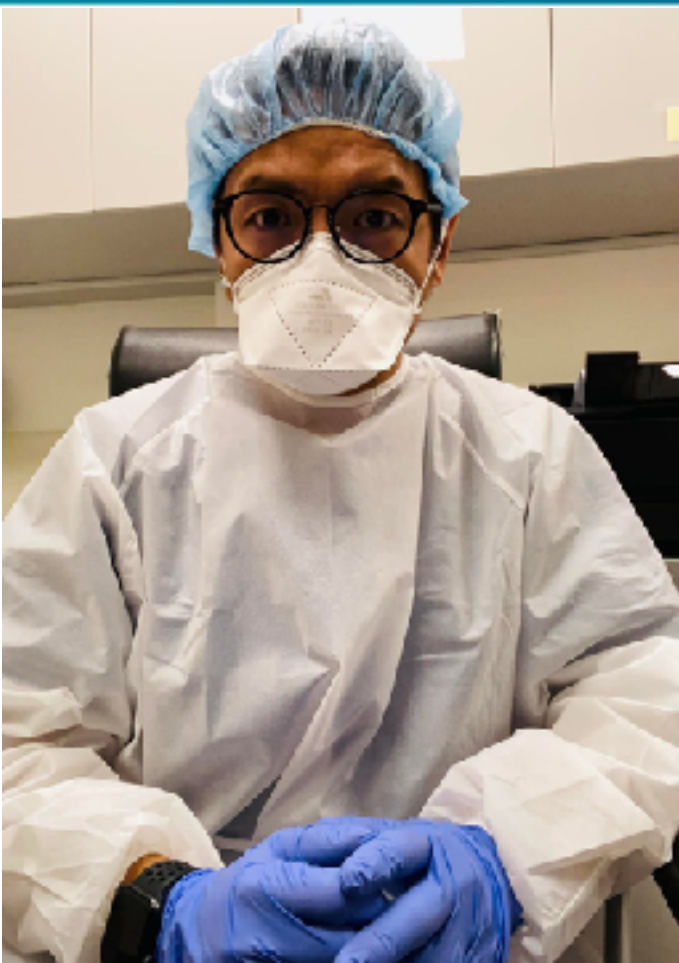




衛生福利部雙和醫院
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POCUS Training Program



陳國智醫師

雙和醫院 急診醫學科



LE joint effusion

01/07

Airway

01/14

Needling

01/21

VExUS protocol

01/28

雙和急診POCUS訓練規劃



Central access

02/11

Peripheral access

02/18

EFAST

02/25

雙和急診POCUS訓練規劃



VEXUS PROTOCOL




CASE REPORT

Open Access

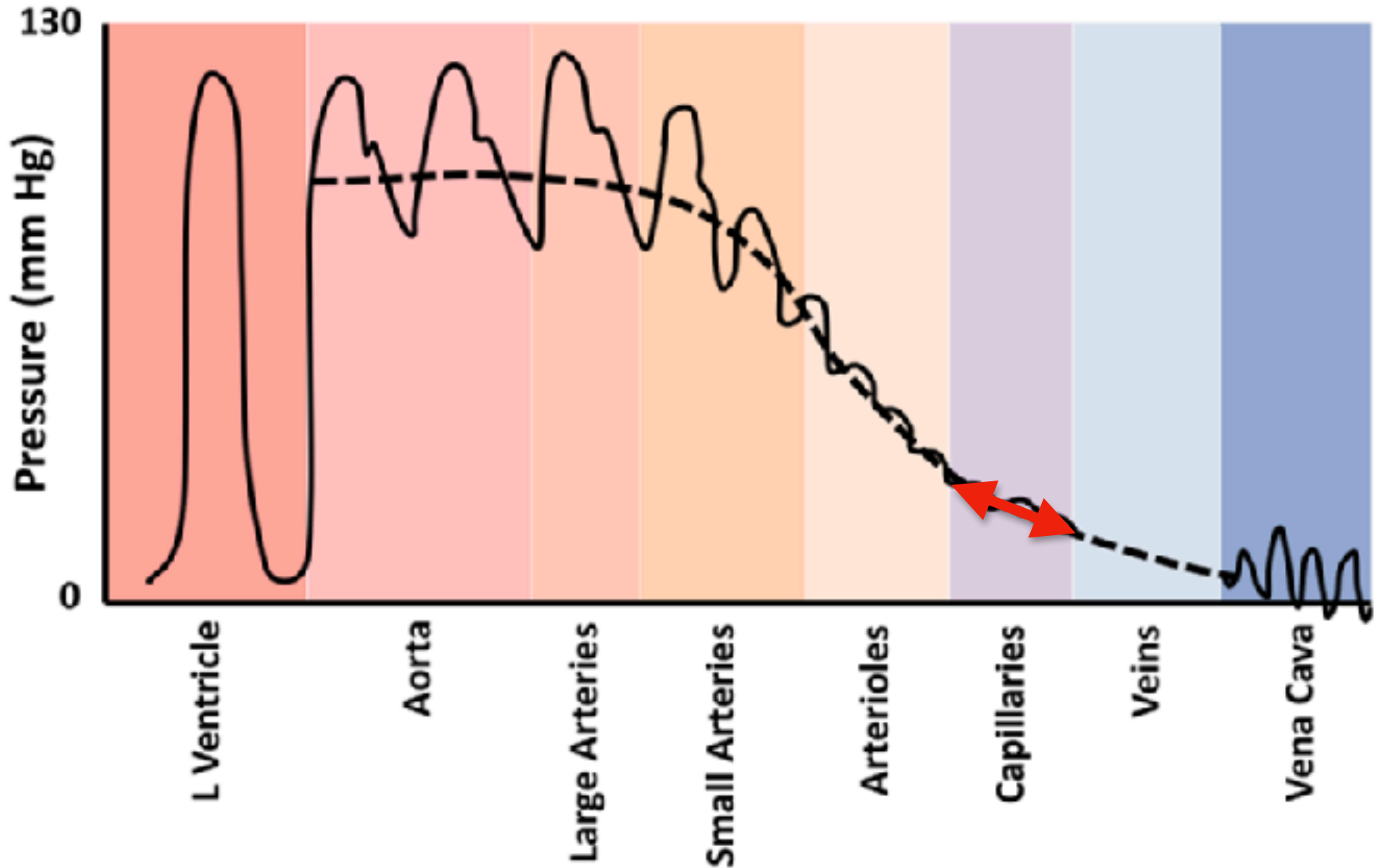


Clinical applications of the venous excess ultrasound (VExUS) score: conceptual review and case series

Philippe Rola^{1*} , Francisco Miralles-Aguilar², Eduardo Argai³, William Beaubien-Souligny⁴, Korbin Haycock⁵, Timur Karimov⁶, Vi Am Dinh⁷ and Rory Spiegel⁸



Organ perfusion pressure





SOLID ORGAN DOPPLER ASSESSMENT OF VENOUS CONGESTION

Katie Wiskar
WesternSono + UBC IM POCUS

Thanks to Dr Robert Arntfield

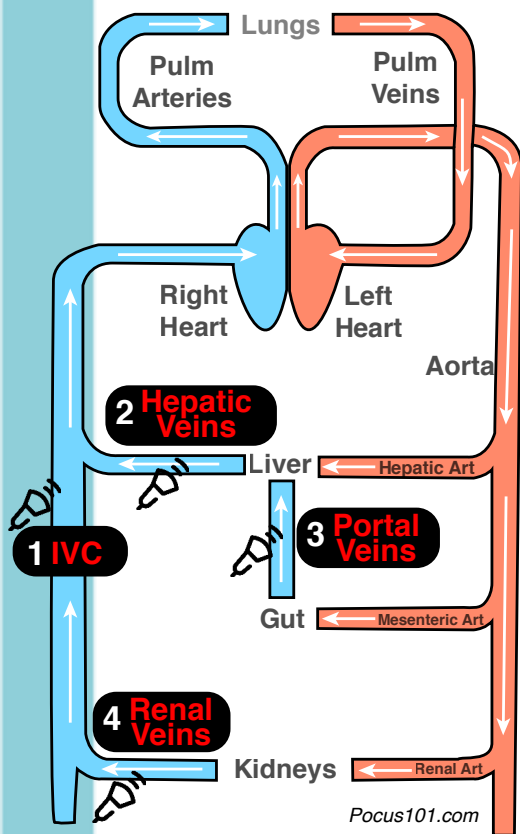






VExUS protocol

Venous Excess Ultrasound VExUS



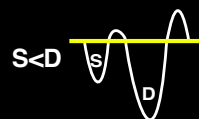
Step 1: IVC Diameter: If $\geq 2\text{cm}$, proceed to step 2

Step 2: Hepatic Vein Doppler

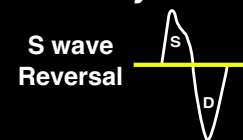
NORMAL



Mildly Abnormal

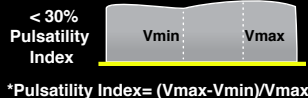


Severely Abnormal



Step 3: Portal Vein Doppler

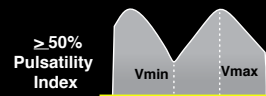
NORMAL



Mildly Abnormal

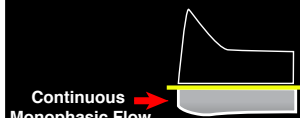


Severely Abnormal

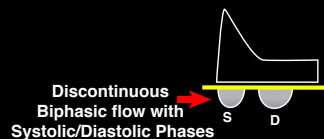


Step 4: Renal Vein Doppler

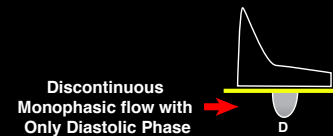
NORMAL



Mildly Abnormal



Severely Abnormal



Interpretation

Grade 0

(no congestion)

IVC < 2cm

Grade 1

(Mild congestion)

IVC $\geq 2\text{cm}$
and any combo
of Normal or
Mildly Abnl
Patterns

Grade 2

(Moderate congestion)

IVC $\geq 2\text{cm}$
and
ONE Severely Abnl
Pattern

Grade 3

(Severe congestion)

IVC $\geq 2\text{cm}$
and
 ≥ 2 Severely Abnl
Patterns

Cirrhosis & heart failure (EF 20%)

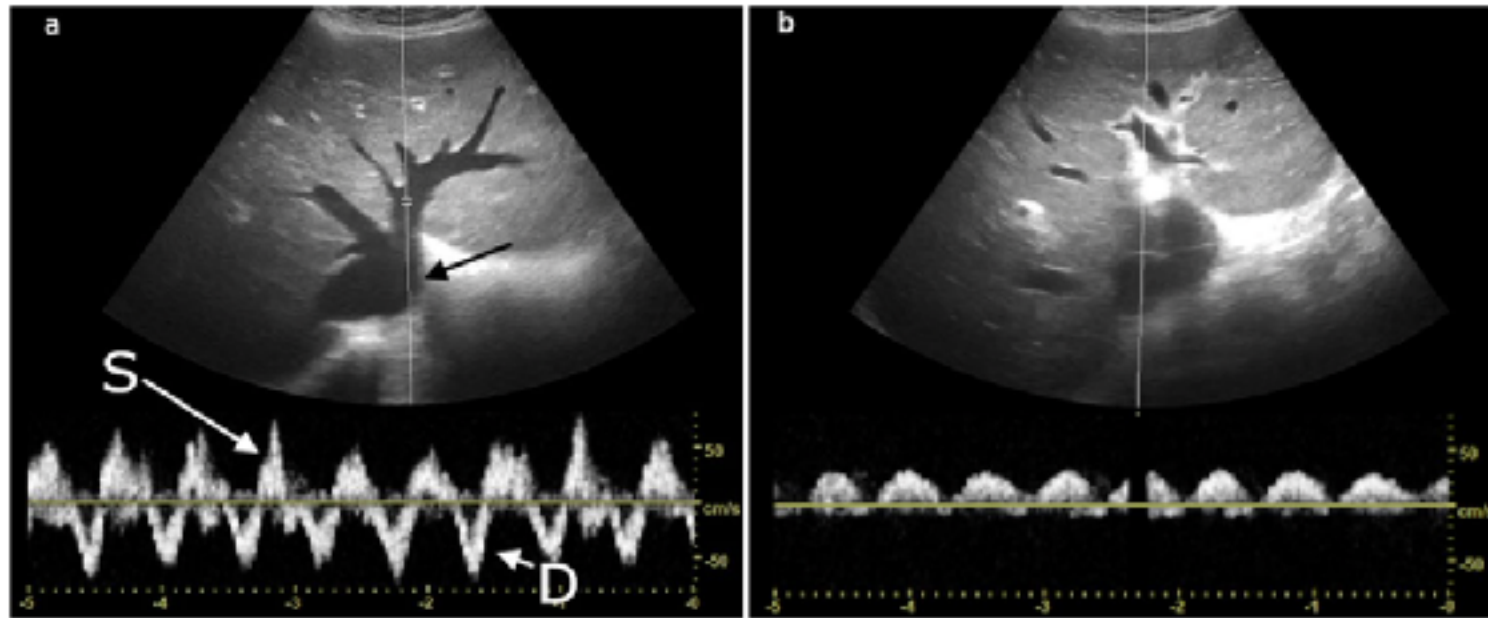


Fig. 2 Case 1: **a** IVC short axis view (black arrow) and hepatic vein Doppler showing the D wave (short white arrow) and reversal of the S wave (long white arrow). **b** Portal vein Doppler showing > 100% pulsatility with some flow reversal

Decongestion by paracentesis & diuretics

RUQ pain & undiagnosed HF (EF < 10%)

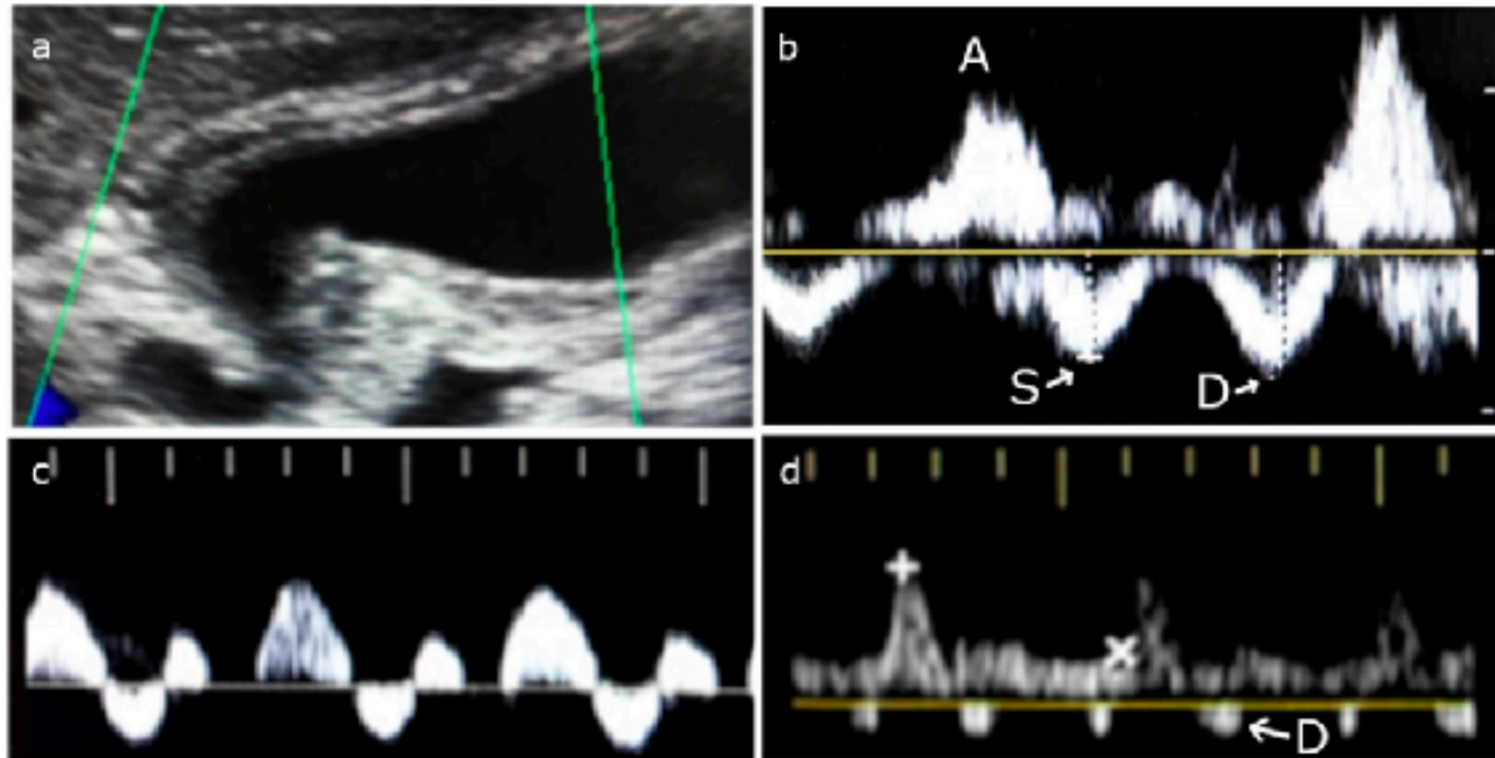


Fig. 3 Case 2: **a** gallbladder showing signs of acalculous cholecystitis. **b** Hepatic vein Doppler with high amplitude A waves with S < D forward flow waves. **c** Triphasic portal vein Doppler **d** biphasic interrupted intrarenal venous flow

Cancel surgery & start decongestion

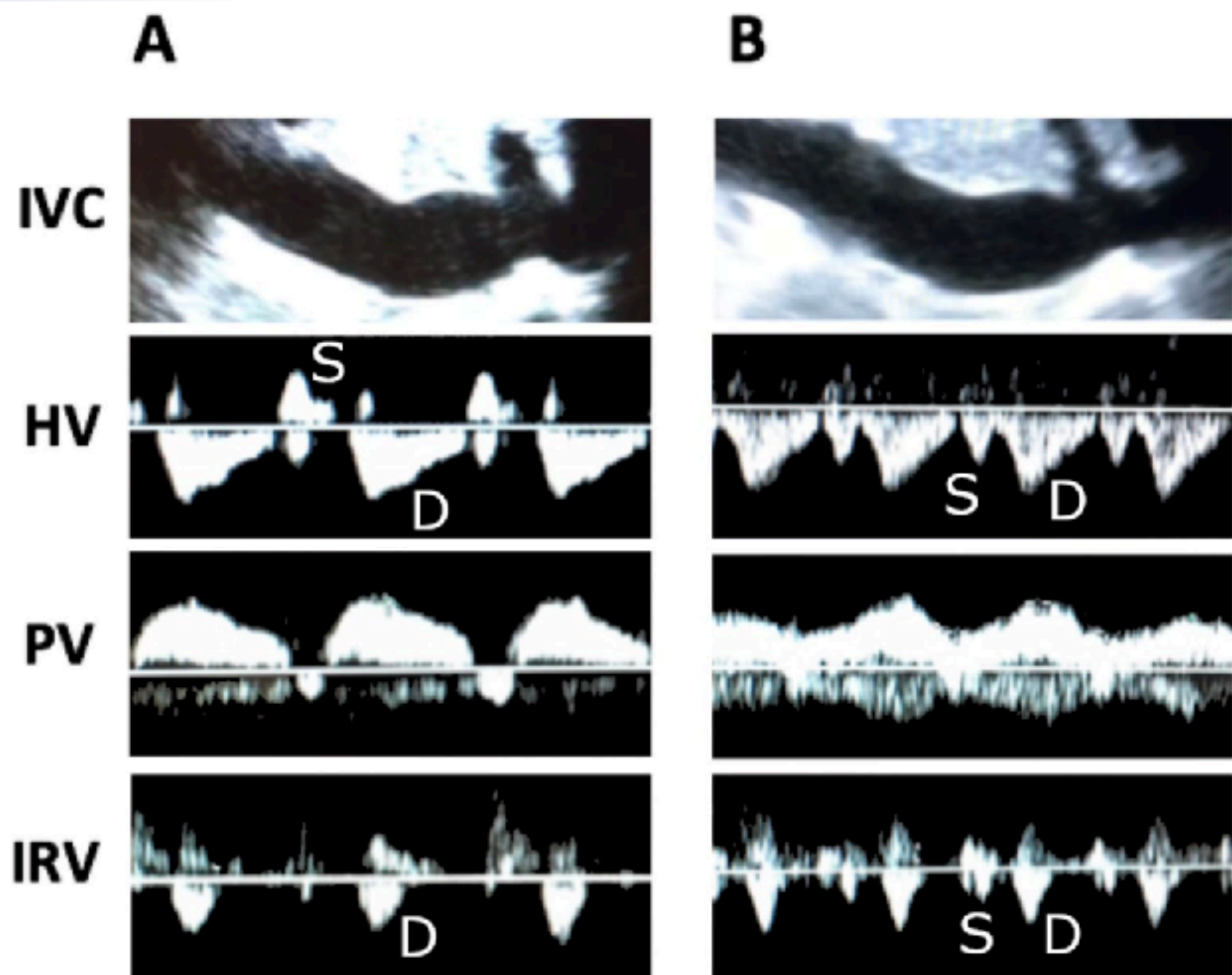


Fig. 5 Case 4: **a** initial congestive Doppler profiles. **b** Doppler profiles after hemodialysis with ultrafiltration of 2.5 L

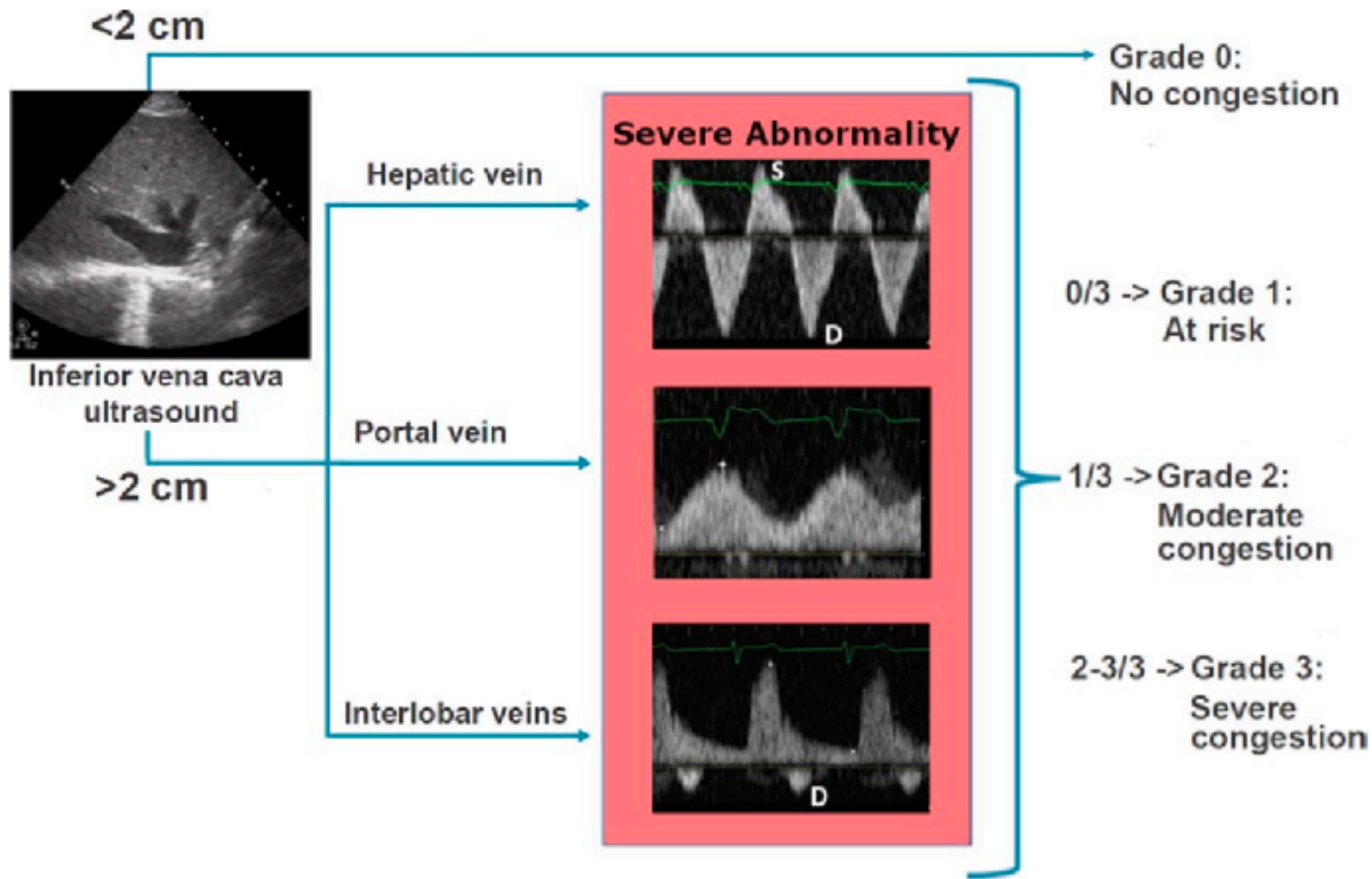


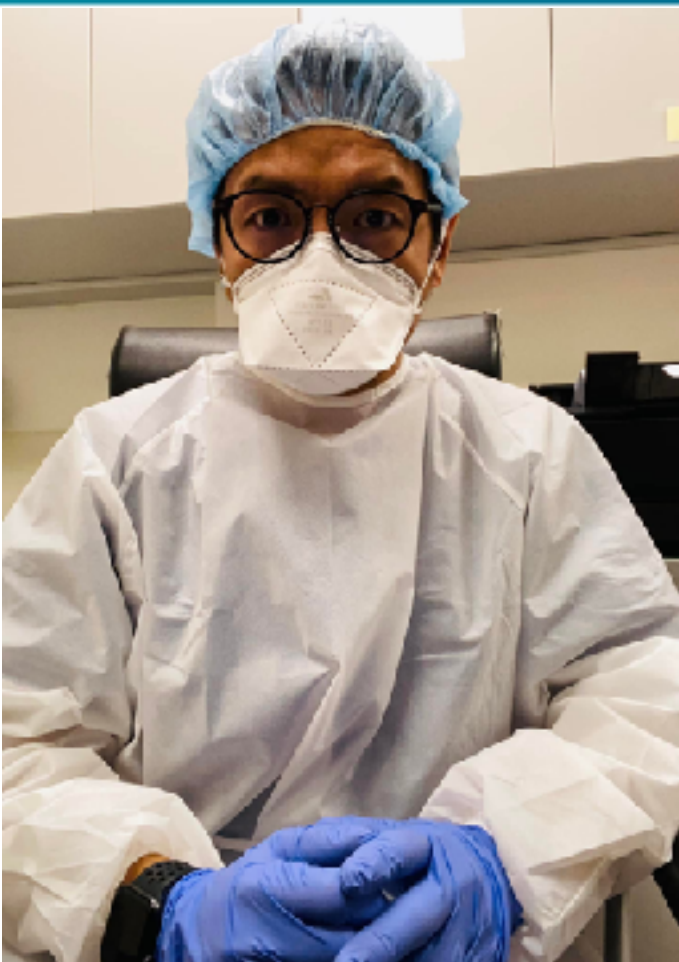
Fig. 7 Doppler profiles showing severe congestive patterns



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POCUS Imaging Reading



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雙和醫院 急診醫學科

93M, left shoulder pain after falling



TIS: 0.01, MI: 0.47, Musculoskeletal

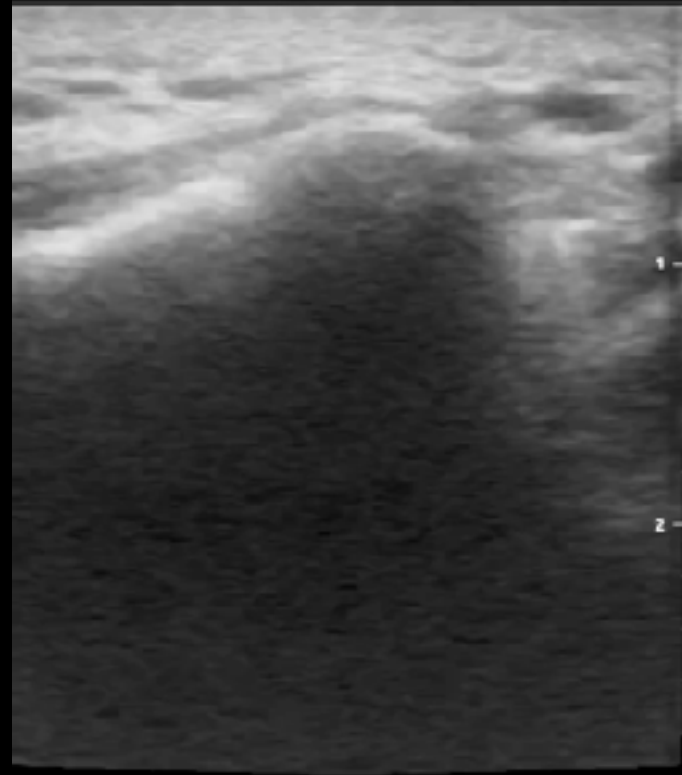
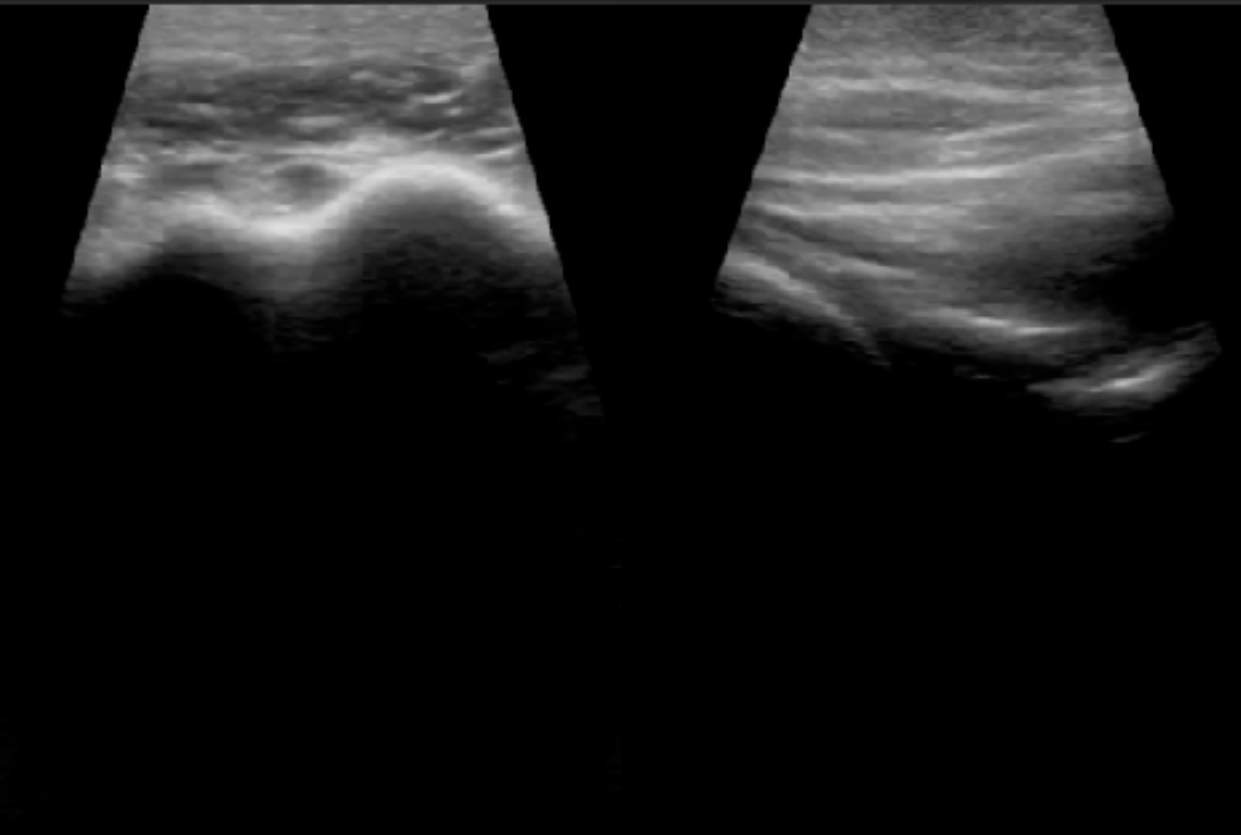
TIS: 0.01, MI: 0.28, Musculoskeletal

TIS: 0.01, MI: 0.26, Musculoskeletal

B

B

B



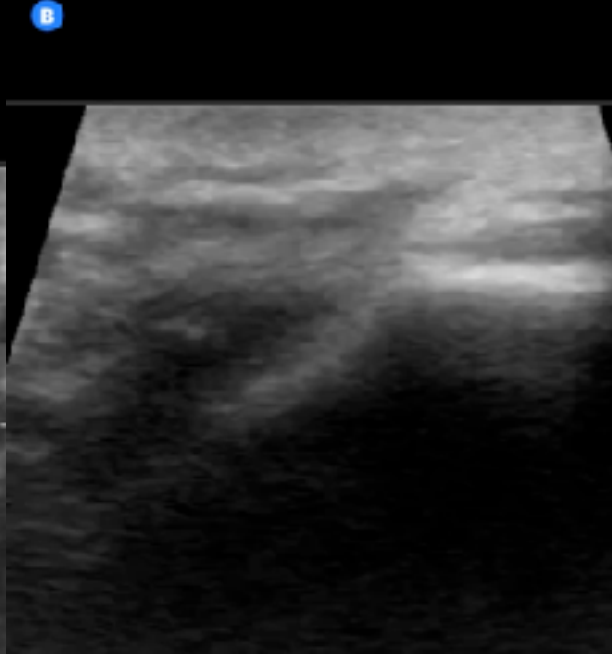
93M, left shoulder pain after falling



TIS: 0.01, MI: 0.26, Musculoskeletal

TIS: 0.01, MI: 0.35, Musculoskeletal

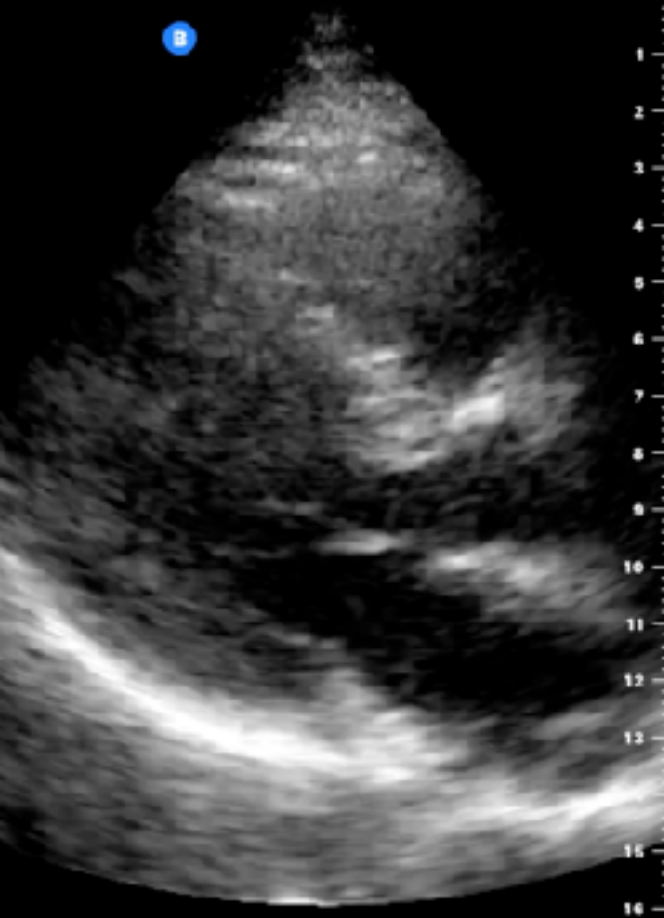
TIS: 0.01, MI: 0.26, Musculoskeletal



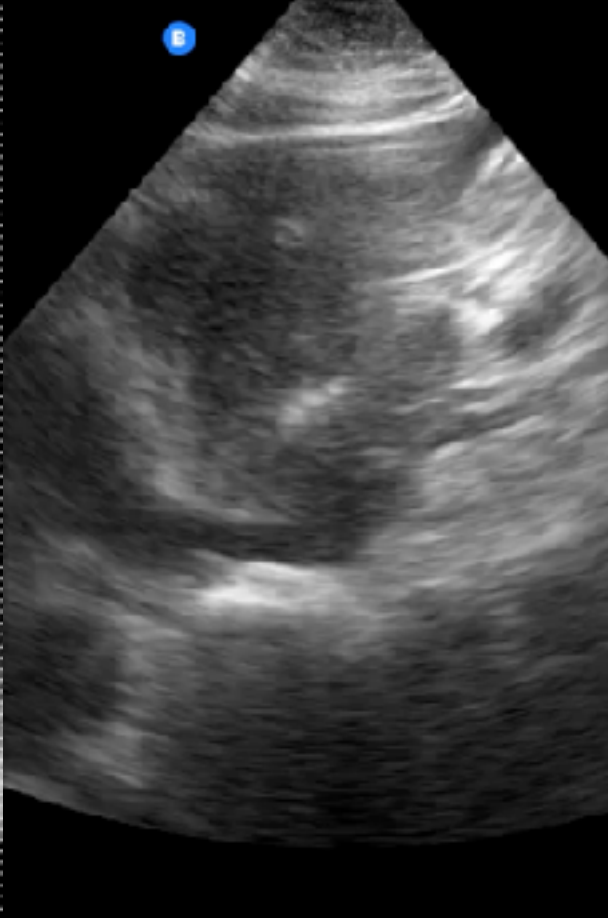
41F, ABD/Back pain; BP 196/149



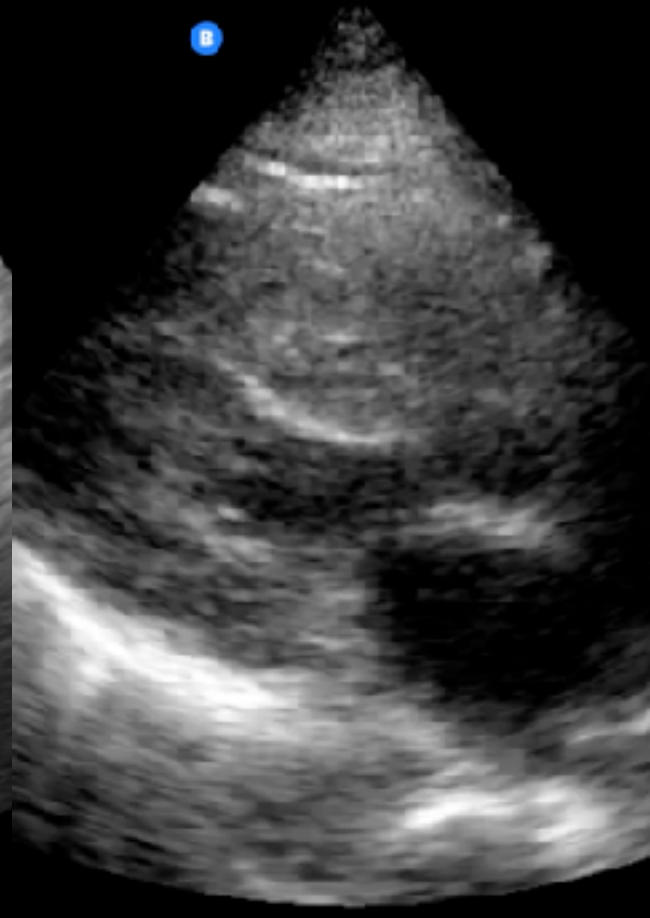
TIS: 0.02, MI: 0.48, Cardiac



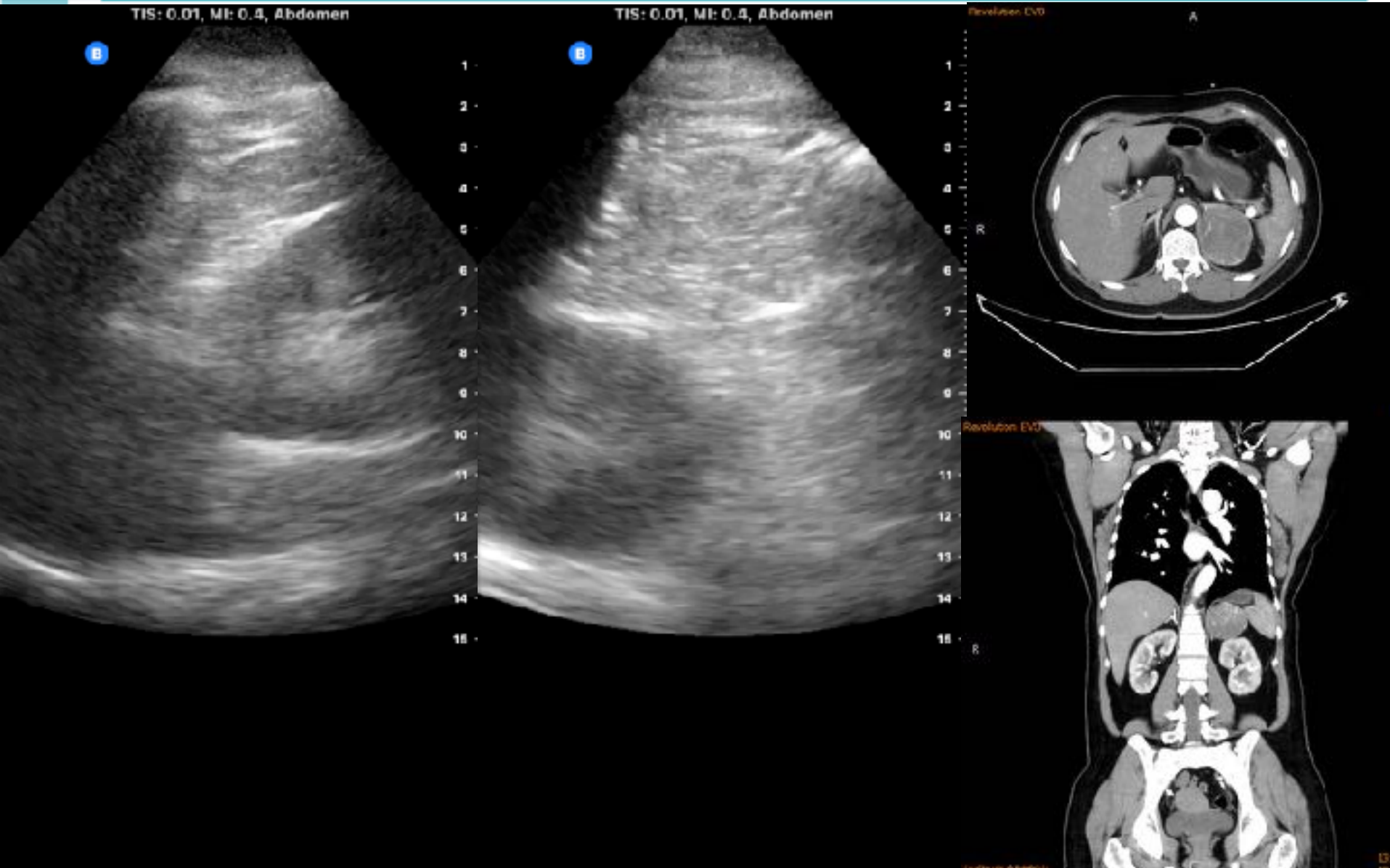
TIS: 0.01, MI: 0.38, Abdomen



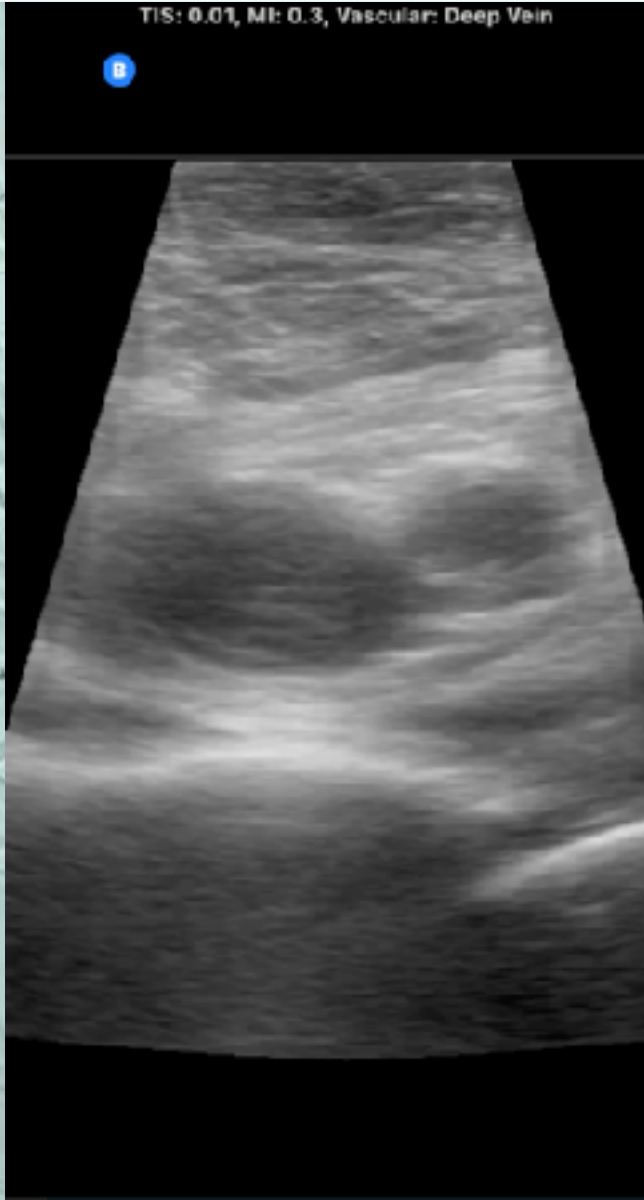
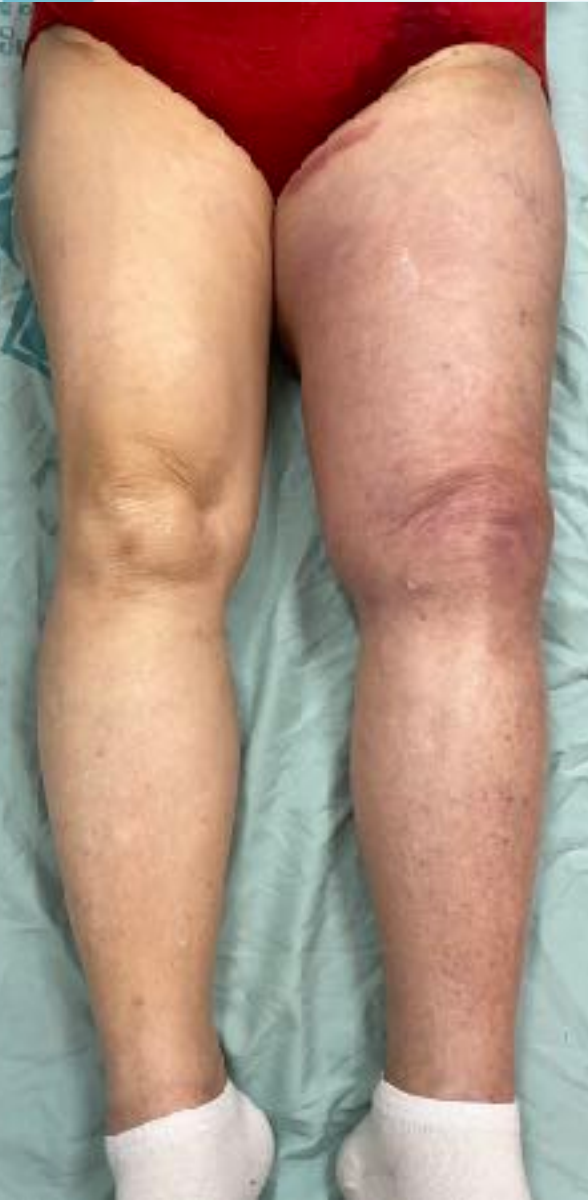
TIS: 0.02, MI: 0.48, Cardiac



41F, ABD/Back pain; BP 196/149



83, left leg swelling for 3 days



62M, neck swelling for 4-5 days





62M, neck swelling for 4-5 days

TIS: 0.01, MI: 0.4, Abdomen

B



TIS: 0.01, MI: 0.23, MSK-Soft Tissue

B



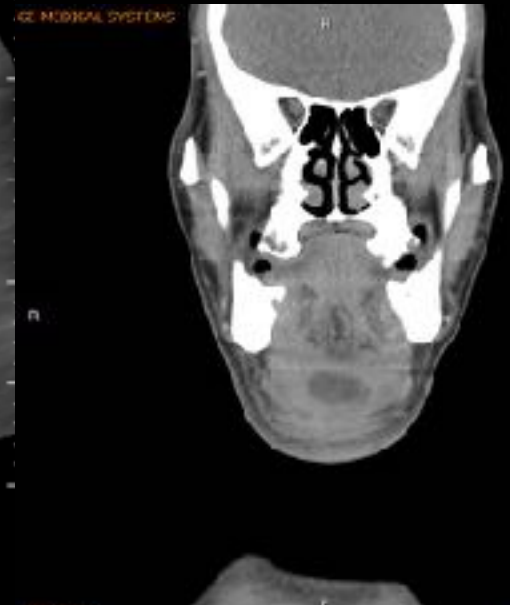
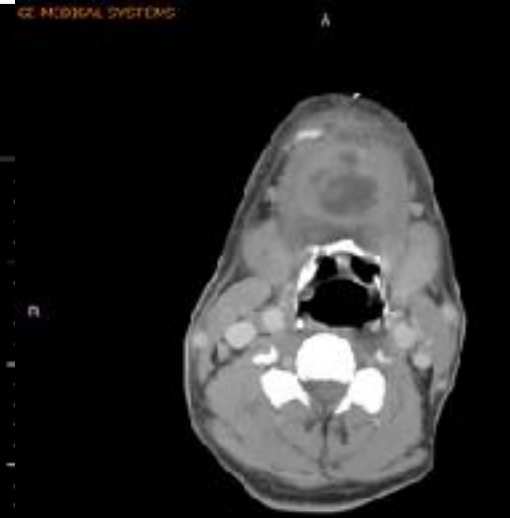
TIS: 0.01, MI: 0.4, Abdomen

B





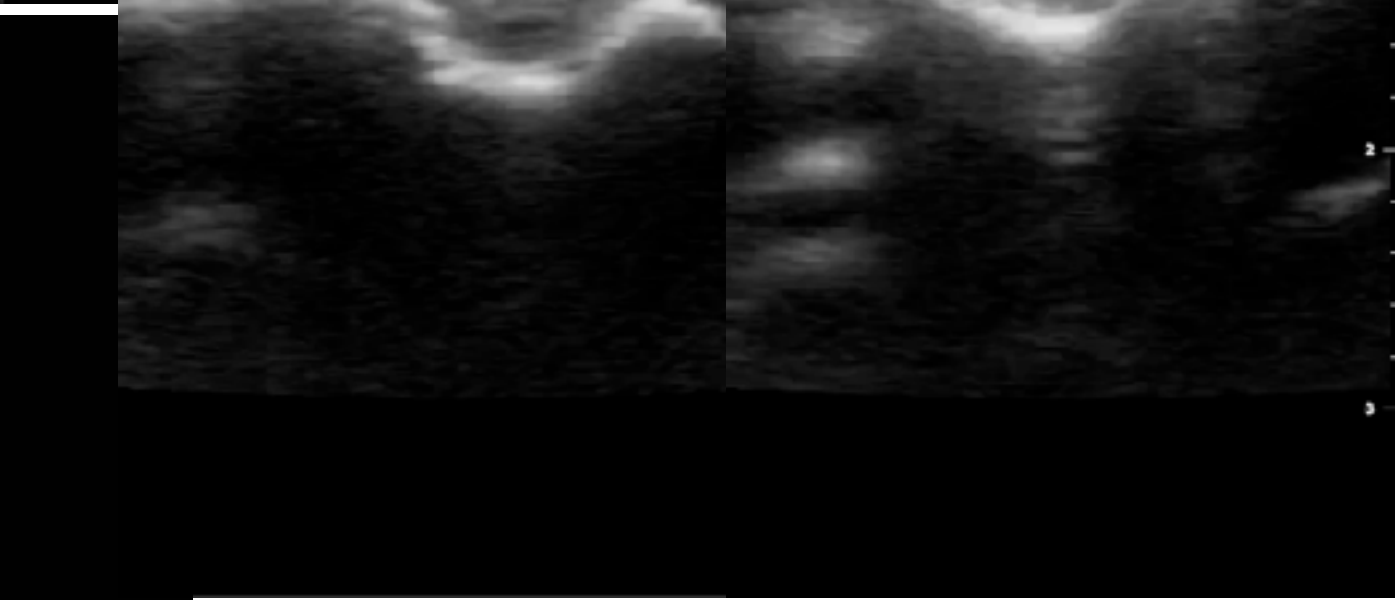
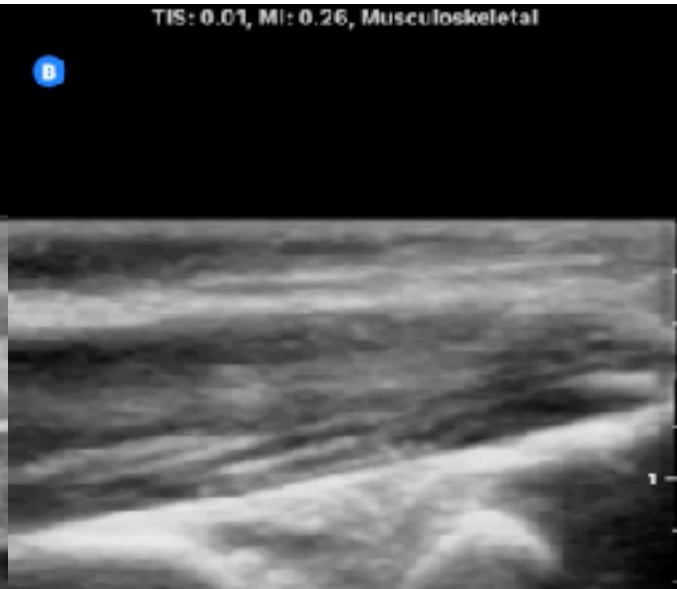
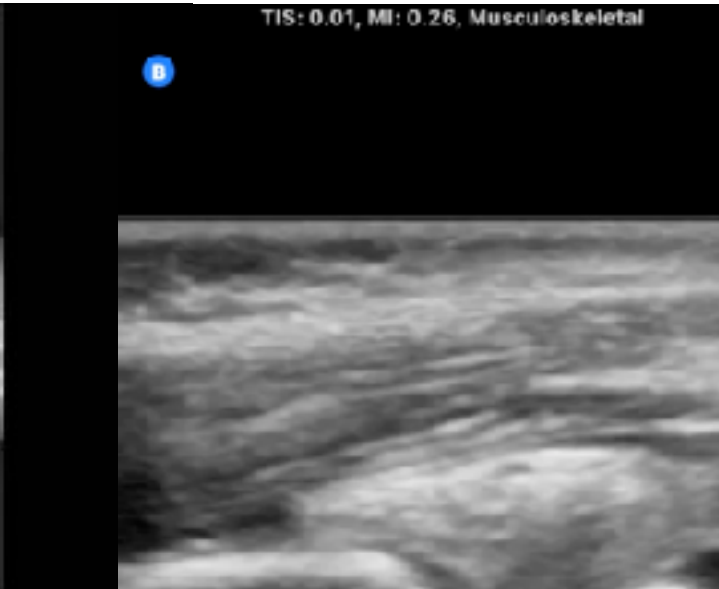
62M, neck swelling for 4-5 days



3M, slide down with R elbow pain



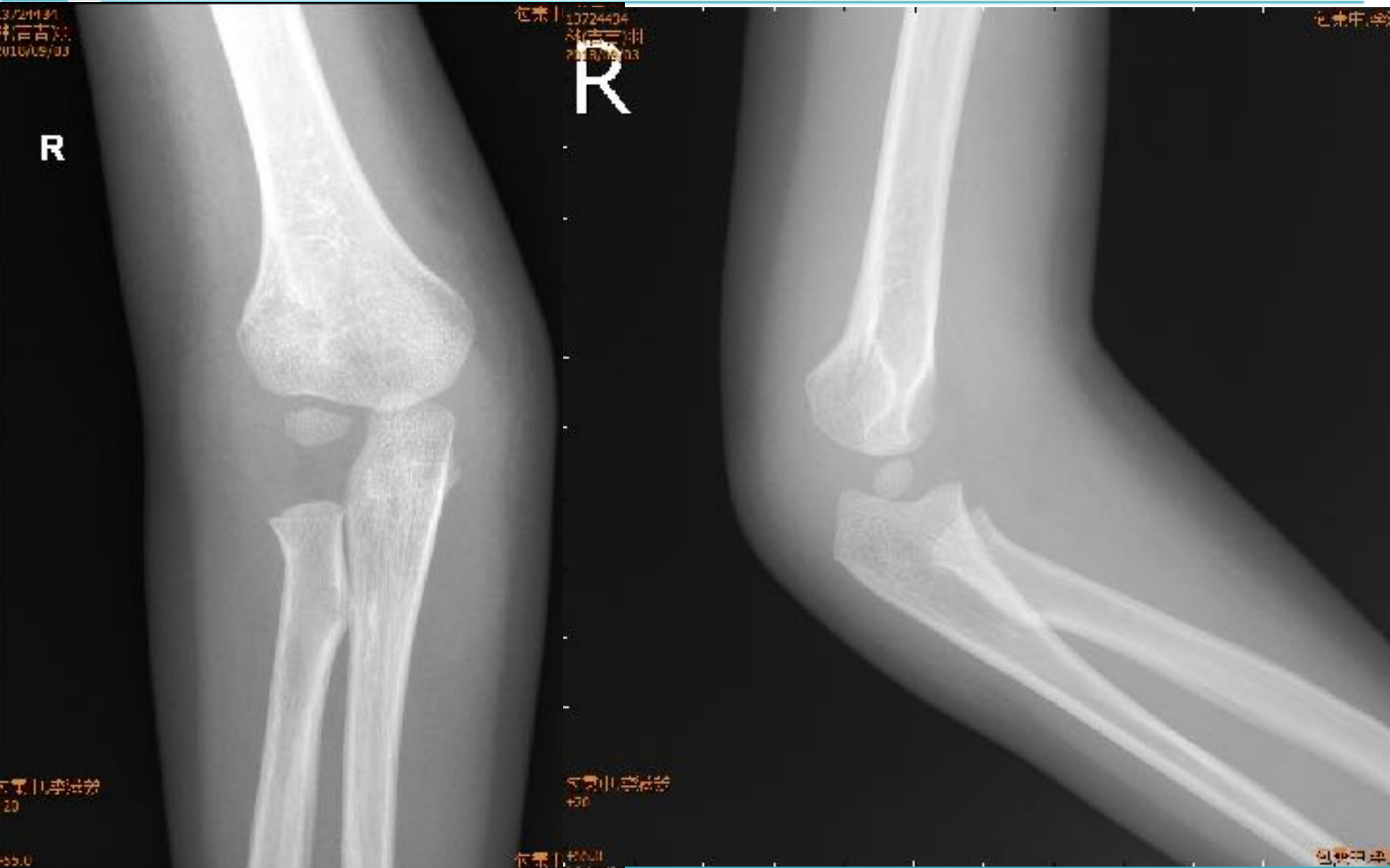
3M, slide down with R elbow pain



3M, slide down with R elbow pain



3M, slide down with R elbow pain



49F, forearm pain after IV treatment



TIS: 0.01, MI: 0.22, MSK-Soft Tissue

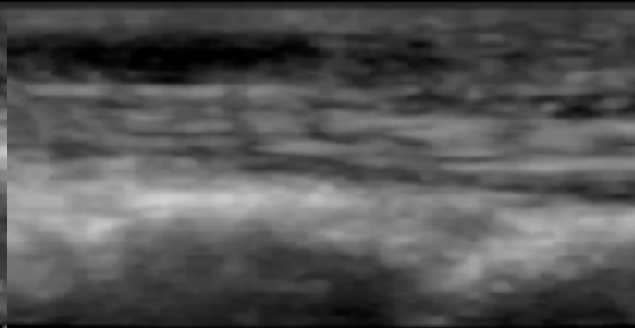
TIS: 0.01, MI: 0.22, MSK-Soft Tissue

TIS: 0.01, MI: 0.22, MSK-Soft Tissue

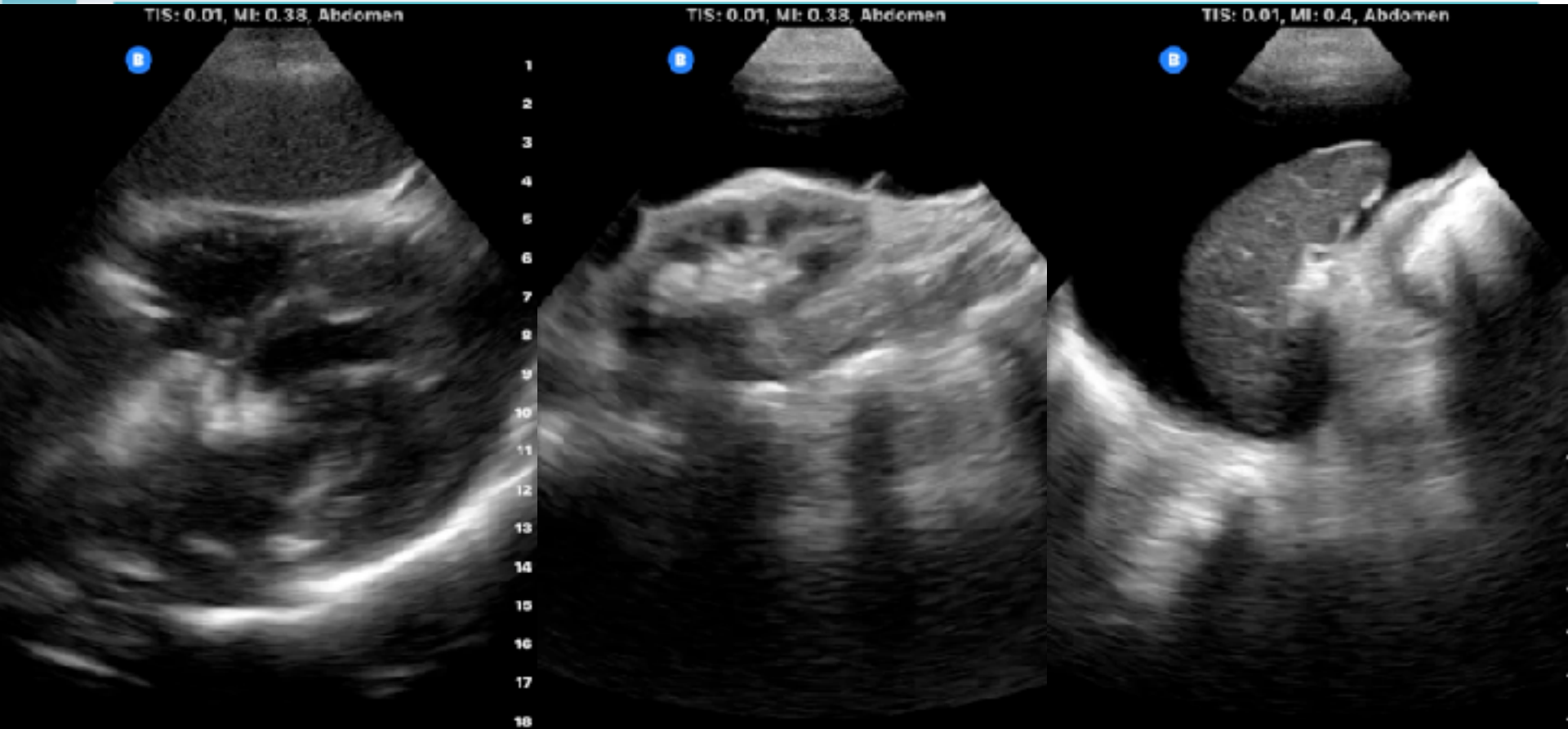
B

B

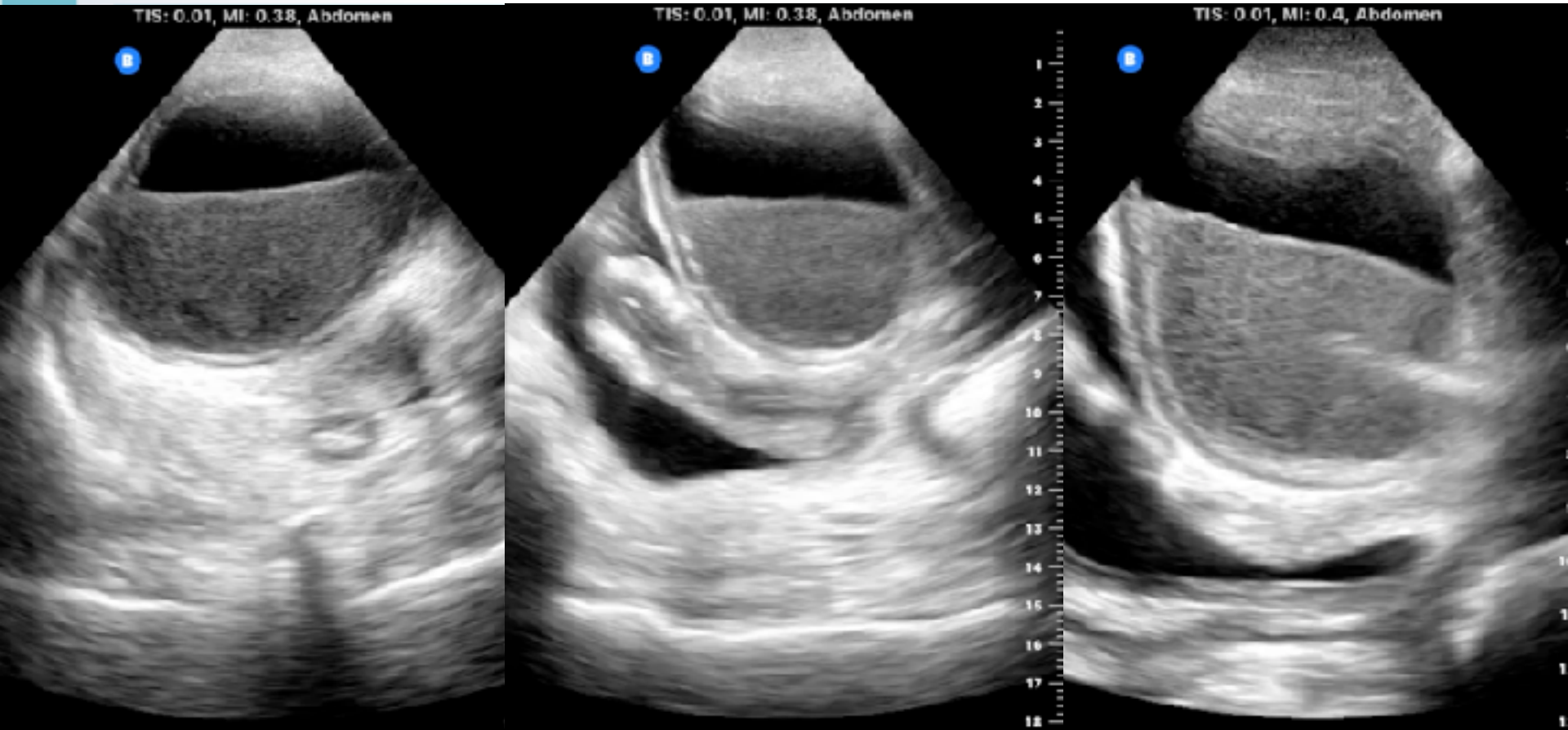
B



75F, shock & resuscitation



75F, shock & resuscitation



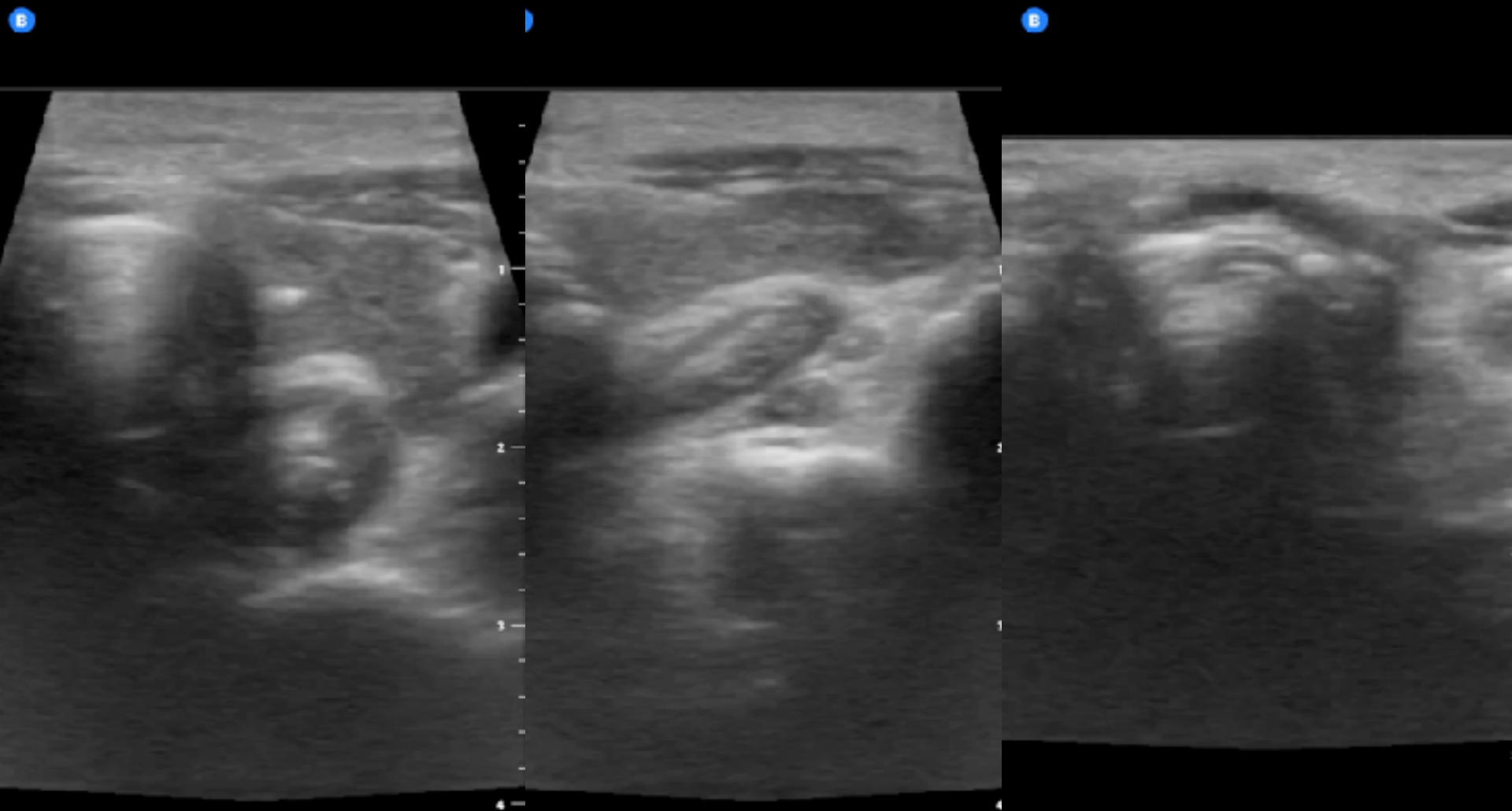
75F, shock & resuscitation



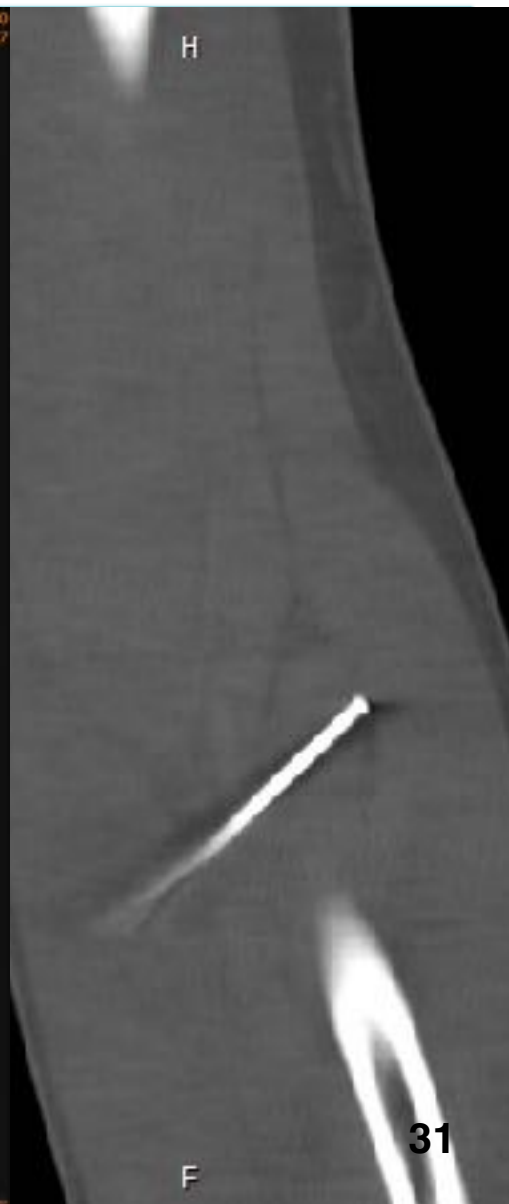
TIS: 0.01, MI: 0.35, MSK-Soft Tissue

TIS: 0.01, MI: 0.35, MSK-Soft Tissue

TIS: 0.01, MI: 0.26, MSK-Soft Tissue

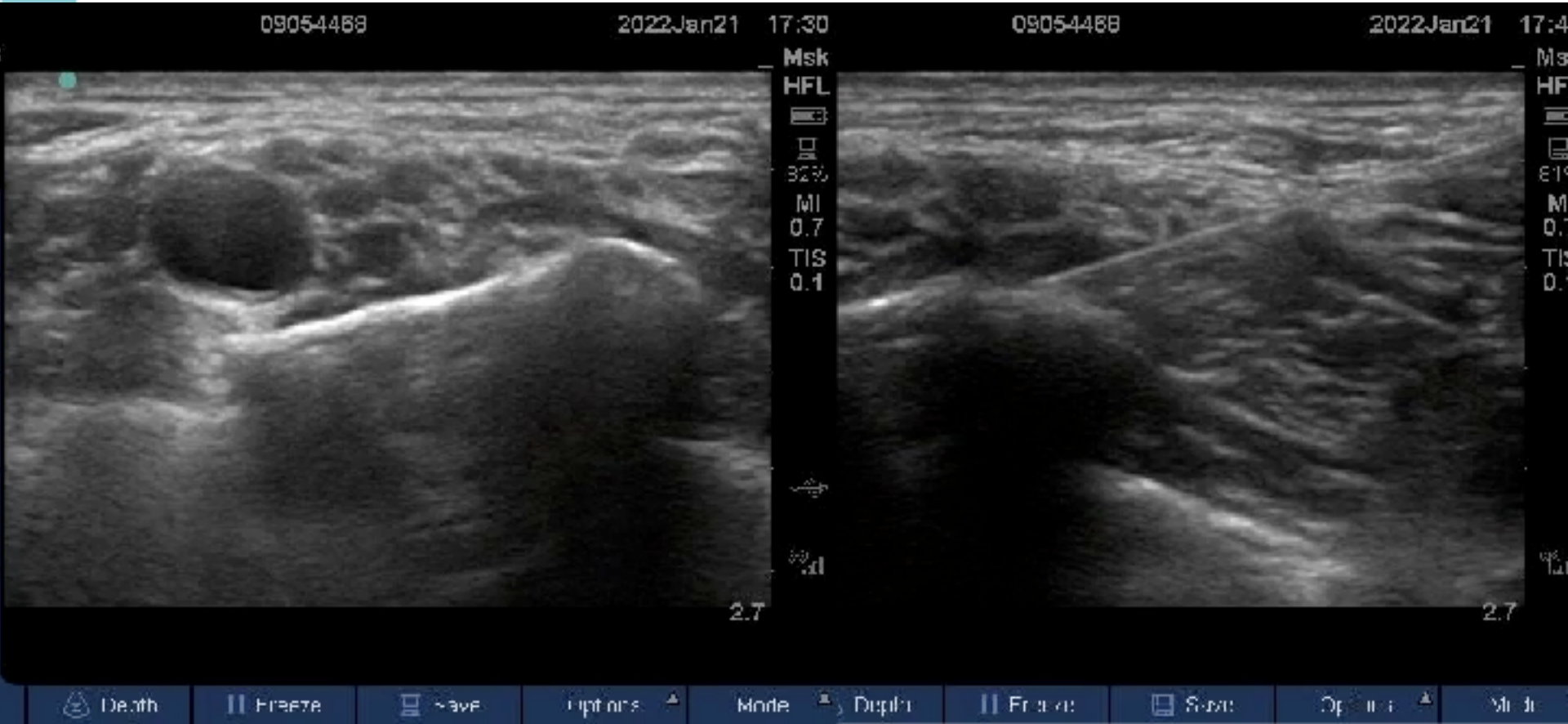


64M, left elbow FB





64M, left elbow FB



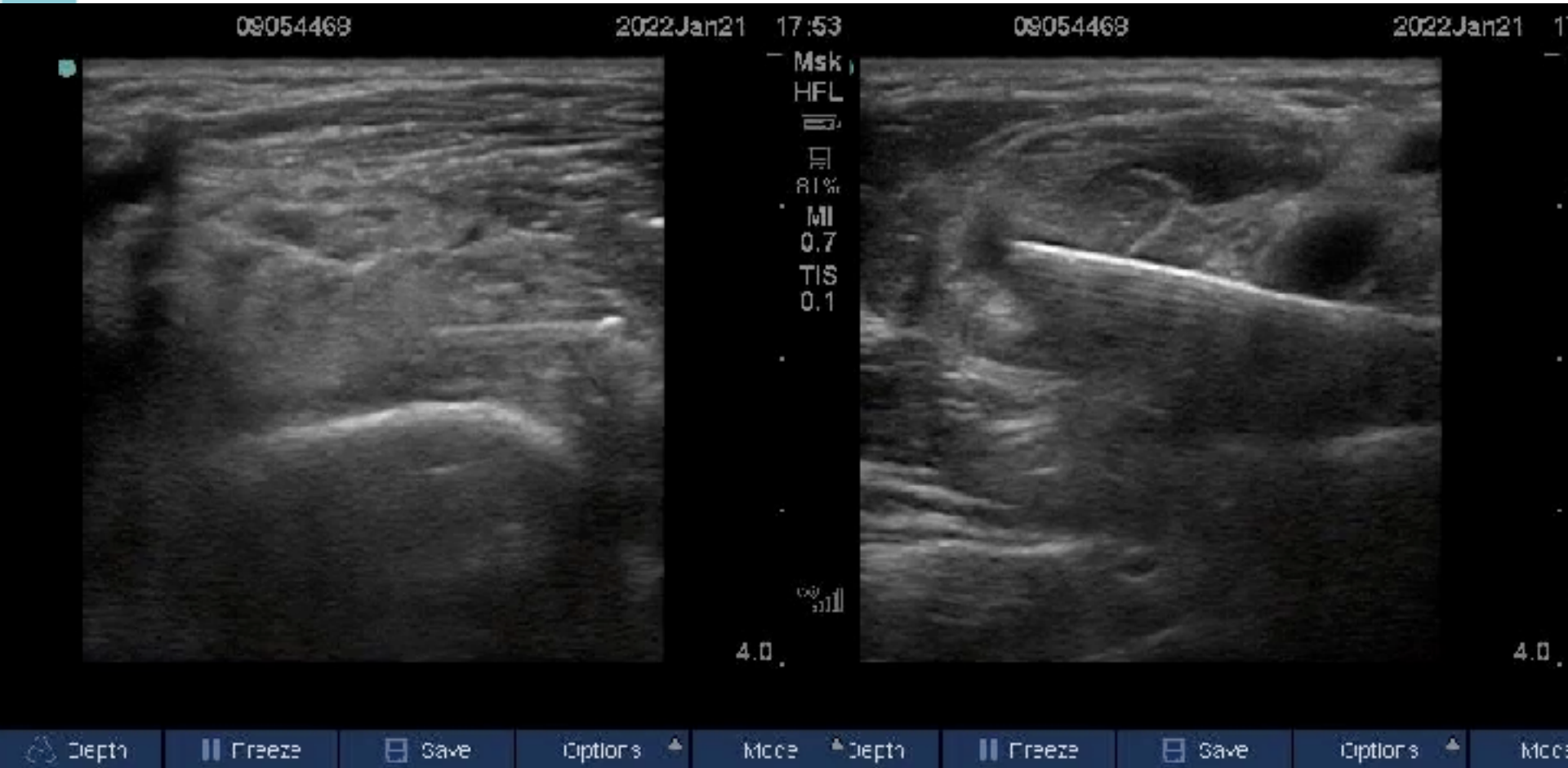
Supraclavicular brachial plexus block



Supraclavicular brachial plexus block



64M, left elbow FB



64M, left elbow FB removal



64M, left elbow FB removal

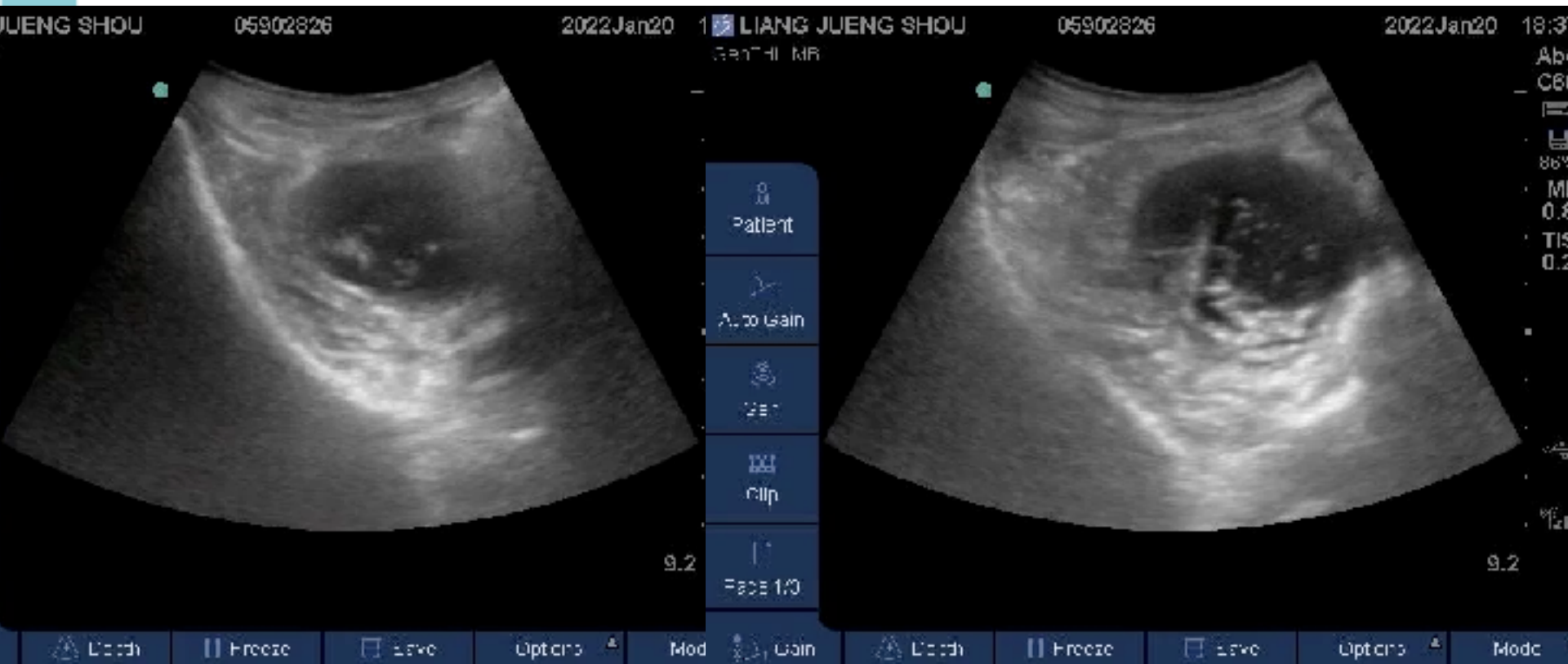


85, Psoas muscle abscess





85, Psoas muscle abscess





85, Psoas muscle abscess

LIANG JUENG SHOU

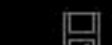
05902826

2022Jan20 18:38

GenTHI MB

Abd

C60



85%

MI

0.8

TIS

0.2



Patient



Auto Gain



Gen



Clip



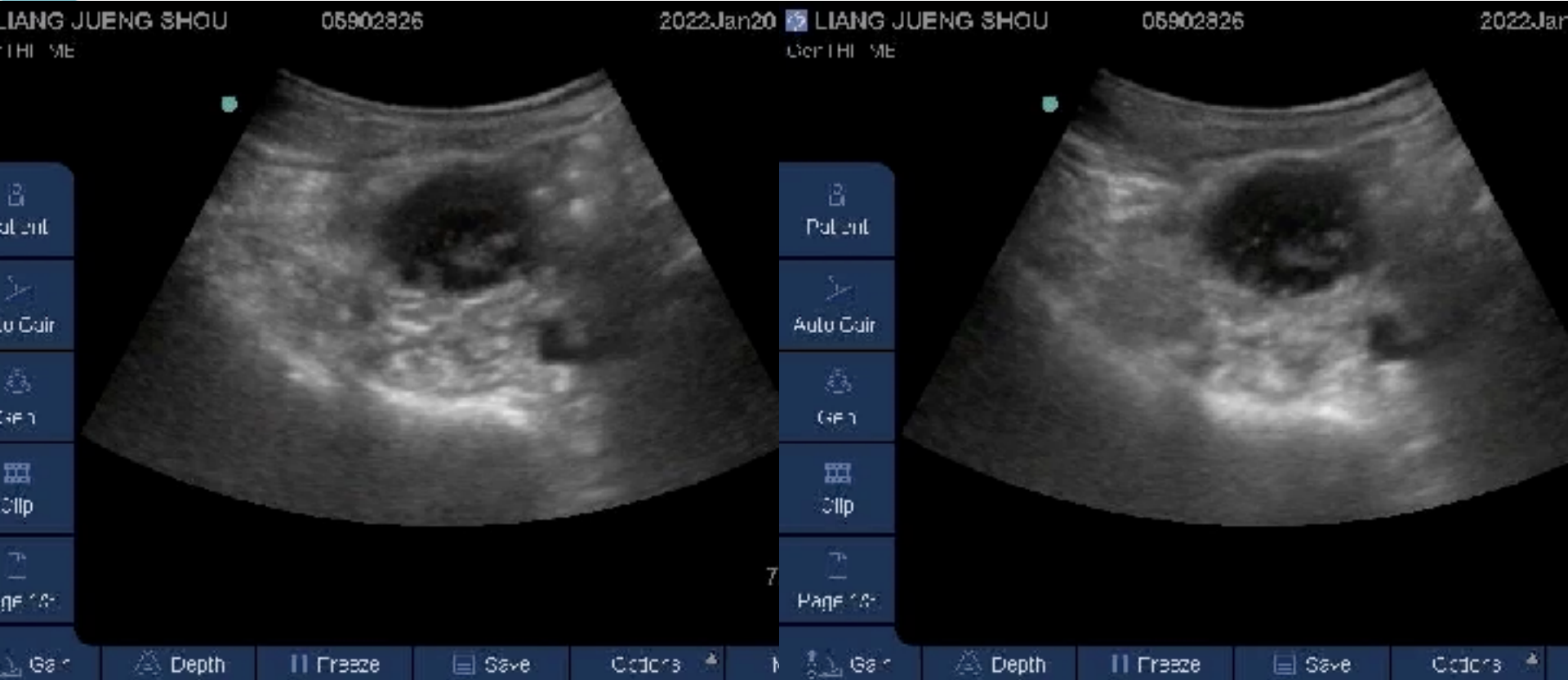
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7.8

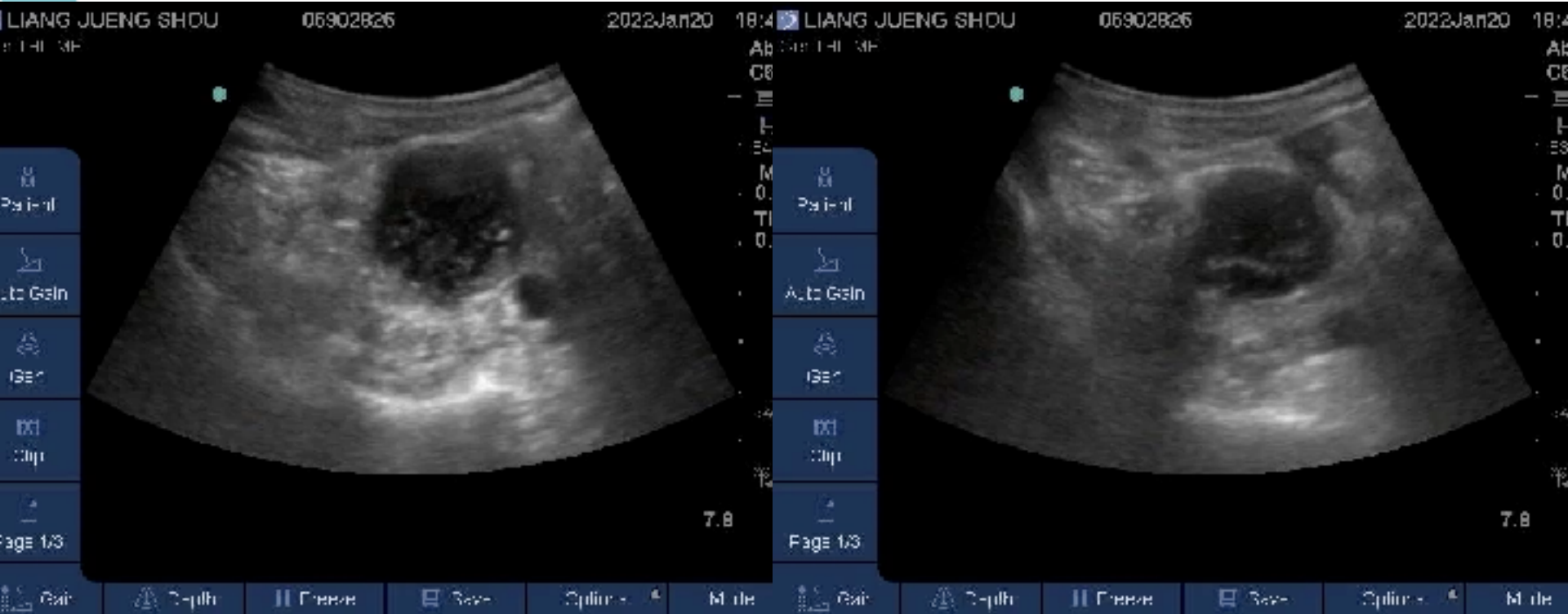


85, Psoas muscle abscess





85, Psoas muscle abscess





85, Psoas muscle abscess

