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Case Study

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SYNOVIAL LIPOMATOSIS IN LONG STANDING OSTEOARTHRITIS: CASE REPORT

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ABSTRACT

Synovial lipomatosis is an uncommon lesion of the synovium, that often affects the knee joint, resulting in swelling, joint pain, and effusion. The etiology of this condition remains unknown. A 68-year-old obese female patient, with a past medical history of hypertension, presented with a five-year history of chronic swelling with recent onset of mechanical symptoms while performing daily activities. Knee MRI demonstrated effusion in the suprapatellar bursa and hypertrophic synovium in the left knee with leaf-like projections of tissue, which had the same signal intensity as fat. The patient was planned for knee arthroplasty due to progression of the disease, pain and disability. Intraoperatively a yellowish, fatty, soft tissue measuring 8× 6 × 3 cm was excised from the left knee joint. It had multiple papillomatous projections on the surface. Histological examination showed multiple fingers like projections lined by hyperplastic synovium and the synovium was infiltrated by abundant benign adipose tissue. Synovial tissue also showed moderate degree of infiltration by lymphoplasmacytic cells. The final pathological diagnosis was lipoma arborescens. Post-operative recovery was uneventful.

KEYWORDS: Lipoma arborescens, villous lipomatous proliferation, synovial membrane, pathology.

INTRODUCTION

Synovial lipomatosis, also termed as villous lipomatous proliferation of the synovium or lipoma arborescens, is an uncommon intra-articular, fat-containing, proliferative lesion, commonly affecting the knee joint, resulting in joint pain, swelling, and effusion. The pathogenesis of this condition is still unclear.[1] In this paper, we report a new case of lipoma arborescens of the knee in a postmenopausal woman. Our aim was to recall the clinicopathological features of this rare entity.

CLINICAL HISTORY

A 68-year-old obese female patient, with a past medical history of hypertension, presented with a five-year history of chronic swelling with recent onset of mechanical symptoms while performing daily activities. She denied any trauma to the area. Examination of her knees revealed unilateral left knee effusion with no instability during varus and valgus stress testing. Physical examination disclosed crepitation and swelling in both knee joints. There was tenderness along with the joint line. Hematological workup was negative for any inflammatory arthritis. X-ray images revealed degenerative changes suggestive of osteoarthritis. Knee MRI demonstrated effusion in the suprapatellar bursa and hypertrophic synovium in the left knee with leaf-like projections of tissue, which had the same signal intensity as fat (Figure. A). Knee arthroplasty was planned for this patient due to progression of the disease, pain and disability. Intraoperatively a yellowish, fatty, soft tissue measuring 8× 6 × 3 cm was removed from the left knee joint. It had multiple papillomatous projections on the surface (Figure. B). Histological examination showed multiple fingers like projections lined by hyperplastic synovium and the synovium was infiltrated by abundant benign adipose tissue (Figure. C). Synovial tissue also showed moderate degree of infiltration by lymphoplasmacytic cells (Figure. D). The final pathological diagnosis was lipoma arborescens. Post-operative recovery was uneventful.

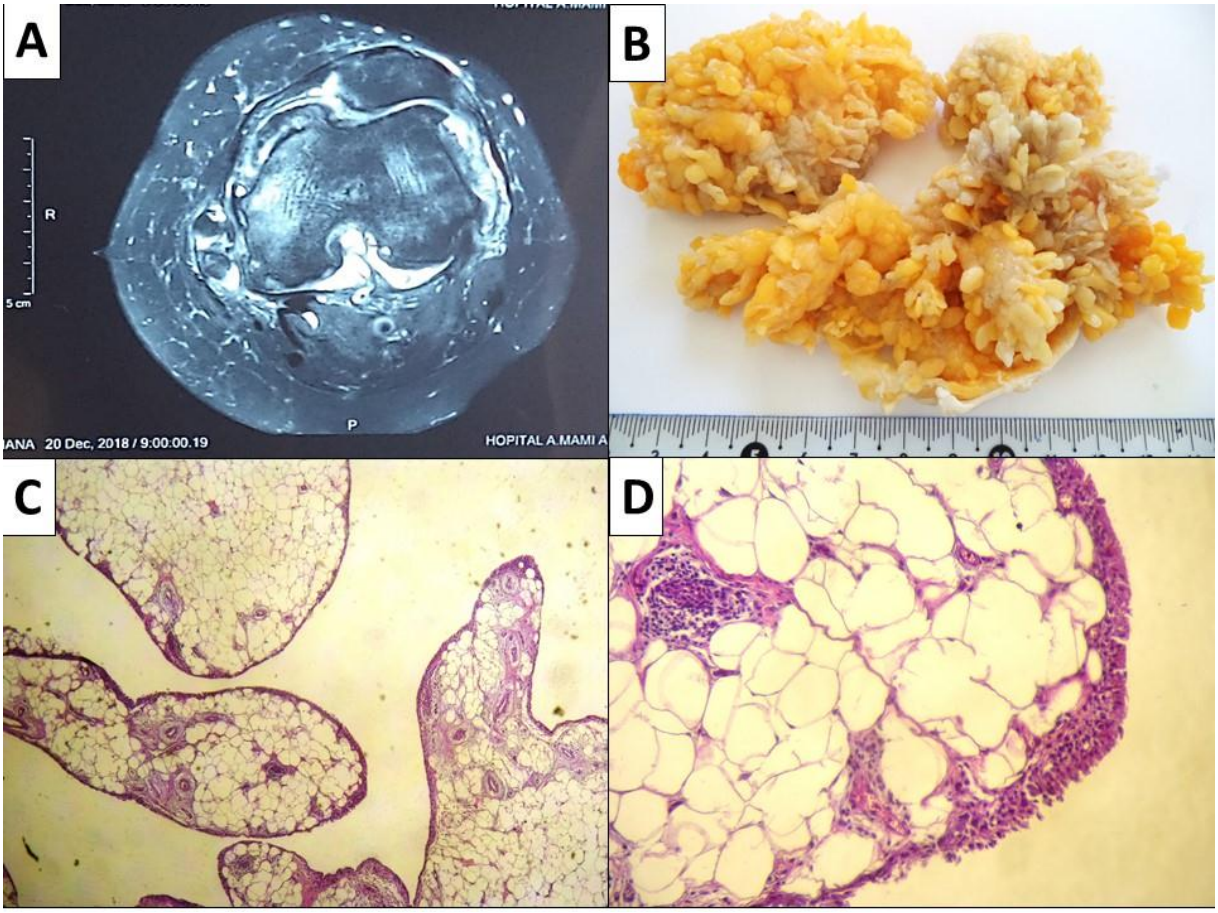

FIGURE LEGENDS

Multipanel Figure

Figure A: MRI appearance of lipoma arborescens. There is an intra-articular synovial mass with frond-like morphology and high signal intensity indicating the fatty nature of the mass.

Figure B: Photograph showing macroscopic finding of synovial lipomatosis having papillary projection. Fine, villous finger-like projections are seen studding surface of tumor, which is composed of mature fat.

Figure C: Synovial tissue having papillary architecture completely replaced by mature adipocytes. (Hematoxylin and eosin, ×100).

Figure D: Synovial tissue with core of the villi showing mature adipocytes and infiltration by lymphocytes. (Hematoxylin and eosin, ×400).

DISCUSSION

Synovial lipomatosis also known as Hoffa disease or lipoma arborescens is an infrequent tumor-like lesion of the synovium that often affects the suprapatellar pouch of the knee joints. It can may involve multiple joints and can occasionally be bilateral. The mean age at presentation is 46.6 (50 - 70 years) with a male predominance.[2] The pathogenesis of this condition is still unclear. Causes that have been implicated include, inflammation, trauma, rheumatism, developmental and neoplastic processes. Another proposed hypothesis is that the mesenchymal cells in the synovium differentiate into adipocytes.[3,4] Synovial lipomatosis usually presents with painless swelling and recurrent joint effusion with or without restriction of movements. Computed tomography scan and MRI are very useful in the diagnosis of synovial lipomatosis.[5] Lipoma arborescens demonstrates high signal intensity villous or nodular foci on both T1- and T2-weighted images analogous to that of any subcutaneous fat. The non-fatty component of hypertrophied synovium shows heterogeneous high signal intensity on T2 or short tau inversion recovery sequences and intermediate-to-low signal intensity on T1-weighted sequences.[6] Arthroscopic biopsy confirms the diagnosis. Grossly the synovial tissue has a yellow fatty appearance with multiple papillomatous projections. Histological examination reveals finger-like villi lined by hyperplastic synovium infiltrated by abundant unremarkable adipocytes.[4] Occasionally mild to moderate chronic inflammatory infiltrate may be associated as it was the case in our patient. Synovial lipomatosis must be differentiated from pigmented villonodular synovitis, rheumatoid arthritis, tuberculous arthritis, synovial chondromatosis, and gouty arthropathy. However, imaging studies, especially MRI can be very helpful in getting a specific diagnosis.[7] The absence of erosions as in rheumatoid arthritis and absence of hemosiderin as in pigmented villonodular synovitis is helpful for differentiation. "Tree-like" appearance of fatty tissue in MRI favors the diagnosis of

lipoma arborescens.[8] The treatment of synovial lipomatosis depends on the extent of the lesion and relies on arthroscopic or open synovectomy.[9] Arthroscopic synovectomy is a minimally invasive technique that gives complete resection of lesion, and enables early patient mobilization. Successful treatment with yttrium 90 radiosynovectomy and chemical synovectomy with osmic acid has been reported.[10] The differential diagnoses of synovial lipomatosis include pigmented villonodular synovitis, synovial chondromatosis, synovial haemangioma, rheumatoid arthritis and osteoarthritis.

In conclusion, lipoma arborescens is a rare entity that needs high index of suspicion for accurate diagnosis. This lesion needs precocious intervention to prevent joint degeneration. General practitioners need to keep the suspicion of synovial lipomatosis in mind when dealing with recurrent effusion and increased joint volume through synovial proliferation.

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