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Unilateral Leg Swelling with Negative Deep Vein Thrombosis by Ultrasound

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Red Flag: Unilateral Leg Swelling with Negative DVT by Ultrasound

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Introduction

- Swelling and pain in the lower extremity are common complaints in the emergency department
- Work up often includes radiographs and doppler ultrasound to rule out DVT
- Unfortunately, these imaging studies often reveal unexpected findings that need to be evaluated and referred to the appropriate specialists
- Maintaining an appropriate differential diagnosis when performing a subsequent evaluation is imperative

Case #1



Figure 1A. Ultrasound from initial presentation showing a large, heterogeneous mass within the left proximal, anterior thigh.

- 25 year old female presented to ED in late 2016, intrauterine pregnancy diagnosed, left proximal, anterior leg mass found incidentally on US (Fig. 1A)
- Patient returned to ED two more times in subsequent months with repeat US showing enlargement of mass
- Surgical referral with subsequent deferral of advanced imaging as patient was late in pregnancy at that time
- September 2017 CT abdomen/pelvis showing heterogeneously enlarging mass concerning for sarcoma, referral to Orthopedic Oncology made
- Staging studies and biopsy to follow showed disseminated metastatic synovial sarcoma (Fig. 1B and 2)
- Patient treated with chemotherapy and radiation
- Currently alive with disease



Figure 1B. Axial cut from CT scan performed 14 months after initial US showing large, heterogenous mass within the left proximal, anterior thigh with extension into the pelvis.

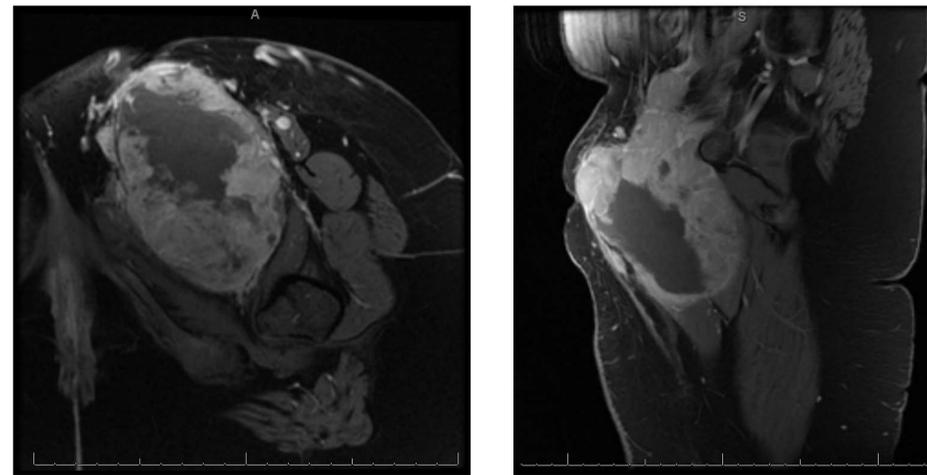


Figure 2. T2 MRI of the pelvis and thigh showing a heterogeneous mass measuring 15 x 10 x 8 cm in the left thigh with extension into the pelvis.

Case #2

- 70 year old male who presents with history of RCC s/p nephrectomy, prostate cancer, multiple non-melanoma skin cancers who initially presented in September 2018 with pain in right calf
- US performed upon initial presentation showing hypoechoic mass in popliteal fossa – thought to likely be Baker’s cyst, follow-up with PCP advised
- Pain persisted, referred to Vascular Surgery – further imaging ordered; though, returned to PCP shortly thereafter with increased leg swelling
 - MRI ordered at that time
- MRI R leg performed in February 2019 showing large, heterogeneous mass with solid and cystic components centered within deep posterior compartment of right leg. (Fig 3)

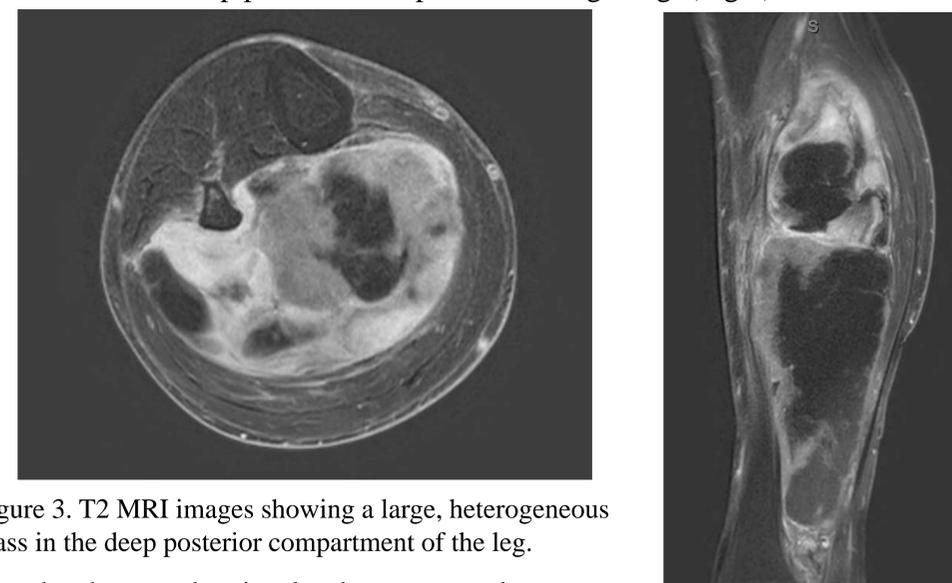


Figure 3. T2 MRI images showing a large, heterogeneous mass in the deep posterior compartment of the leg.

Note that the mass does involve the neurovascular structures which resulted in the patient having severe neuropathic pain necessitating regional anesthetic nerve blocks.



Figure 3A. Axial CT image of the chest showing metastatic disease upon diagnosis.

- Staging studies and biopsy to follow showed high-grade myxofibrosarcoma with disseminated disease (Fig 3A)
- Amputation recommended – patient and family elected to pursue chemotherapy and radiation treatment

Conclusion

- Ultrasounds are used for evaluation of DVT and frequently the report is interpreted as only negative or positive for DVT.
- It is imperative to read the full report and to evaluate any potential reported masses with appropriate additional advanced imaging.
 - Doing so can help to eliminate long lag times to diagnosing possible underlying soft tissue sarcomas.
- Emergency room vascular ultrasound of an extremity for potential DVT is inadequate to eliminate potential underlying malignancy.
- An appropriate degree of suspicion with directed anatomic imaging of the limb needs to be undertaken to avoid diagnosis delay of potential soft tissue sarcomas should the study be negative for a blood clot.

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