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Case Report

Extradigital Glomus Tumour in Synovium of Knee Joint: A Rare Case Report

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ABSTRACT

Glomus tumours are rare benign neoplasms of soft tissue. First described by Wood (1812) and accounts < 1.6 of all soft tissue tumours. Glomus body is a thermoregulatory unit consisting of arteriovenous anastomosis which is enclosed by a connective tissue capsule commonly seen in skin, corium, & subcutaneous tissue of fingers, toes & nail bed. Extradigital glomus tumours in lower extremity especially around knee joint are extremely rare. Unusual location of glomus tumour adds difficulty for diagnosis. We report a case of glomus tumour in synovium of knee joint which is unusual location for its occurrence. Excisional biopsy showed characteristics histologic features of glomus tumour. Patient remained asymptomatic postoperatively after one and half years with no recurrence.
Keywords: glomus tumour, knee joint, Extradigital.

INTRODUCTION

Glomus tumours are benign tumours that are derived from the glomus body. Glomus tumour is an uncommon, hemartomatous, usually benign neoplasm whose cells resemble the modified smooth muscle cells of the normal glomus body. The glomus body is a thermoregulatory unit consisting of arteriovenous anastomosis which is enclosed by a connective tissue capsule. Therefore glomus bodies act to regulate blood flow to the skin. Commonest clinical presentation is a solitary, painful swelling.[1,2] Commonest locations are in upper extremities, particularly in subungual region but may occur in other unusual locations.[1,3,4,5] Incidence of glomus tumour in lower extremities is lower than upper extremities.[6] To avoid misdiagnosis and delayed treatment glomus tumour should be one of the differential diagnosis in case of solitary, localised and painful swelling around knee joint. Here we report a case of glomus tumour in synovium of knee joint which is unusual site.

CASE REPORT

A 65 years old man presented to orthopaedics department with complaints of localised swelling and pain of right knee joint above superior patellar pouch since 1 year. Patient complained that pain was intense on touching or contact with soft to firm objects. Also pain was intense during fast walking and during movements of knee joint. There was no history of previous

trauma or any operative procedure. On physical examination revealed a painful, solitary, soft, mobile red purple coloured swelling above superior patellar pouch measuring 2x1 cm. Routine X ray revealed only mild degenerative changes in knee joint. Routine laboratory workup was within normal limits including ESR, RA factor & C-reactive protein. After these clinical assessment patient underwent surgery with clinical differential diagnosis of soft tissue tumour, neuroma, cyst or bursitis. Surgical excision was done with intraoperative findings revealing that well defined subcutaneous swelling attached to synovium and sent for histopathological examination.

Pathology

Gross

Gross examination findings revealed three tissue bits; one was firm nodule 1x0.5 cm. On cut section greyish white surface, other two bits were membranous white in appearance.

Microscopy

Histopathological examination of multiple sections showed synovium and tumour mass. Tumour mass is showing cells arranged in perithelial pattern around the branching vessels. Tumour cells are small uniform, round with centrally placed round nuclei and eosinophilic cytoplasm with well-defined cell membrane.

Special stain –PAS confirmed that each cell is surrounded by well defined cell membrane.

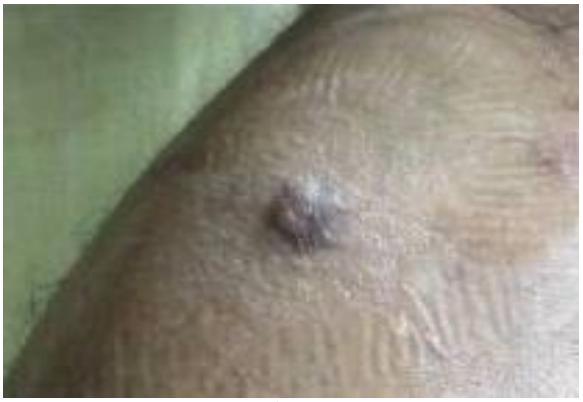

Figure 1: Clinical photograph of patient showing solitary swelling around knee joint

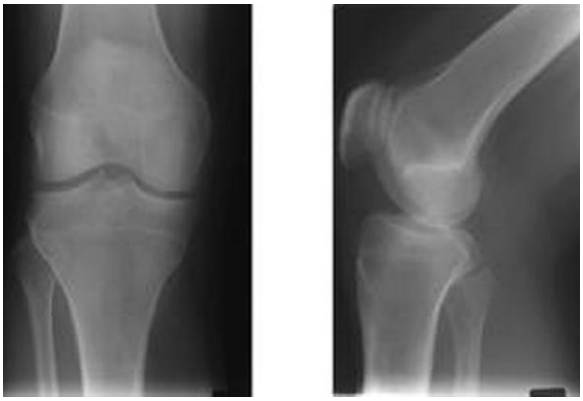

Figure 2: X ray photograph showing only degenerative changes in bones.

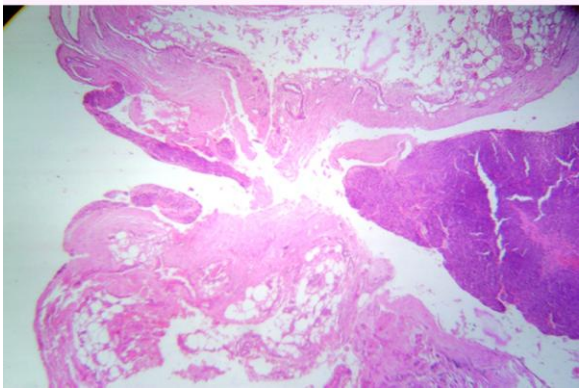

Figure 3:Photograph showing synovium & tumour with surrounding fibrofatty tissue (H &E,10X).

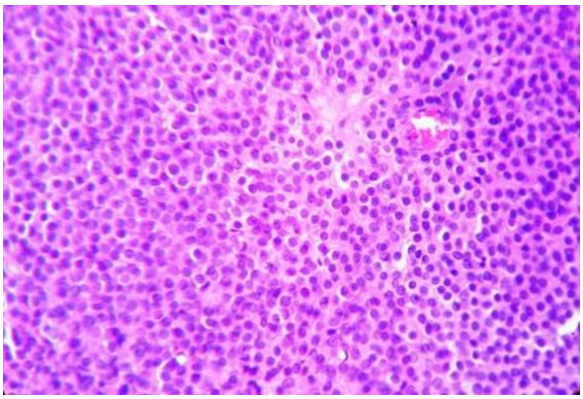

Figure 4: Tumour cells are small uniform, round with centrally placed round nuclei and eosinophilic cytoplasm with well defined cell membrane (H & E ,40X).

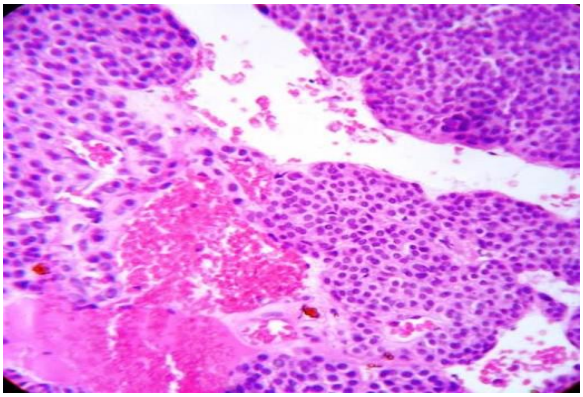

Figure 5: Tumour mass is showing tumour cells arranged in perithelial pattern around the branching vessels.(H & E ,40X)

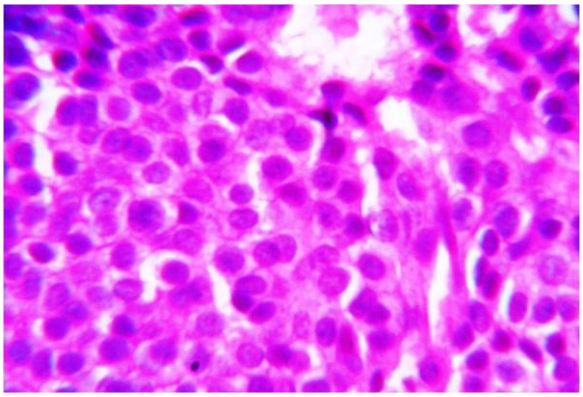

Figure 6: Special stain –PAS confirmed that each cell is surrounded by well defined cell membrane.

DISCUSSION

Masson in 1924, first described glomus tumours as a rare benign tumour of neuromyoarterial canal system called the Sucquet-Hoyer canals of the glomus body .[7] Glomus cells resemble the modified smooth muscle cells of glomus body. Only 1.6% of 500 consecutive primary soft tissue tumours of extremities examined at Mayo clinic over a period of 2.5 years and 1-5% of hand tumours.[8,9] Glomus tumours are typically found in the subungual region of fingers,[10,11] but also occurs at unusual locations such as ankle,[12] foot,[13] knee,[14] thigh,[15] hip, thorax, sacrum & coccyx. Extradigital glomus tumours in the lower extremities and around knee joint are rare. 56 cases of extradigital glomus tumours reported over 20 years with 10 cases around knee joint in a retrospective review of extradigital glomus tumours.[16] The reported sites are around medial & lateral joints,[17-19] over quadriceps &vastuslateralis muscle,[20,21] over baker's cyst,[9] in the prepatellar and patellar region.[22,23] In our case tumour is situated in superior patellar pouch.

Glomus tumours usually occur as solitary variant or multiple variant, the latter variant is commonly seen in children and are usually familial or congenital. Solitary variant occur commonly in adults with female preponderance seen in subungual regions in digital glomus tumours.[24]

Most glomus tumour present with symptoms of point tenderness, cold intolerance and paroxysmal pain.[25] Pain gets aggravated by touching & seasonal changes in temperature. Size variation is reported from 2 to 20 mm in diameter with red purple colour changes in the skin. Most of the digital glomus tumours are diagnosed with the help of classical symptomatology along with characteristic subungual location of digital glomus tumour. But extra digital glomus tumours especially at unusual sites and deep seated locations add difficulty in diagnosing these tumours.

Histologically depending upon the variable quantities of glomus cells, vascular structures and smooth muscle they are classified into glomus tumour (25%),glomangioma (60%) and glomangiomyoma (15%). The latter variant is a rarest histologic type & frequently seen in lower extremities.[26,27] Glomus tumours with cellular atypia (so called Symplastic glomus tumour) and malignant transformation is rarely reported.[28,29] Radiological investigations especially MRI help to accurately locate the site of deep seated lesion but histopathological examination is must to confirm the diagnosis.[30] MRI positively identified the

glomus tumour in 12 (100%) of 12 cases in which it was used.[16] MRI scan not done in our case due to low socioeconomic status of patient.

Glomus tumours are histologically composed of round and regular cells with round nucleus and well defined cytoplasmic borders. Differential diagnosis of glomus tumour includes neuromas, gouty tophi, haemangioma, aneurysmal bone cyst, eccrine spiradenoma, but characteristic histologic features ruled out these lesions. Immunohistochemical markers like smooth muscle actin, vimentin & S- 100 protein helps in supporting the diagnosis of glomus tumour.

CONCLUSION

Unusual locations often lead to misdiagnosis or delayed diagnosis of glomus tumours despite its benign nature leading to morbidity to patients. So high index of suspicion should be there amongst physician in case of painful swellings in lower extremities especially around knee joint.

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