Recurrent Synovial Chondromatosis managed with Subtalar Fusion

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Case Report

An 81-year-old female had ongoing pain in her left ankle for the past 7 years. It was initially thought to be an ankle sprain when she first presented and was managed non-operatively with analgesia and physiotherapy. She denies any trauma and has been able to weight bear and mobilise on her left leg. There was swelling in the medial aspect of the ankle and with repeated episodes of pain, a plain X-ray was performed. An ankle cyst was found and the patient underwent excision of this cyst. The excisional biopsy provided a diagnosis of synovial chondromatosis. The patient re-presented three years later with massive swelling, severe pain day and night, minimal mobility desperate for a solution. X-ray findings are seen below (Figure 1).

On examination, the patient’s left ankle had reduced range of motion in flexion and extension as compared to the right. There was swelling in the medial aspect of the ankle and with repeated episodes of pain, a plain X-ray was performed. An ankle cyst was found and the patient underwent excision of this cyst. The excisional biopsy provided a diagnosis of synovial chondromatosis. The patient re-presented three years later with massive swelling, severe pain day and night, minimal mobility desperate for a solution. X-ray findings are seen below (Figure 1).
Synovial chondromatosis is an uncommon metaplastic condition that involves cartilaginous bodies forming within the synovium and sub synovial connective tissues of large joints. Milgram’s study demonstrated 3 phases of disease process. Phase 1 involves metaplasia of synovium with active synovitis and absence of loose bodies. Phase 2 involves active synovitis with the formation of loose bodies, which are still cartilaginous. Phase 3 occurs when these loose bodies calcify and the synovitis subsides. Imaging modalities such as X-ray, CT and MRI can be used in diagnosing this condition.

Surgical management was indicated in her case where an extensile lateral approach whilst visualizing the subtalar joint was utilised to excise the cystic mass. Two pieces of fibrous grey-white tissue 36 × 30 × 24 mm and 43 × 33 × 28 mm were removed during the procedure. Subtalar fusion was then performed with Acutrak headless compression screws (Figure 3a and Figure 3b).

The excised tissues were sent for histo-pathological examination which found soft tissue chondroid lesions. Given her background of recurrent synovial chondromatosis, the histopathology report favoured the diagnosis of recurrent synovial chondromatosis with a large traumatic neuroma. Post-operatively the patient was placed in a short leg cast and was instructed not to weight bear on her left leg for 10 weeks. She was followed up at 2, 6 and 12 weeks.

Discussion

Synovial chondromatosis is an uncommon metaplastic condition that involves cartilaginous bodies forming within the synovium and sub synovial connective tissues of large joints. Milgram’s study demonstrated 3 phases of disease process. Phase 1 involves metaplasia of synovium with active synovitis and absence of loose bodies. Phase 2 involves active synovitis with the formation of loose bodies, which are still cartilaginous. Phase 3 occurs when these loose bodies calcify and the synovitis subsides. Imaging modalities such as X-ray, CT and MRI can be used in diagnosing this condition.

Surgery is considered the treatment of choice. Both open and arthroscopic procedures can be used to treat this condition. The procedure is targeted towards removing loose bodies and to improve pain.
and function [8]. Total synovectomy is preferred over removing loose bodies alone as it has shown to reduce the chances of recurrence [9]. Recurrence rates after total synovectomy have been demonstrated by various reports to range from 3-23% [10-12], with another study reporting a higher rate of recurrence in the patients they followed up of up to 37.5% [13].

The patient in this case report had a total synovectomy and excision of the lesion performed. She had multiple presentations affecting her daily function despite having two prior excisions done. Therefore, it was discussed that to further reduce the chances of recurrence, a subtalar arthrodesis should be performed as well.

Complete excision of the lesion is the standard treatment for synovial chondromatosis, however arthrodesis seems to be the definitive treatment for recurrent synovial chondromatosis [14]. One case report showed a similar treatment strategy where after removal of all loose bodies, a subtalar arthrodesis was done. At the follow up after a year, the patient was pain free with a full range of motion and did not experience any recurrence [15].

The current presentation represents the third recurrence for the patient, where she complains of severe pain and loss of

Figure 3: MRI performed in 2017 demonstrating the large cystic mass.

Figure 3: (a) Showing intraoperative insertion of Acutrak Screws; (b) Showing two Acutrak screws 7.5 mm each used for subtalar fusion post operation.
function when compared to her previous episodes so much so that she was willing to opt for surgical management. It was thought that a simple two prior excisions. The patient suffered arthritis in her subtalar joint as well, likely degenerative associated with the recurrent synovial chondromatosis. Hence, it was planned that fusing the joint would provide a better chance of eradicating the recurrence of the cyst and managing the arthritis [16].

To our knowledge, arthrodesis for the management of recurrent synovial chondromatosis in the subtalar joint has been rarely reported [15]. The patient has been followed up regularly, with no recurrence and great improvement in mobility and pain.

Conclusion

A case of synovial chondromatosis is described here which was treated with excision of the cyst with the addition of a subtalar arthrodesis. For patients with recurrent ankle synovial chondromatosis despite multiple excisions, fusion of the joint can be considered as a treatment option to prevent further recurrences.

References