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Case Report

Pathology Section

Intra Articular Synovial Lipoma of the Right Tarsometatarsal Joint- A Rare Case Report

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ABSTRACT

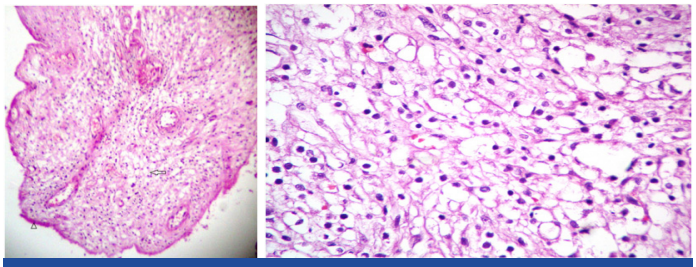
Intra articular synovial lipomas are very rare and only few cases have been reported till now. We are reporting a rare case of intra articular synovial lipoma of the tarsometatarsal joint in the right foot in a 38-year-old male who presented with dull aching pain in the plantar aspect of the foot while walking. The lesion was resected and subjected to histopathological examination, which showed well defined lobules of mature adipocytes separated by thin fibrous septa and covered by synovial lining. Immunohistochemistry with S100 antigen showed membrane positivity. A diagnosis of intra articular synovial lipoma of the tarsometatarsal joint of the right foot was made. Our English literature search failed to yield any information regarding the occurrence of synovial lipoma in small joints and our case may be the first of its kind.

Keywords: Intra articular, Synovial lipoma, Tarsometatarsal joint

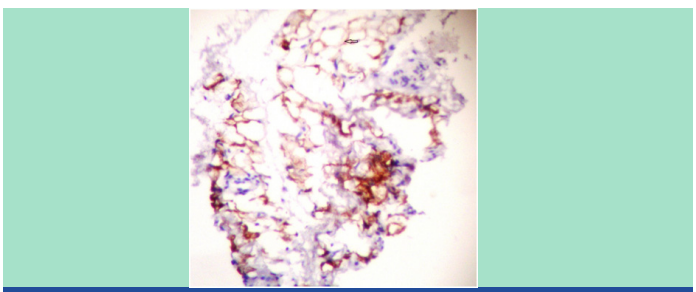
CASE REPORT

A 38-year-old male patient complained of a dull pain in the right foot while walking since one year. The patient's medical history was insignificant. On examination, a cystic swelling was seen in the plantar aspect of the right foot in the second tarsometatarsal joint. Laboratory results for peripheral blood examination, erythrocyte sedimentation rate, total leucocyte count, C-reactive protein and rheumatoid arthritis (RA) factor were within normal limits. X-ray findings were not contributory and magnetic resonance imaging (MRI) was not done. The lesion was completely resected and sent for histopathological examination.

Gross examination revealed a soft, oval, grey yellow mass measuring 2 x 1.5 cms. Microscopy showed well-defined lobules of mature adipocytes separated by thin fibrous septa and covered by synovial lining [Table/Fig-1,2]. On immunohistochemistry, the adipocytes showed membrane positivity for S100 [Table/Fig-3] which confirmed the diagnosis of intra articular synovial lipoma of the tarsometatarsal joint of the foot.



[Table/Fig-1]: Photomicrograph showing lobules of mature adipocytes (arrow) lined by synovial lining (arrow head) (H&E, 10x) **[Table/Fig-2]:** Photomicrograph showing lobules of mature adipocytes (H&E, 40x)



[Table/Fig-3]: Immunohistochemical staining showing membrane positivity (arrow) for S100 antigen (40x)

DISCUSSION

Lipoma is a very common benign tumour which accounts for approximately 50% of the soft tissue tumours with an equal sex incidence [1]. True intra articular synovial lipomas are extremely rare and only a small number of case reports have been published till date with knee joint being the most common site involved [1]. The clinical manifestations of intra articular synovial lipomas depend on size and location of the neoplasm and are caused by the impingement of nearby structures by the lipoma, which include pain, crepitus, limitation of motion and joint effusion [2]. Lipoma commonly occurs in the subcutaneous fat, muscle, nervous system, thoracic, abdominal or oral cavities [3]. An intra articular lipoma is a variant which is defined by its typical intra articular location and constitutes < 1% of all lipomas [1]. Knee is the most common site involved, followed by shoulder, elbow joint, hip, [4] and spine [5]. There are no reports indicating the occurrence of the same in small joints and our case may be the first of its kind.

Clinically, a synovial lipoma occurs as a painless tumour, or when large can cause dull pain due to pressurization [3]. Sometimes it can be accompanied by intermittent effusion [1]. Pudlowski et al., postulated that the symptoms of intra articular synovial lipoma can occur when the tumour mass interposes between the articular surfaces or when the tumour becomes strangulated as it twists around its pedicle [6].

The aetiology of synovial lipoma is not well understood. A true intra articular lipoma is a metabolic disturbance rather than a true neoplasm. The fat metabolism within the lipoma is governed by a different mechanism from that of normal fat deposits. In the starvation state, fat may disappear completely from the usual storage deposits but the lipoma may continue to grow. This is the only aspect of the lesion that is similar to a true neoplasm [7].

Diagnosis of the disease is difficult by physical examination and medical history. Diagnosis is made primarily by MRI [3]. MRI scans show that intra articular synovial lipomas and fatty tissues have the same high signal intensities on both T1 and T2 weighted images [2].

It is important to differentiate synovial lipoma from other fat proliferative diseases like Lipoma arborescens and Hoffa's disease [3]. Lipoma arborescens is a pseudotumour of the synovium characterized by villous proliferation of the synovium and hyperplasia

of the subsynovial fat [3]. On macroscopic examination, intra articular synovial lipomas appear as small, yellowish solitary polyp like masses with a short stalk whereas, lipoma arborescens appears as a large frond like mass [2]. On microscopy, intra articular synovial lipoma is composed of mature adipocytes separated by thin fibrous septa within the synovium [3]. In lipoma arborescens, there is diffuse infiltration of the adipocytes in the subsynovial tissue with mildly hyperplastic synovial cells [8]. The overlying synovial membrane may contain mononuclear cell infiltrate [9]. Lipoma arborescens is associated with osteoarthritis, inflammatory synovitis, RA, gout, diabetes mellitus, joint injury and psoriatic arthritis [2].

Hoffa's disease is caused by a protruding pad of fat which is covered by hypertrophic synovial membrane. On MRI, low intensity signals are observed on both T1 and T2 weighted images due to deposition of hemosiderin and fibrin [2].

Due to its heteromorphic nature, it has a tendency to recur, damage the joint and cause joint dislocation. Rarely it can transform to a liposarcoma. As a result of these complications, it requires immediate resection [1].

CONCLUSION

Synovial lipoma is a rare disease of inconspicuous origin and unlike other lipoproliferative conditions such as lipoma arborescens that are associated with comorbidities, it is a true tumour that occurs irrespective of trauma or other underlying diseases. In our case, it presents in the second tarsometatarsal joint which is a rare occurrence. This condition requires early diagnosis and immediate resection to prevent serious damage to the joint.

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