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Cas clinique

Localized pigmented villonodular synovitis of the right knee: a rare case report from Burkina Faso

Synovite villonodulaire pigmentée localisée du genou droit : une rare observation clinique au Burkina Faso

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Résumé
La synovite villonodulaire est une maladie rare dont l'incidence est estimée entre 2 et 8 cas par million par an dans la population générale. Nous présentons un cas de synovite villonodulaire pigmentée du genou droit traitée par synovectomie arthroscopique. Il s'agissait d'un patient de 52 ans admis pour une douleur mécanique chronique au genou droit (évoluant depuis 2 ans) d'apparition progressive. La ponction du genou droit a permis de prélever environ 375 cc de liquide séro-hématose. Comme l'épanchement réapparaissait, une échographie du genou droit a été réalisée, montrant un important épanchement contenant de nombreuses formations villonodulaires visibles à certains endroits sur le doppler, principalement dans le creux sous-quadricipital. Une biopsie synoviale arthroscopique a été réalisée et l'examen anatomopathologique a conduit au diagnostic de synovite villonodulaire localisée du genou droit. Il n'y a pas eu de récidive après une synovectomie totale arthroscopique. La synovite villonodulaire est rare. Elle doit être envisagée en présence d'un épanchement séro-hématome récurrent du genou.

Mots-clés : arthroscopie, synovectomie, synovite villonodulaire, Burkina Faso
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Summary
Villonodular synovitis is a rare disease with an estimated incidence of 2 to 8 cases per million per year in the general population. We present a case of pigmented villonodular synovitis of the right knee treated by arthroscopic synovectomy. It was about a 52-year-old patient admitted for chronic right-sided mechanical knee pain (evolving for 2 years) of progressive onset. Puncture of the right knee yielded approximately 375 cc of serohematous fluid. As the effusion recurred, an ultrasound scan of the right knee was performed, showing a large fluid effusion containing numerous villonodular formations that showed up on the doppler in places, mostly in the sub-quadricipital recess. An arthroscopic synovial biopsy was performed, and the anatomopathological examination led to the diagnosis of localized villonodular synovitis of the right knee. There was no recurrence after arthroscopic total synovectomy. Villonodular synovitis is rare. It should be considered in the presence of recurrent serohematous effusion of the knee.

Keywords: arthroscopic, Pigmented villonodular synovitis, synovectomy, Burkina Faso,

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Introduction

Pigmented villonodular synovitis is a generally benign proliferation of the synovium (1). First described in the flexor tendon sheaths of the fingers by Chassaignac in 1852, the disease was subsequently described in a nodular, intra-articular form by Simon in 1865 (2). It is typically monoarticular, with the knee joint the most frequently affected. It is also known to affect the hip, ankle, shoulder and elbow in that order of frequency (3). It is a rare disease with an estimated incidence of 2 to 8 cases per million per year in the general population (3). To our knowledge, no cases have been reported in Burkina Faso. We present a case of pigmented villonodular synovitis of the right knee treated by arthroscopic synovectomy.

Case report

Case History

It was about a 52-year-old patient, an itinerant water vendor with no known pathological history and occasional consumer of red meat, was seen for a chronic, mechanical right knee pain that had been present for two years. The pain developed progressively, without any traumatic context, and without fever, weight loss or other associated visceral signs. The patient reported several punctures of the knee, which brought back a serohematous fluid.

Examination

Examination revealed a right valgus knee, right knee swelling, right frank patellar impingement and right medial and lateral femorotibial syndrome. On measurement, the patellar circumference was 44 cm on the right, compared with 42 cm on the left, and 50 cm on the right, 5 cm above the upper end of the patella, compared with 43 cm on the left (Figure 1).

There was also a firm swelling of around 5 cm in the right popliteal fossa, mobile in relation to the superficial and deep planes. Puncture of the right knee yielded approximately 375 cc of seroshematous fluid (Figure 2).

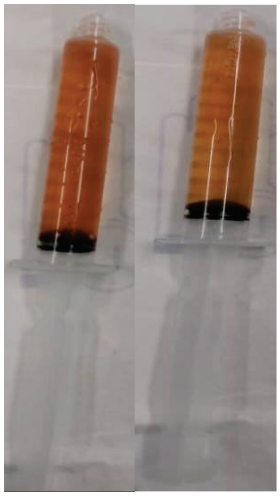

Figure 2. Serohematous puncture fluid from right knee

Investigation

Microscopy revealed no crystals. The cytobacteriological examination and the Xpert test performed on the puncture fluid were unremarkable. The effusion recurred 72 hours later, necessitating a second puncture (approx. 270 cc), followed by intra-articular corticoid infiltration. On blood count, the white blood cell count was 6470/µL, neutrophils 2340/µL, lymphocytes 3000/µL, red blood cells 4020 000/µL, with a haemoglobin level of 11.4 g/dL, and platelets 26100/µL. The rest of the laboratory work-up (sedimentation rate, C-reactive protein, blood glucose, transaminases, creatinine, uric acid) showed no particular abnormalities. Knee X-rays showed bilateral tricompartmental knee osteoarthritis, more marked on the right, associated with right hydarthrosis (Figure 3a and 3b). The diagnosis of bilateral tricompartmental knee osteoarthritis, more marked on the right, was retained.

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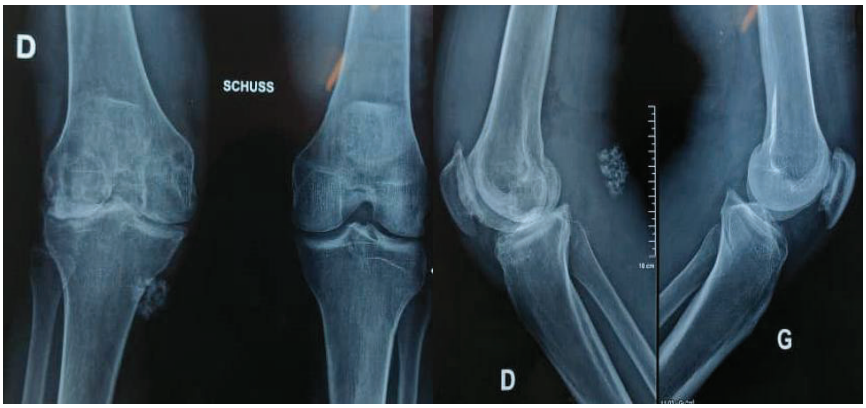

Figure 3a and 3b: X-rays of the Schuss e profile knees, bilateral tri-compartmental gonarthrosis with hydarthrosis much more marked on the right, heterogeneous calcification and oval projection of the posterior soft tissues of the right knee

Diagnosis

Seven weeks later, the fluid had reconstituted. The new puncture yielded 285 cc of seroshematous fluid. In view of this recurrence, an ultrasound scan of the right knee was carried out, showing a large fluid effusion containing numerous villonodular formations, Doppler-enhanced in places and mostly located in the subquadricipital recess (Figure 4).

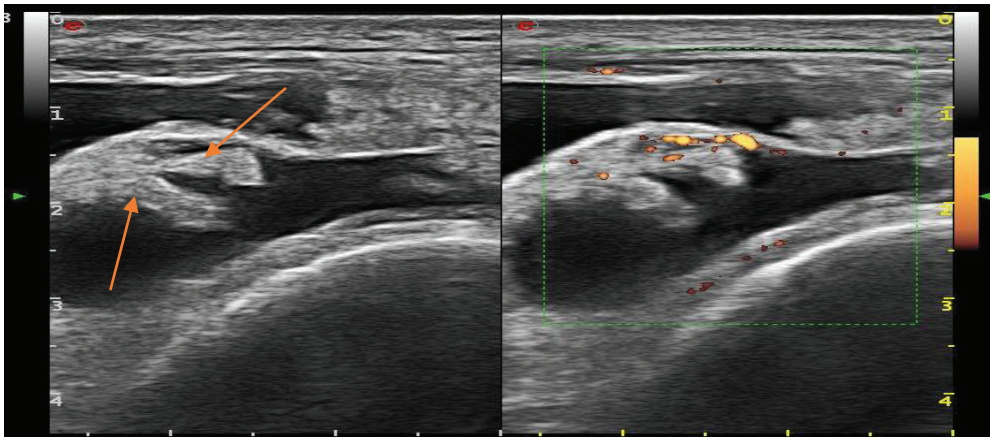

Figure 4. Right knee, longitudinal section in two-dimensional mode and power Doppler mode through the sub-quadricipital recess, hypo-echogenic fluid effusion containing numerous villo-nodular formations (red arrows) picking up the Doppler in places

A synovial biopsy carried out under arthroscopy enabled the diagnosis of villonodular synovitis to be made on the basis of anatomopathological examination. Examination revealed a thickening of the synovium, composed of stromal cells, osteoclastic giant cells and hemosiderin-laden histiocytes, responsible for the brownish discoloration. This appearance gave rise to thin, elongated villi in the shape of a "finger of glove", as well as to villous hyperplasia of the synovium, richly vascularized and accompanied by a cellular infiltrate comprising macrophages, plasma cells and foam cells. The diagnosis of localized villonodular synovitis of the right knee was thus accepted.

Treatment

A total synovectomy under arthroscopy was performed with a simple postoperative course.

Evolution

The short- and medium-term evolution was favourable. There was no recurrence of effusion at 2-year follow-up.

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Discussion

We present a case of villonodular synovitis of the knee in a patient in his fifties. This case is consistent with the literature (3-4). Indeed, pigmented villonodular synovitis can occur in a variety of joints and at any age, but most commonly in the knee of young adults (2). Affected individuals are generally affected between the second and fifth decades of life (3-4). The condition is characterized by villous, nodular or villonodular proliferation of the synovium, with pigmentation linked to the presence of hemosiderin. These lesions are almost exclusively benign, although rare cases of malignancy have been reported (2).

In our patient, diagnosis was delayed, probably due to a lack of awareness of the disease on the part of nursing staff and the slow progression of symptoms (two years after onset). It should also be noted that access to magnetic resonance imaging (MRI) is difficult. MRI is the examination of choice for this pathology, as it enables direct visualization of the synovium, the entire joint and bone structures. MRI gradient echo sequences show areas of hypo-signal contrasting with adjacent hyper-signal of the synovium and/or joint fluid. These areas, secondary to hemosiderin deposits in the tissue, are pathognomonic of villonodular synovitis (5-6).

In our patient, diagnostic suspicion was raised by recurrent serosomatic effusion, and ultrasound revealed a heterogeneous echogenic mass, hypervascularized on color Doppler, associated with intra-articular effusion. This situation prompted arthroscopic biopsy, the anatomopathological examination of which led to the diagnosis of villonodular synovitis. Ultrasound can be an alternative to MRI, particularly in our countries where access to the latter is difficult. However, it should be noted that ultrasound must be performed by an experienced sonographer.

Therapeutically, our patient underwent total synovectomy under arthroscopy, with a simple postoperative course. Our therapeutic approach is in line with the literature. In fact, the methods proposed include arthroscopic or open synovectomy and possibly total arthroplasty. Synoviorthesis, whether chemical (osmic acid) or isotopic (Yttrium 90, Dysprosium 165, or Rhenium 186), is a complementary treatment option (7-9).

Our patient had a favorable outcome, with no recurrence of effusion at 2 years' follow-up. The recurrence rate for localized forms is virtually nil in most series. In contrast, the overall recurrence rate after arthroscopy in diffuse forms varies between 30% and 57%. The actual rate could be higher if MRI were used to detect these recurrences (10).

Conclusion

Few cases have been reported in our context. It should be considered in the presence of recurrent serohematous knee effusion. Ultrasound and MRI can be used to suspect the diagnosis, while arthroscopy can be used to confirm it, with good results in localized forms after total synovectomy.

Conflict of interest

None

Authors' contributions

All authors contributed equally to the realization, interpretation of the results and drafting of the manuscript. They have all approved the final, revised version of the manuscript.

Patient consent

Patient consent was obtained.

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