ULTRASOUND NEWS

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Carotid intima thickness assessed using high-resolution ultrasound as a structural correlate of endothelial dysfunction

Bi-xiao Shen[1*], Zheng-qiu Zhu[1*], Xue-hui Ma[1], Yin-ping Wang[1], Xue-zhong Jiang[2], Chong Zou[3,4], Hui Gao[1], Ping Dai[1], Yi-yun Wu[1], Hui Huang[1]

[1]Department of Ultrasound, Affiliated Hospital of Nanjing University of Chinese Medicine, Jiangsu Province Hospital of Chinese Medicine, Nanjing; [2]Department of Ultrasound, Jiangsu Province Geriatric Hospital, Geriatric Hospital of Nanjing Medical University, Nanjing; [3]Department of Cardiology, Affiliated Hospital of Nanjing University of Chinese Medicine, Jiangsu Province Hospital of Chinese Medicine, Nanjing; [4]Center of Good Clinical Practice, Affiliated Hospital of Nanjing University of Chinese Medicine, Jiangsu Province Hospital of Chinese Medicine, Nanjing, China

ULTRA SONO GRAPHY

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Purpose: This study evaluated the association between carotid intima thickness (cIT), measured using high-resolution ultrasound, and endothelial cell dysfunction (ECD), assessed using flow-mediated dilation (FMD), for early atherosclerosis risk assessment.

Methods: Between January and December 2024, 102 middle-aged nonsmoking participants were prospectively recruited; 66 were included in the final analysis and classified into a risk group (n=44) or control group (n=22) according to the presence or absence of at least one conventional cardiovascular risk factor. Data collected included demographic characteristics, physical measurements, laboratory findings, cIT, carotid media thickness (cMT), and carotid intima-media thickness (cIMT). After 5 minutes of forearm occlusion, brachial artery diameters were measured at baseline and at 30, 60, and 120 seconds after cuff deflation during systole and diastole, and FMD indices were calculated. Receiver operating characteristic (ROC) curve analysis was performed, with differences between the ROC curves evaluated using the Hanley-McNeil test.

Results: Compared with the control group, the risk group had greater cIT (P<0.001) and cIMT (P=0.016) and generally lower FMD indices. cMT did not differ significantly between groups (P=0.595). Among carotid ultrasound parameters, cIT showed the strongest association with atherosclerosis risk (standardized β=0.489, P<0.05) and the strongest inverse correlation with systolic FMD measured 60 seconds after cuff deflation (FMD_{S60}; ρ=–0.689, adjusted P=0.001). In ROC analysis, cIT generally showed better performance for identifying ECD than cMT and cIMT, with a maximum area under the curve of 0.896 (P<0.001).

Conclusion: High-resolution ultrasound measurement of cIT may provide a noninvasive imaging marker of early endothelial dysfunction.

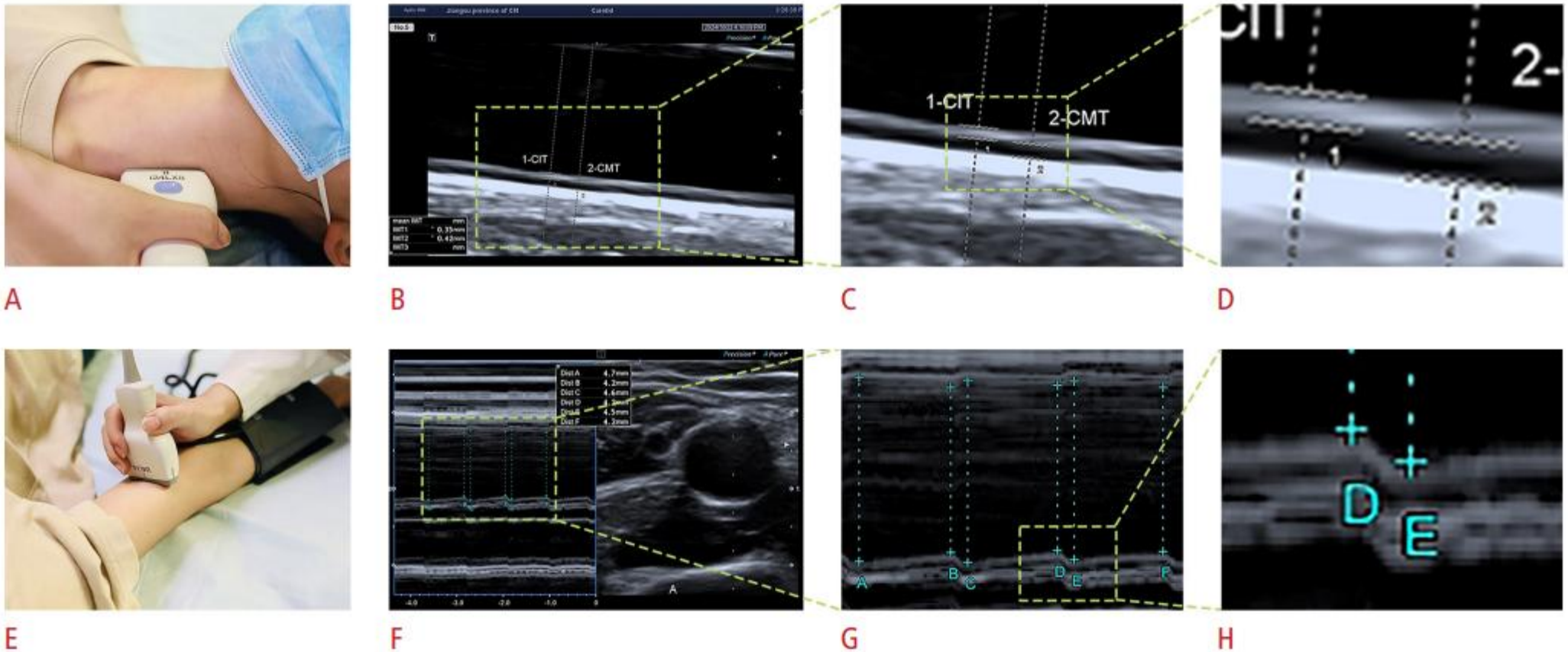


Fig. 2. High-resolution ultrasound measurement of carotid arterial wall thickness and brachial artery flow-mediated dilation (FMD).
A–D. Longitudinal B-mode ultrasound images of the carotid artery show measurements of carotid intima thickness (cIT), carotid media thickness (cMT), and carotid intima-media thickness. E–H. Transverse M-mode ultrasound images of the brachial artery show FMD measurements. "Dist A," "Dist C," and "Dist E" indicate the inner arterial diameters measured during systole, whereas "Dist B," "Dist D," and "Dist F" indicate the inner arterial diameters measured during diastole.

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Microflow imaging versus color Doppler imaging for differentiating malignant from non-neoplastic peripheral lung lesions

Mustafa Yeşilyurt[1], Ahmet Tuğrul Akkuş[1], Buğra Kerget[2], Fahri Aydin[1], Adem Karaman[1], Fatih Alper[1]

[1]Department of Radiology, Faculty of Medicine, Atatürk University, Erzurum, Turkey
[2]Department of Pulmonary Medicine, Faculty of Medicine, Atatürk University, Erzurum, Turkey

Correspondence to: Mustafa Yeşilyurt, MD, Department of Radiology, Faculty of Medicine, Atatürk University, 25040 Erzurum, Turkey Tel. +90-442-344-6920 Fax. +90-442-2361014 E-mail: drmyesilyurt@gmail.com

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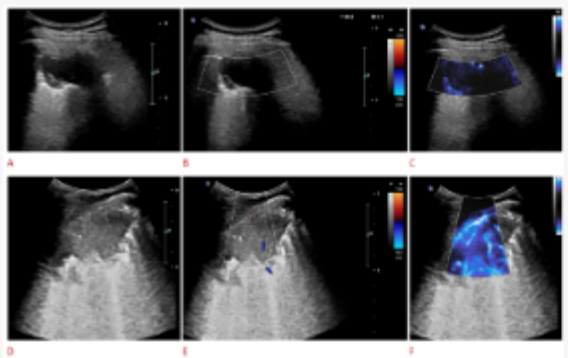
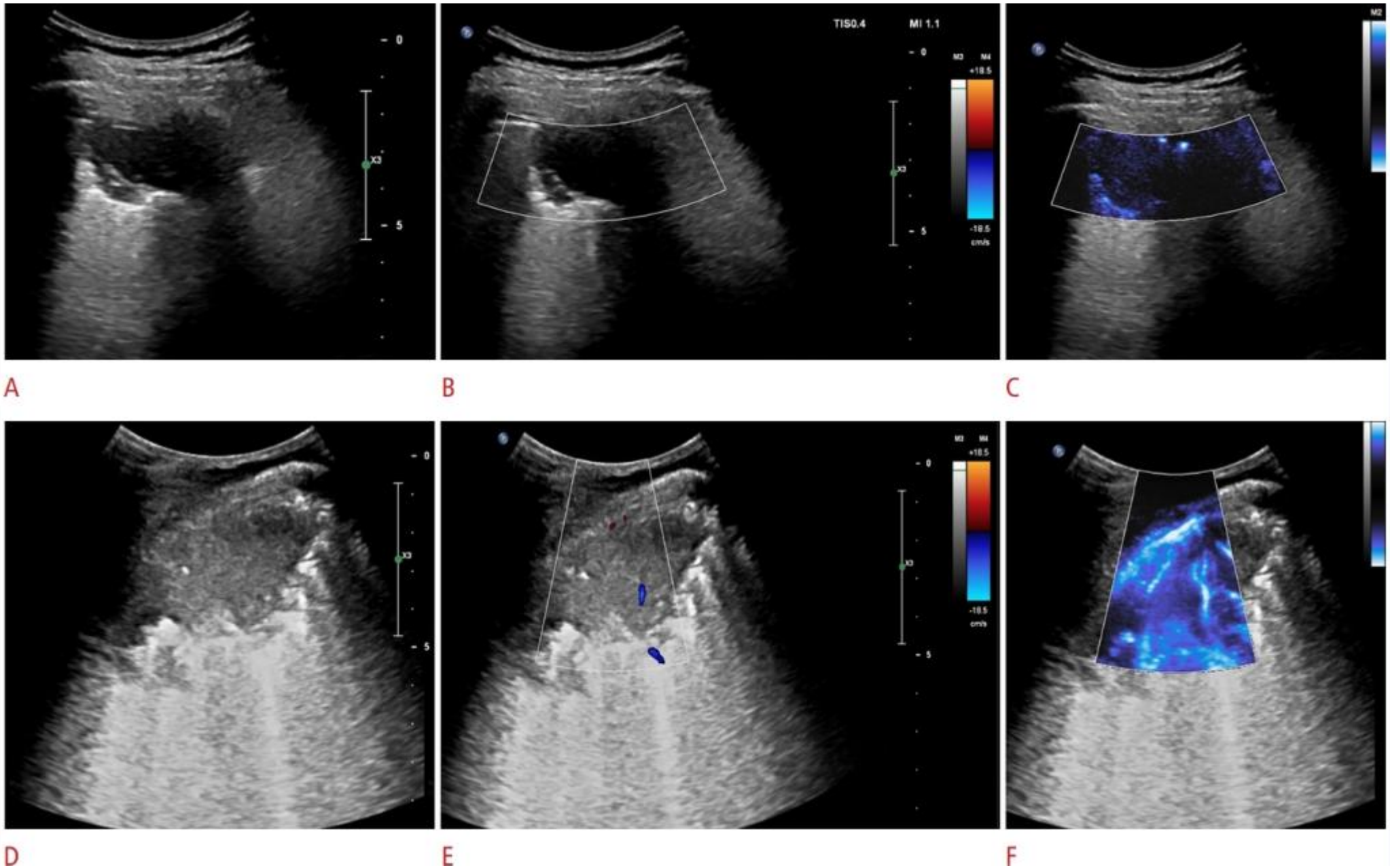


Fig. 3.

Comparison of color Doppler imaging and microflow imaging in non-neoplastic and malignant peripheral lung lesions.

A–C. Peripheral lung lesion in a 72-year-old woman was diagnosed with a non-neoplastic inflammatory/infectious lesion. **A.** B-mode ultrasound demonstrates a 38-mm subpleural hypoechoic solid lesion. **B.** Color Doppler imaging shows no detectable intralesional vascular signal (Adler score 0; type I morphology). **C.** Microflow imaging reveals minimal punctate intralesional vascular signals (Adler score 1; type II morphology) without peripheral rim-like or chaotic vascular architecture. Histopathological examination confirmed a non-neoplastic inflammatory/infectious lesion. **D–F.** Peripheral lung adenocarcinoma was diagnosed in a 65-year-old man. **D.** B-mode ultrasound shows a 65-mm subpleural hypoechoic solid lesion. **E.** Color Doppler imaging demonstrates moderate intralesional vascularity (Adler score 2; type III morphology). **F.** Microflow imaging reveals markedly increased and disorganized intralesional vascularity with peripheral and chaotic vascular patterns (Adler score 3; type V morphology). Histopathological examination confirmed adenocarcinoma.


A
B
C
D
E
F

Shear wave elastography in infantile fibromatosis colli: associations with clinical severity and short-term outcomes

Yu Sung Yoon[1], Eun Kyung Khil[2,3], Sang Won Jo[3], Yeong Seo Yoo[3], Hyeoncheol Hwang[4,5]

[1]Department of Radiology, School of Medicine, Kyungpook National University, Kyungpook National University Hospital, Daegu; [2]Department of Radiology, Fastbone Orthopedic Hospital, Hwaseong; [3]Department of Radiology, Hallym University Dongtan Sacred Heart Hospital, Hwaseong; [4]Department of Rehabilitation Medicine, Zenith Hospital, Seoul; [5]Department of Rehabilitation Medicine, Hallym University Dongtan Sacred Heart Hospital, Hwaseong, Korea

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Purpose: This study evaluated shear wave elastography (SWE) in infants with fibromatosis colli by assessing the associations of ultrasonography (US) and SWE with clinical severity and outcomes.
Methods: This retrospective study included infants with fibromatosis colli who underwent US with SWE between June 2019 and December 2021. Lesion size and longitudinal extent of sternocleidomastoid involvement were measured, with extent categorized using a four-point scale (<25%, 25%–49%, 50%–74%, and ≥75%). SWE parameters included mean and median elasticity and the elasticity ratio (E-ratio; mass/normal muscle). Clinical severity was classified as mild or severe and 3-month outcomes as improved or non-improved. Associations of imaging parameters with clinical severity and outcomes were analyzed.
Results: Thirty-five infants (mean age, 1.1±1.4 months; 19 male infants) were included; 21 had mild and 14 severe disease. Of these, 29 underwent approximately 3-month follow-up, with 16 classified as improved and 13 as non-improved. Baseline extent scores and E-ratios were higher in the severe group (P=0.009 and P=0.004, respectively) and correlated with clinical severity (r=0.50, P=0.002; r=0.41, P=0.016, respectively). The non-improved group had higher baseline mean and median elasticity (24.35/23.70 vs. 18.02/16.61 kPa, P=0.037/P=0.032) and a higher E-ratio (3.09 vs. 1.90, P=0.002). The E-ratio had an area under the receiver operating characteristic curve of 0.81 and remained associated with non-improvement after age adjustment (odds ratio, 3.73; 95% confidence interval, 1.57 to 12.29; P=0.009).
Conclusion: In infantile fibromatosis colli, longitudinal extent and E-ratio were associated with baseline clinical severity. SWE-derived stiffness measures, particularly E-ratio, were associated with short-term outcomes.

Keywords: Fibromatosis colli; Congenital muscular torticollis; Sternocleidomastoid muscle; Shear wave elastography; Ultrasonography

Key points: The clinical value of combining ultrasonography and shear wave elastography (SWE) to assess disease severity and treatment outcomes in infants with fibromatosis colli has not been established. Greater longitudinal muscle involvement and a higher elasticity ratio (E-ratio) were associated with greater clinical severity. Baseline SWE parameters, particularly E-ratio, were more strongly related to outcomes. Baseline SWE provides a reproducible quantitative assessment of muscle stiffness in infantile fibromatosis colli and may help identify infants at increased risk of poor outcomes.

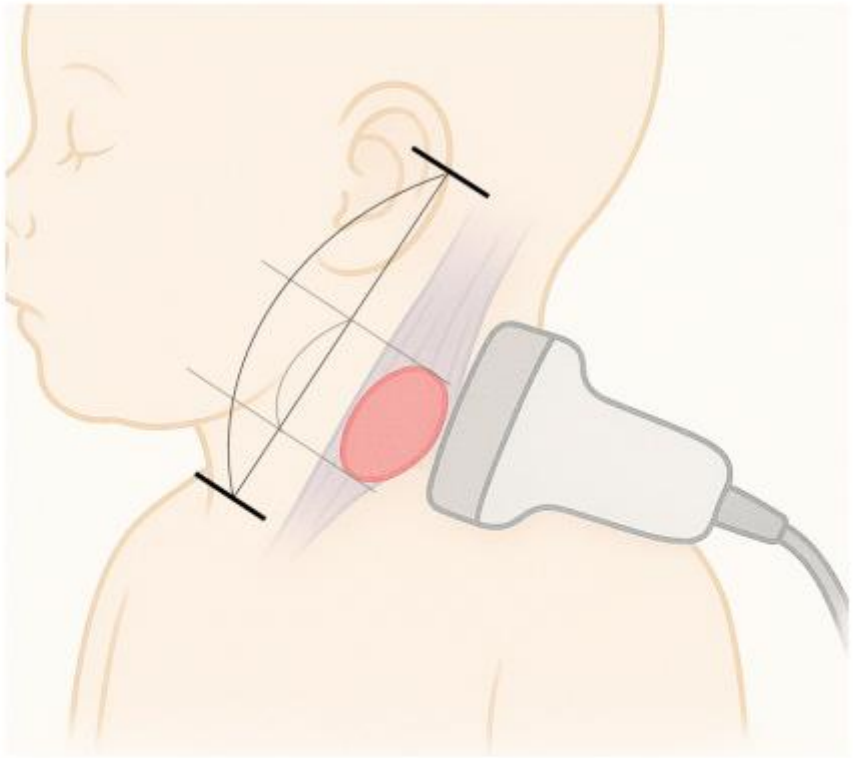
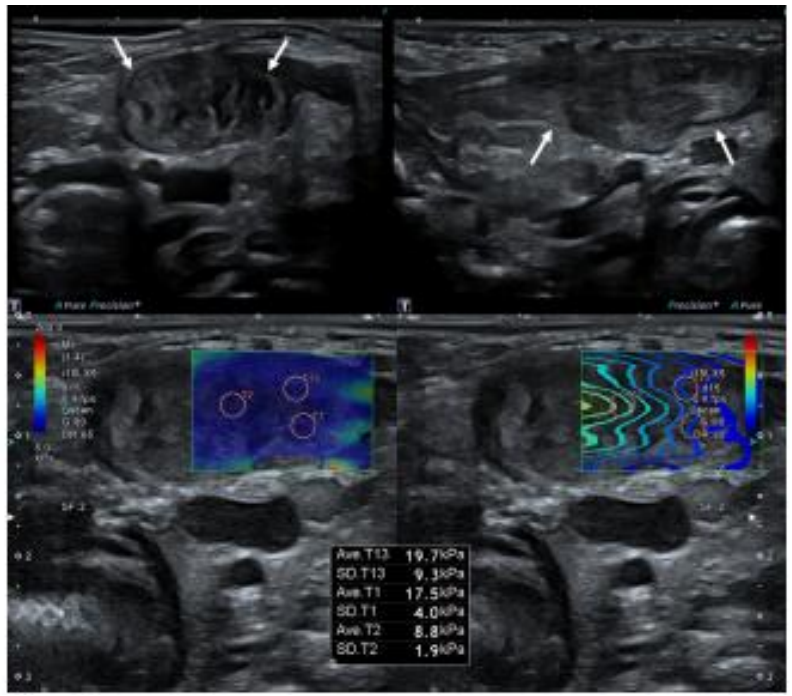
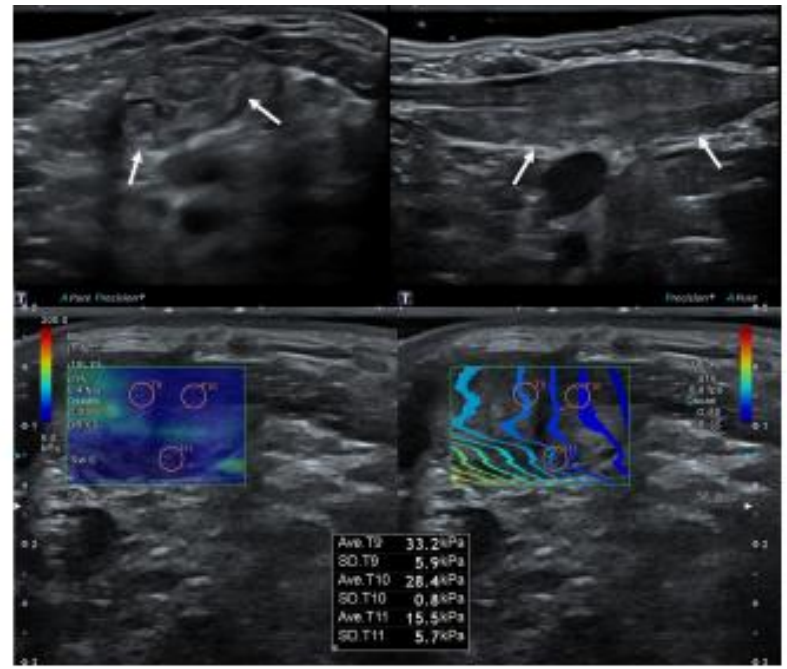


Fig. 2. **Schematic illustration of the longitudinal extent of a sternocleidomastoid (SCM) mass and the ultrasound probe position.** The diagram shows an intramuscular mass (pink area) within the SCM and the position of the ultrasound probe along the longitudinal axis of the muscle. Because the entire SCM cannot be visualized within a single ultrasound window, the longitudinal extent of the mass was qualitatively assessed on longitudinal ultrasonography images. In this example, the mass occupies approximately 30% of the SCM length, corresponding to an extent score of 2 (25%–49%).



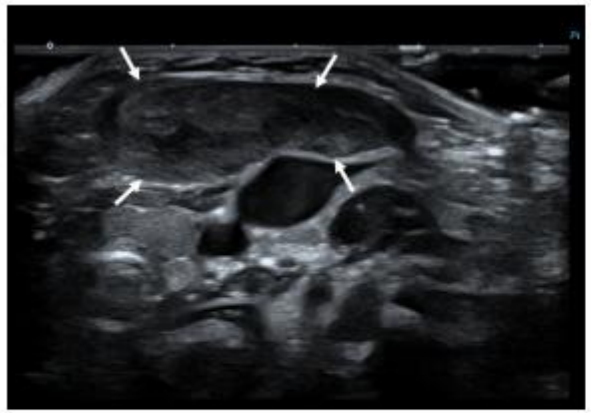
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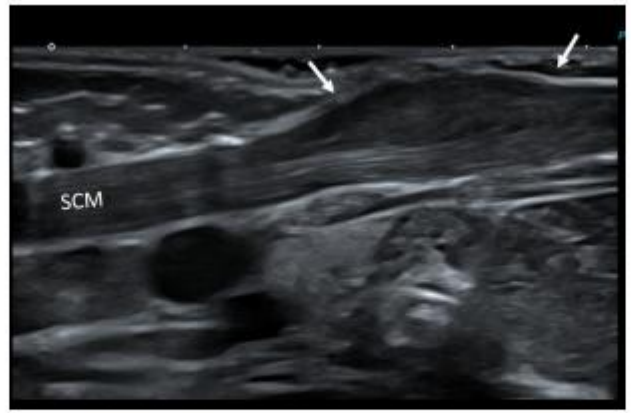
B

Fig. 5. Baseline and 3-month follow-up ultrasonography and shear wave elastography (SWE) findings in a 1-month-old female infant with fibromatosis colli who presented with right head tilt and plagiocephaly.

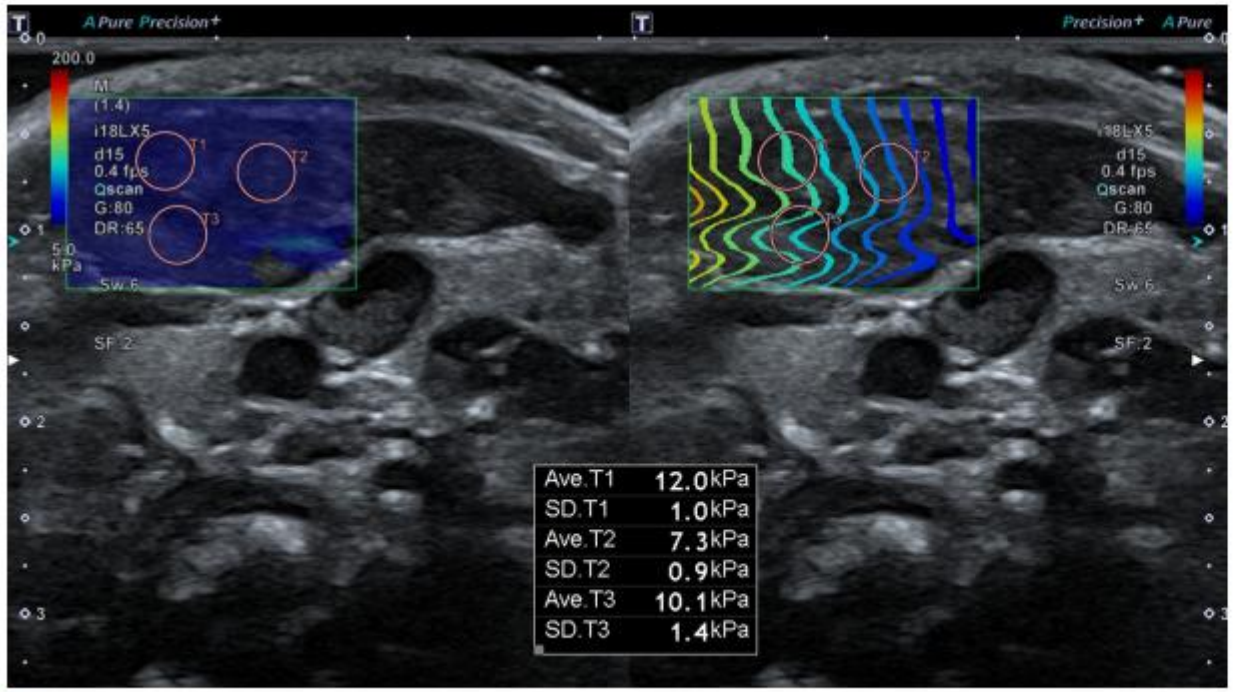
A. Baseline ultrasonography shows a heterogeneous, hyperechoic mass (arrows) in the right sternocleidomastoid muscle with an extent score of 4 and markedly increased stiffness (mean elasticity, 20.4 kPa; median elasticity, 21.3 kPa; elasticity ratio, 2.96). B. At the 3-month follow-up, the mass (arrows) had decreased in size and extent, but limited neck motion and head tilt persisted. SWE showed persistently high stiffness (mean elasticity, 20.4 kPa; median elasticity, 20.6 kPa; elasticity ratio, 2.88), corresponding to a severe baseline classification and a non-improved follow-up outcome.



A



B



C

Fig. 3. Shear wave elastography (SWE) of the sternocleidomastoid (SCM) muscle in an infant with fibromatosis colli.

A, B. Ultrasonography shows a fusiform, heterogeneous, hyperechoic mass (arrows) within the right SCM, consistent with fibromatosis colli. C. SWE was performed in the transverse plane using a generous amount of coupling gel and minimal probe pressure. Three circular regions of interest (ROIs), approximately 3 mm in diameter, were placed within the homogeneous central portion of the lesion at three representative levels (superior, middle, and inferior), resulting in nine ROIs per lesion. This example is from a 1-month-old male infant in the mild, improved group (mean elasticity, 7.3 kPa; elasticity ratio, 1.36).

APR 2026 vol. 11 iss. 01 | POCUS J | 50

Normal Anatomy Mimicking an Abdominal Aortic Dissection.

Olivia Klee[1]; Julia Buechler, MS[1]; Molly Fears ,MD[1]; Caroline Gosser, MD[2]; Jeffery Baker, MD[2]; Kahra Nix, MD[2]*

(1) School of Medicine, University of Louisville, Louisville, KY, USA
(2) Department of Emergency Medicine, School of Medicine, University of Louisville, Louisville, KY, USA

This article is a corrigendum to: *Klee O, Buechler J, Fears M, Gosser C, Nix K. A Point of Care Ultrasound (POCUS) Artifact Mimicking an Aortic Dissection: A Case Series. POCUS J. 2025 Apr 15;10(1):88-91. doi: https://doi.org/10.24908/pocusj.v10i01.18498*

In the original article, the authors highlighted a key POCUS mimic of abdominal aortic dissection in a series of young patients who were later referred for diagnostic radiology imaging and found to have normal aortas. This was attributed to artifact in the case series, however, it was later determined that this “pseudo-dissection” finding on POCUS is a result of how the echogenic line of a normal diaphragmatic crus tricks the POCUS user into interpreting the normal aortic wall as a possible dissection flap. This corrigendum provides a corrected interpretation of the original findings.

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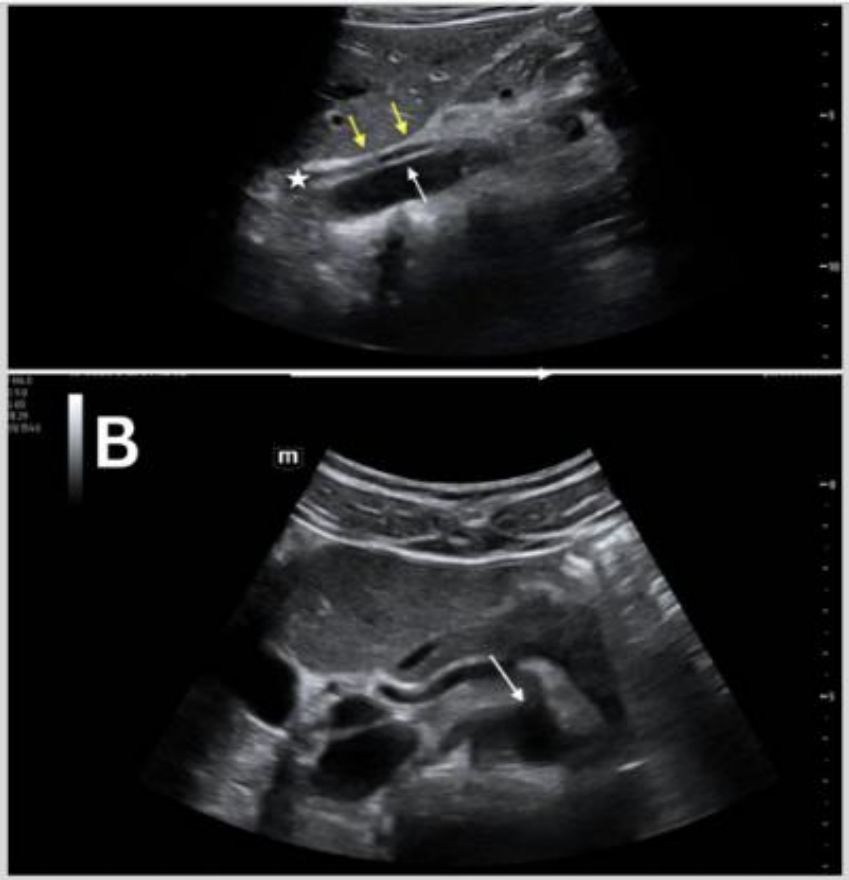


Figure 1. Grayscale point of care ultrasound (POCUS) images of a 22-year-old female standardized patient showing (A) sagittal view with two neighboring linear, hyperechoic structures (double yellow arrow and white arrow) and the intervening, hypoechoic crus of the diaphragm (white star) and (B) transverse view with a normal, anechoic lumen of the abdominal aorta (white arrow).

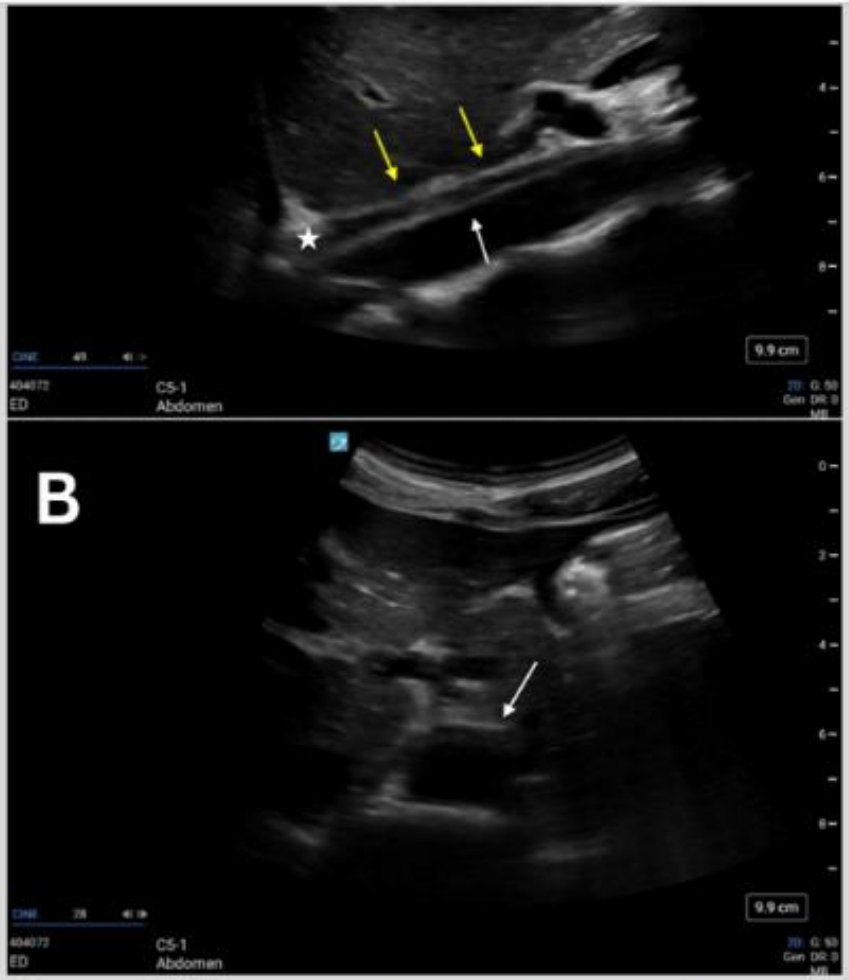


Figure 2. Grayscale point of care ultrasound (POCUS) images of a 25-year-old female standardized patient showing (A) sagittal view with two neighboring linear, hyperechoic structures (double yellow arrow and white arrow) and the intervening hypoechoic crus of the diaphragm (white star) and (B) transverse view with a normal, anechoic lumen of the abdominal aorta (white arrow).

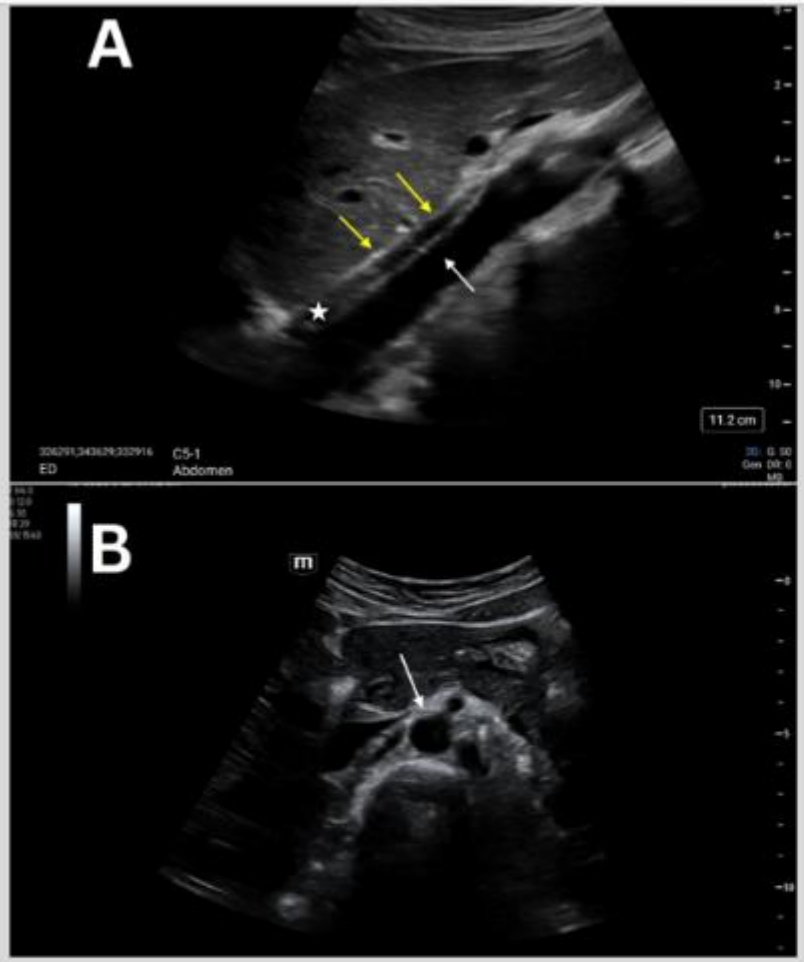


Figure 3. Grayscale point of care ultrasound (POCUS) images of a 27-year-old female standardized patient showing (A) sagittal view with two neighboring linear, hyperechoic structures (double yellow arrow and white arrow) and the intervening hypoechoic crus of the diaphragm (white star) and (B) transverse view with a normal, anechoic lumen of the abdominal aorta (white arrow).

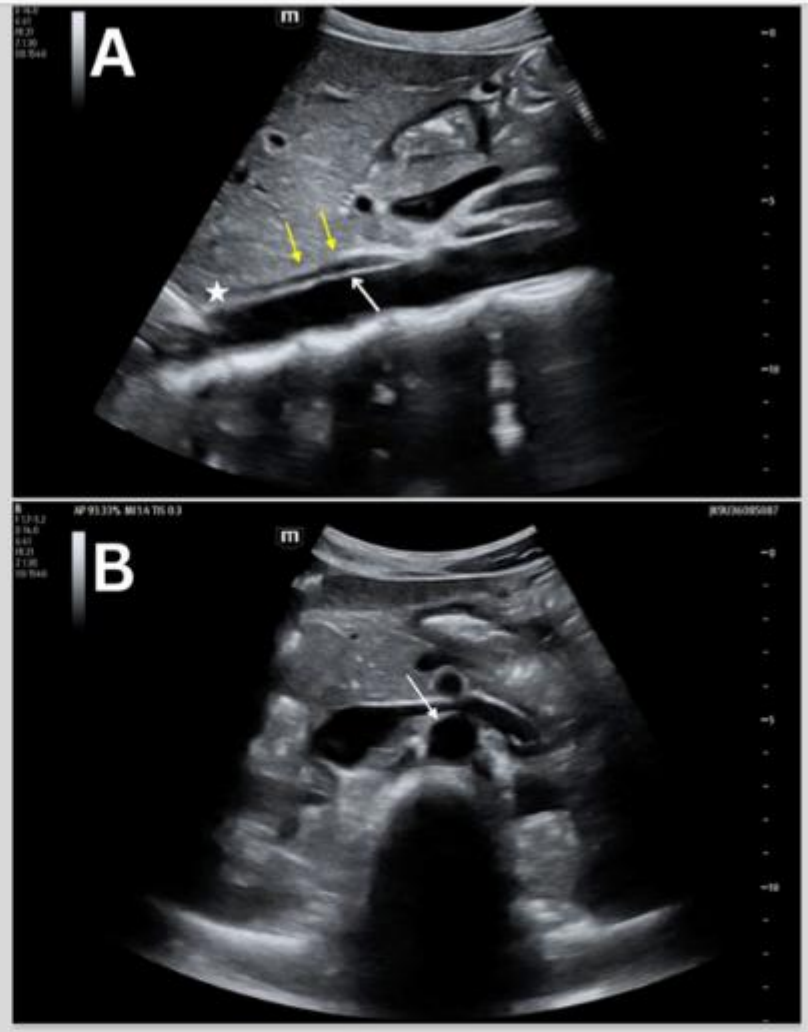


Figure 4. Grayscale point of care ultrasound (POCUS) images of a 25-year-old female standardized patient showing (A) sagittal view with two neighboring linear, hyperechoic structures (double yellow arrow and white arrow) and the intervening hypoechoic crus of the diaphragm (white star) and (B) transverse view with a normal, anechoic lumen of the abdominal aorta (white ar-

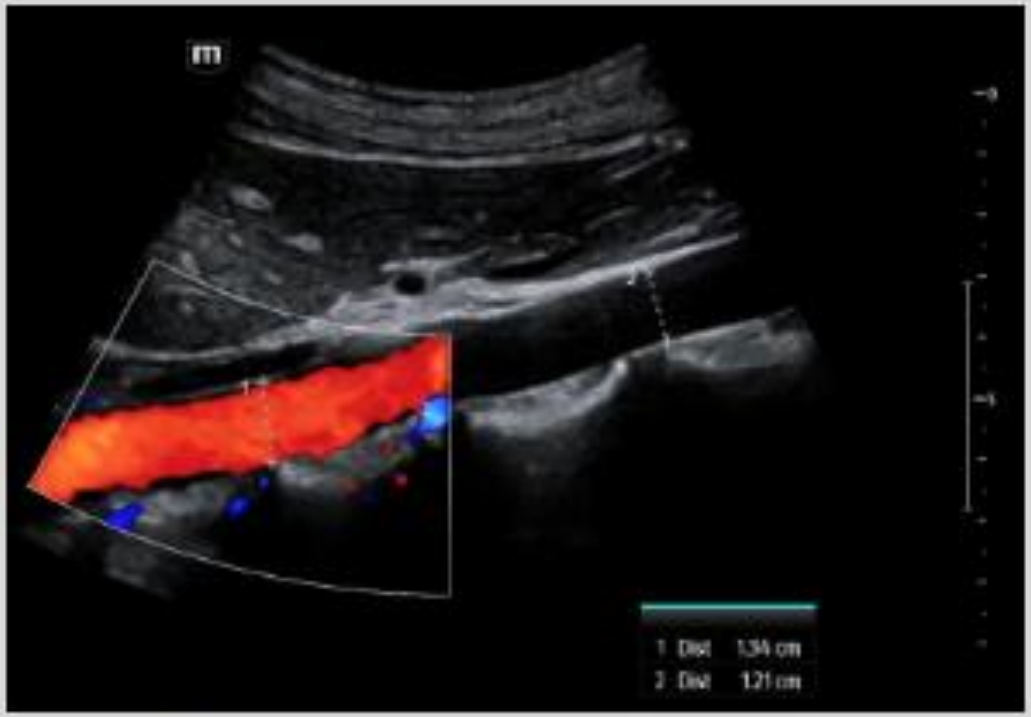


Figure 5. Point of care ultrasound (POCUS) images with color Doppler of a 22-year-old female standardized patient showing a sagittal view of the abdominal aorta. Color flow clarifies which of two neighboring linear hyperechoic structures is the true wall of the abdominal aorta.

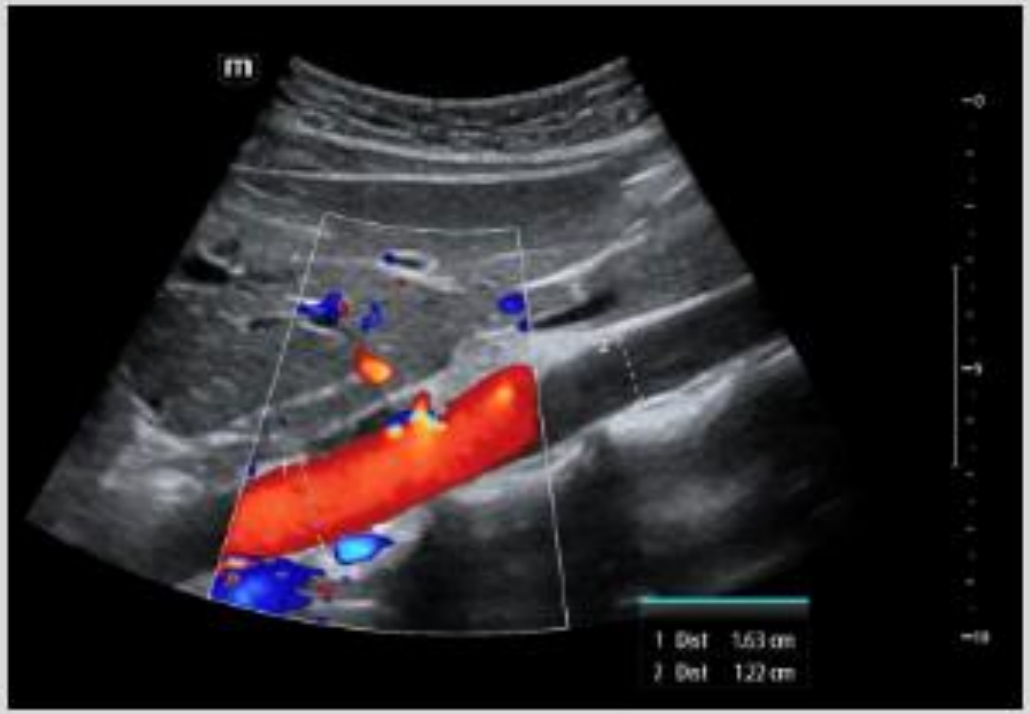


Figure 6. Point of care ultrasound (POCUS) images with color Doppler of a 27-year-old female standardized patient showing a sagittal view of the abdominal aorta. Color flow clarifies which of two neighboring linear hyperechoic structures is the true wall of the abdominal aorta.