Excision of a hybrid malignant/benign soft tissue mass

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Case Study

A 47 year old female is seen in podiatry clinic complaining of a slowly enlarging mass to the dorsal aspect of her left foot and ankle. She first noticed the mass approximately 3 years prior. She states the mass is non-painful. She only complains of increasing difficulty in wearing shoes and some loss of motion at the ankle joint due to the size of the mass. She has no contributory medical or family history. Clinically, the mass was firm, well circumscribed and appeared to adhere to deep fascial planes. Due to the size of the mass and corresponding complaints from the patient she was scheduled for initial MRI and then surgery to excise the mass. The mass was removed in two parts. Both specimens were sent to pathology for analysis. Pathology report indicated a hybrid mass consisting of ganglion cyst and an atypical lipomatous tumor/well-differentiated liposarcoma. Patient received follow-up with oncology at University of Michigan. PET/CT imaging showed no residual tumor or metastases. Subsequent MRI was also negative. Patient has had no recurrence at 25 month follow-up.

Clinical Presentation

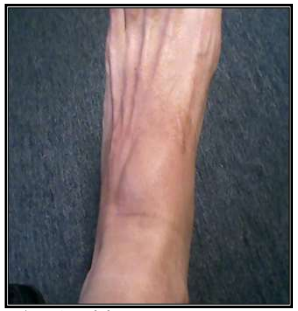


Figure 1. Left foot

History:

- 47 year old, well-controlled DM2, former smoker (quit 2003)
- Slow-growing, painless mass present for previous 3 years

Examination:

- Neurovascular intact
- Painless, immobile, firm mass
- Slight loss of range of motion at ankle joint secondary to size of mass

Imaging

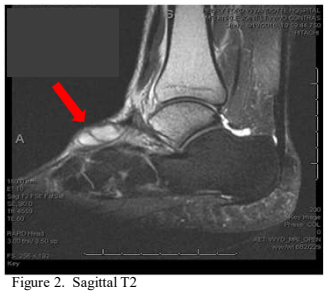


Figure 2. Sagittal T2

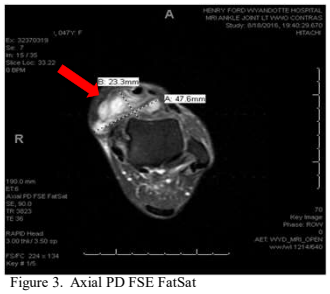


Figure 3. Axial PD FSE FatSat

Surgical Excision

- No osseous invasion or destruction was viewed on MRI
- Two incision approach was implemented one medial and one dorsally
- Mass found underlying the tibialis anterior and extensor digitorum longus tendons and adjacent to dorsal neurovascular bundle
- During excision, there were delineating soft tissue connecting the two masses. The masses were separated and sent to pathology as individual specimens

Pathology report of medial mass:

Fibroadipose tissue with focal synovial tissues

Suggestive of ***ganglion cyst***

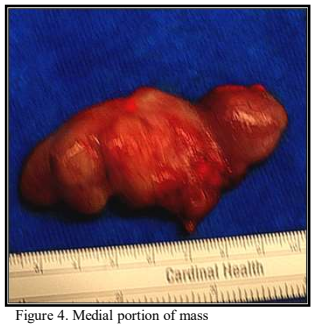


Figure 4. Medial portion of mass

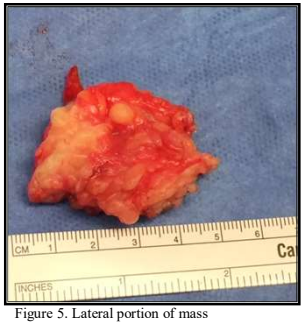


Figure 5. Lateral portion of mass

Pathology report of lateral mass:

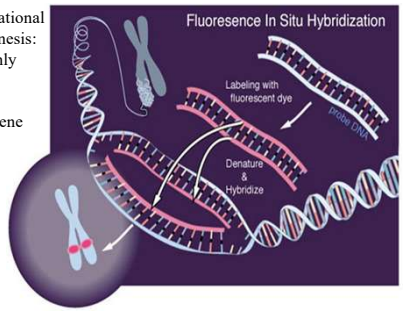
Nodular proliferation of myxoid material with scattered pleomorphic spindle cells and fibrous bands

FISH Assay – Amplified MDM2

Suggestive of ***atypical lipomatous well-differentiated myxoid liposarcoma***

FISH ASSAY

- Myxoid liposarcoma is a translocational subtype that occurs during lipogenesis: t(12;16)(q13;p11) or less commonly t(12;22)(q13:q12)
- DNA probe specific for MDM2 gene region on chromosome 12
- Results in MDM2 amplification indicative for *well-differentiated liposarcoma*



Literature Review

TABLE 1. **Histologic classification and clinical behavior of liposarcomas as described by Enzinger and Weiss (13)[a]**

Liposarcoma Classification	Clinical Behavior
1. Well-differentiated liposarcoma Lipoma-like Sclerosing Inflammatory De-differentiated	Low-grade malignancy and rarely metastasize (least aggressive and commonly mistaken for lipomas)
2. Myxoid liposarcoma	Low-grade malignancy and may metastasize
3. Round cell liposarcoma	Highly aggressive lesions which commonly metastasize and yield less than a 20% 5-year survival rate
4. Pleomorphic liposarcoma Poorly-differentiated	Highly aggressive lesions which commonly metastasize and yield less than a 20% 5-year survival rate

Liposarcomas are malignant adipocytic tumors constituting about 20% of soft tissue sarcomas. Morphologically, these are classified into *well-differentiated, de-differentiated, myxoid, round cell, pleomorphic, and mixed type*. Mixed type liposarcomas represent combined features of the myxoid/round cell and well-differentiated/de-differentiated liposarcoma or features of myxoid/round cell/pleomorphic subtype. Liposarcoma has a tendency to metastasize to the mediastinum, retroperitoneum, bone, lung, or liver.

The prevalence of liposarcoma in the foot and ankle is rare. The most robust study found specific to liposarcoma was conducted by the Armed Forces Institute of Pathology's Review for Liposarcoma. A 10 year study of 1,067 liposarcoma cases revealed 5% (53 masses) were found in the lower leg and only 2% (21 masses) were found in the foot and ankle. Peak incidence is between the ages of 40-60 years with a higher propensity for males.

Although rare, a diagnosis of any malignancy in the foot or ankle is potentially life-saving. Malignant mass should be considered as a differential diagnosis with any soft tissue mass presenting in the foot and ankle.

A thorough database search was conducted and no current literature was found with a similar hybrid benign/malignant mass in the foot and ankle as presented in this case study.

References

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