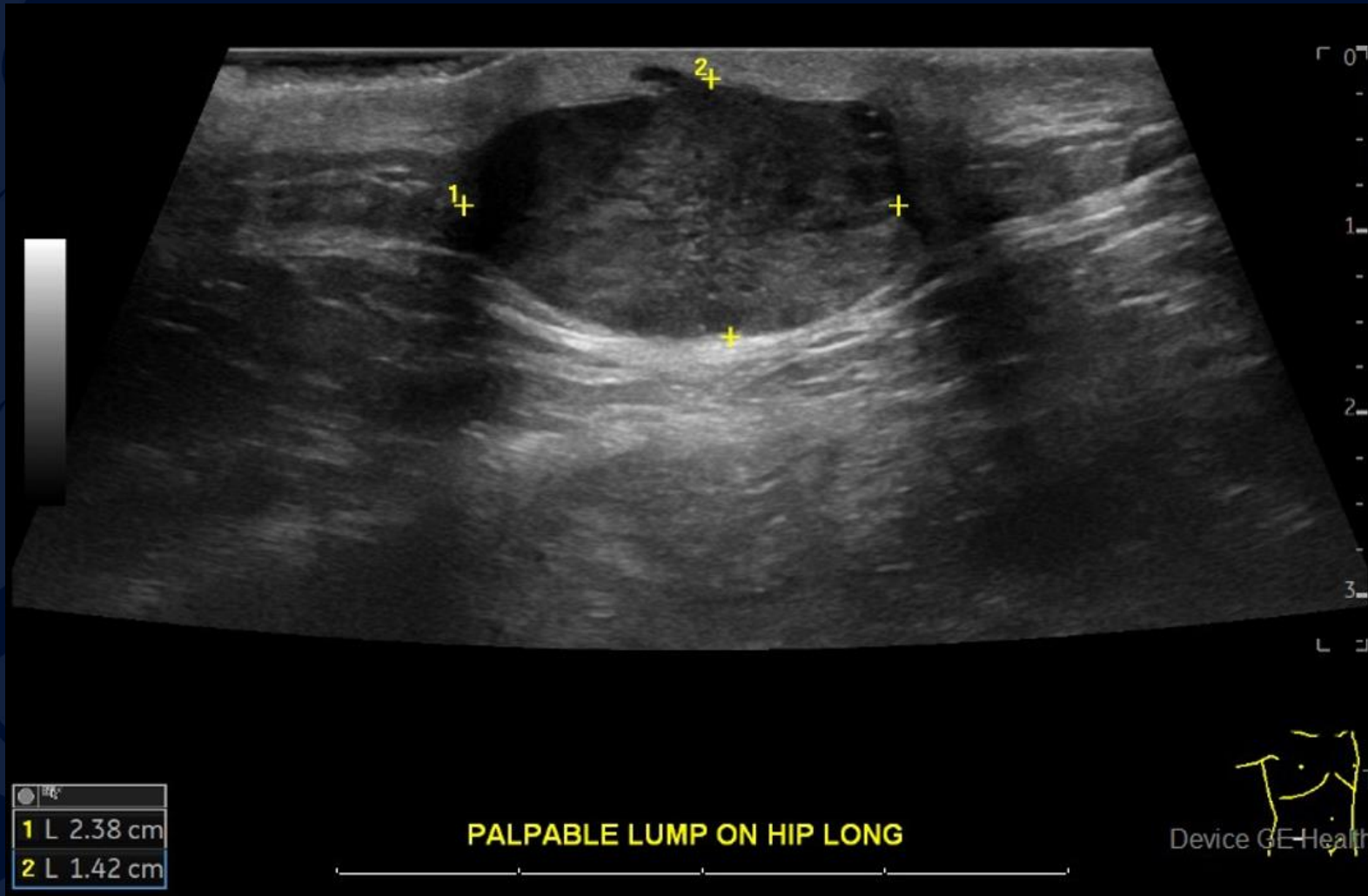


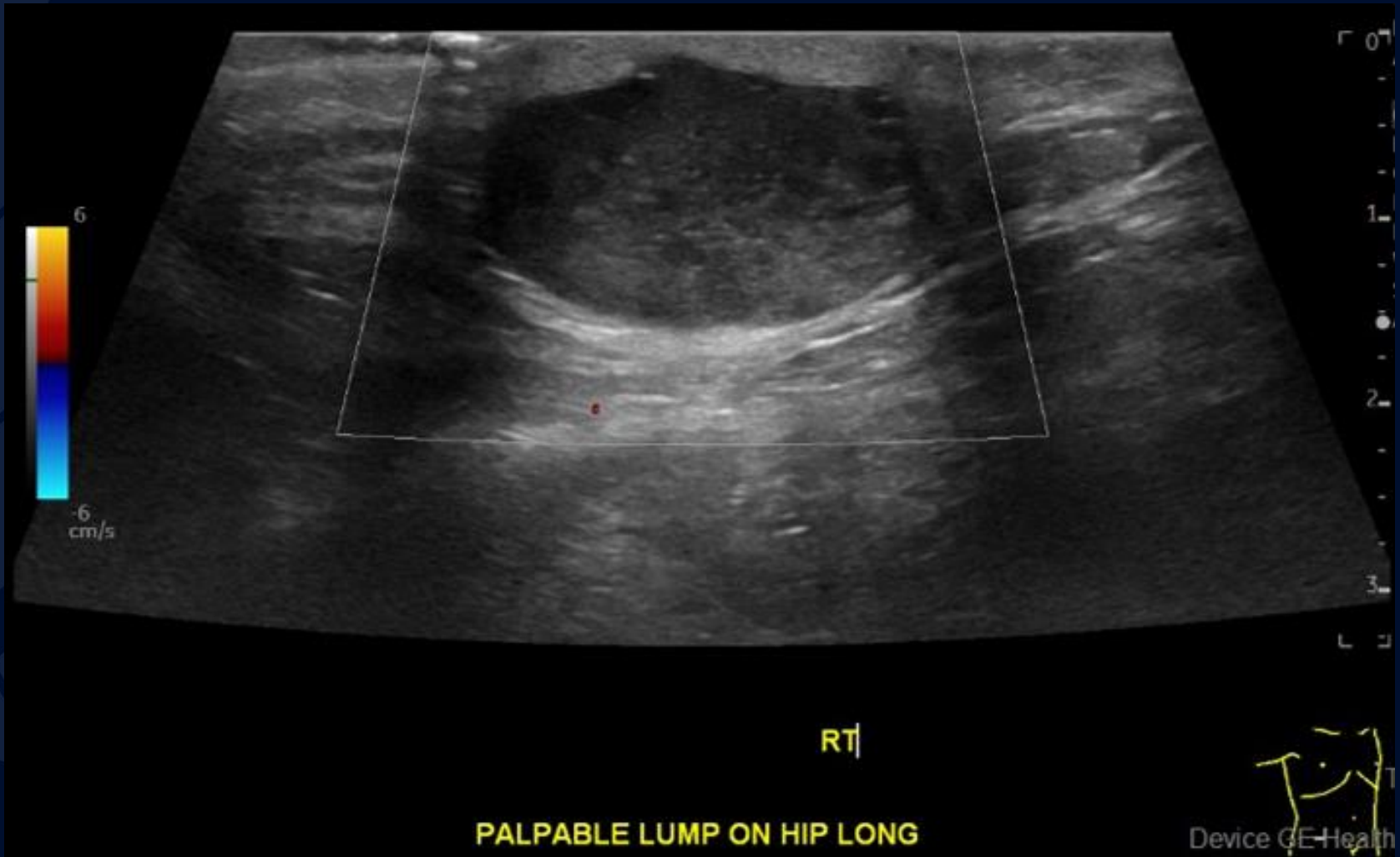
67-year-old male with slow-growing non-tender “lump” in the superficial subcutaneous soft tissues of the right hip

Joseph Ryan, MD, PhD  
Carlos Badiola, MD, JD

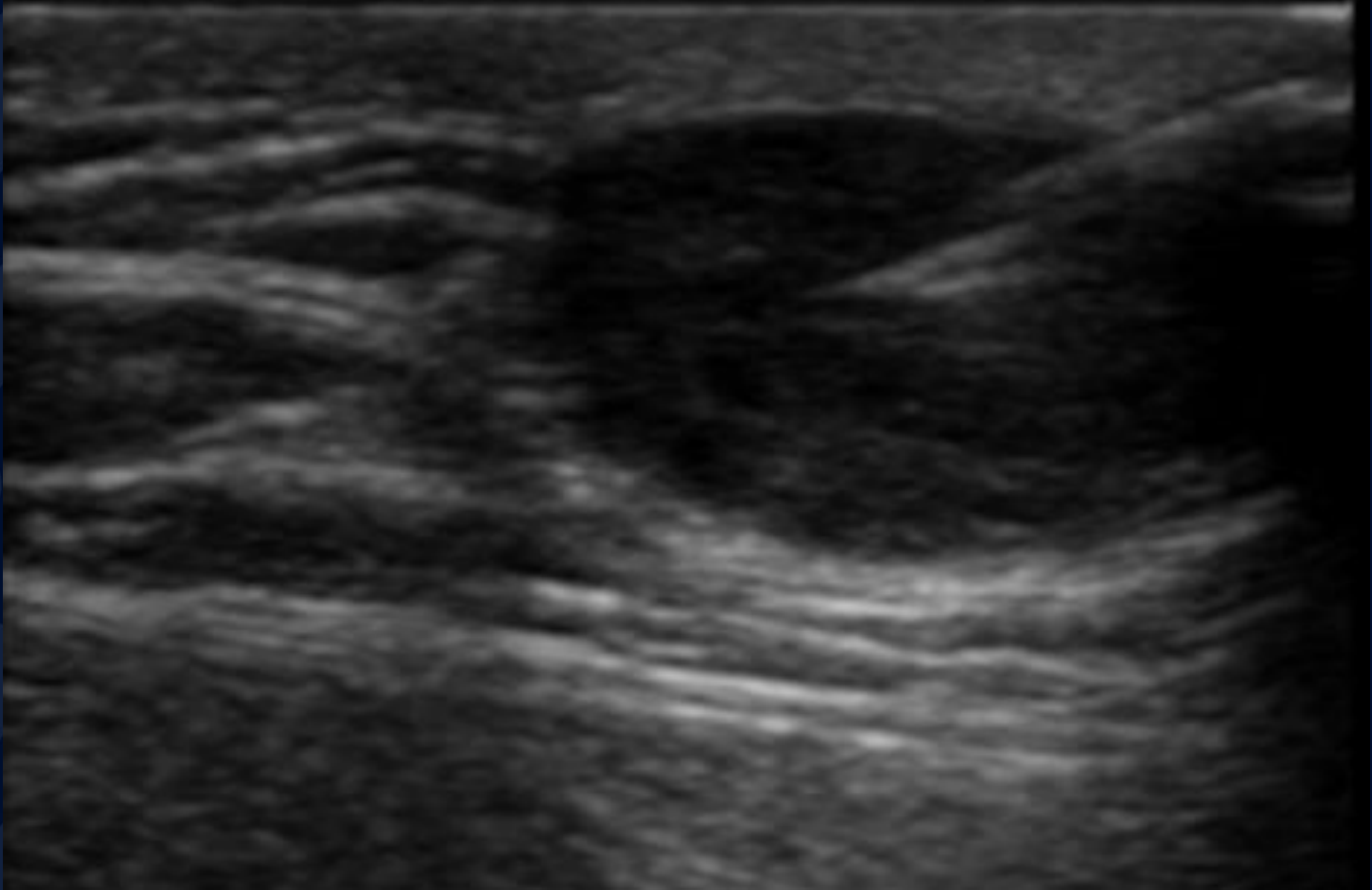
# Ultrasound Grey-Scale



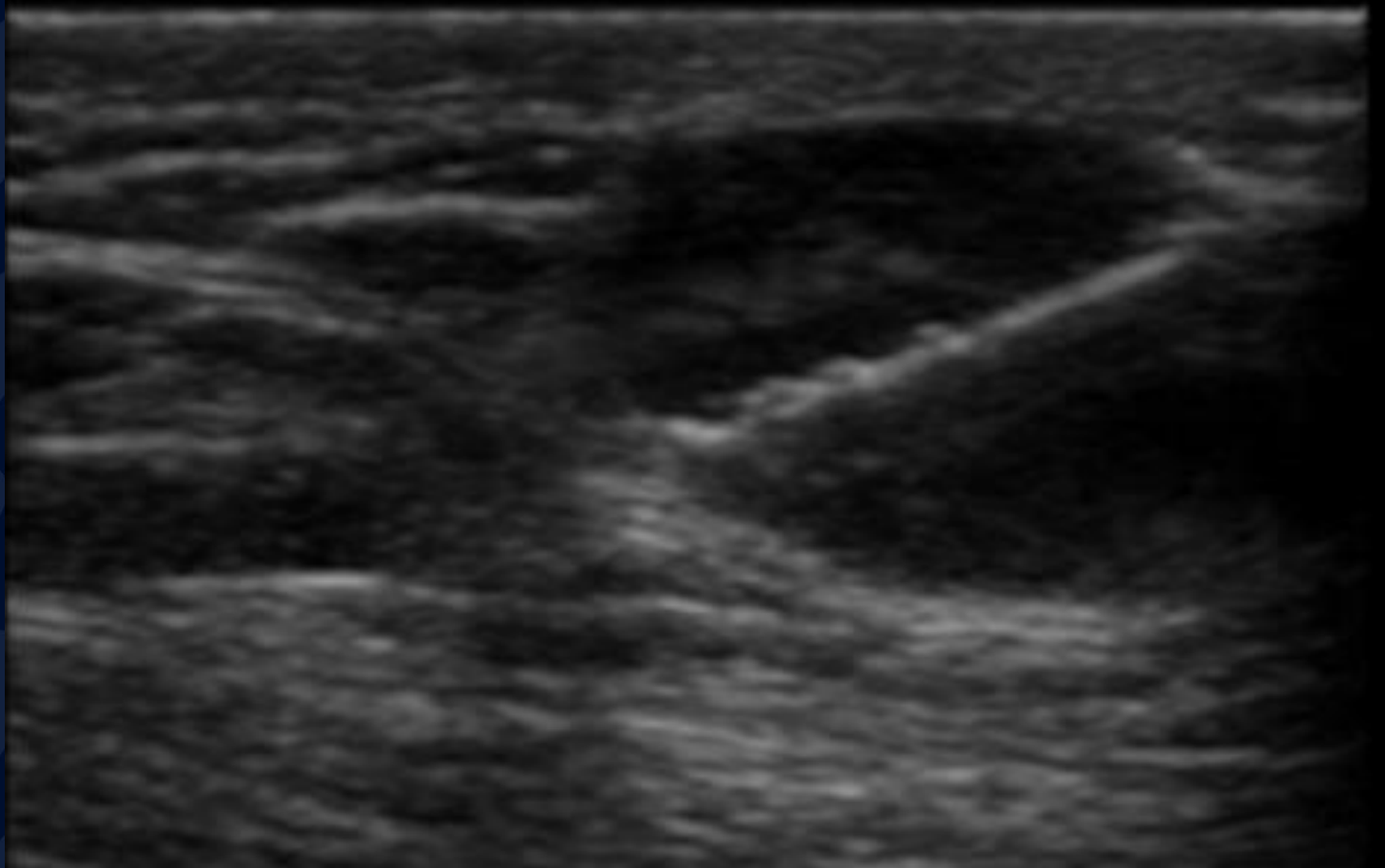
# Ultrasound Color Doppler



# Ultrasound-Guided Core Needle Biopsy



# Ultrasound-Guided Core Needle Biopsy



A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide. The leaf has a prominent central vein and several smaller veins branching off it. The leaf's edge is serrated.

?

# Epidermal Inclusion Cyst

# Epidermal Inclusion Cysts

- Epidermal inclusion cysts are relatively common cutaneous lesions caused by proliferation of squamous epithelial cells within the dermis or subdermal space, appearing as well-circumscribed masses within or just deep to the skin.
  - Epidermal inclusion cysts have an epidermal lining and originate in the follicular infundibulum.
  - “Epidermoid cyst” is another synonymous term occasionally used.
  - “Sebaceous cyst” is often used as a synonymous term, though is technically a misnomer, since the origin is not the sebaceous glands. Sebaceous cysts (aka “dermoid cysts”) arise from obstruction of a sebaceous gland and have an epithelial lining.
- Clinically presents as non-tender firm “lump” palpated or found incidentally
  - Typical locations: scalp, face, neck, trunk, back (however can occur anywhere); rarely can occur in bones (i.e., intraosseous epidermoid cyst)
- Proposed etiologies: traumatic/iatrogenic implantation of epidermis into the dermis, pilosebaceous unit occlusion, congenital cell rests, HPV types 57/60 (palmoplantar locations)



# Imaging Features

- Ultrasound
  - Well-circumscribed, usually ovoid/spherical, hypoechoic relative to subcutaneous fat
  - Can mimic anechoic or complex cysts when small
  - Heterogenous when large (due to mucoid, fat, calcific, purulent components)
  - Usually little to no vascularity
  - Variable appearance when ruptured, occasionally with vascularity, lobulation, twinkle artifact
- CT
  - Well-circumscribed, thin sclerotic margins, density similar to simple fluid
- MRI
  - Imaging features similar to CNS epidermoid cysts and cholesteatomas (i.e., cystic contents follow CSF and water on all sequences)
  - Low/intermediate T1 signal, high T2 signal, no internal enhancement (however can have thin peripheral enhancement)
  - Can have some diffusion restriction with superimposed T2 shine-through
  - When ruptured, can have thin septa, thick/irregular rim enhancement, associated hazy enhancement of adjacent soft tissues

# Epidermal Inclusion Cysts

- Differential diagnosis
  - Lipoma
  - Pilomatricoma
  - Ganglion cyst (if near a joint)
  - Neurofibroma
  - Nodular fasciitis
  - Myxoid tumor
  - Dermatofibrosarcoma protuberans
- Potential complications
  - Local rupture triggering local inflammation that can mimic infection
  - Rare malignant transformation to SCC
- Management
  - Epidermal inclusion cysts are benign, non-tender, and generally don't require treatment
  - Incision and drainage if infected
  - Excision if continues growth or suspicion for malignant degeneration

# References

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