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ARTICLES IN THIS ISSUE

EXPERTS OPINE

Meniscal Tears- My indications to conserve and for surgery

Dr Sanjay Trivedi

Decision of meniscus treatment depends on clinical correlation of symptoms and imaging.

Detailed discussion about possible scenarios of expected outcome with the patient is a must.

Meniscus repair indications are expanding irrespective of age and time since injury.

Conserve the meniscus by meniscal repair/limited trimming whenever possible.

LOCALISED PIGMENTED VILLONODULAR SYNOVITIS: A RARE ENTITY

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Introduction:

Pigmented Villonodular Synovitis(PVNS) is a rare, uncommon benign condition that is characterized mostly by hyperplastic synovium, large effusion and bone erosions. On average, it is clinically identified after 4.4 years of presentation(1). Its local involvement is very rare and mostly involves the smaller joints and in larger joints commonly the knee joints. PVNS is also difficult to differentiate from other inflammatory conditions such as Rheumatoid arthritis, osteoarthritis, and the neoplastic lesions of the synovial lining(2). It was first defined by chassaignac in 1852(3). Simon described the first localized form in knees in 1864 and thereafter named by Jaffe in 1941(4,5,6,7) who further sub divided it into diffuse and local. The annual incidence of PVNS is 1.8 individuals per million(1).

Most reported localized lesions of the knee are confined to the menisci, posterior cruciate ligament and plica(7,8). We report a case that is localized to the retropatellar space of the right knee which mimics a loose body clinically and also in magnetic resonance imaging. The localized growth was resected & histopathologically confirmed as a PVNS.

Case Report:

A 49 year old man presented with right knee pain for 3 months, which was insidious in onset, localized and progressive in nature with difficulty in walking and sitting for a long time. There was no episode of injury or night cries. The patient had one episode of instability with occasional episodes of locking. Other joints were normal. On clinical examination, there was mild swelling of the right knee joint, with retro-patellar tenderness. Results of the Lachman test, anterior and posterior drawer tests, and varus and valgus stress tests were normal. Radiographic findings suggested a normal report (Figure 1).

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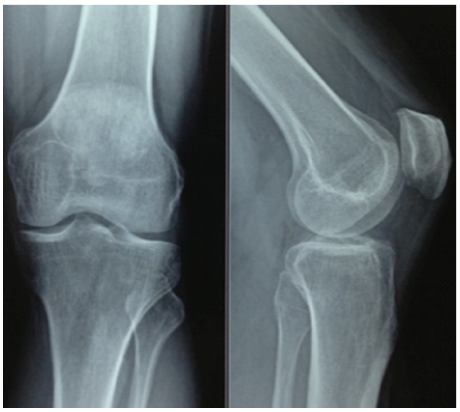

Figure 1: Normal Plain Radiographs

Sagittal T1, T2, coronal PD, axial T2 MRI of his right knee showed a well-circumscribed single loose body in the retropatellar fossa measuring 1.5*1.5*0.75 cm (Figure 2A &B). The differential diagnosis at that time included loose body, synovial hemangioma, hematoma, localized PVNS, fibroxanthoma, and less likely a malignant lesion.

The patient was considered for arthroscopic removal of the loose body under spinal anaesthesia. With arthroscope in the anterolateral portal, a diagnostic scopy of the knee joint was performed in search of the loose body at all corners of the knee joint when a small nodular swelling was seen in the retropatellar space just below the patella (Figure 3A)

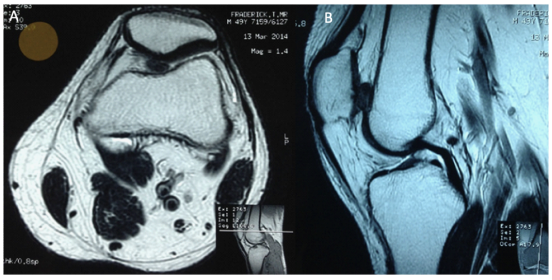

Fig 2A & 2B : Axial & Sagittal MRI Cuts showing single loose body in the retropatellar area

The swelling was 1.5 cm in diameter and was probed to found out that it was fixed to the underlying surface. It was then punctured with the help of a needle, a yellowish coloured tissue was removed from the swelling (Figure 3B) which was sent for histopathology. Postoperative histopathology report suggested villous projection and a nodular proliferation of round to polyhedral cells having eosinophilic cytoplasm with round to oval nuclei, haemosiderin laden macrophages, foam cells and multi nucleated giant cells suggestive of PVNS (Figure 4). The patient recovered in a routine and un-complicated manner. At his last follow-up examination 6 months postoperatively, the patient was completely asymptomatic and has returned to his day to day activity.

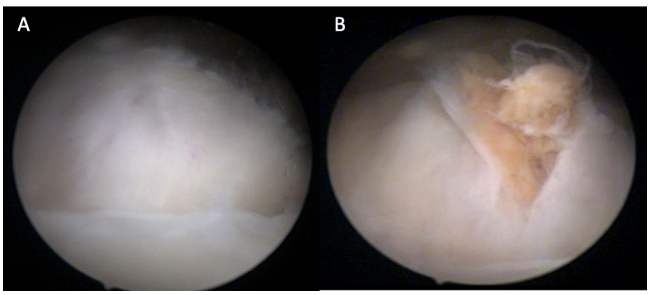

Fig 3A: Arthroscopic appearance of the loose body. . 3B: On probing

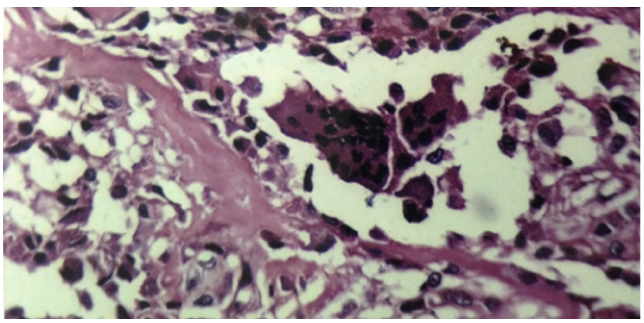

Fig 4: Histopathology slides showing hemodsiderin laden macrophages

Discussion :

Localized PVNS of the knee joint mostly present as knee pain and swelling. In some they present as locking and giving way when they involve the menisci(8). The localized form is most commonly seen in the small joints, though uncommonly seen in the large joints, it is most commonly involved is the knee joint. The disease is insidious, slowly progressive and patients generally presents later in life with pain(9). As per Myers et al. (10) estimation of the annual incidence of PVNS is 1.8 patients per million populations with the localized form being less severe than the diffuse form. The localized PVNS undergoing an arthroscopic procedure is estimated with only one case per 2,500(11). Localized form of PVNS is commonly seen in the third and fourth decade of life. Radiologically it is difficult to diagnose a localized form of PVNS(13)whereas it is clearly seen in the MRI(14,15,16). In our case the PVNS localized form explains the retropatellar tenderness for his age.

MRI showed a characteristic mass with focal hypo intense areas on both T1 and T2 weighted images .which resembled like a loose body adding to the suspicion considering the age of the person. The MRI findings of PVNS are generally not specific. Histologically, it is characterized by an active proliferation of fibroblastic and histiocytic element showing an evident macrophagic activity with phagocytosis of abundant blood pigment (hemosiderin) and lipids. Arthroscopy is an effective diagnostic tool and can also be used for therapeutic purpose. Previous report of arthroscopic treatment of localized PVNS treatment showed lower recurrence rate(17,18,19). Review of the literature has made it simpler to consider that this uncommon presentation as a loose body and diffuse retropatellar tenderness is unique in its presentation and at the same time we would like to state that all solitary swelling is not a loose body in 3rd - 4th decade. Because of the uncommon presentation of the tumor, it is very easy to miss the swelling considering the search for a loose body inside the knee joint.

CONCLUSION:

- Localized PVNS can present in various ways.
- A clinician should always rule out PVNS in his differential diagnosis when there is chronic knee pain in the 3rd - 4th decade of life.
- Arthroscopic diagnosis and resection is the best method of treatment for PVNS since it gives a better picture of the joint while being less aggressive than open synovectomy.

References:

1. Cotten A, Flipo RM, Chastanet P, Desvigne-Noulet MC, Duquesnoy B, et al. (1995) Pigmented villonodularsynovitis of the hip: review of radiographic features in 58 patients. Skeletal Radiol 24(1): 1-6.
2. Eustace S, Harrison M, Srinivasen U, Stack J (1994) Magnetic resonance imaging in pigmented villonodular synovitis. Can Assoc Radiol J 45(4): 283-286.
3. Byers P, Cotton R, Deacon O, Lowy M, Newman P, et al. (1968) The diagnosis and treatment of pigmented villonodular synovitis. J Bone Joint Surg Br 50(2): 290-305.
4. Palazzo E, Cywiner-Golenzer CH, Guerin CL, Amouroux J (1991) Synovitevillonodulairh emopigment´ee. In: De Seze S et al. (Eds.), Actualit´esrhumatologiques. Expansion Scientifique Franc¸aise 39-49.
5. Pimpalnerkar A, Barton E, Sibly F (1998) Pigmented villonodular synovitis of the elbow. J Shoulder Elbow Surg 7(1): 71-75.
6. McMaster P (1961) Pigmented villonodular synovitis with invasion of bone. Can Med Assoc J 84(12): 667-668.
7. Schwartz HS, Krishnan U, Pritchard D (1989) Pigmented villonodular synovitis. A retrospective review of affected large joints. Clin Orthop Relat Res 247: 243-255.
8. Luis Muscolo D, Arturo Makino, Costa-Paz, Miguel Ayerza, (1995) Localized Pigmented VillonodularSynovitis of the Posterior Compartment of the Knee: Diagnosis with Magnetic Resonance Imaging. Arthroscopy 11(4): 482-485.
9. Flandry F, Hughston VC (1987) Pigmented villonodular synovitis. J Bone Joint Surg Am 69(6): 942-949.
10. Myers BW, Masi AT (1980) Pigmented villonodular synovitis and tenosynovitis: A clinical epidemiologic study of 166 cases and literature review. Medicine (Baltimore) 59(3): 223-238.
11. Lopez Vazquez E, Lopez Periz JL, Vila Donat E, Martinez Garcia JB, BruPomer A (1988) Localized pigmented villonodular synovitis of the knee: Diagnosis and arthroscopic resection. Arthroscopy 4(2): 121-123.
12. Rao AS, Vigorita VJ (1984) Pigmented villonodular synovitis (giant cell tumour of the tendon sheath and synovial membrane) a review of eighty-one cases. J Bone Joint Surg Am 66(1): 76-94.
13. Flandry F, McCann SB, Hughston JC, Kurtz DM (1989) Roentgenographic findings in pigmented villonodular synovitis of the knee. Clin Orthop Relat Res 247: 208-219.
14. Mandelbaum BR, Grant TT, Hartzman S, Reicher MA, Flannigan B, et al. (1988) The use of MRI to assist in diagnosis of pigmented villonodularsynovitis of the knee joint. Clin Orthop Relat Res 231: 135-139.
15. Palumbo RC, Mathews LS, Reuben JM (1994) Localized pigmented villonodular synovitis of the patellar fat pad: A report of two cases. Arthroscopy 10(4): 400-403.
16. Beguin J, Locker B, Vielpeau C, Souguieres G (1989) Pigmented villonodular synovitis of the knee: results from 13 cases. Arthroscopy 5(1): 62-64.
17. Bartlett MJ, Jonathon Lavelle (2000) Localized Pigmented VillonodularSynovitis Presenting as Recurrent Dislocation of the Patella. Arthroscopy 16(7): 767-769.
18. Christopher M Jobe, Anwar Raza, Lee Zuckerman (2000) Pigmented Villonodular Synovitis: Extrasynovial Recurrence. Arthroscopy 27(10): 1449-1451.
19. Y Mori, H Hino, A Fujimoto, H Okumo (1989) Pigmented Villonodular Synovitis of Patellar Plica. Arthroscopy 5(4): 340-341.

OATS-CASE SERIES AND REVIEW OF LITERATURE

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Introduction

Chondral defects are an extremely common musculoskeletal pathology, found in up to 60% of knees undergoing arthroscopy.

Without treatment, these lesions can affect daily activities or sports participation and may lead to degenerative changes and premature osteoarthritis. The Osteochondral Autograft Transfer System (OATS) has been shown to be very effective in treating chondral lesions and achieving positive patient outcomes. In addition, studies have suggested that the OATS procedure is superior to a microfracture technique in the treatment of such defects.

Traditionally, the OATS procedure has been performed using an open technique. However, advances in arthroscopy have allowed this procedure to be performed through an arthroscopic approach, and this modern procedure is the focus of our discussion.
We have compared two cases for which OATS technique was performed for Osteochondral defects in the knee.

Case 1: Mini Open OATS

A 43 years old man presented with c/o Pain in Right Knee that aggravated on squatting since 2.5 months. Pain was more w squatting.
His MRI showed a 18x7mm cartilage defect on the medial femoral condyle(Figure 1).

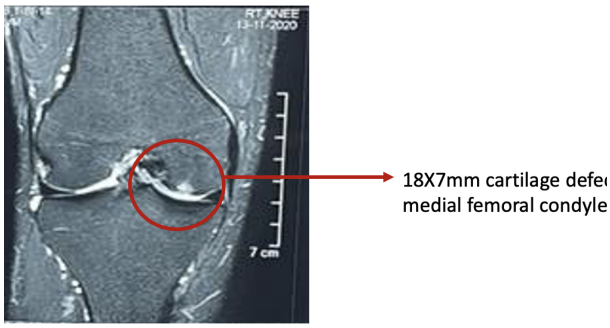

Figure 1: MRI -Coronal section showing the chondral defect

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Treatment:

Mini open Medial Parapatellar approach to knee joint(Fig. 2). Osteochondral defect of 18x7mm was present on medial femoral condyle of Right Knee. Two plugs were harvested from the non-weight bearing area and inserted at the defect.

5 months Post op: Patient was pain free and had full Range of movement.

His KSS score improved from 50 to 80 while the Tegner Lysholm score improved from 53 to 96.

CASE -2: Arthroscopic OATS technique

34-year-old lady presented to us with pain at right knee for 2 months. She sustained twisting injury to right knee 2 months back.

Her plain radiographs were normal, while the MRI revealed a Osteochondral defect in lateral femoral condyle of size 10x8mm & Loose body in knee joint
We planned an arthroscopic OATS procedure for this case(Figure 3)

Fig 2: A: The cartilage defect, B: Preparing the recipient site, C: Harvesting the graft, D & E: Implanting the harvested graft, F: Competed OATS procedure

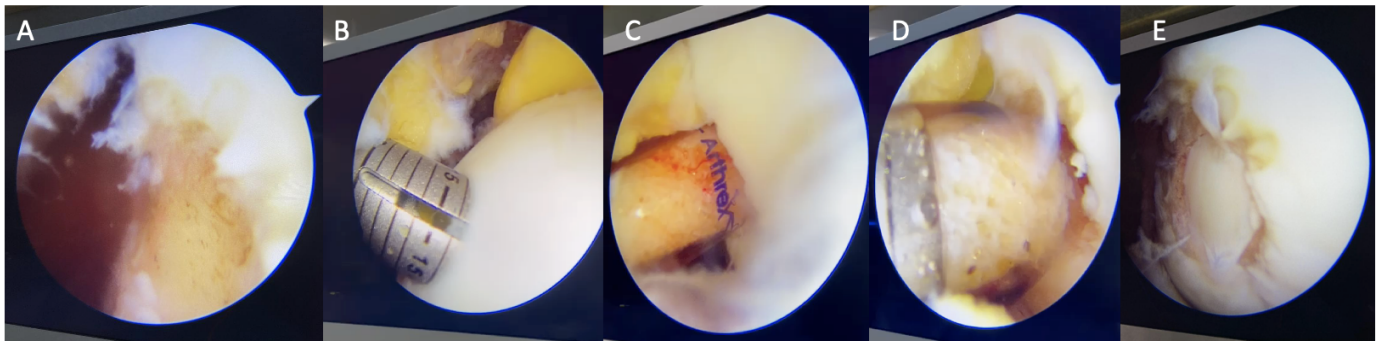

Fig. 3: A: Cartilage defect of lateral femoral condyle, B: Harvesting the graft, C& D: Implanting the graft, E: Completed OATS procedure

Discussion:

We compared two cases where the OATS technique was performed, one each of open and arthroscopic approaches and found that both had excellent outcomes at 5 months post-op.

Several studies have reported clinical outcomes using the OATS with an open technique. In a study of 142 patients, Ollat et al. reported that this is a reliable technique that yields significantly improved functional scores, good patient satisfaction, and a complication rate of 13% at a minimum 5-year follow-up(1). In a systematic review, Camp et al. similarly determined that the procedure alleviated pain, enhanced activity scores, and showed a high rate of survivorship of the transferred tissue with acceptable failure rates(2).

In a study of 152 patients, Emre et al. showed excellent results in restoring joint function with no complications at a short-term follow-up of 18 months(3). Although the goal of the procedure is to delay the progression of degenerative changes, many patients also wish to return to sports. In a study of 13 competitive or well-trained athletes, Muller et al. found that 92% returned to sports at an intermediate to a high level after 6 months, with excellent functional and clinical scores, no re- ported instability, no joint space narrowing, and an acceptable complication rate at a mean follow-up of 42 months(4).

Pearls:

Rongeur the graft to a depth 1 mm shorter than the prepared recipient site to ensure a flush surface.

When seating the graft, ensure proper orientation to match any angulation.
When obtaining donor graft, perform one-quarter turns to help ensure smooth removal of the graft from the donor site.

Flex the knee appropriately to remain perpendicular and avoid angulation of the recipient or donor site.

When selecting the donor site, identify the sulcus terminalis to avoid graft harvest from a weight-bearing zone.

Arthroscopic OATS	
Advantages	Disadvantages
Less invasive than open procedure Less blood loss and shorter operative time than open procedure & ability to treat larger osteochondral defects through harvest of multiple autografts	Possible decreased visualization of donor and recipient sites owing to improper portal-site placement Possible donor-site morbidity owing to improper graft harvest location
Limitations	
Treatment of larger osteochondral defects Patients with malalignment	

References:

1. Ollat D, Lebel B, Thaunat M, Jones D, Mainard L, Dubrana F, Versier G; French Arthroscopy Society. Mosaic osteochondral transplantations in the knee joint, midterm results of the SFA multicenter study. Orthop Traumatol Surg Res. 2011 Dec;97(8 Suppl):S160-6. doi: 10.1016/j.otsr.2011.08.005. Epub 2011 Oct 28.

2. Camp CL, Stuart MJ, Krych AJ. Current concepts of articular cartilage restoration techniques in the knee. Sports Health 2014;6:265-273.

3. Emre TY, Ege T, Kose O, Tekdos Demırcıoglu D, Seyhan B, Uzun M. Factors affecting the outcome of osteochondral autografting (mosaicplasty) in articular cartilage defects of the knee joint: retrospective analysis of 152 cases. Arch Orthop Trauma Surg. 2013 Apr;133(4):531-6. doi: 10.1007/s00402-013-1680-2. Epub 2013 Jan 18.

4. . Muller S, Breederveld RS, Tuinebreijer WE. Results of osteochondral autologous transplantation in the knee. Open Orthop J 2010;4:111-114.