Case Report of Desmoplastic Fibroblastoma in the Foot

Christopher Tulodzieski DPM 1, Gina Hild DPM 1, Michael Joyce MD 1
1 Resident, Podiatric Medicine and Surgery, Mercy Health Foot & Ankle Residency
2 Staff, Cleveland Clinic Foundation, Cleveland, Ohio

INTRODUCTION

Desmoplastic fibroblastoma is a distinctive, benign, slow-growing, fibrous soft-tissue tumor rarely seen in the foot and ankle. This case report illustrates how a multi-disciplinary approach can aid in properly treating a large slow-growing collagenous fibroma which was limb-threatening.

This type of tumor was first described by Evans in 1995, and named a desmoplastic fibroblastoma but was renamed, by Nielsen in 1996 as a collagenous fibroma. These tumors are frequently reported in men with a mean age at occurrence of fifty years. Clinically, these fibroblastomas present as firm, well-circumscribed subcutaneous or intramuscular painless masses of long duration. They range in size from 1-20 cm and predominantly occur in the subcutaneous tissue in a myriad of anatomic locations. Gross examination typically reveals an oval, disc, or fusiform-shaped mass with firm, homogeneous pearl-gray color consistency. Differential diagnosis includes neurofibromas, fibromatoses, nodular fasciitis, fibroma of the tendon sheath, and low-grade fibromyxoid stroma and myxoma. Pathological features include low cellularity, monotonous appearance, and without mitotic activity, necrosis, or infiltrative margins. Immuno-histochemistry aids in excluding many of the aforementioned differential diagnoses when positive S-100 proteins, CD34, and EMA markers are found. Ultrasound, MRI, and CT are useful imaging modalities used to aid in diagnosis. Treatments include total surgical excision of the neoplasm typically with a positive prognosis and low rates of recurrence as compared to plantar fibromatoses. This case reports on a 55 year-old female who presented with a large painful left plantar foot nodularity for approximately two years duration. Given the size of the mass, she was given a poor functional prognosis and offered primary below the knee amputation. After ancillary imaging and incisional biopsy, she successfully underwent a total radical resection of the large collagenous fibroma. Although desmoplastic fibroblastoma is uncommon in the foot and ankle, a proper multi-disciplinary approach can result in limb salvage from this rare neoplasm.

CASE REPORT

This case reports on a healthy 55 year-old female who presented to clinic with a painful left plantar foot nodularity which had been slow-growing over the past two years. Due to the size of the mass, it had become symptomatic during ambulation.

On physical exam, pedal pulses were palpable, protective sensation was intact, and no neurologic deficits were noted. There was a palpable, soft, lobular mass measuring 3.0x2.0x1.3 cm on dorsal foot and 4.0x3.0x0.3 cm on plantar foot between the 3rd and 4th metatarsals.

Assessment & Plan

Initially, an incisional biopsy was performed which revealed desmoplastic fibroblastoma of the left foot. A multi-team approach including podiatry, pathology, plastic surgery, and orthopedic oncology collaborated deeming the prognosis poor with a below-the-knee amputation the inevitable functional surgical option; however a total radical resection of the soft-tissue tumor was initially pursued as limb salvage.

Surgical Intervention

The patient underwent surgical intervention four weeks post-incisional biopsy. Tidious and meticulous dissection was performed ensuring that the dumbbell-shaped lesion was excised as one mass. Consideration for adherence of the pseudocapsule to the metatarsals and neurovascular viability was paramount. The resected mass measured 6.5x4.4x3.0 cm, weighed 66.2g, and characteristics correlated with initial diagnosis. After primary closure, a drain was placed for hemostatic prevention and a strict non-weight bearing protocol was instructed.

Surgical Intervention

The patient underwent surgical intervention four weeks post-incisional biopsy. Tidious and meticulous dissection was performed ensuring that the dumbbell-shaped lesion was excised as one mass. Consideration for adherence of the pseudocapsule to the metatarsals and neurovascular viability was paramount. The resected mass measured 6.5x4.4x3.0 cm, weighed 66.2g, and characteristics correlated with initial diagnosis. After primary closure, a drain was placed for hemostatic prevention and a strict non-weight bearing protocol was instructed.

Figure 1: Clinical Photo

Figure 2: XR Left Foot AP View

Figure 3: MRI T1 Coronal Image

Figure 4: MRI T2 Axial Image

Figure 5: Intra-operative Photo

Figure 6: Intra-operative Photo

Post-operative Plan & Course

The patient was admitted three days for pain control, compliance, and IV antibiotics. Final surgical pathology was conclusive for desmoplastic fibroblastoma. She underwent post-operative MRI to evaluate for any remaining aggregate which was negative. The patient was compliant with non-weight bearing to the left lower extremity but had residual midfoot tenderness and localized digital numbness. She successfully progressed to full weight-bearing and ambulation.

REFERENCES