

## Clinical History

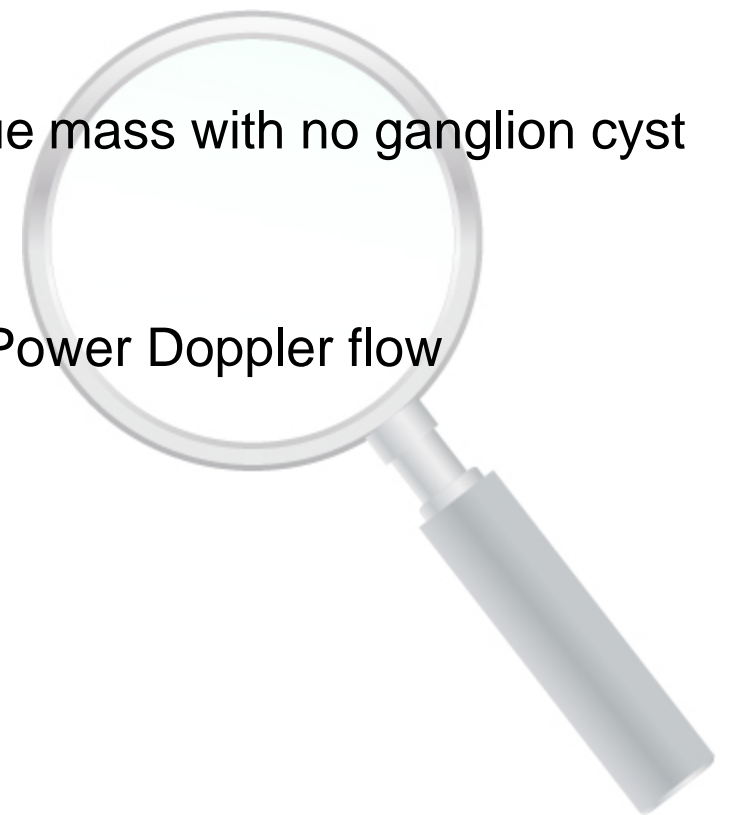
26 year old male presents with a painless but enlarging mass at the dorsum of the hand

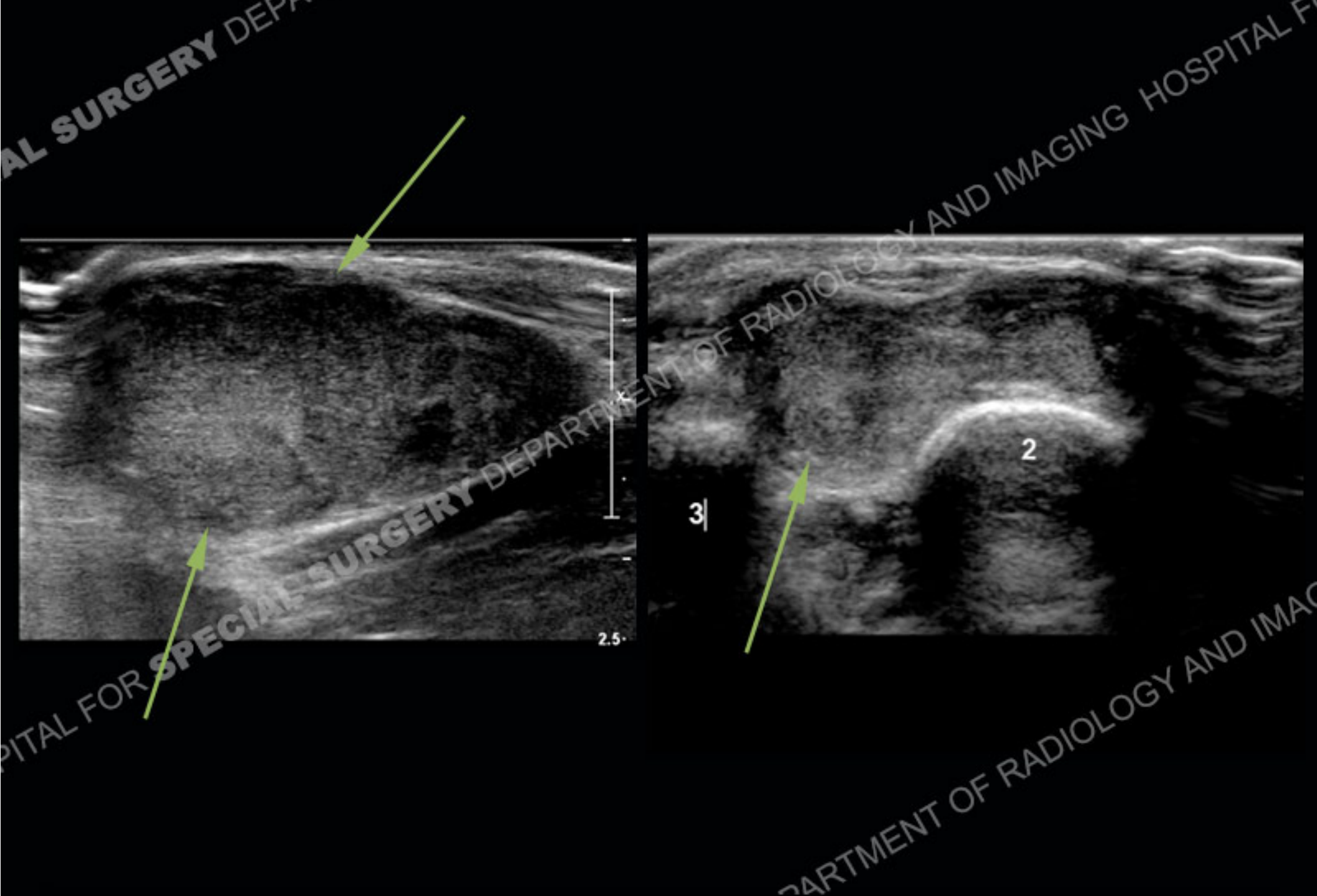
The mass had previously been diagnosed as a ganglion cyst based on clinical examination

The patient was sent for an ultrasound-guided aspiration of the presumed ganglion

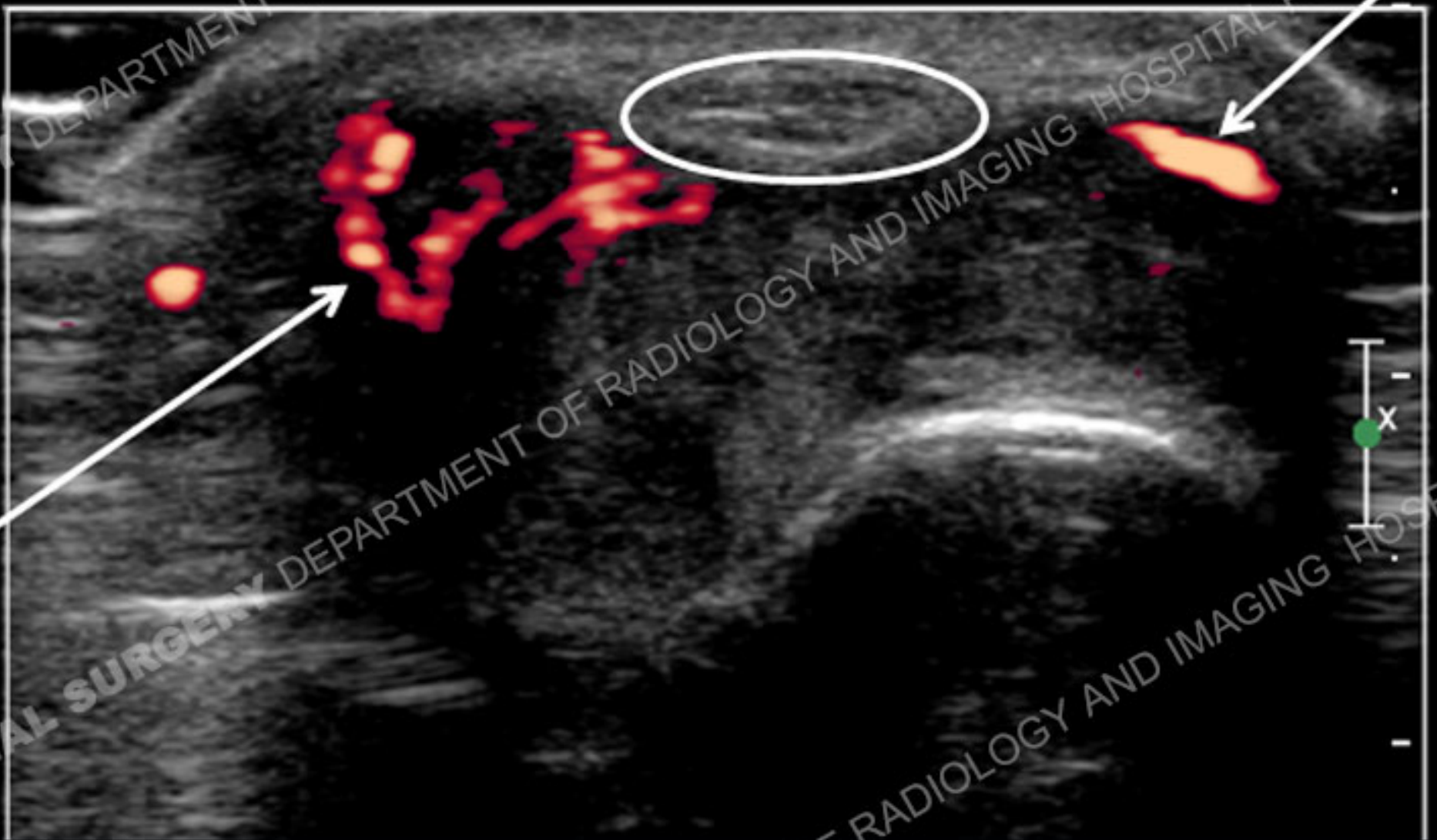
Preliminary ultrasound demonstrated a soft-tissue mass with no ganglion cyst features

The mass contained a small amount of internal Power Doppler flow demonstrating vascularity of the lesion





Preliminary ultrasound imaging demonstrates a solid soft tissue and non-cystic mass extending over the distal 2nd and 3rd metacarpal bones (arrows). The mass is closely applied to the extensor tendon sheath of the 2nd digit (circle).



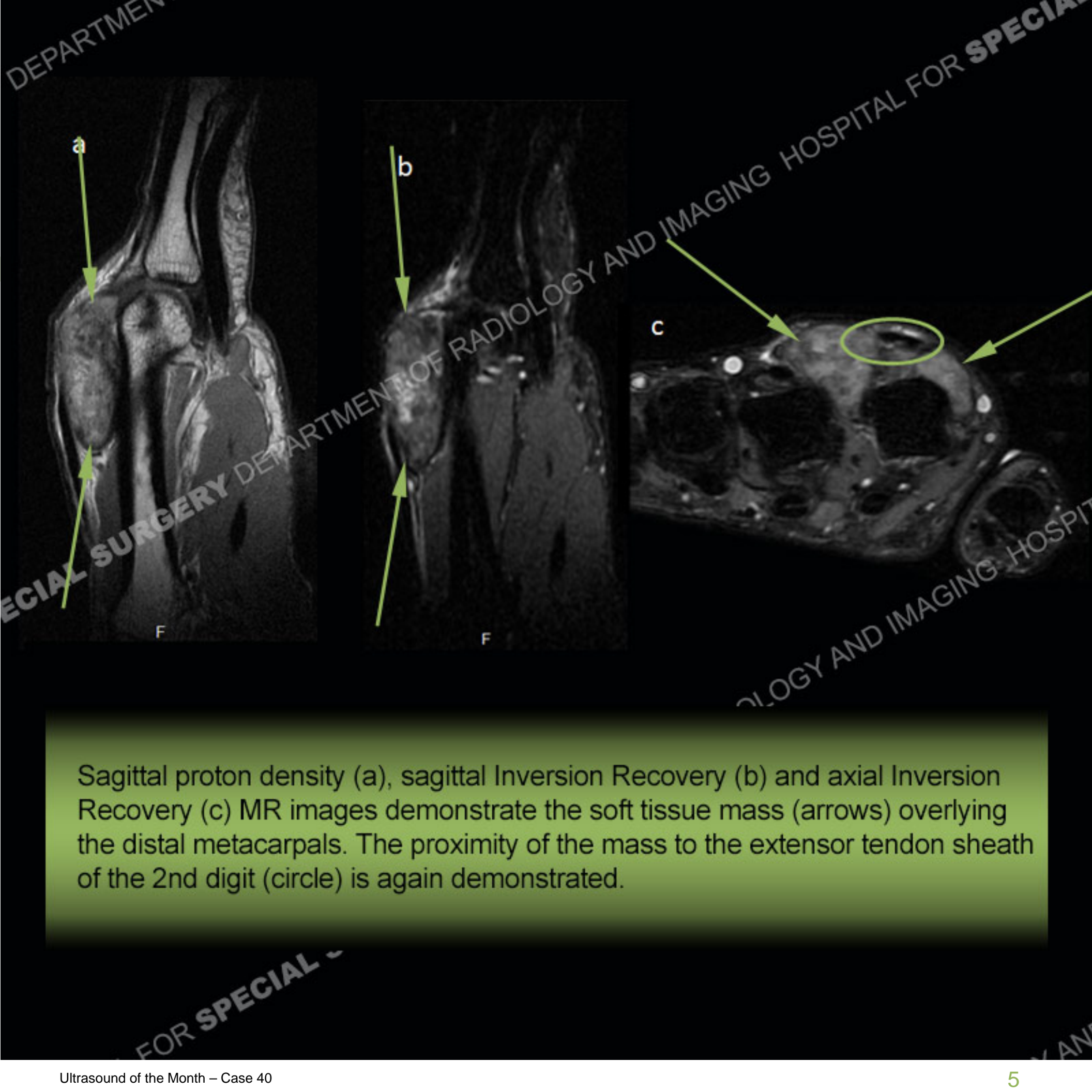
Power Doppler evaluation demonstrates areas of internal vascularity within the mass (arrows). Given the close proximity of this mass to the extensor tendon sheath (circle) and the presence of internal vascularity, a diagnosis of Giant Cell Tumor of Tendon Sheath (a form of Pigmented Villonodular Synovitis) was favored.

For confirmation of the diagnosis and better anatomic depiction of the lesion and adjacent structures, MRI was performed.

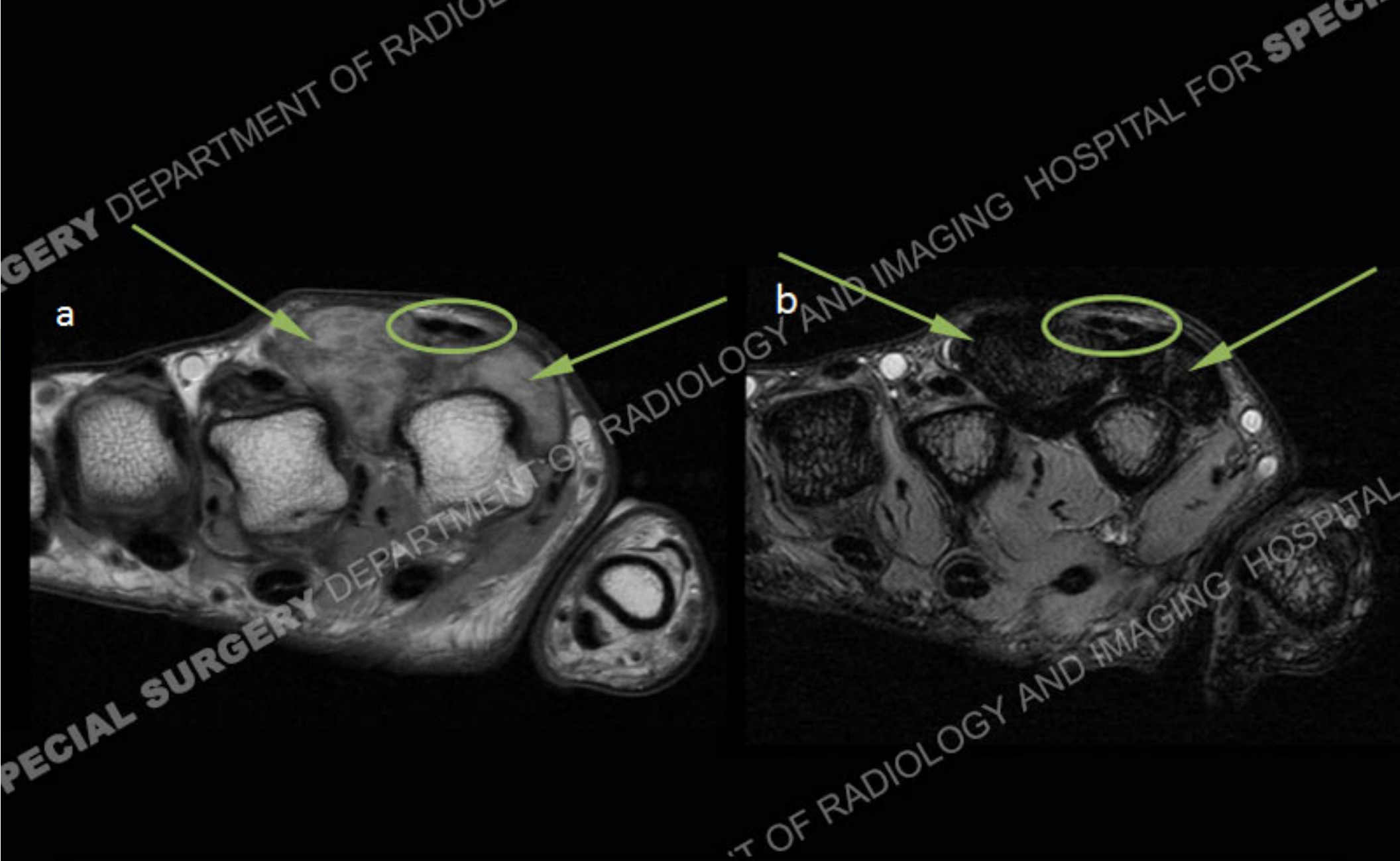
Proton Density, Inversion Recovery, and Gradient Echo sequences were utilized.







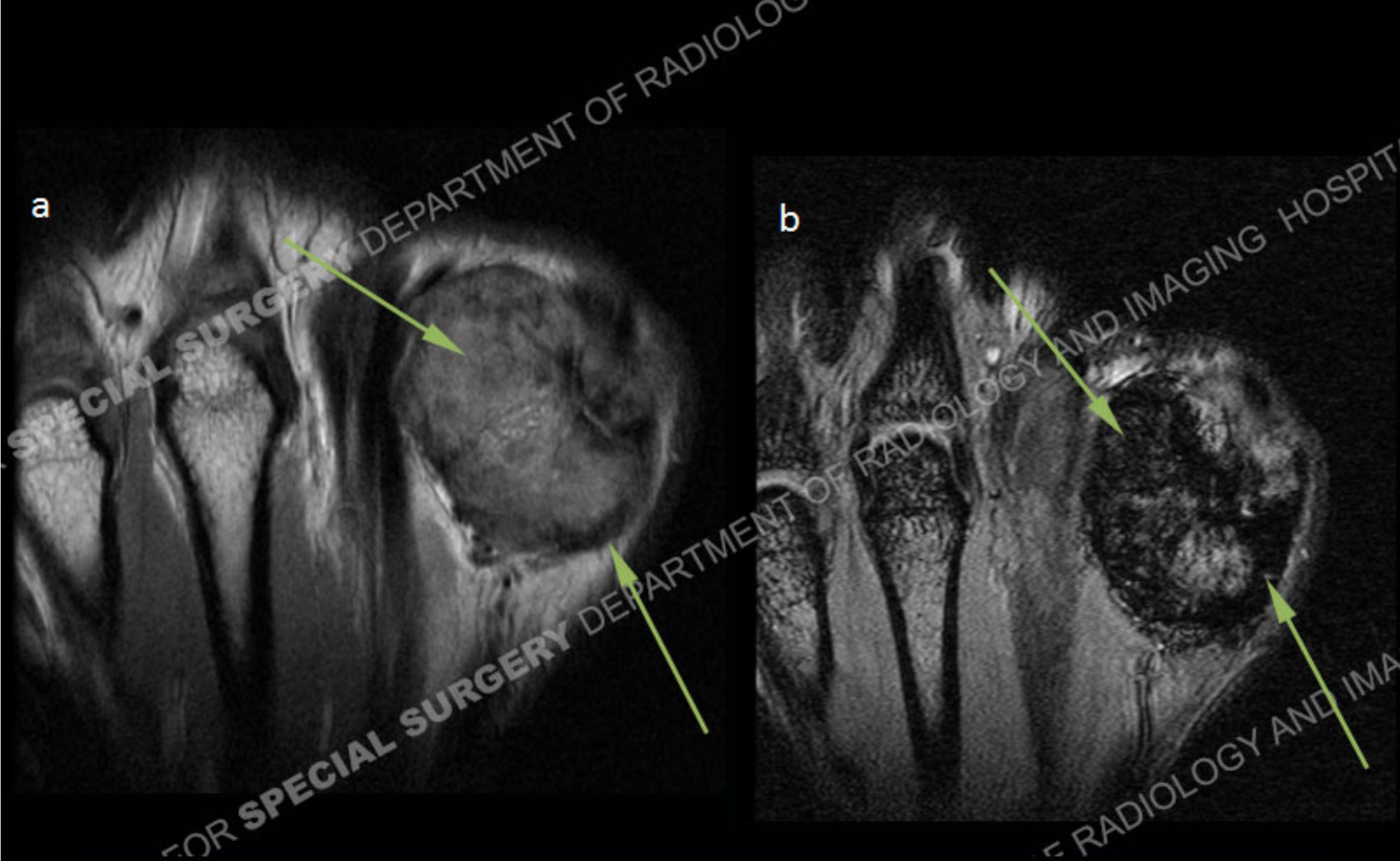
Sagittal proton density (a), sagittal Inversion Recovery (b) and axial Inversion Recovery (c) MR images demonstrate the soft tissue mass (arrows) overlying the distal metacarpals. The proximity of the mass to the extensor tendon sheath of the 2nd digit (circle) is again demonstrated.



Axial proton density (a) and Gradient Echo (b) images demonstrate the mass (arrows). Extensor tendon of 2nd digit (circle) is contiguous with the mass.

The markedly decreased signal intensity seen on the Gradient Echo images is characteristic of hemosiderin content within the lesion. This is referred to as a "blooming artifact" and is virtually pathognomonic for the diagnosis of Pigmented Villonodular Synovitis or Giant Cell Tumor of Tendon Sheath.





Coronal proton density (a) and Gradient Echo (b) images of the mass (arrows). The very low signal intensity of the lesion on the Gradient Echo image again demonstrates the “blooming artifact” previously discussed.

## Diagnosis

Giant Cell Tumor of Tendon Sheath involving the extensor tendon of the 2<sup>nd</sup> digit of the hand

Also referred to as localized nodular tenosynovitis. Pathologically, the tissue is identical to PVNS. Lesions contain histiocyte-like multinucleated cells and fibroblastic cells. Frequently, they contain hemosiderin deposits





## Discussion

Giant Cell Tumor of Tendon Sheath is the second most common hand mass (ganglion cysts are most common).

It not uncommonly also involves tendon sheaths of the feet and less commonly the knee, wrist, or ankle.

Lesions typically present in the 30-50 year age range and are very uncommon in children under 10.

In the hand, a volar as opposed to dorsal location is most common.

The treatment of choice is wide surgical excision.

