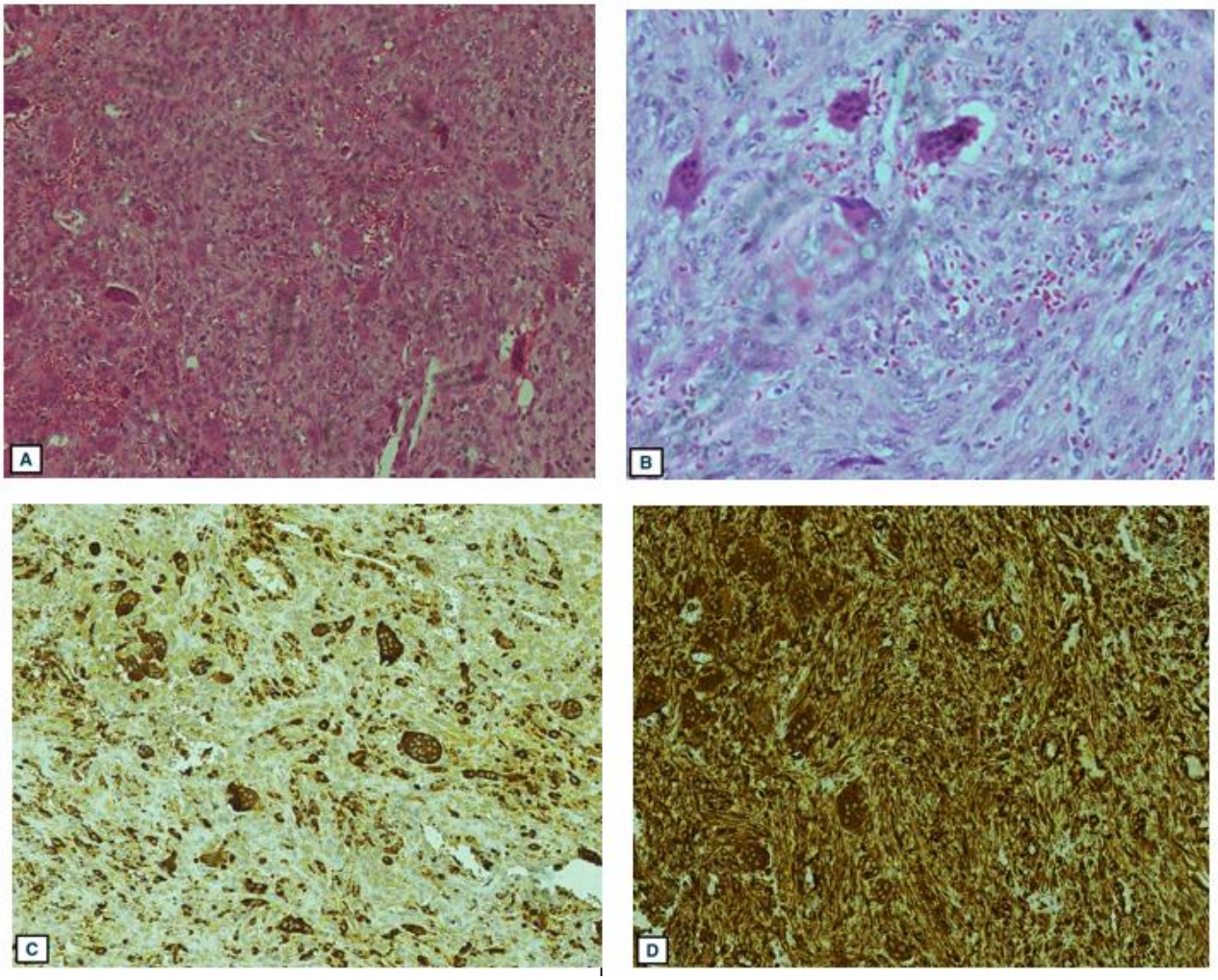

Fig 1: Show light microscopy (A,B) and immunohistochemistry (C,D) slides.

(A):The tumor reveal fibrocollagenous tissue, bone trabeculae enclosing hypocellular marrow spaces.

(B): The tumor is composed of oval/spindled cells admixed with numerous osteoclast-like giant cells.

(C): Positive immunohistochemical stains for CD68 ,

(D): Positive immunohistochemical stains for vimentin.

DISCUSSION

The GCT-ST is a rare extraskeletal tumor somewhat resembling a giant cell tumor of bone [7]. Including our case, we found 73 cases of GCT-ST [3, 4, 8]. This type of tumor occurs in wide range of age from 5 to 89 years old (mean age, 51.2±20.5 years) and is slightly more frequent in males (52%).

The most common symptom was painless growing mass. Duration of symptoms ranged from 2 months to 1 year [4]. The tumors occurs predominantly in the lower extremities in 47 (64.4%) patients (thigh, twenty one; leg, fifteen; knee, six; hip, three; foot, two). Followed by upper extremities in eleven patients (15%), back in five patients (6.8%), buttock in five patients (6.8%), trunk in three patients (4.1%), and head and neck in two patient (2.7%).

To our knowledge no etiologic factors have been identified. In 63 patients in whom follow-up

information was available, 21 patient experienced local recurrent disease.

The majority of deep tumor tends to exhibit malignant behavior, in fifteen of the 30 deep tumors and in four of the 42 superficial tumors metastases are detected. Widespread metastasis and lung metastasis were found in 6 and 13 cases, respectively [3, 4]. Macroscopically and microscopically of GCT-ST is indistinguishable from giant cell tumor of bone [9]. The size of the tumors ranged from 0.8 to 30 cm [3, 8].

In our case, microscopic examination reveal round to spindle-shaped neoplastic cells with numerous scattered multinucleated osteoclast-like giant cells exhibiting 1-2/HPF mitotic activity lack atypical mitosis and pleomorphism, similar finding were reported previously [5]. In previous report by Oliveira ***et al.*** [4], a mitotic rate exceeding 30 per 10 HPFs was found. Immunohistochemically, GCT-STs usually show immunoreactivity for vimentin, CD68, and smooth muscle actin (SMA) [4]. Differential diagnosis of GCT-ST that must be carefully ruled out are the giant cell variant of malignant fibrous histiocytoma (giant cell MFH), plexiform fibrohistiocytic tumor (PFT), and extraskeletal osteosarcoma (ES-OGS) [4]. Furthermore, careful clinical and radiographic evaluation to rule out possible soft tissue extension or recurrence of primary disease is needed [4]. The treatment of GCT-ST remains controversial. Surgical resection with free surgical margins seems to be adequate therapy. However, because GCT-ST is a tumor with low malignant potential closes follow up is advised [10]. As for postoperative radiotherapy, no clear evidence is yet clearly established [10, 11].

In conclusion, GCT-STs are tumors with low malignant potential, these neoplasms should be considered in the differential diagnosis of giant cell rich soft tissue neoplasms. Proper surgical excision and a close follow up are recommended.

The study was done after approval of ethical board of Qassim University.

REFERENCES

1. **Folpe AL, Morris RJ, and Weiss SW (1999):** Soft tissue giant cell tumor of low malignant potential: a proposal for the reclassification of malignant giant cell tumor of soft parts. Mod Pathol., 12(9): 894—902.
2. **Salm R and Sissons HA (1972):** Giant-cell tumours of soft tissues. J. Pathol., 107(1): 27–39.
3. **Guccion JG and Enzinger FM (1972):** Malignant giant cell tumor of soft parts. An analysis of 32 cases. Cancer, 29(6): 1518–1529.
4. **Oliveira AM, Dei Tos PA, Fletcher CD, and Nascimento AG (2000):** Primary giant cell tumor of soft tissues: a study of 22 cases. Am. J. Surg. Pathol., 24(2): 248–256.
5. **Holst VA and Elenitsas R (2001):** Primary giant cell tumor of soft tissue. J. Cutan. Pathol., 28(9): 492–495.
6. **Hafiz S, Shaheen M, Awadh N, and Esheba G (2017):** Giant cell tumor of soft tissue: A case report for the first time in ear. Hum. Pathol. Case Reports, 10:12–14.
7. **Trabelsi A *et al.* (2009)**: Giant cell tumor of soft tissue of neck: a case report. N Am J Med Sci., 1(6): 319–20.
8. **O'Connell JX, Wehrli BM, Nielsen GP, and Rosenberg AE (2000):** Giant cell tumors of soft tissue: a clinicopathologic study of 18 benign and malignant tumors. Am. J. Surg. Pathol., 24(3): 386–395.
9. **Fletcher CD, Unni KK, and Mertens F (2002):** Pathology and Genetics of Tumours of Soft Tissue and Bone. WHO Classification of Tumours. IARCPress Lyon. http://www.iarc.fr/en/publications/pdfs-online/pat-gen/bb5/index.php
10. **Saldanha P and Tak HN (2014):** Giant Cell Tumour of Soft Tissue – A Rare Neoplasm. J Clin Biomed Sci., 4(3): 326–29.
11. **Righi S *et al.* (2014):** Soft tissue giant cell tumor of low malignant potential with 3 localizations: Report of a case. Oral Surg. Oral Med. Oral Pathol. Oral Radiol., 118(5): 135–138.