Arthroscopic Treatment Soft Tissue Tumor in a Hip Joint.

Peer review status:
No

Corresponding Author:
Dr. Carlos G. Rubin,
Trauma Surgeon, Valdecilla Hospital - Spain

Submitting Author:
Dr. Carlos G. Rubin,
Trauma Surgeon, Valdecilla Hospital - Spain

Other Authors:
Dr. Pablo G. Rubin,
Trauma and Orthopaedic Surgery Resident, Valdecilla Hospital - Spain

Article ID: WMC004389
Article Type: Case Report
Submitted on: 06-Sep-2013, 05:57:09 PM GMT    Published on: 07-Sep-2013, 08:33:00 AM GMT
Article URL: http://www.webmedcentral.com/article_view/4389
Subject Categories: SPORTS MEDICINE
Keywords: Hip Arthroscopy, Femoroacetabular Impingement, Joint tumor

How to cite the article: G. Rubin C, G. Rubin P. Arthroscopic Treatment Soft Tissue Tumor in a Hip Joint.
WebmedCentral SPORTS MEDICINE 2013;4(9):WMC004389

Copyright: This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC-BY), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Source(s) of Funding:
No funding details. No compensation or any economic funding was received by the authors.

Competing Interests:
None
Arthroscopic Treatment Soft Tissue Tumor in a Hip Joint.

Author(s): G. Rubin C, G. Rubin P

Abstract

This is an isolated case of a giant cell tumor originating from the synovium of the hip, consistent with Pigmented Villonodular Synovitis (PVNS) and associated with concurrent Femoroacetabular Impingement (FAI). There is a paucity of literature on this condition. This case report will add to the literature on hip pathology that may be treated using arthroscopic surgery.

Introduction

Pigmented Villonodular Synovitis (PVNS) is an infrequent proliferative disease diagnosed most frequently in female patients in the 3rd to 5th decades of life. It is considered a benign neoplastic process (1, 2, 3) but it can invade and destroy surrounding soft tissue and bone. Its etiology has not clearly been determined; it is most probably a multifactorial disease as suggested by the cytogenetic abnormalities and the data showing a history of previous trauma found in up to 45% of patients (1, 4). Metastases or deaths haven’t been noted in a large case series (3).

PVNS involves the synovium of the joints with a diffuse or, less frequently, a focal appearance, and consists of fibrous lesions, hemosiderin containing macrophages, lipid and multinucleated giant cells, and sometimes inflammatory cells. Hemosiderin deposition occurs in many cases but is most prominent in the diffuse intra-articular type. The most common joint affected is the knee; moreover, the localized intraarticular type almost exclusively involves the knee and represents only 6% of all cases (5, 6). The hip is affected only in 15% of patients (7), but we have not found in the literature any case of intraarticular localized PVNS affecting the hip.

The onset of the disease is chronic and the clinical symptoms consist of pain, disability, and mechanical symptoms such as locking. The physical examination is often normal; limited range of motion and joint effusion are the most frequent findings. In the presence of repeated hemorrhage, the possibility of PVNS should be considered because it is strongly suggestive of this disease, particularly in the absence of traumatic events (8). The infrequent presentation and the lack of specificity of symptoms of this disease make it fundamental to suspect the diagnosis at an early stage to start the different studies needed to design a treatment plan within a short time frame (4).

Radiographic findings are non-specific and most of the times are normal, especially in the case of the localized intra-articular type. Extrinsic erosion and cysts are seen in about 40% of the patients in the plain radiographs and also in the computed tomography (CT), particularly in less capacious joints as the hip (9). Progressive destruction of the joint is mainly seen when the hip is affected. The magnetic resonance (MR) findings, prominent low signal intensity and “blooming” artifact in T2-weighted gradient-echo images from the hemosiderin, are nearly pathognomonic (1). Using Doppler ultrasound shows increased blood flow only.

Microscopically papillary, villous, and nodular expansions are seen in the synovial membrane. The synovium includes mononuclear rounded and epitheliod cells, as well as multinucleated giant cells and lipid rich cells. The hemosiderin, that can cause the MR “blooming” artifact, can be found in the mononuclear cells. (17)

The treatment is surgical, but there are also coadjuvant treatments as radiation therapy and pharmacologic modulation (synoviorthesis and new lines of treatment based on Imatinib). Surgical arthroscopic synovial resection is the preferred method especially in the localized type (10, 11, 12), because it allows a great number of patients to be asymptomatic and the recurrence rate is very low. In the knee, the recurrence of the localized type is almost 0% after arthroscopic excision (12, 13, 14, 15); and there is not enough data on the hip. Radical resection with negative margins is not necessary in most of the cases (16). Nevertheless, there is a less success rate in restoring function for patients with knee or especially hip disease, and in the last case patients often require total joint replacement after a few years.

The hip is more difficult to achieve a complete resection of the tumor because of the difficulty in accessing the entire joint. Moreover, PVNS presents...
an atypical behavior in the hip, with higher rates of recurrence or malignant forms (7).

There are NO reports of PVNS and its association with femoroacetabular impingement (FAI).

Case Report

A 27 year old male medical student presented for a surgical consultation with a 5 month history of left hip pain. A prior evaluation by an arthroplasty surgeon found a left hip mass and questionable labral pathology. The patient complained of decreased range of motion in hip flexion, which had diminished over the previous 4 weeks. He had pain with sitting and standing for prolonged periods of time. He had clicking in both hips that was associated with pain only on the left. His pain was not impacting his ability to go up and down stairs/hills or walk distances. Activity and sports related pain was impacting quality his of life.

Examination of his hips revealed pain only in the left on internal and external rotation. Range of motion was symmetric with extension 20?, internal rotation 20?, external rotation 50?, abduction 45?, and adduction 30?. Hip flexion was 120? on the right while limited and painful at 90? on the left. Flexion and internal rotation (anterior impingement sign) was positive on the left and negative on the right. Straight leg raising against resistance, Ober's test, Faber's tests, Iliopsoas test for popping, and IT band test for snapping were all negative bilaterally. Neurologic examination of the lower extremities was normal.

X-rays showed a LCE angle on the right of 29? and the left of 36?. There was increased distance from the teardrop to the head by about 20-30% on the left (Fig 2,3). An MRI showed masses along the femoral neck extending to the lesser trochanter consistent with PVNS versus other synovial diseases, and abnormal morphology seen with femoroacetabular impingement (Fig 1). There was also evidence for a labral cartilagenous junctional degeneration.

The patient underwent left hip arthroscopy without complications using the lateral approach. Fluroscopic views showed conflict from abutment between the head neck junction and the acetabular rim (fig 4). Anterior and anterolateral portals were used and a partial capsulectomy was performed. Marked synovitis was noted (fig 6) and multiple biopsies were taken. A partial capsulectomy was extended anteriorly and laterally exposing a large mass and several smaller masses, which were completely excised. The hip was flexed and externally rotated exposing an additional mass, 2.5cm by 1.5cm (fig 5), which extended down to the lesser trochanter intracapsular. The capsule was then freed and the masses were removed (fig 7) and sent to pathology. An extensive search revealed that all masses were removed. A careful synovectomy was performed with a shaver and radiofrequency ablator to reduce recurrences of the tumor.

The pathology report indicated tenosynovial a giant cell tumor of a diffuse type consistant with PVNS. (fig 8,9)

Sutures were removed at one week. Post-operatively the patient was advised to partially weight bear with two crutches until reduced pain allowed for full weight bearing. The patient was started on a stationary bicycle the next day progressing to an eliptical trainer within the first week, fast walking on a treadmill by week three. He was instructed to come off crutches within two weeks and allowed to return to his duties as a medical student the week after surgery.

He returned to his duties as a medical student the week following surgery and returned to sports after three months without pain. At 2.5 years the patient continues to have no pain with full range of motion and occasional clicking while walking or running. He reported no limitations in all activities of daily living, sports and work as he is currently a resident in anesthesia.

Discussion

This is an isolated case of a giant cell tumor originating from the synovium of the hip, consistent with PVNS associated with concurrent femoroacetabular impingement. Although the pathology had been present for years within the patient, his symptoms were of more recent onset
which is consistent with slow growing synovial disease and impingement.

Conclusion

There is a paucity of literature on this condition and this is an example of its treatment using arthroscopic surgery with an excellent outcome.

Abbreviations

Pigmented Villonodular Synovitis (PVNS)
Femoroacetabular Impingement (FAI)
Computed Tomography (CT)
Magnetic Resonance (MR)

References

1. Mark D. Murphy, MD, John H. Rhee, MD, Rachel B. Leis, MD, Julie C. Fanburg-Smith, MD, Donald J. Flemming, MD, Eric A. Walker, MD. From the Archives of the AFIP. Pigmented villonodular synovitis: Radiologic-Pathologic Correlation. Radiographics 2008; 8:1493-1518. Published Online.
Illustrations

Illustration 1

Figure 1. MRI of left hip showing PVNS masses.

Illustration 2

Figure 2. AP pelvis showing CAM lesion on left hip. Increased distance from the teardrop to the head by about 20-30% on the left hip.
Illustration 3

Figure 3. Frogleg left hip alpha angle of 79º consistent with a CAM lesion

Illustration 4

Figure 4. Fluoroscopic view showing conflict from abutment between the head neck junction and the acetabular rim.
Illustration 5

Figure 5. Intraoperative picture showing PVNS mass.

Illustration 6

Figure 6. Intraoperative picture showing hemosiderin synovitis.
Illustration 7

Figure 7. PVNS masses.

Illustration 8

Figure 8. Mononuclear histiocytes with abundant cytoplasm and some intranuclear grooves. Hemosiderin pigments and a mitotic figure is also seen.