

Synovial Giant Cell Tumour of Knee Presenting as Loose Bodies: A Rare Case Report and Review

Veena Venkatesh¹, Arul Jothi², Ravichandran³

¹(Associate Professor, Department of Pathology, Karpagam Faculty of Medical Science and Research, Coimbatore, India)

²(Consultant Orthopedician, OMS Hospital, Tirupur, India)

³(Consultant Plastic Surgeon, OMS Hospital, Tirupur, India)

Corresponding Author: Veena Venkatesh

Abstract: Synovial giant cell tumour is a benign intra-articular neoplasm, which commonly occurs in hand. Less common sites include ankle and hip. It is a locally aggressive tumour, caused by the over expression of CSF1. In this case report, we present a rare case of intra-articular localised synovial giant cell tumour in the knee. Arthroscopy was done as an optimal method for providing good visualization of all compartments of knee joint. The patient was managed with surgical resection of the tumour.

Key words: Synovial giant cell tumour, knee, arthroscopy, loose bodies

Date of Submission: 27-11-2018

Date of acceptance: 08-12-2018

I. Introduction

Tenosynovial giant cell tumours are a group of benign intra-articular neoplasms which can be broadly divided into localized and diffuse forms¹⁻³. It is clearly not known if this disease is a true neoplasm or just a reactive process, but the latest evidence shows monoclonality of cells, favouring a neoplastic etiology^{4,5}. This tumour was first described by Jaffe et al in 1941, who named it as pigmented villonodular tenosynovitis. Clonal structural aberrations affecting 1p11 to 1 p13 region and trisomies of chromosomes 5 and 7 were found⁶⁻⁸. CSF1 production was found in the neoplastic cells which contributed to the clonal proliferations of these cells.

In this case report, we present a rare case of synovial giant cell tumour in the knee of a 55 year old female, with review of literature.

II. Case report

A 55 year old female presented with knee joint swelling and tenderness, along with locking. The laboratory tests were normal. CT scan showed multiple loose bodies in the intra-articular space of the knee along with joint effusion. (Figure 1)

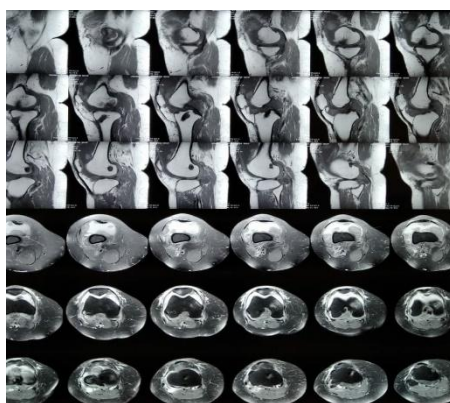


Figure 1: CT Scan showing effusion in knee joint with loose bodies

Arthroscopy was done to examine the compartments of knee joint and these loose bodies were removed and sent for histopathological examination.

On gross examination, multiple well defined grey white soft tissues were received altogether measuring 6x4x3 cm. Cut surface was grey white firm with focal brown pigment (Figure 2).



Figure 2 : Gross examination showing multiple grey white to pale yellow soft tissue pieces with focal brown pigment

Microscopically, multiple sections studied showed a benign lesion composed of sheets of mononuclear stromal cells with nucleus showing open chromatin. Many multinucleated giant cells of osteoclastic type were seen (Figure 3). Sheets of foamy macrophages were also identified (Figure 4). Focal stromal hyalinization, scattered lymphocytes and hemosiderin pigment were noted (Figure 5 and Figure 6). A diagnosis of synovial giant cell tumour was made.

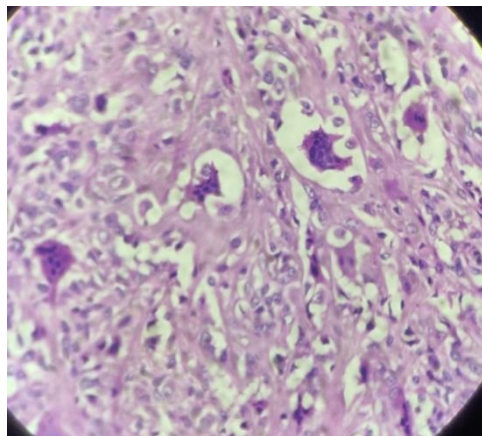


Figure 3: Microscopy showing multinucleated osteoclastic type of giant cells in a background of mononuclear stromal cells. (H&E 40X)

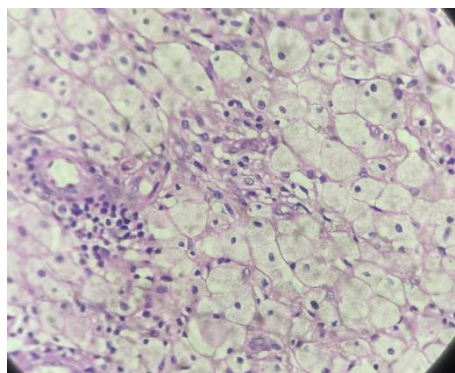


Figure 4: Sheets of foamy macrophages with intervening scattered lymphocytes. (H&E 40X)

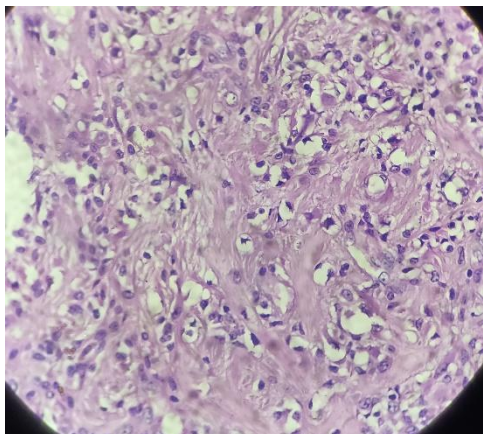


Figure 5: Tumour showing stromal hyalinization between the cells. (H&E 40X)

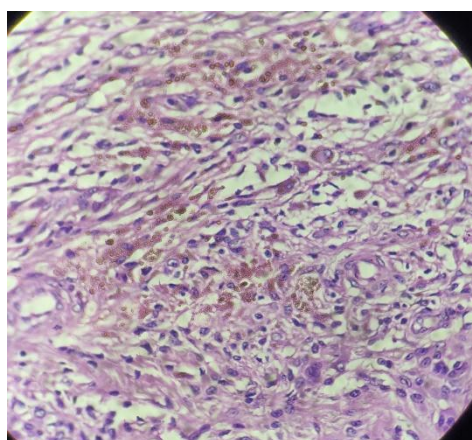


Figure 6: Shows hemosiderin laden cells. (H&E 40X)

III. Discussion

Initially, synovial giant cell tumour was referred as melioidoma, villous arthritis, benign synovioma, synovial endothelioma and chronic hemorrhagic villous arthritis².

The synovial giant cell tumour is a monoarticular disease, affecting mainly young adults. The highest incidence of these cases occur in third and fourth decades of life. The annual incidence is estimated to be 1.8 per million people, with equal gender distribution⁹.

Various etiologies were described for synovial giant cell tumour but the real etiology remains uncertain. High level of cholesterol in histiocytes because of disturbances in lipid metabolism was encountered by Hiroshima, Other possibilities such as a benign neoplastic process, response to repeated episodes of trauma are also described¹⁰.

The clinical features include pain, effusion and limitation of movement. Sometimes, diagnosis may be difficult because the symptoms may mimic a meniscal lesion¹¹.

Mechanical symptoms such as popping and locking are usually present.

Arthroscopy is considered the optimal modality of management. Surgical resection of the tumour remains the treatment of choice. Recurrence rate is 10 to 20 %¹².

Therefore, synovial giant cell tumours localized to the knee are very rare. However, they should be kept in mind in the differential diagnosis. Marginal excision of the tumour is sufficient in treatment and the patient should be followed up to look for recurrence.

References

- [1]. Beytemür O, Albay C, Tetikkurt US, Oncü M, Baran MA, Çağlar S, Güleç MA. Localized giant cell tenosynovial tumor seen in the knee joint. *Case Rep Orthop.* 2014;2014:840243. doi: 10.1155/2014/840243.
- [2]. Sun C, Sheng W, Yu H, Han J. Giant cell tumor of the tendon sheath: a rare case in the left knee of a 15-year-old boy. *Oncology Letters.* 2012;3(3):718–720.
- [3]. Akgün I, Ögüt T, Kesmezacar H, Dervisoglu S. Localized pigmented villonodular synovitis of the knee. *Orthopedics.* 2003;26(11):1131–1135.
- [4]. Rene Jorge Abdalla, Moisés Cohen, Jezimar Nóbrega, Andrea Forgas. Synovial giant cell tumor of the knee. *Rev Bras Ortop.* 2009 Jan; 44(5): 437–440. Published online 2015 Dec 8. doi: 10.1016/S2255-4971(15)30276-7.
- [5]. Asik M, Erlap L, Altinel L, Cetic O. Localized pigmented villonodular synovitis of the knee. *Arthroscopy.* 2001;17(6):1–6.

- [6]. David R. Lucas, (2012) Tenosynovial Giant Cell Tumor: Case Report and Review. Archives of Pathology & Laboratory Medicine: August 2012, Vol. 136, No. 8, pp. 901-906.
- [7]. Nilsson M, Höglund M, Panagopoulos I, et al. Molecular cytogenetic mapping of recurrent chromosomal breakpoints in tenosynovial giant cell tumors. *Virchows Arch.* 2002;441(5):475–480.
- [8]. Fletcher JA, Henkle C, Atkins L, Rosenberg AE, Morton CC. Trisomy 5 and trisomy 7 are nonrandom aberrations in pigmented villonodular synovitis: confirmation of trisomy 7 in uncultured cells. *Genes Chromosomes Cancer.* 1992;4(3):264–266.
- [9]. Kim SJ, Shin SJ, Choi NH, Choo ET. Arthroscopic treatment for localized pigmented synovitis of the knee. *Clin Orthop Relat Res.* 2000;(379):379–380.
- [10]. Ogilvie-harris DJ, McLean J, Zarnett ME. Pigmented villonodular synovitis of the knee, and arthroscopic local excision. *J Bone Joint Surg Am.* 1992;74(6):952.
- [11]. Muscolo DL, Makino A, Costa-paz M, Ayerza M. Magnetic resonance imaging and arthroscopic resection of localized pigmented villonodular synovitis of the knee. *Orthopedics.* 2000;23(4):367–369.
- [12]. Lowyck H, de Smet L. Recurrence rate of giant cell tumors of the tendon sheath. *European Journal of Plastic Surgery.* 2006;28(6):385–388.

Veenaa Venkatesh. “Synovial Giant Cell Tumour of Knee Presenting as Loose Bodies: A Rare Case Report and Review.” *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, vol. 17, no. 12, 2018, pp 72-75.