

Case Report

Localised pigmented villonodular synovitis of Hoffa's fat pad- treatment using 70 degree arthroscope and superolateral portal: a case report

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ABSTRACT

The localized form of pigmented villo-nodular synovitis (PVNS) is a rare pathological entity characterized by limited involvement of the synovium. The knee is the most commonly affected joint, and the disorder presents as a nodular, pedunculated lesion. The lesion usually presents as mechanical symptom such as locking of the knee. We report a case of localized PVNS that involved patellar fat pad an extremely rare area of involvement, previously described only in 4 cases, presenting as palpable mass. Complete excision of the lesion was performed through superolateral portal with use of 70-degree arthroscope. 70-degree arthroscope allows us to completely visualize infra-patellar region through superolateral portal and is recommended than 30-degree arthroscope for treatment of infra-patellar lesions. Patient was symptomless at 3 months follow up.

Keywords: Pigmented villo-nodular synovitis, Knee joint disorder, Arthroscopy

INTRODUCTION

Primary intra-articular tumours of the knee are rare; pigmented villo-nodular synovitis (PVNS) is one such rare pathology of the knee. It is a proliferative mass arising from the synovial membrane most often localized to knee joint, the incidence in other joints is less frequent, lesion here usually presents as a pedunculated, intra articular nodular mass, near the anterior horns or menisci or in the gutter.^{1,2} The incidence of pigmented villo-nodular synovitis is estimated to be 1.8 cases per million population.³

CASE REPORT

A 29-year-old female, office worker by occupation presented with 4 year history of chronic insidious onset right knee pain, continuous dull aching, localized to

anterior and inferomedial aspect of the knee associated with progressive swelling. Patient had no history suggestive of significant trauma, although patient suggested presence of palpable mass in area of pain which was episodic in nature and history suggestive of locking of knee in extension. Patient gave history of aspiration of fluid from the same knee on two previous occasions, with no conclusive pathological diagnosis, treated conservatively with non-steroidal anti-inflammatory (NSAID) drugs with no relief of pain.

Physical examination showed a healthy young woman with significant findings to the affected knee. Swelling was present with minimal joint effusion. Palpable tender mass in the inferomedial aspect of the patellar tendon (Figure 1) with mechanical block to full extension was present. The range of motion of the involved joint was complete and unrestricted.



Figure 1: Area of lesion marked on the anteromedial aspect of the knee clearly showing the bulge.

Radiographic examination was normal, and blood profile was clean with no biochemical abnormalities. Magnetic resonance imaging (M.R.I) was advised and T1 and T2 images were suggestive of “large focal lobulated altered signal intensity lesion in area of Hoffa’s fat pad and patello-femoral joint”.

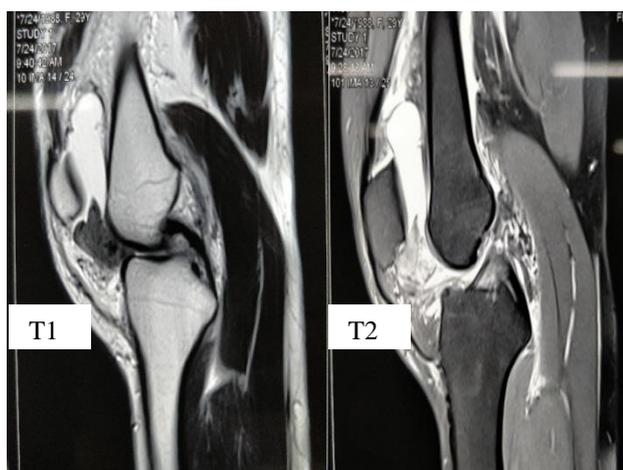


Figure 2: T1 and T2 images show large multi lobulated lesion in Hoffa’s fat pad, with T1 image showing dense focal areas in the lesion.

Patient was admitted to the hospital for arthroscopy of the right knee with intention of diagnostic purpose and biopsy. Diagnostic arthroscopy with 30-degree arthroscope through antero-lateral portal showed a soft tissue mass of the synovium of size 2×1.5×1 cm, Pedunculated yellowish-brown lesion attached to the synovium of infrapatellar fat pad. A supero-lateral portal was created 2 cm lateral to the superior pole of the patella, and 70-degree arthroscope used to view the patellar tendon area, it provided a wide bird’s eye view of the area and the pathology with range of vision extending from antero-lateral corner to antero-medial corner, while

the antero-lateral portal was used as an working portal for instrument required to remove the lesion. The view through superolateral portal confirmed the findings as well as identifying the site of the multiple masses present. The masses were excised from the base and removed from the antero-lateral portal and the sample sent for histo-pathological analysis. Patient was then followed up 6 months post-operatively and was completely free of symptoms and working full time. She had complete range of movements in the knee with no complaints.



Figure 3: On the left are brown cut out masses of the lesion, on the right the 30-degree and 70-degree arthroscopes.

Microscopic findings of the lesion confirmed the Pigmented villonodular synovitis consisting of fibrocartilaginous tissue with sheets of histiocytic cells consisting of brownish pigment along with few scattered eosinophils. These cells showed regular spindle shaped nuclei without significant cytological atypia with abundant cytoplasm, with scattered giant cells. Haemosiderin deposits were not seen in this case, are usually noted in diffuse form than localised.

DISCUSSION

Pigmented villo-nodular synovitis of the knee is an uncommon disease, it was first described in 1852 by Chassaingnac, while its current name was given by Jaffe after noticing the histology, which had fibrous stroma, pigment deposition, giant cells and infiltration of histiocytes in the synovial membrane.^{4,5} PVNS was further classified into local or diffuse form. PVNS is considered local fibro-histiocytic proliferation that produces villous and nodular synovial outgrowths and discrete nodular or pedunculated masses intraarticularly in diffuse and localized form respectively.^{6,7}

The incidence of localized form is less than diffuse for as 75% of all the PVNS cases are diffuse, as the total incidence is 1.8 cases per million populations. Knee is the most commonly affected joint with uniform age

distribution across 2nd to 7th decade with slight male predominance.

Clinically localized PVNS presents with signs and symptoms that reflect internal derangement of the knee and include chronic insidious pain that is of several months' duration, years at times, swelling, locking of the knee, a palpable mass, and sometimes restriction of movement.⁸⁻¹¹

Radiologically the findings are nil, however MRI is the radiological investigation of choice. MRI shows the lesion on T1 and T2 weighted images as focal lobulated mass, though MRI is not entirely specific.

Arthroscopy is used as both diagnostic and definitive modality of treatment. More commonly a 30-degree arthroscope is used and has proven reliable for excision of the lesion using the standard portals.¹²

We report a case of pigmented villo-nodular synovitis (PVNS) localized to Hoffa's fat pad which gave an initial impression of medial meniscus cyst, however the history of repetitive aspiration of coloured fluid with no conclusive diagnosis previously pointed towards a more uncommon pathology, final diagnosis involved a combination of MRI and accurate assessment during the arthroscopy. Given the location of the site of the pathology there have been reports of treatment of recalcitrant patellar tendinopathy using a 70-degree arthroscope which have had proved that the debridement of pathological are can be done with use of just one additional working portal to the anterolateral portal.¹³ Using the similar philosophy, we used superolateral portal as viewing portal and anterolateral portal as working portal for excision of the mass. We could completely excise the lesion with no residual mass. We followed up the patient for 1 year with no signs of recurrence or any complaint at 6 months and 1 year follow up.

It is our opinion that arthroscopy procedure is the best modality for the treatment of the localized form of PVNS and is less invasive than arthrotomy, it also facilitates direct access to the site for accurate diagnosis and excision. The use of 70-degree arthroscope through supero-lateral portal gives a bird's eye view of the patella tendon area and antero-lateral and antero-medial corner of the knee while providing a better control over the extent and depth of the resection, even though this is technically non-demanding it has a short learning curve and requires the correct placement of the superolateral portal.

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