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Localized pigmented villonodular synovitis of the ankle: Expect the unexpected

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ABSTRACT

Background: We present the technique, results and discuss arthroscopic treatment of the localized form of pigmented villonodular synovitis (LPVNS) of the ankle.

Methods: Medical records of five patients diagnosed and treated for ankle LPVNS with a minimum five-year followup were retrospectively reviewed. All patients were treated arthroscopically, altered synovial tissue was resected and a sample of tissue was sent for pathohistological examination for the definitive diagnosis.

Results: No recurrence was noted at a mean followup of 6.5 years, both clinically and by MRI at one year postoperatively. Patients were evaluated using the American Orthopaedic Foot and Ankle Society (AOFAS) Ankle-Hindfoot score, and an improvement was noted from an average score of 65.6 prior to treatment to 94.6 at final followup.

Conclusion: Considering the results of this case series, and the absence of complications, arthroscopy is a viable option for treating LPVNS of the ankle.

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1. Introduction

Pigmented villonodular synovitis (PVNS) is a proliferative synovial tissue disorder that affects the synovial lining of joints, tendon sheaths and bursae, and occasionally invades and destroys surrounding soft tissues and bone. Considering the extent of synovial tissue involvement, a localized (LPVNS) and diffuse (DPVNS) form of this disorder can be distinguished, both of which may be intra-articular and extra-articular [1]. These two forms most likely constitute two ends of the gamut of one disease. This difference is noted in the World Health Organization classification, in which DPVNS is termed “diffuse-type giant cell tumour” (Dt-GCT) ICD-O code 9251/0 while LPVNS (intra-articular) and giant-cell tumours of tendon sheaths (GCTTS) (extra-articular) are coded as 9252/0 [2].

PVNS is typically monoarticular and most frequently involves the knee, followed by the hip, foot, wrist and ankle to a lesser extent [3]. The incidence of PVNS in the ankle is about 2.5% out of all PVNS cases [4]. Regardless of the joint in question, treatment of

choice for PVNS is surgical excision of pathologic tissue, which can be aided by radiotherapy or isotopic synoviorthesis in recurring and locally widespread cases [5–7].

In this retrospective case analysis we present five patients with LPVNS of the ankle, treated with arthroscopic resection of the altered synovial tissue, diagnosed by pathohistological examination and followed for a minimum of five years. The primary aim of this paper is to show that arthroscopically performed resection of altered synovial tissue of LPVNS is a safe and effective treatment modality. A secondary aim is to raise awareness about LPVNS in orthopaedic surgeons and to question its touted rarity, in general as well as in the ankle.

2. Methods

Clinical, radiological and histological records of five patients with ankle LPVNS treated at our Department by a single surgeon, in the period from September 2006 to March 2010, were retrospectively reviewed by an independent examiner not involved in the treatment process.

All patients presented with similar symptoms, such as swelling and pain to various extents, without any previous trauma to the ankle joint. After thorough physical examination, plain radiographs and magnetic resonance imaging (MRI) scans were used to develop a list of possible differential diagnosis (Fig. 1A and B). PVNS

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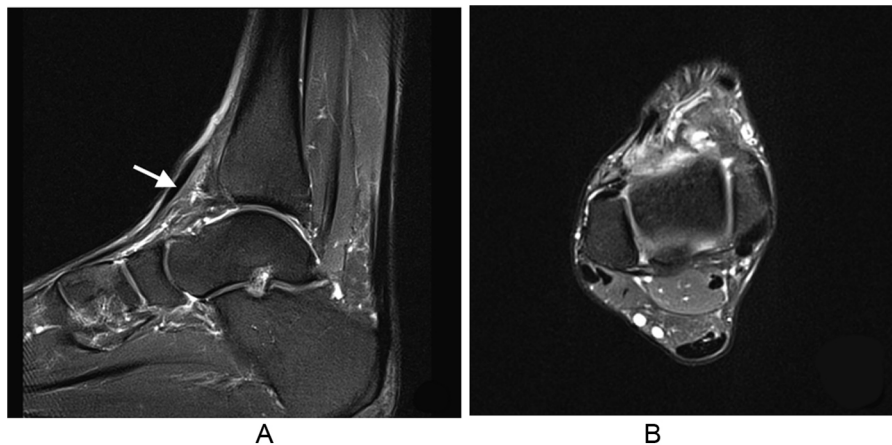


Fig. 1. (A) Preoperative sagittal FS PD-weighted FSE image showing synovial proliferation with lobulated margins in the anterior ankle recess (arrow). (B) Preoperative axial FS PD-weighted FSE images showing synovial proliferation with lobulated margins in the anterior ankle recess (arrow).

was directly suspected in only one of our patients, who had already been treated by open biopsy and tumour tissue resection for the same pathology on the dorsum of the foot at an earlier time point.

The treatment protocol was identical for all patients. Standard ankle arthroscopy was performed, through the anteromedial and anterolateral portals using a 4.0-mm arthroscope angled at 30°. The procedure was executed with the patient under spinal anesthesia. An ischemic tourniquet was used during the whole procedure. No distraction device was used. Altered synovial tissue was meticulously resected and removed using a standard arthroscopic shaver and electrocautery system, and a sample of the removed synovial tissue was sent for pathohistological examination (Fig. 2A–D). Any existing bony erosions were carefully debrided to underlying healthy bone using a standard arthroscopic burr. According to the preoperative MRI scan, one patient had a

spread of the pathological tissue to the posterior part of the ankle, so immediately after the anterior, a posterior ankle arthroscopy through the posteromedial and posterolateral portals was performed, utilizing the technique described by van Dijk et al. [8]. Ultimately, no PVNS tissue was found posteriorly during arthroscopy.

All patients followed the same postoperative regime. On the first postoperative day the drain was removed, and patients started active and passive range of motion exercises. A night splint for the ankle was used for three weeks following surgery. Weightbearing as tolerated with crutches was allowed for the first three weeks after surgery, followed by gradual progress to full weightbearing over the course of the next three weeks. All patients underwent the same course of physiotherapy during these six weeks. Followup visits were scheduled for postoperative day 15, and at six weeks,

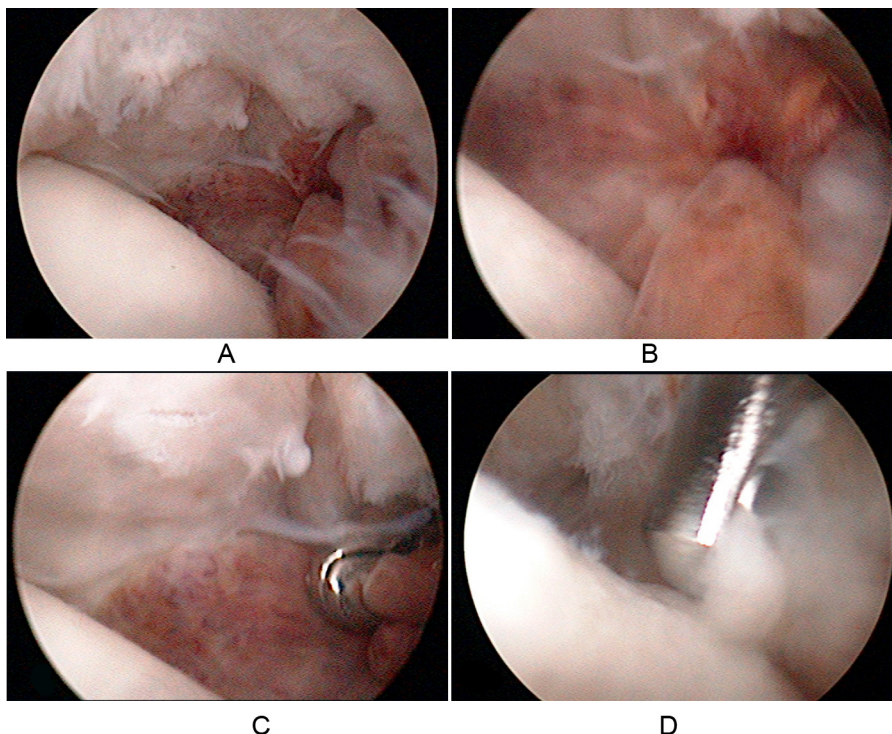


Fig. 2. (A) Refers to Patient M/40, see Table 1. Arthroscopic view of the ankle joint showing a pedunculated soft tissue mass, brown in colour, originating in the synovium anterior to the medial malleolus. (B) “Catching” of the mass between the distal tibia and talus in forced dorsiflexion. (C) Synovectomy, performed using a standard arthroscopic shaver. (D) Complete excision of the pathological synovial tissue.

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