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Purpose

The purpose of the present study is to describe the clinical findings, diagnostic modalities and arthroscopic treatment approach in a small series of patients with synovial osteochondromatosis of the ankle joint.

Literature Review

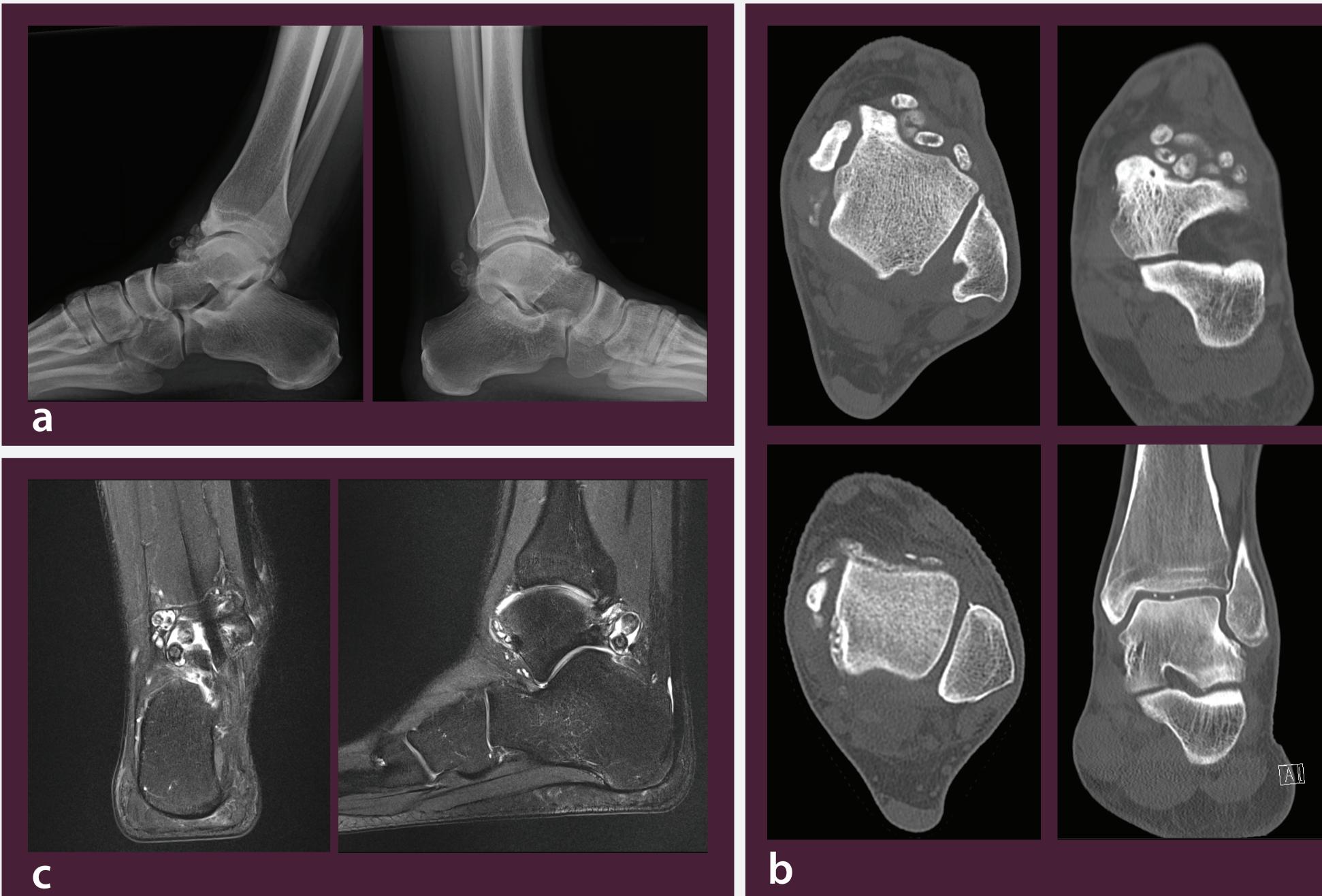
Synovial chondromatosis is a monoarticular metaplasia of the synovia resulting in cartilaginous nodules which ossify, developing into osteochondromatosis in approximately 45% of cases.^{1, 2} This condition most commonly presents in men aged 30 to 50 and involves the knee, hip and rarely other sites including the ankle joint.¹ There is a relatively high rate of both recurrence and malignant transformation with 15% to 38% of patients experiencing recurrence following surgical excision and 5% to 25% undergoing malignant transformation.^{1,3} Ankle joint synovectomy, in addition to loose body excision, has been proposed as a treatment modality to decrease recurrent loose body formation as osteochondromatosis is a proliferative synovial disorder.⁴

An arthroscopic approach to the ankle joint for synovectomy and excision of loose bodies in osteochondromatosis has been described in the literature.⁵⁻⁷ The primary benefits of arthroscopy over a traditional open approach includes decreased risk for wound dehiscence or delayed wound healing, improved joint visualization and ability to initiate early mobilization following surgical intervention.⁶ A combined anterior and posterior arthroscopic approach allows for complete ankle joint access when indicated for extensive synovectomy and loose body excision at multiple sites.⁶



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Operative findings included acute and chronic ankle joint synovitis as Three male patients with a mean age of 29 years (range 20-37 years) were well as multiple loose osteocartilaginous bodies (Fig. 2a-c). Secondary treated by a single provider within a one-year period. Presenting symptoms included deep, diffuse ankle pain with associated edema and catching or degenerative changes and spurring along the tibiotalar joint popping of the ankle joint during activity. Plain film radiographs were used articulation were noted in all cases including "ski track" formations to identify multiple ossified loose bodies within the ankle joint (Fig. 1a). along the cartilage surfaces (Fig. 2d). Advanced imaging was utilized to confirm the diagnosis and aid in surgical Pathologic analysis of the resected loose bodies was consistent with planning. Computed tomography (CT) was utilized in two cases (Fig. 1b) and osteochondromatosis and no evidence of malignancy was present. magnetic resonance imaging (MRI) without contrast was utilized in a single The average follow up period was 26 months. At final follow up, the case (Fig. 1c). mean VAS pain score was 1/10 and all patients had returned to full activities. No recurrence of symptoms, or concern for malignant transformation was noted.



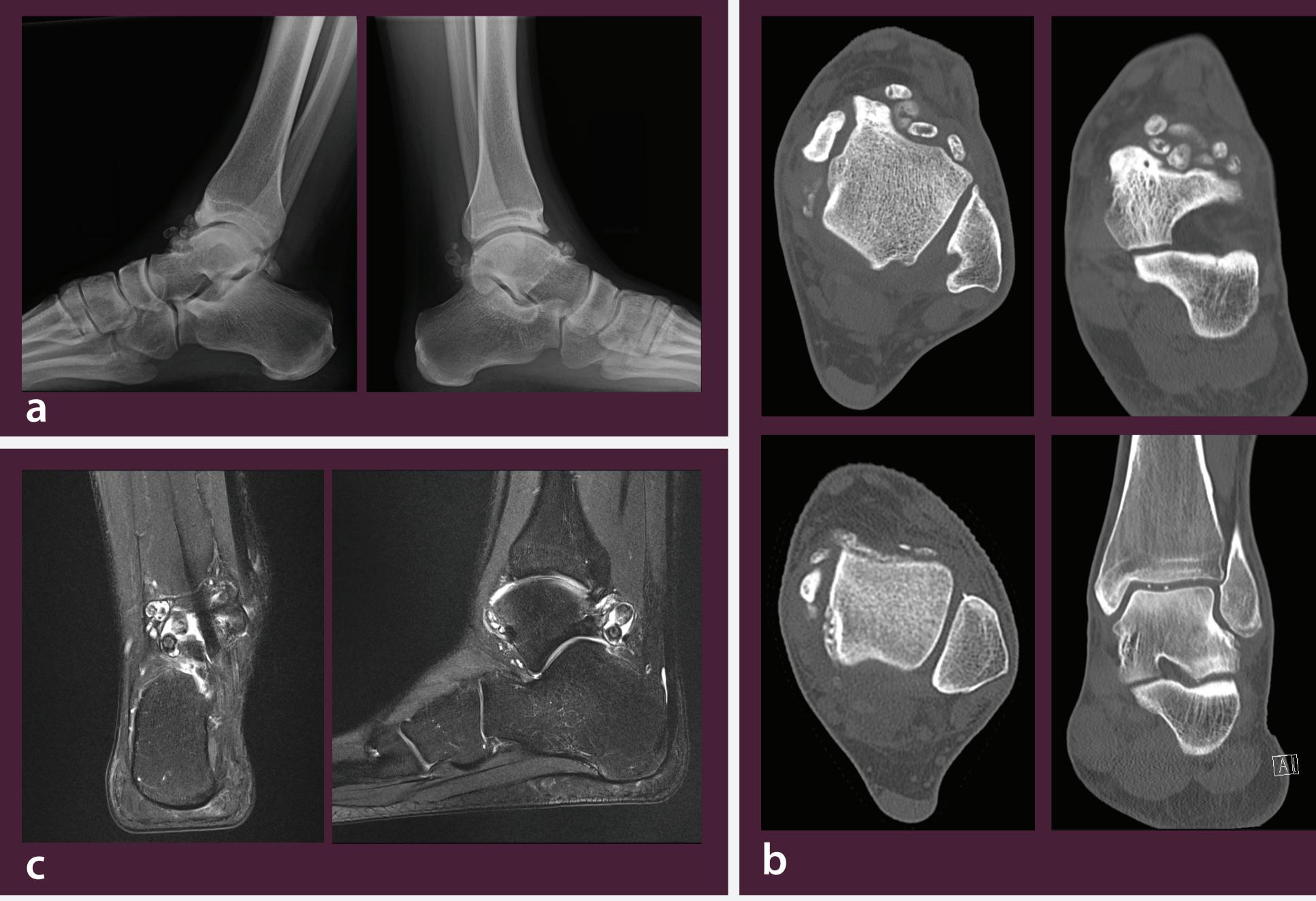


Figure 1: Imaging studies utilized pre-operatively included a) plain film radiographs in all cases, b) CT in two cases and c) MRI in a single case.

All patients were treated with arthroscopic ankle joint synovectomy and excision of osteocartilaginous loose bodies. A standard anterior approach with medial and lateral portal placement was utilized in all cases. In addition, a standard posterior approach with medial and lateral portal placement was utilized in a single case. All loose bodies within the synovium were excised and a synovial biopsy was obtained.

Arthroscopic Treatment of Synovial Osteochondromatosis of the Ankle: A Case Series

Case Study

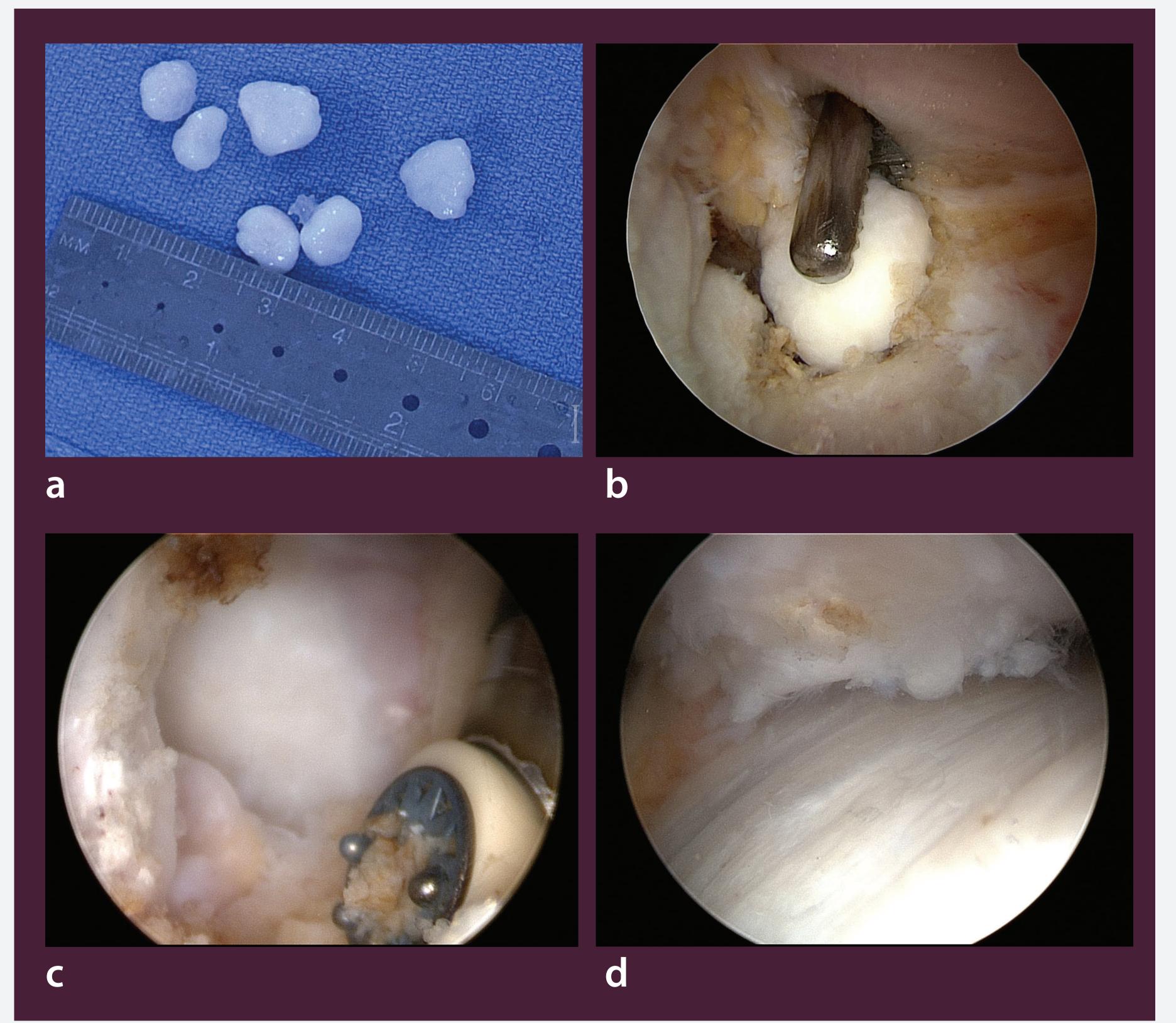


Figure 2: Intraoperative images demonstrating a) excised loose bodies from a single joint, b) loose body removal, c) debridement of synovitis surrounding a loose body and d) degenerative "ski track" formations on articular cartilage.

Analysis & Discussion

Synovial osteochondromatosis is a rare pathology in which synovial metaplasia leads to the formation of osteochondral loose bodies within the synovium.

In the cases described above, symptoms included catching, popping, pain and edema of the affected ankle joint. Both MRI and CT were able to confirm the presence of loose bodies within the ankle joint and aid in surgical planning.

In two cases, a standard anterior arthroscopic approach to the ankle joint provided adequate access, however based on pre-operative advanced imaging, a single case required a combined anterior and posterior arthroscopic approach for appropriate access to all loose osteochondral bodies.

An arthroscopic approach to ankle joint synovectomy and excision of osteochondral loose bodies can provide symptomatic relief and prevent further joint damage. This approach avoids potential wound healing complications that may be encountered with a traditional open arthrotomy approach to the ankle joint. Early results are promising and long-term surveillance will provide additional insight to the efficacy of the above approach.

References

- 1. Davis RI, Hamilton A, Biggart JD. Primary synovial chondromatosis: A clinicopathologic review and assessment of malignant potential. Hum Pathol 29(7): 683-688. 1998.
- 2. Christensen JH, Poulsen JO. Synovial chondromatosis. Acta Orthop Scand 46(6): 919-925. 1975.
- 3. Galat DD, Ackerman DB, Spoon D, Turner NS, Shives TC. Synovial chondromatosis of the foot and ankle. Foot Ankle Int 29(3): 312-317. 2008.
- 4. Sim FH. Synovial proliferative disorders: Role of synovectomy. Arthroscopy 1(3): 198-204. 1985.
- 5. Bojanic I, Bergovec M, Smoljanovic T. Combined anterior and posterior arthroscopic portals for loose body removal and synovectomy for synovial chondromatosis. Foot Ankle Int 30 (11): 1120-1123. 2009.
- 6. Doral MN, Uzumcugil A, Bozkurt M, Atay OA, Cil A, Leblebicioglu G, Tetik O. Arthroscopic treatment of synovial chondromatosis of the ankle. J Foot Ankle Surg 46(3): 192-195. 2007.
- 7. Ozmeric A, Aydogan NH, Kocadal O, Kara T, Pepe M, Gozel S. Arthroscopic treatment of synovial chondromatosis in the ankle joint. Int J Surg Case Rep 5(12): 1010-1013. 2014.
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