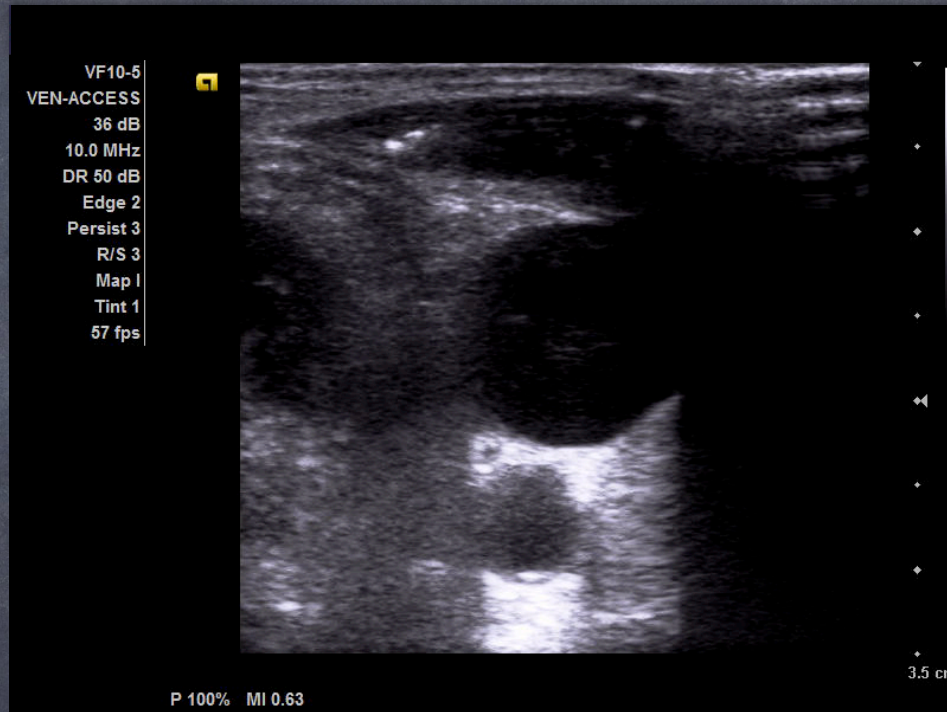


Lower Extremity DVT



Ken Cody, MD

KP Oakland/Richmond Emergency Medicine

Thank you
Justin Davis and Brie Zaia

2012 ACCP Guidelines

CHEST

Supplement

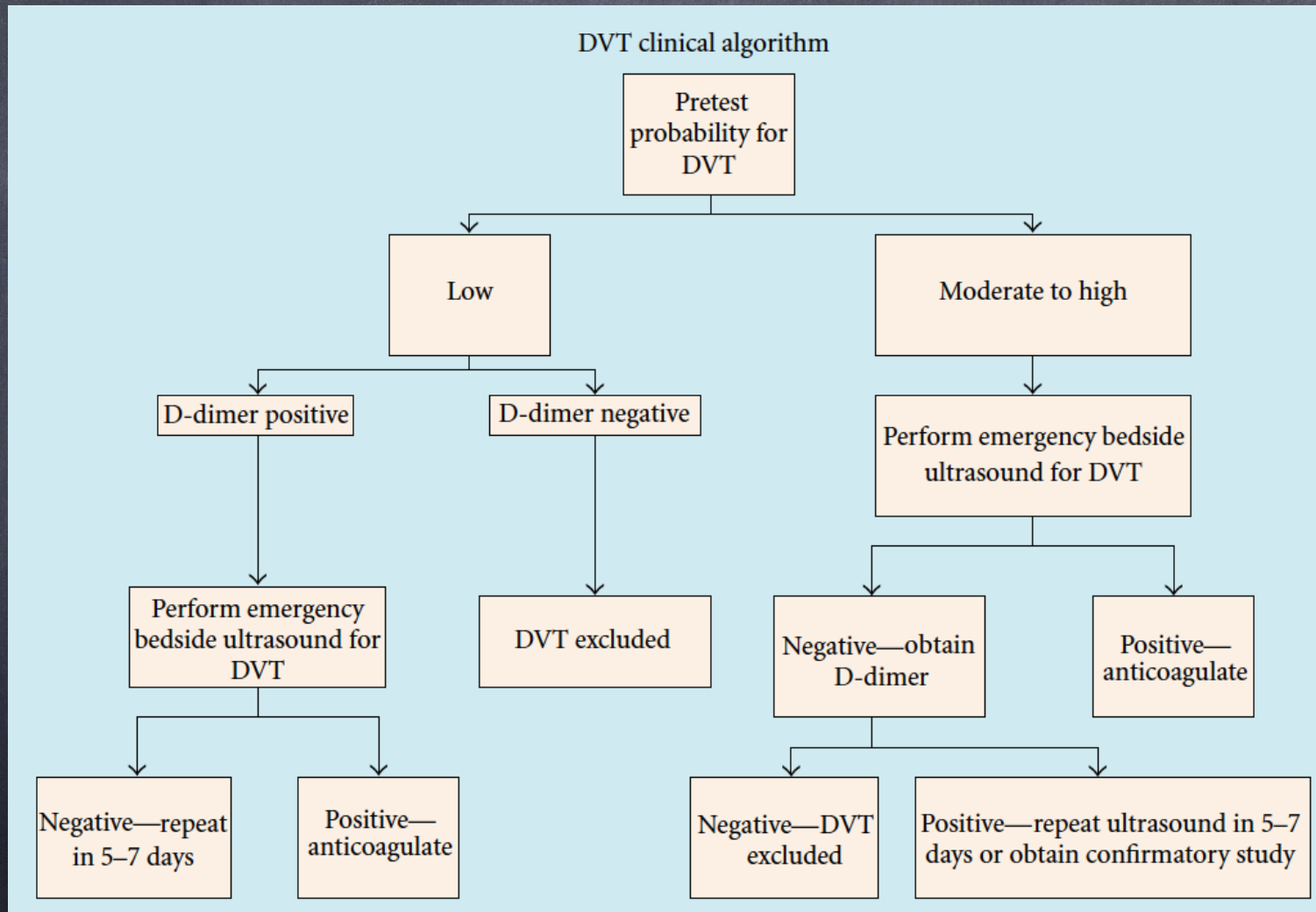
ANTITHROMBOTIC THERAPY AND PREVENTION OF THROMBOSIS, 9TH ED: ACCP GUIDELINES

Antithrombotic Therapy for VTE Disease

**Antithrombotic Therapy and Prevention of Thrombosis,
9th ed: American College of Chest Physicians
Evidence-Based Clinical Practice Guidelines**

*Clive Kearon, MD, PhD; Elie A. Akl, MD, MPH, PhD; Anthony J. Comerota, MD;
Paolo Prandoni, MD, PhD; Henri Bounameaux, MD; Samuel Z. Goldhaber, MD, FCCP;
Michael E. Nelson, MD, FCCP; Philip S. Wells, MD; Michael K. Gould, MD, FCCP;
Francesco Dentali, MD; Mark Crowther, MD; and Susan R. Kahn, MD*

ACEP 2009 Guideline



Lower Extremity DVT

- Common (incidence 1 per 1000 annually in USA)
- Estimated 1/2 of untreated proximal DVTs will develop PE
- Life-threatening condition
- Symptoms nonspecific and half of patients asymptomatic
- Clinical exam neither sensitive nor specific
- limited compression ultrasound (CUS): cost-effective, portable, simple, noninvasive, accurate, no radiation

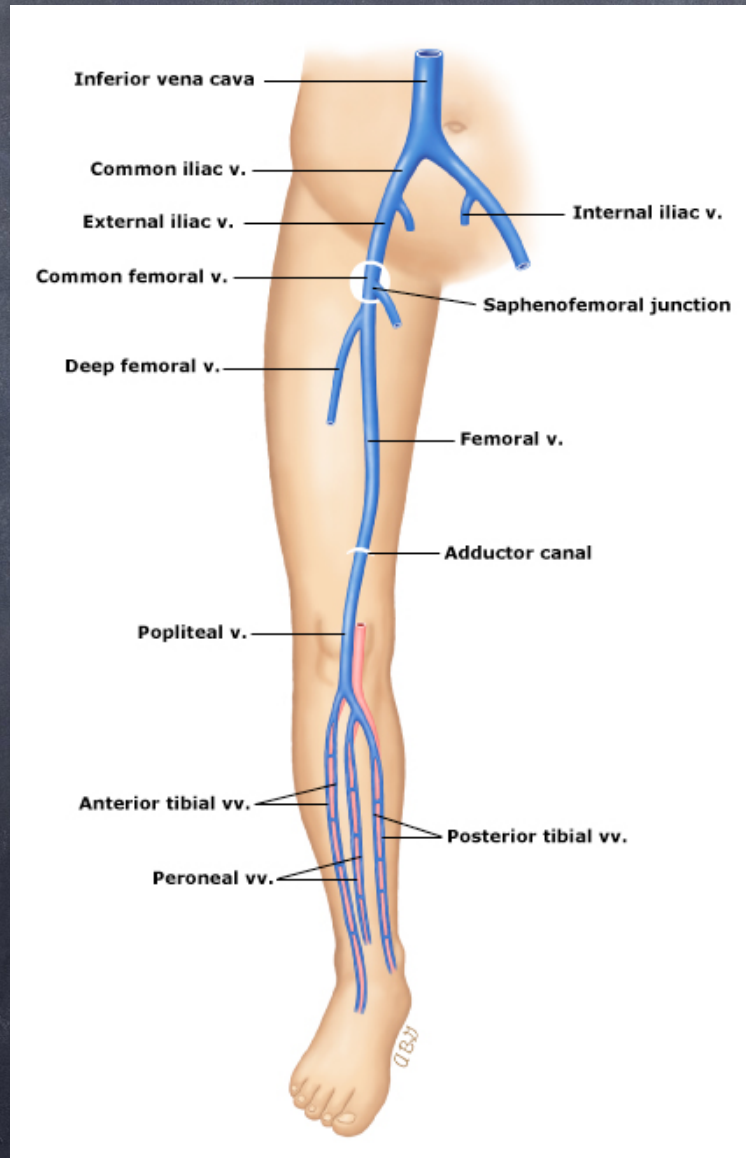
CUS Technique

- Without and with pressure
- Lack of compressibility
- Two-point versus three-point

Image Acquisition

- high-frequency linear transducer (consider curvilinear if obese)
- lack of compressibility main determinant of positive study (need pressure sufficient to begin to deform artery)
- echogenic clot (but clot can be anechoic and look like blood)
- branch points susceptible to clot
- transverse orientation at CFV and GSV junction is where we start AND compress every 1 to 2 cm
- *Fox, et al. Emergency Physician performed US for DVT evaluation. Thrombosis, Vol 2011, Article ID 938709.

Anatomy



PROGRESSIVE CLINICAL PRACTICE—JUNE 2008

Systematic Review of Emergency Physician–performed Ultrasonography for Lower-Extremity Deep Vein Thrombosis

Patrick R. Burnside, MD, Michael D. Brown, MD, MSc, Jeffrey A. Kline, MD

Burnside, et al. *Academic Emergency Medicine* 2008;15:493–498.

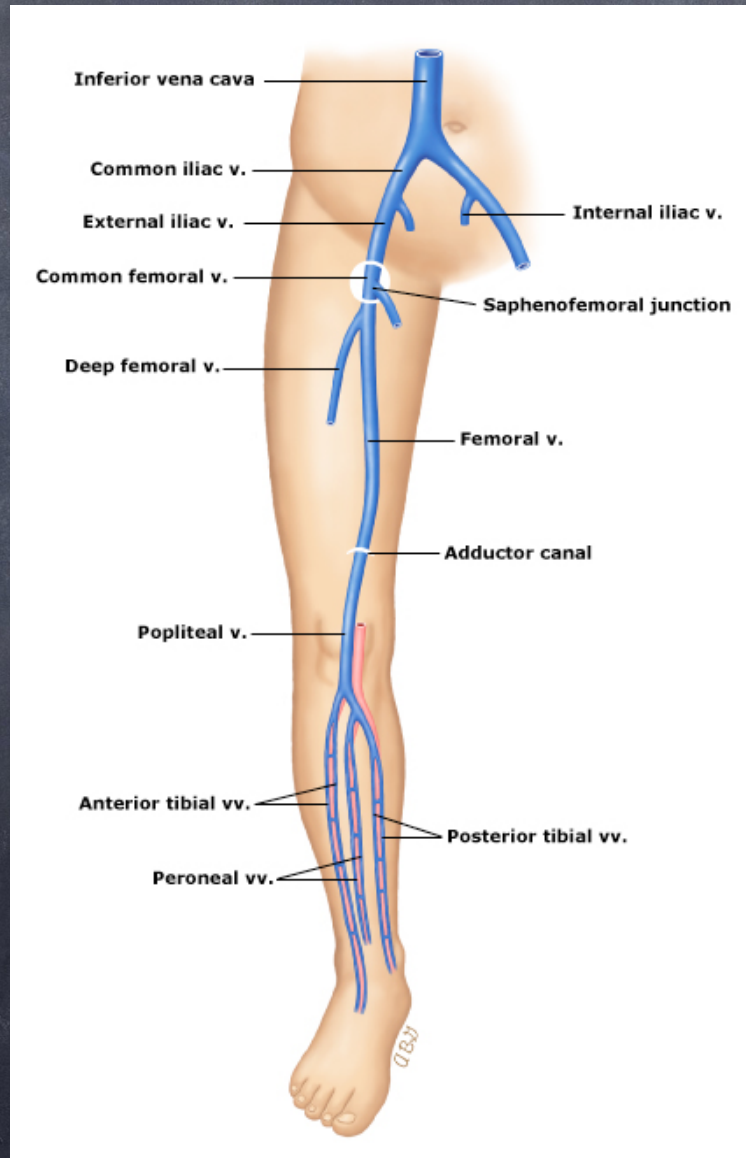
Accuracy of Ultrasonography Performed by Critical Care Physicians for the Diagnosis of DVT

*Pierre D. Kory, MD, MPA; Crescens M. Pellecchia, DO; Ariel L. Shiloh, MD;
Paul H. Mayo, MD, FCCP; Christopher DiBello, MD; and Seth Koenig, MD*

Kory, et al.

- Critical Care Physicians used three-point compression
- Based on previous study of asymptomatic postoperative patients with 17.8% of DVTs isolated to the superficial femoral vein
- Did not image calf veins: risk of anticoagulation; ACCP IIB only for calf thrombosis; only 10% migrate proximally
- Ascani, et al. Distribution and occlusiveness of thrombi in patients with surveillance detected deep vein thrombosis after hip surgery. *Thromb Haemost.* 1996 Feb;75(2):239-241.

Anatomy



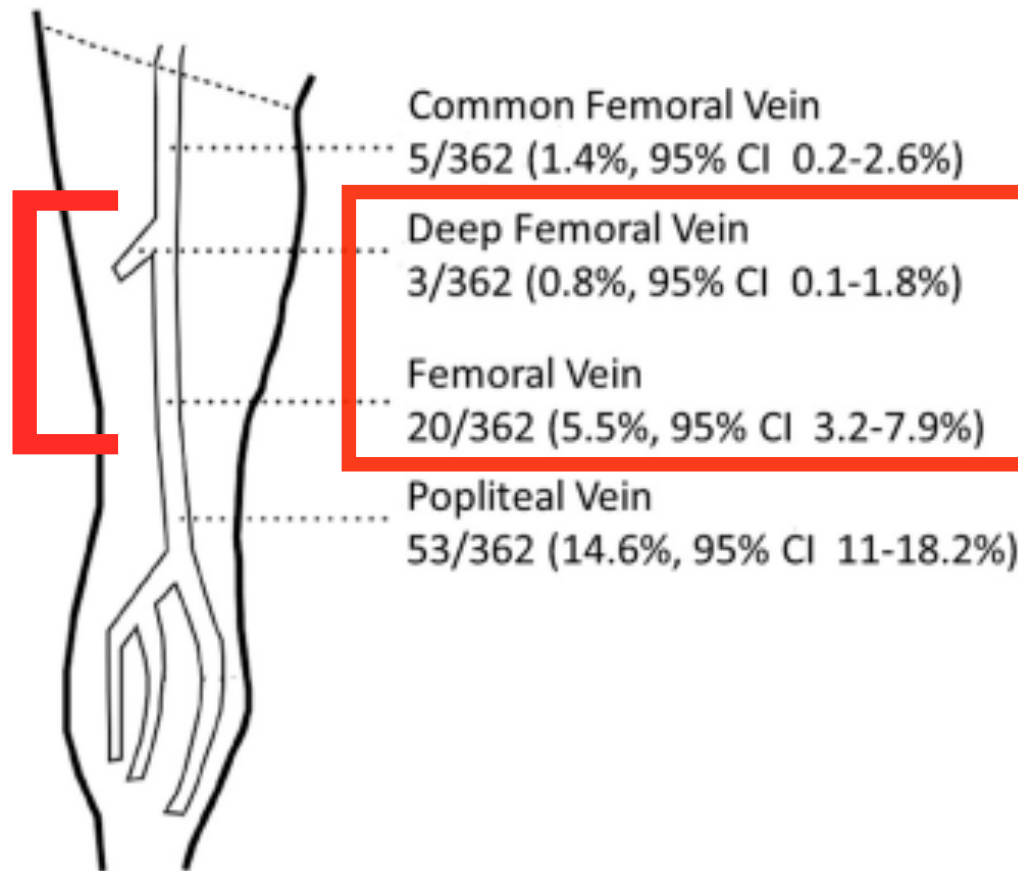
AIUM 2010 Practice Guidelines; Peripheral venous ultrasound

Practice Guideline for the Performance of Peripheral Venous Ultrasound Examinations

*Guideline developed in collaboration with the American College of Radiology
and the Society of Radiologists in Ultrasound.*

Distribution of Proximal DVTs

Conclusion: In our study, veins other than common femoral vein evaluation that this does not have a



olated thrombi in proximal of femoral and deep popliteal vein, assuming

Isolated DVTs
Compre

Srikanth

is for 2-Point
Extremity

Fields, MD

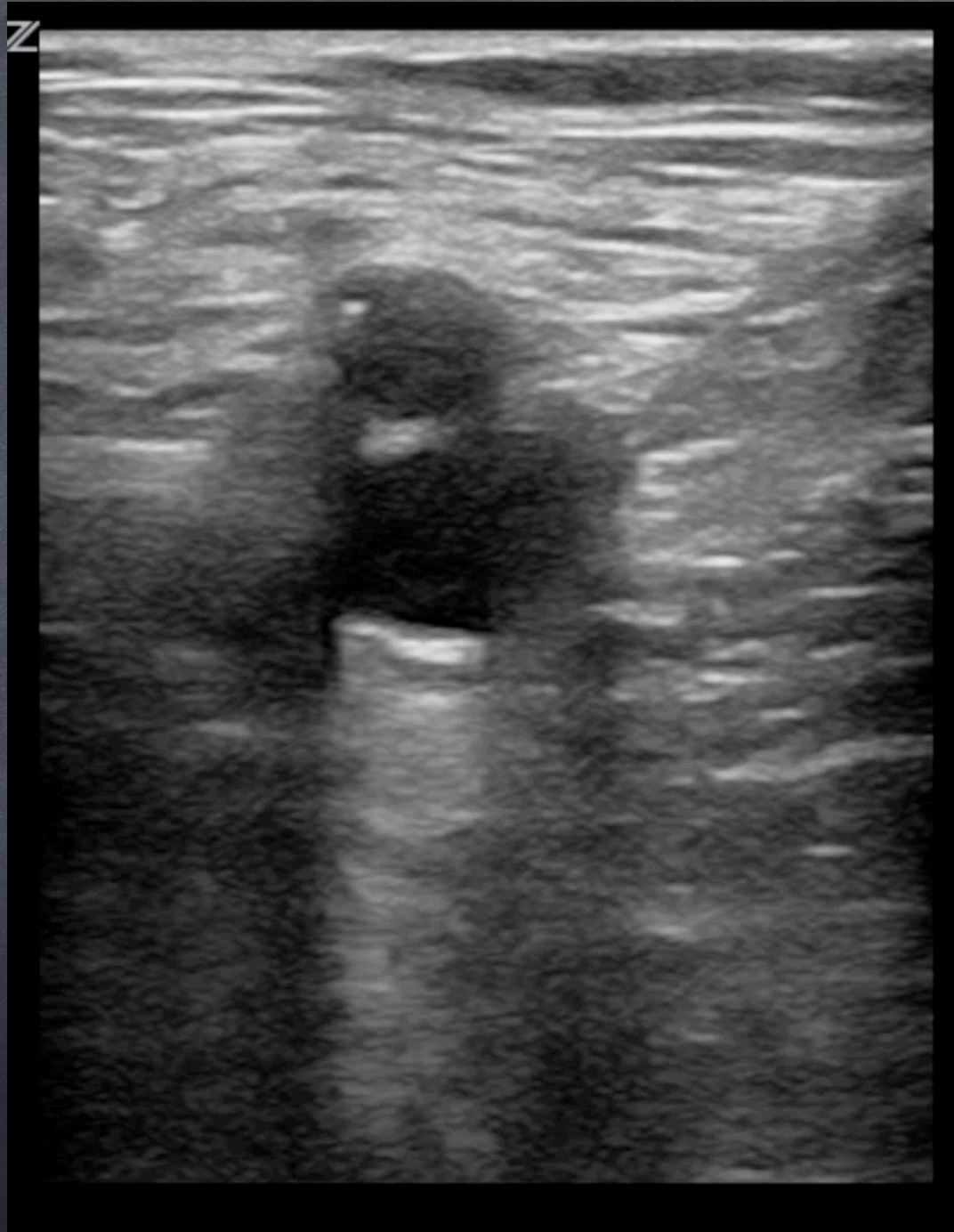
Figure. Distribution of isolated proximal vein thrombi.

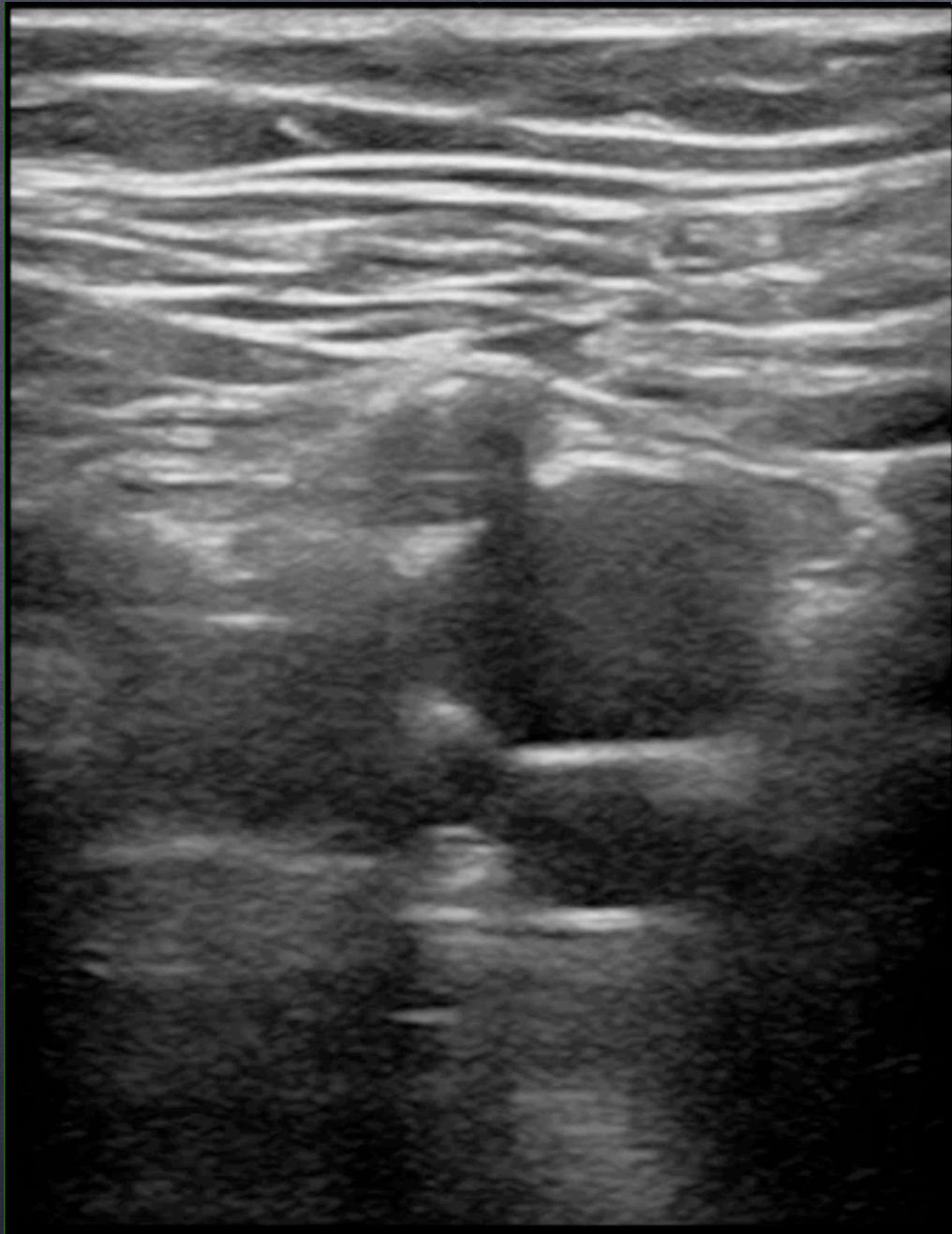




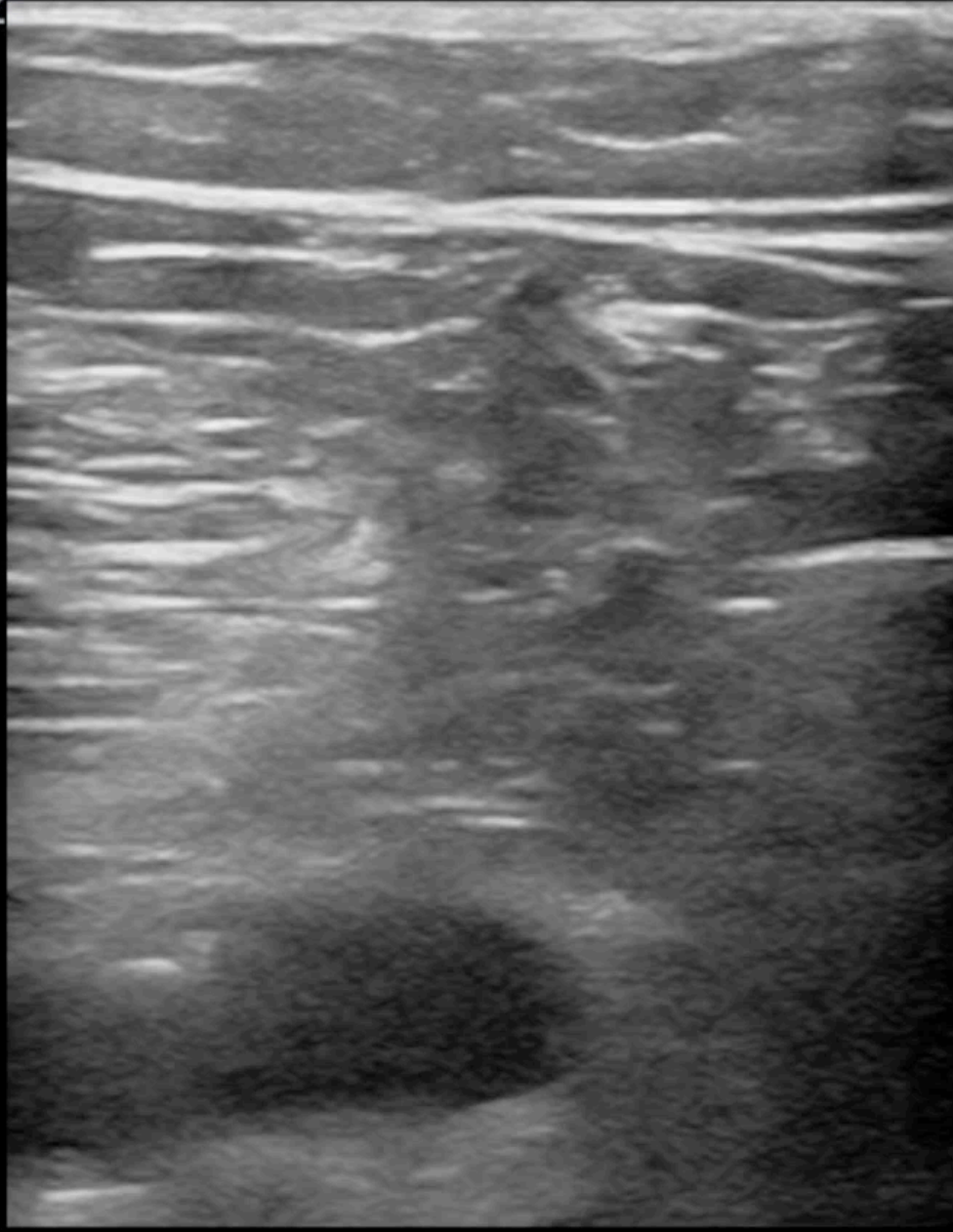
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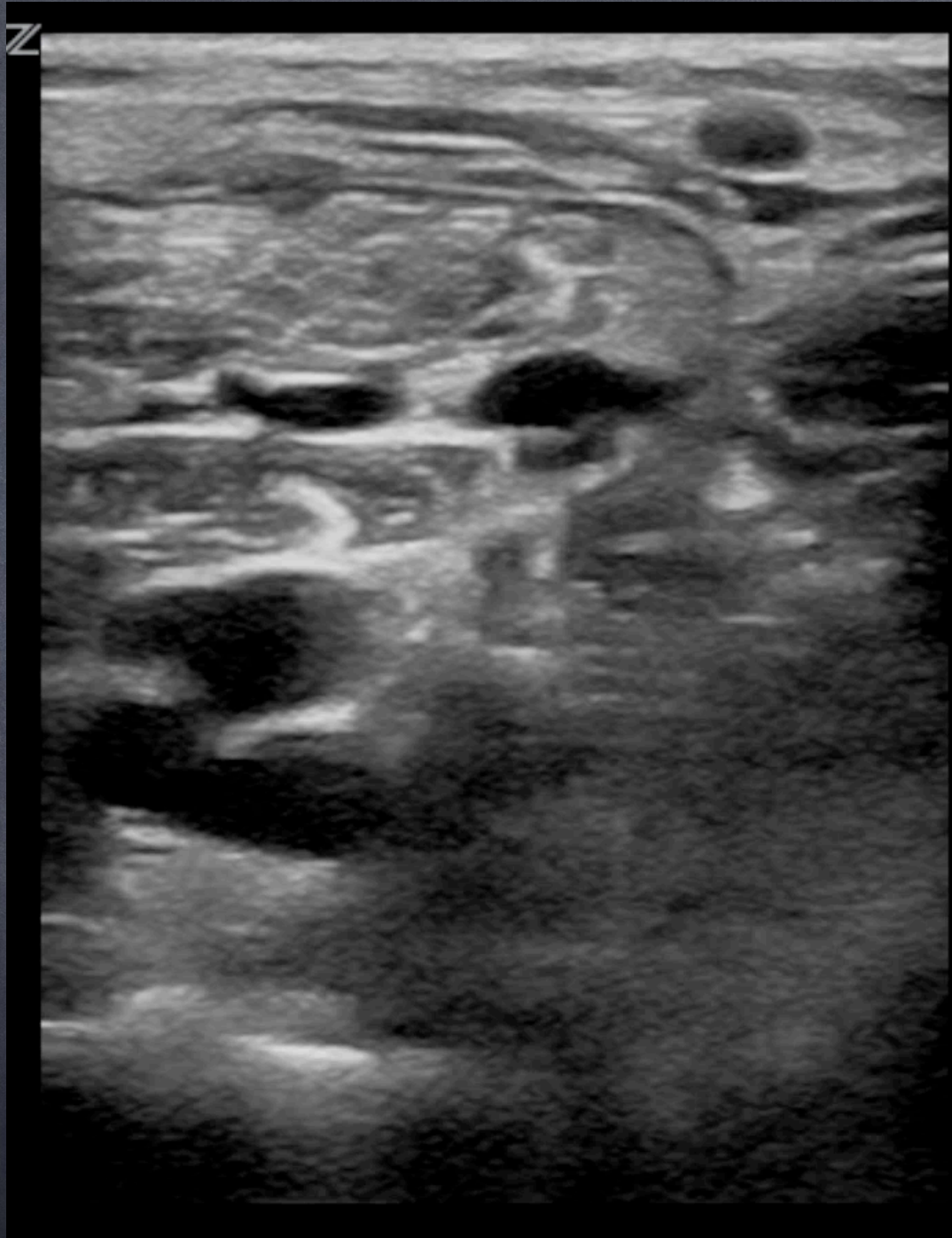


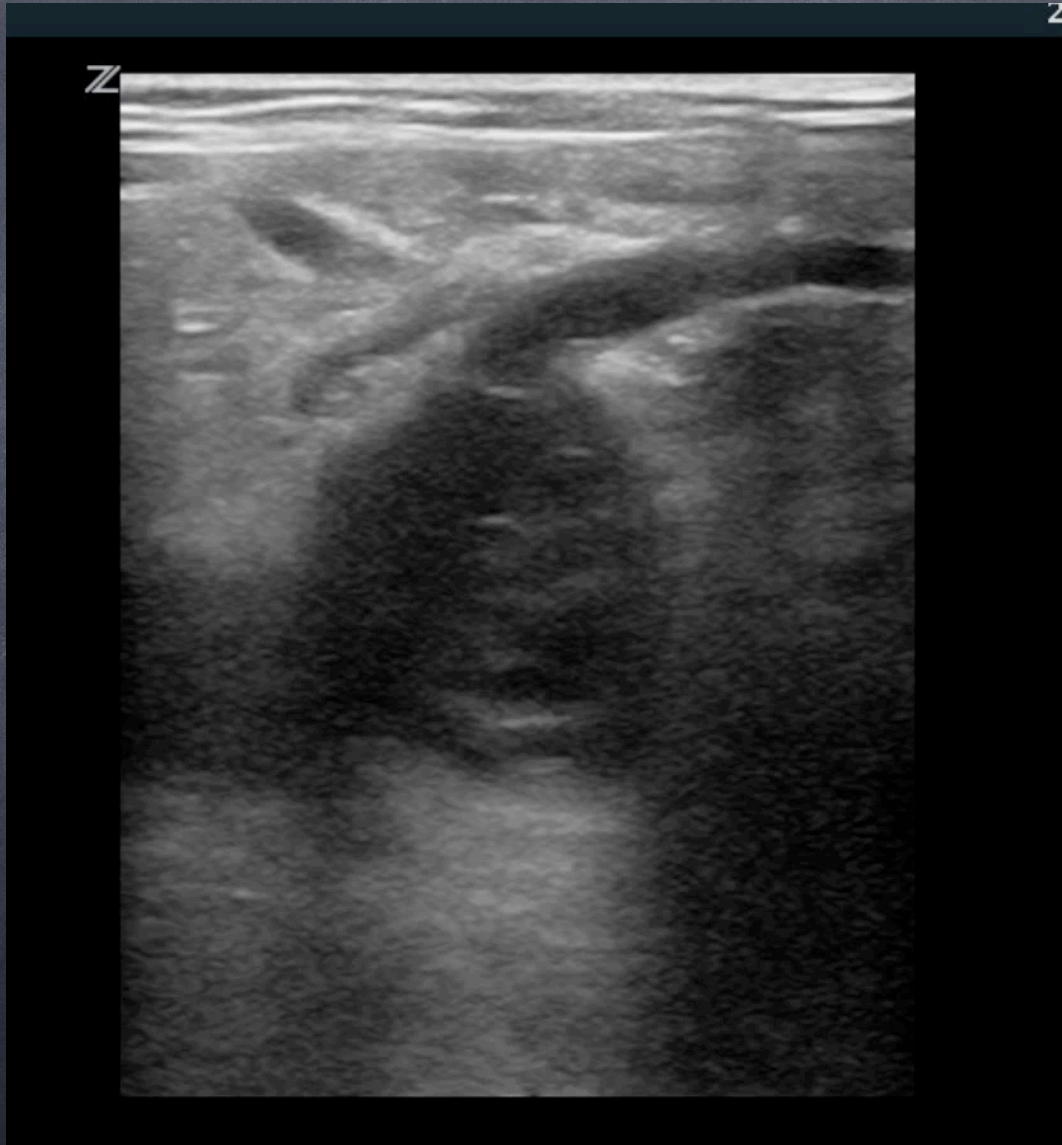




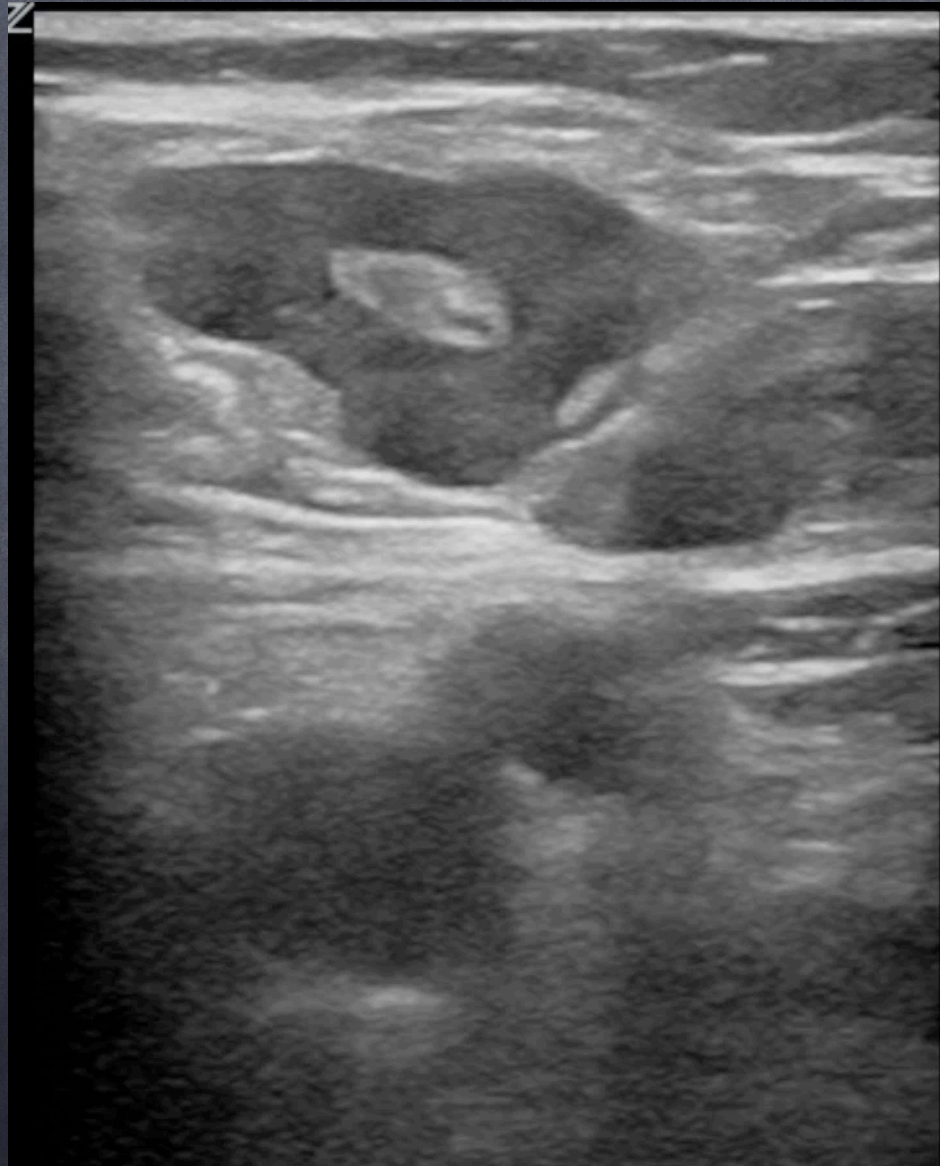
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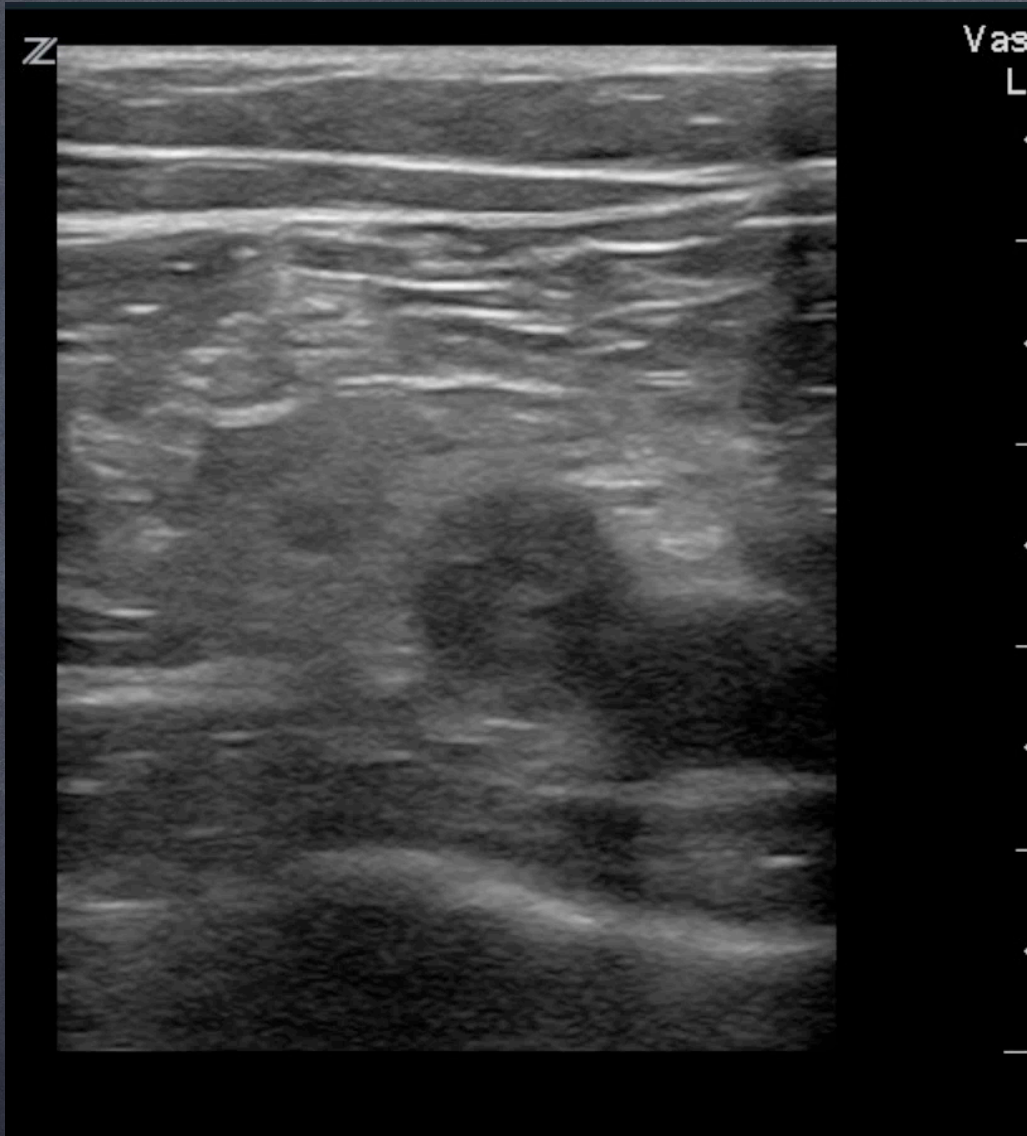




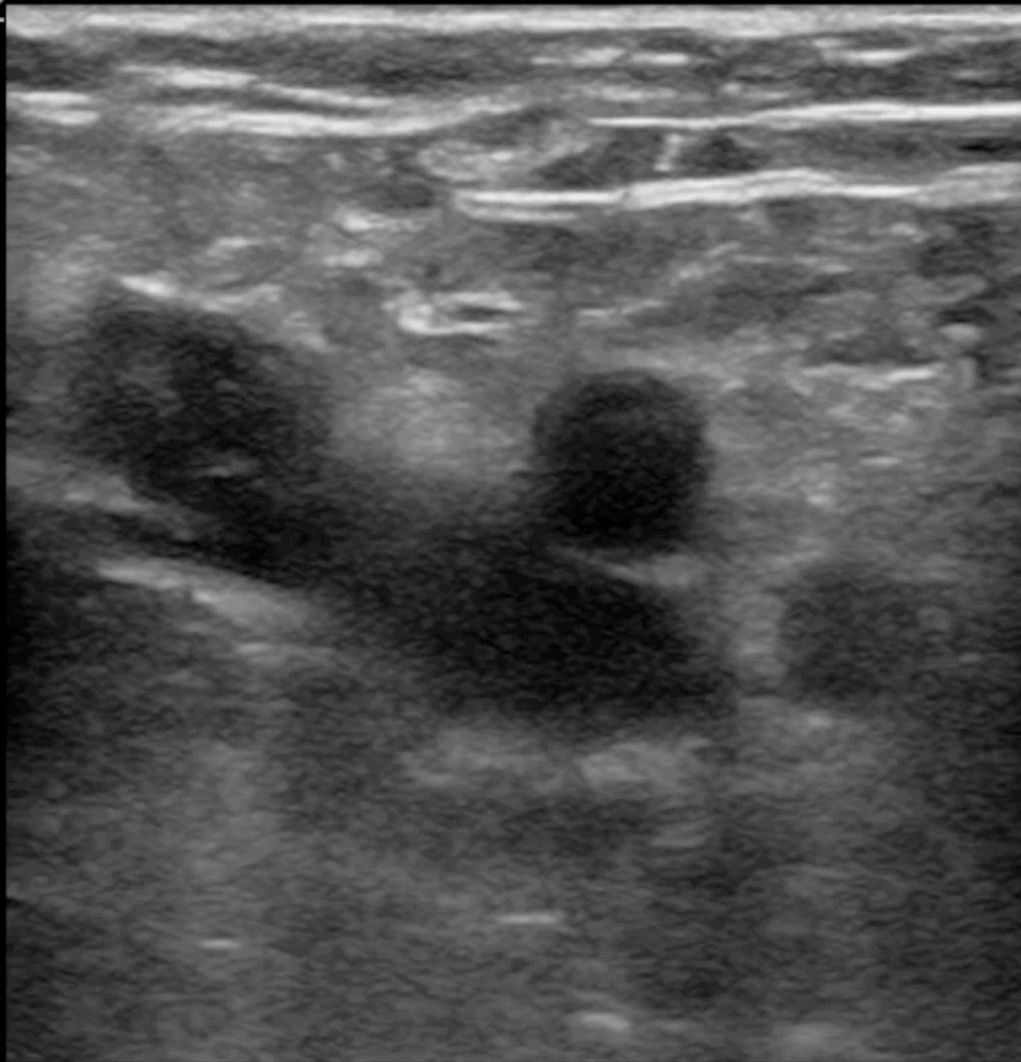


Lymph Nodes





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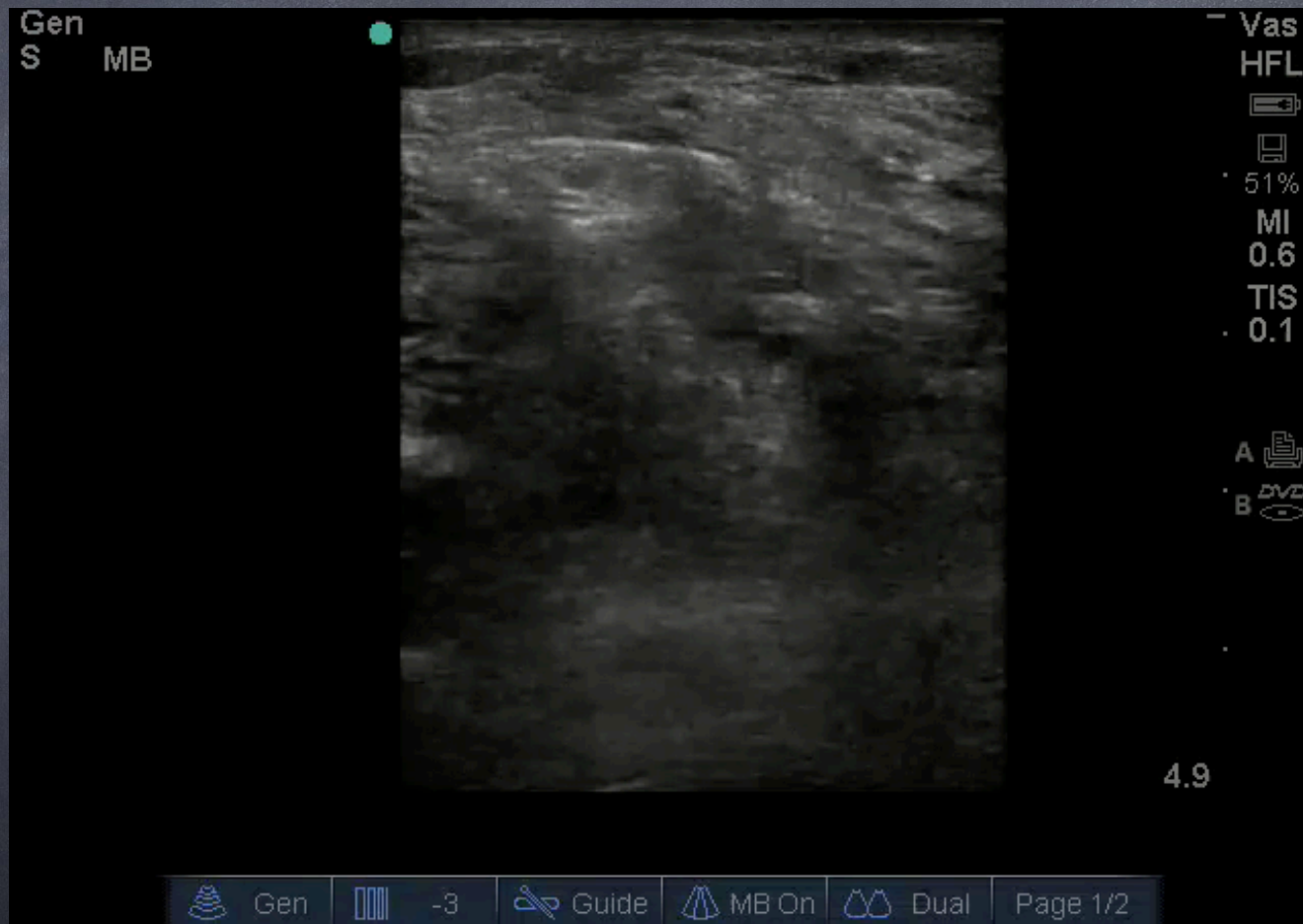
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GS
M



Case report

- 84 year old male with right leg pain/swelling
- ED Physician noted difficulty compressing veins
- Radiology US with external iliac vein thrombosis
- 2% DVTs are pelvic vein thrombosis
- Bramante, et al. Near-miss in focused lower-extremity ultrasound for deep vein thrombosis. Journal of Emerg Med 2013,Vol45,No2,pp236-239.

91 male with calf pain



Baker's Cyst



Limitations of CUS

- operator dependent
- obesity
- abdominal, pelvic and calf thrombi

Questions?

