Osteochondroma of the Ankle: A Case Report and Review of the Literature

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Introduction

A 21 year old female with past medical history of Brain Tumor, ADD, Pyelonephritis, Seizures, GERD, Herpes, Iron Deficiency, presented with longstanding right ankle pain. The patient reported ankle pain her whole life, with radiographs as a child which were consistent with benign bone tumor. A CT scan revealed nonaggressive appearing bony exostosis to the distal tibia in the region of the distal syndesmosis as seen in figures 1-3. The patient recently underwent bone biopsies which confirmed diagnosis of osteochondroma. This case outlines our surgical approach and reconstruction of this patients ankle syndesmosis.

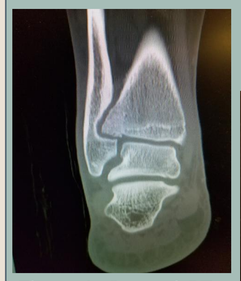

Figure 1: Coronal CT

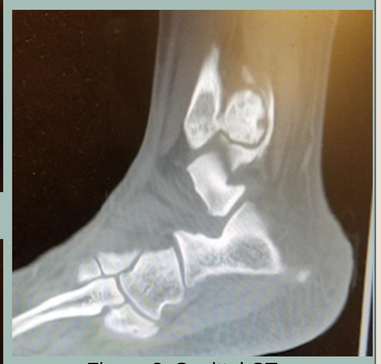

Figure 2: Sagittal CT

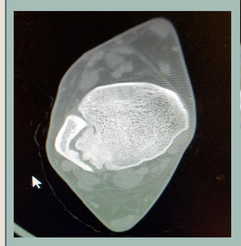

Figure 3: Axial CT

Background

Osteochondromas of the foot and ankle are rare except in cases of Multiple Hereditary Exostoses (1). They are often asymptomatic and are found as incidental findings on x-ray. Osteochondromas are described as benign outgrowth of cortical bone covered with a cartilaginous cap (1-3). Often osteochonromas are monitored and do not require surgical resection, however when located in a joint they can result in ankle deformity and should be promptly resected(2,3). These resections are challenging due to their intraarticular location and can result in large bone deficits.

Surgical Approach

Due to the unusual location of this tumor we used a lateral approach to remove the fibula to access the tumor. An incision was made over the distal aspect of the fibula distally to the level of the sinus tarsi. Introperative fluoroscopy was used to identify the location of the osteochondrom and a osteotomy was preformed through the fibula. The fibula was then turned down taking care to maintain the lateral ankle ligaments and access the syndesmosis as seen in figure 4. The tumor was visible and appeared to originate from the tibia eroding laterally through approximately 2/3 of the medial aspect of the fibula. The tumor was resected measuring 2.5cm longitudinally as see in figure 5. A curette and osteotome was then used to remove any remaining remnants of the tumor. A tricortical allograft was then obtained and which was shaved to fit the deficit left by the tumor.

The allograft was soaked in bone marrow aspirate which was obtained from the calcaneus. The fibula was then placed back in the anatomic position and was held in place with a plate and screws Figure 6.

Figure 4: Surgical Approach

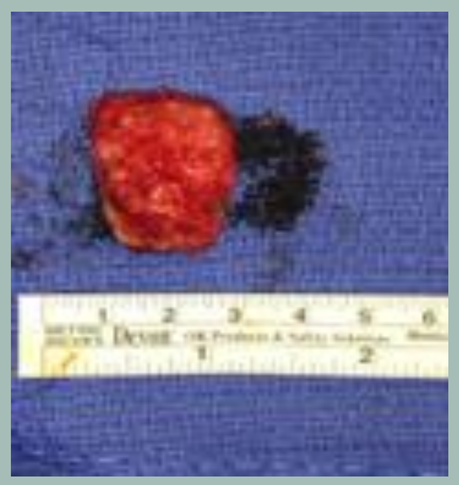

Figure 5: Tumor

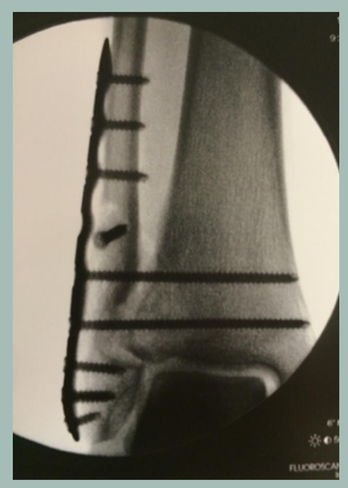

Figure 6: Post Operative Radiographs

Discussion

Osteochondromas of the ankle joint are rare and can be very challenging to resect. Early resection of symptomatic osteochondromas is important to prevent reoccurrence and joint deformity(1-3). The transfibular approach has been found to prevent ankle deformity with high patient satisfaction at 6 year follow up (1). In non operative cases patients should be informed that osteochondromas have a <1% chance of becoming malignant, and they should return for further evaluation if the mass becomes larger in size (2). The only predictive consideration in determining if the mass will become malignant is the thickness of its cartilage cap; with malignant thicknesses greater than 1 to 3 cm (3). There is still research needed on reoccurrence rates and outcomes after resection.

Results

The pathology report was sent to the Mayo Clinic where it was diagnosed as Dysplasia Epiphysealis Hemimelica (Trevor Disease) a rare variant of osteochondroma. Now, three months post operatively she is weight bearing as tolerated and has radiographic evidence of healing across osteotomy site as seen in figure 7 and 8.

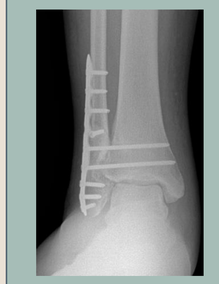

Figure 7: AP Ankle

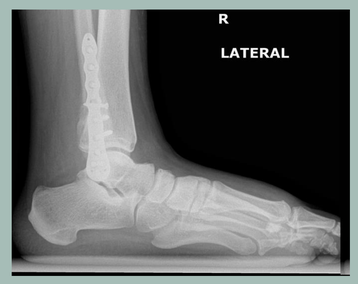

Figure 8: Lateral Ankle

Trevors Disease

Trevors Disease (Dysplasia Epiphysealis Hemimelica) is a rare childhood developmental disorder resulting in osteocartilaginous mass arising from an epiphysis. The reported prevalence of DEH has been 1 in 1,000,000, with male children affected up to 3 times more frequently than female children (4). The etiology of this disease is unknown. These tumors are considered to be a intraarticular variant of osteochondromas with similar features, treatment and prognoses(4).

Works Cited

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