A Unique Approach in the Management of Recurrent Synovial Chondromatosis of the Second Metatarsophalangeal Joint: A Case Report

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LEARNING OBJECTIVE

To present a unique treatment protocol for a rare case of recurrent synovial chondromatosis of the second metatarsophalangeal joint.

LITERATURE REVIEW

Synovial chondromatosis (SC) is a rare and benign condition characterized by metaplasia of the synovial lining of joints, bursae, or tendon sheaths resulting in formation of multiple cartilaginous loose bodies. These are typically intra-articular but can extend into the surrounding soft tissues. SC more commonly affects larger joints (knee and hip) but there are multiple documented cases involving the foot and ankle. The incidence of SC in the lower extremity has been estimated to be 3.3%. Patients experience non-specific symptoms such as pain, swelling, palpable mass, and decreased range of motion. Treatment involves resection of loose bodies and synovectomy, however recurrence rates in the foot and ankle have been reported to be as high as 37%. Furthermore, up to 66% of those recurred had malignant transformation (1). The use of radiation therapy in the case of recurrent SC has been documented with success in the knee with no recurrence over a follow up period of 5 years (2). There is no documented use of radiation therapy for SC of the foot and ankle.

CASE STUDY

A 49-year-old female presented with chronic pain, edema, and palpable mass involving her right 2nd metatarsophalangeal joint (MTPJ) for a duration of two years. She complains of 10/10 pain and difficulty ambulating as a result. Patient presented with imaging reports from one year prior, in which an MRI revealed bone marrow edema of the 2nd metatarsal and a bone scan showed increased uptake on blood pool and delayed images at the level of 2nd MTPJ.

Serial radiographs displayed no osseous or lytic changes in the area of chief complaint and appeared within normal limits. She was treated conservatively with offloading of the 2nd metatarsal and received a series of two corticosteroid injections with immediate relief of symptoms. Her pain and edema recurred several months later and a repeat MRI had evidence of a mass in the area of the 2nd MTPJ (Fig. 1). Subsequently, she was brought to the operating room for excision of the soft tissue mass, 2nd MTPJ arthrotomy and synovectomy. A mass roughly 3cm x 4cm x 1.2cm was excised from the right 2nd MTPJ which involved the entire joint capsule and invaded into the periosteum of the proximal phalanx base and the head of the 2nd metatarsal (Fig. 2). All clinically affected tissue was carefully resected. The pathology report was positive for synovial chondromatosis. A repeat MRI was obtained 5 months post-operatively, showing a recurrence of SC measuring 2.2cm x 1.8cm. She was referred to oncology for radiation therapy. The patient underwent radiation therapy with a split dose of 21 Gy across seven treatments over the course of 8 days. She has had resolution of her mass and symptoms to date.

Figure 1 – MRI Pre-Operatively

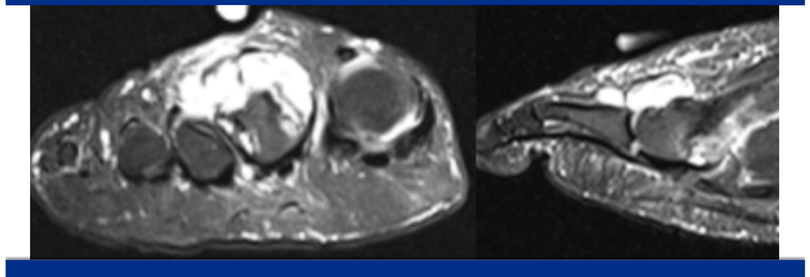


Figure 2 – Intra-op Findings

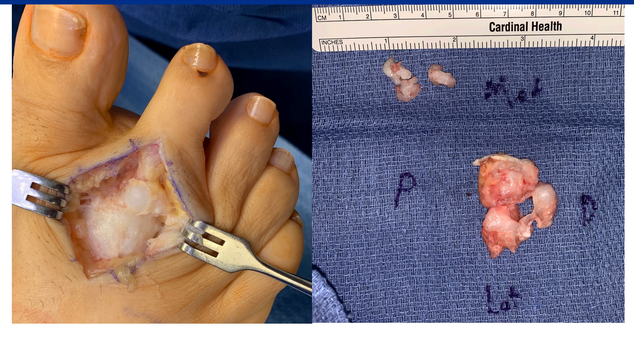
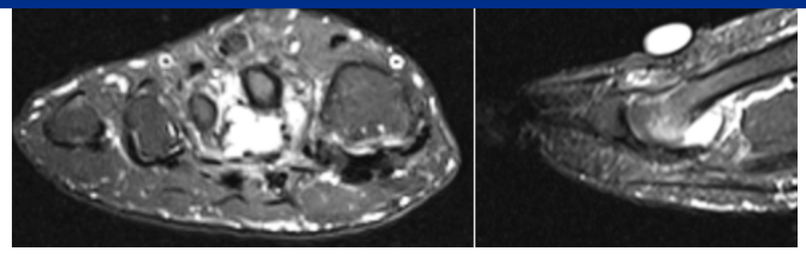


Figure 3 – Intra-op After Resection

Figure 4– Follow-Up MRI After Radiation Therapy



ANALYSIS/DISCUSSION

Synovial chondromatosis, although rare, has high recurrence and significant malignant transformation rates. Resection is not always effective, raising concern over a need for a more definitive treatment option. There is one documented case of recurrent SC of the knee treated successfully with radiation therapy with a 5-year follow up period (1). We followed the same treatment regimen with 21 Gy over seven treatments to the 2nd MTPJ with resolution of her symptoms to date. She is currently pending repeat MRI. We present the first case of successful radiation therapy to treat recurrent SC in the foot and ankle.

REFERENCES

1. Galat et al. Synovial chondromatosis of the foot and ankle. Foot and Ankle international. 2008. 29 (3): 312-317.
2. Chong CCW, Kneebone A, Kirsh G. Radiotherapy in the management of recurrent synovial chondromatosis. Australasian Radiology. 2007. 51: 95-98.