Case Study: Primary Pedal Myxoid Liposarcoma
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Purpose
Soft tissue tumors of the foot are rare entities that can be overlooked early on for more common pathologies, leading to potentially devastating effects. Appropriate imaging, biopsy techniques, and referral timing are paramount to management of soft tissue tumors. This is a case of a rare myxoid liposarcoma of the foot and the sequelae of this patient’s condition.

Literature Review
Mesenchymal origin. It represents 15% to 20% of all soft tissue sarcomas, and is the most common sarcoma of deep soft tissues in adults.1 The annual incidence is 2.5 per million people, with the average age at presentation in the fifth decade. Myxoid liposarcomas affect the lower extremities in 75–80 % of cases, however, only 1.8% presents in the foot. Purely myxoid lesions have a 5-year survival rate of approximately 70%, which drops to approximately 20% in the case of round cell tumors.2 The presence of a round cell is associated with a significant worsening of prognosis when compared to pure myxoid lesions.2 Multifocal disease, presence of necrosis, and p53 over expression are other signs of poor prognosis.

Case Study
A case is presented of a healthy 34 year-old female who presented complaining of pain localized over her 4th metatarsal. The pain began insidiously and progressed over a week. 1 week prior to her visit, she had been favoring this foot and was trying to walk on her toes so as not to wake her child. She denied pain.

At four months time from initial visit, patient complained of toe pain, which she thought may be due to an ingrown nail. Patient had radiographs taken, but failed to come in for an appointment as her pain resolved. She did not return to clinic for one year. One year from initial visit, patient presented complaining of a “fullness” in her arch and difficulty wearing shoes. She denied pain.

Exam showed a firm fullness to the plantar arch, without specific mass. Plain film revealed deformity of the fourth metatarsal bone with areas of cortical thickening within the diaphysis of the second and third metatarsal bones. Further evaluation with MRI was ordered to rule out formal soft tissue mass. See Figure 1. The MRI showed that the mass insinuated between the first, second, third, and fourth web spaces, partially encircling the second through fourth metatarsals.

There was remodeling/progression of the second through fourth metatarsals without apparent cortical invasion. Additionally, this extended posteriorly to the anterior aspect of the calcaneus with moderate mass effect on the flexor tendons and deep flexor intrinsic musculature. This was found to be consistent with a primary sarcoma.

The patient was scheduled for biopsy as well as CT Abdomen with and without contrast, CT chest with contrast, and 24.5 mCi Tc-99m whole body scan.

The sample was taken over the 3rd intermetatarsal space, where the mass interdigitated dorsally. Fresh frozen section was taken to pathology for adequacy of sample, and the wound was closed pending definitive treatment based on the pathology report. The histomorphology of this lesion in combination with the positive FISH results are consistent with a diagnosis of myxoid liposarcoma. See Figure 2. Fluorescence in situ hybridization studies were performed for the CHOP (BCL2/IGH) translocation, which were positive. A proximal amputation was deemed most appropriate and the patient was managed by orthopedic oncology. A transsural amputation was performed. Radiation and chemotherapy were not performed.

Analysis and Discussion
Surgery is gold standard in the control of local disease.4 Excision needs to be carefully planned using CT or magnetic resonance imaging.1,4 The surgeon must ensure adequate clean margins are achieved, and that the planes involved are adequately identified.4 For this case, despite lack of calcaneal osseous involvement, an amputation above the ankle joint was performed because of the high risk of local recurrence based on the contrast-enhanced MRI and PET findings. For our case, the referral was made following MRI results. A multi-team approach is quintessential to management. Regardless of the performing surgeon, there are some pearls and pitfalls to keep in mind.

Surgical Pearls and Pitfalls
- Appropriate timing of referral for multi team management is essential to avoid harm to the patient.
- Biopsy before definitive management.
- Open longitudinal excision biopsy, along line of lymphatics, is best, especially if needle biopsy is non-diagnostic.
- Obian fresh frozen section to avoid the need for a second biopsy, delaying treatment.
- Care must be made to consider definitive surgery, so biopsy site should be able to be easily excised.
- Being surgically capable of resection is not equivalent to providing the most appropriate encompassing care.

Results
The patient did well for 21 months. At this time, she noticed a lump in her left anterolateral thigh. Core biopsy showed metastatic liposarcoma. Whole body NM PET scan showed no other areas of uptake in the body. She underwent en bloc resection. Pathology revealed a 3.4 cm myxoid liposarcoma with clear margins. Plan is to repeat CT chest/abdomen/pelvis, with consideration for PET scan 3 months thereafter.

References
5. Smith TA, Easley KA, Goldblum JR, Myxoid liposarcoma of the extremities. A multi-institutional cohort to determine the impact of round cell differentiation present (approximately 5%). (c) Specimen sent for fresh frozen analysis.
7. Smith TA, Easley KA, Goldblum JR, Myxoid liposarcoma of the extremities. A multi-institutional cohort to determine the impact of round cell differentiation present (approximately 5%). (c) Specimen sent for fresh frozen analysis.