Intra-Articular Calcified Synovial Sarcoma Of Knee – A Case Report Of An Imitating Pathology

Pankaj Kumar Mishra¹, Vishal Yadav¹, Deepak Singh Maravi¹, Sanjeev Gaur¹

Abstract

Introduction: Although the association of calcification/ossification with the synovial sarcoma is an uncommon finding, we are presenting a rare case of the intra-articular synovial sarcoma of the knee with calcification as a perusal of rare entity, showing that the intra-articular calcification may also be the presentation of the synovial sarcoma.

Case Report: It is a case presentation of 35 years old female, who presented to us with a knee lump at the postero-lateral aspect of her left knee. MRI finding speculated the differential diagnosis of synovial sarcoma, soft tissue sarcoma and peripheral nerve sheath tumor. The fine needle aspiration cytology of the swelling sent for the clinical correlation, and it showed the benign cytology. Excision of the tumor done with the, safety margin. After the 12 months of the postoperative follow-up, the patient again visited to the hospital with the same complaint. Resurgery done for the tumor and it got excised with the safety margin as we could achieve again. Now the histology of the tumor was characteristically of monophasic pattern of synovial cell sarcoma.

Conclusion: Here we are acknowledging this case as an experience of the calcified intra-articular synovial sarcoma and want to add the note that, the calcified lesion within the joint may be mistaken as a benign pathology by the orthopedist if he/she is unwary to the imitating presentation of the synovial sarcoma.

Keywords: Intra-Articular Synovial Sarcoma, Knee, Calcification.
Follow up MRI showed the recurrence of restricted range of movements [Fig 4].

The swelling was now tender, warm, with clinical scenario of the swelling was hospital with the same complains. Now the follow-up, the patient again visited to the hospital with the same complains. Now the histology of the tumor was confirmed. One of the center confirmed that it was the fibrofatty tissue with cystic space filled with calcified debris, without any evidence of malignancy and at the second center the histological study revealed that it was the cartilaginous bodies in the synovial membrane (synovial chondromatosis). Post-operative period was uneventful except the injury of common peroneal nerve, that did not recover till the date of last follow up.

After the 12 months of the postoperative follow-up, the patient again visited to the hospital with the same complains. Now the clinical scenario of the swelling was different from the previous presentation. The swelling was now tender, warm, with variable consistency and venous dilations over the overlying skin along with restricted range of movements [Fig 4]. Follow up MRI showed the recurrence of the tumor nevertheless it appeared significantly reduced in size (4.5 X 5.3 centimeter) and displacing the neurovascular structures medially. Chest X-ray and sonology of abdomen did not reveal any metastatic lesion. In 2008 the resurgery done for tumor and it got excised with the safety margin as we could achieve again. Now the histology of the tumor was characteristically of monophasic pattern of synovial cell sarcoma, containing the malignant spindle cells.

Immunohistochemistry of the synovial sarcoma showed the positivity for viamentin. After the recuperation, the patients sent for radiotherapy where she received the 50 Gray of radiations. After the 5 years of the follow up the, patient is asymptomatic and free from the local recurrence and metastasis. While, the aggressive pathology of the synovial sarcoma needs a more number of the cases of longer follow-up, but even this case report also suggests the propulsive prognosis of the calcified synovial sarcoma of the knee joint.

Discussion

In 1936 the Knox named it as a synovial sarcoma, on the belief that since the tumor has the tendency to arise near to joint and tumor cell originated from the synovial tissue. But now days the name synovial sarcoma is misnomer sometimes, because in majority cases the synovial sarcoma originates where the synovial tissue is not present (extra-articular location) and the actual cells of the tumor is not necessarily a synovial cell. In that case, the term used is neoplasm of uncertain histogenesis [4, 5]. Usually the synovial tumor are circumscribed and situated adjacent to the joints (≤ 5 cm), but unusually in the 5% cases they are within the joints or bursa and interdigitates to the surrounding muscles, tendons or vessels [6, 7].

Exact pathology of synovial sarcoma is not well understood. But the literature has shown that genetic aberration plays a role for the occurrence of synovial sarcoma. Usually in the clinical practice the synovial sarcoma is diagnosed by histopathology but it is the molecular genetics that confirms the pathology by the presence of t(X;18) gene as a result of reciprocal translocation [8]. This Reciprocal translocation occurs between the SS18 gene (of chromosome 18) and among one of the SSX genes (SSX1, SSX2 and SSX4 of chromosome X). This reciprocal translocation is usually found in more than 90% of the synovial sarcoma [9].

Utmost important components of diagnostic tools for synovial sarcoma are immunohistochemistry and cytogenetic analysis. Immunohistochemistry make the diagnosis by expressing the epithelial markers (cytokeratin or epithelial membrane antigen) in epitheloid and viamentin in the spindle form. Cytogenetics use the reverse-transcriptase polymerase chain reaction or fluorescent in situ hybridization probes, that locates the t(X;18) gene [10, 11].

Histopathology of synovial sarcoma is being classified as biphasic, monophasic and poorly differentiated type and between them the biphasic form is a most common (2/3rd of synovial sarcomas) presentation [12]. In biphasic form the dual cell line is found, it is composed of elongated basophilic spindle cells and columnar epithelial cells. On the contrary the monophasic form has either spindle cell or very uncommonly the epithelial cell. If the monophasic form is comprised of only
spindle cells, in that condition the malignant peripheral nerve sheath tumour and fibrosarcoma may be the misdiagnosis. Study of G. T. Pack et al. (done over 60 patients in 1950) found that, alone surgery for synovial sarcoma has recurrence rate of 63% [13]. And the further study of Lewis et al. (2000) found that radiation therapy greatly reduces the local recurrence (up to the 10%) [14]. It is assumed that, at the time of clinical presentation of the sarcoma, there is the germane chance of the harbourage of subclinical micrometastasis. So since the few decades the chemotherapy (neoadjuvant/adjuvant) has been used to ameliorate the consequences of sarcomas. F. C. Eilber et al in his study concluded that chemotherapy is strongly correlated to improved disease specific survival [15].

But the toxicity of the chemotherapy and smaller impact on the disease survival, the use of the chemotherapy in primary synovial sarcoma has been controversial [16, 17]. Although the primary amputation have also been used as a treatment modality [18] but due to the virtue-of its thin incidence, the natural history of the synovial sarcoma is not well known due to the littleness of datum.

Since there is no any optimal guideline for the treatment of synovial sarcoma, meanwhile the surgical resection with clear margins and the adjuvant chemotherapy and/or radiotherapy is available treatment modality for the synovial sarcoma. Thus the enhanced surgical techniques as well as irradiation/chemotherapy have better control over local recurrence, but the occurrence of distant metastasis is still a bet for us, so the prognosis of the synovial sarcoma is still forlorn.

**Conclusion**

Early diagnosis of synovial sarcoma is a diagnostic dare due to its multifarious array of competing differential diagnosis and its rarebit incidence. Splenetic nature of the pathology, the high rate of metastasis and low five-year survival rates needs a formulation of gold standard of the treatment regime and the longer follow-up. Here we are acknowledging this case as an experience of the calcified intra-articular synovial sarcoma and want to add the note that, the calcified lesion within the joint may be mistaken as a benign pathology by the orthopedist if he/she is unwary to the imitating presentation of the synovial sarcoma.

**Clinical Message**

Intra-articular (calcified) synovial sarcoma of knee is a rarer presentation. Calcified soft tissue mass is an important but non-distinctive diagnostic hint. So the dissertation of diagnosis, mere on the foundation of radiological study is very difficult. Despite of double occurrence and absent metastasis, the five year survival rate of present case denotes the better prognosis.

---

**References**