Uterusun 2 ve 3 boyutlu ultrason ile değerlendirilmesi-

doğru ve eksiksiz teknik nasıl olmalı?

Vaka örneklerle uterin anomaliler

Telce Ayşen Küçükceran

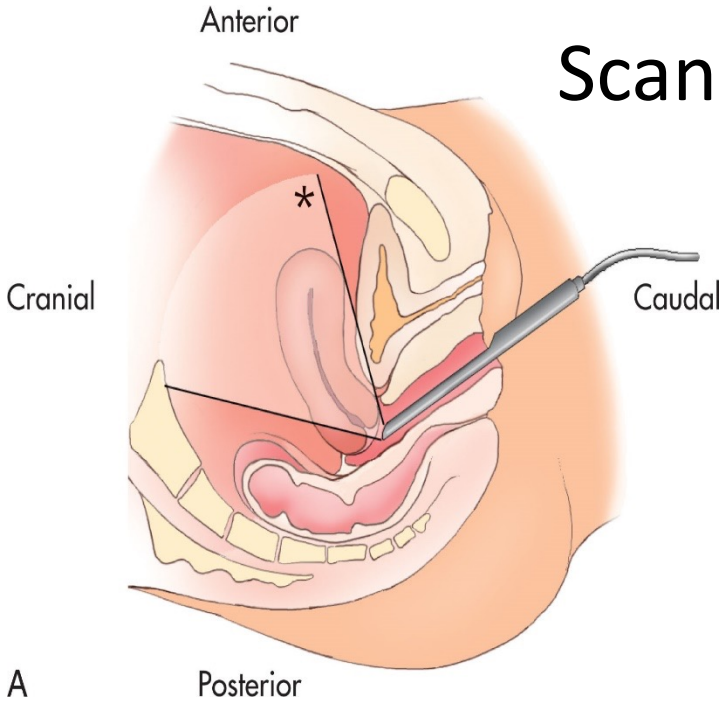
MİJİD 2023

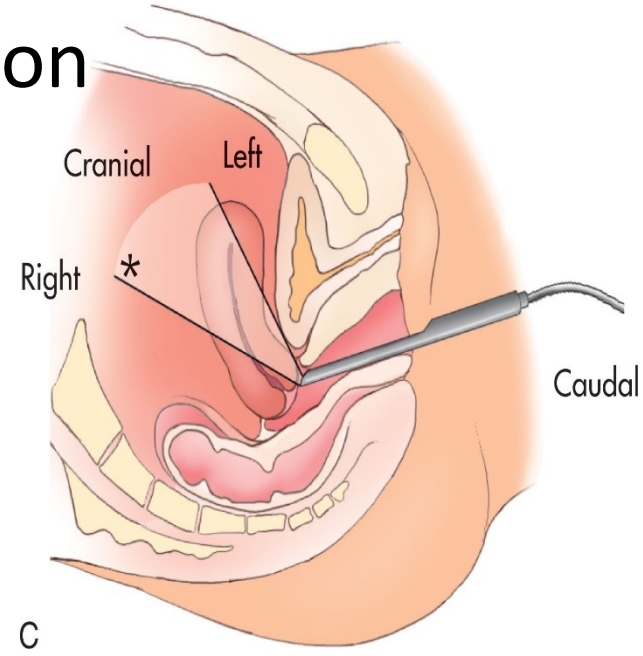
2D

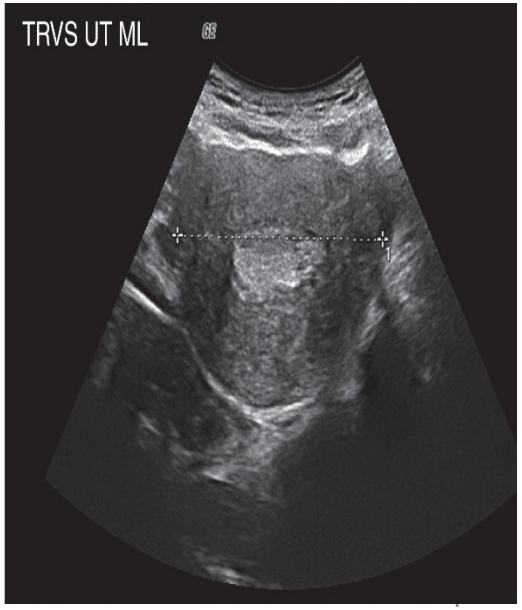
Preparation

- The bladder should be empty
- The transducer is prepared with coupling gel on the transducer face and then covered with a sterile latex free probe cover
- A sterile external lubricant is then applied to the outside of the probe cover
- Instruct the patient that only a short portion of the end of the transducer is introduced into the vaginal canal

Scan Orientation







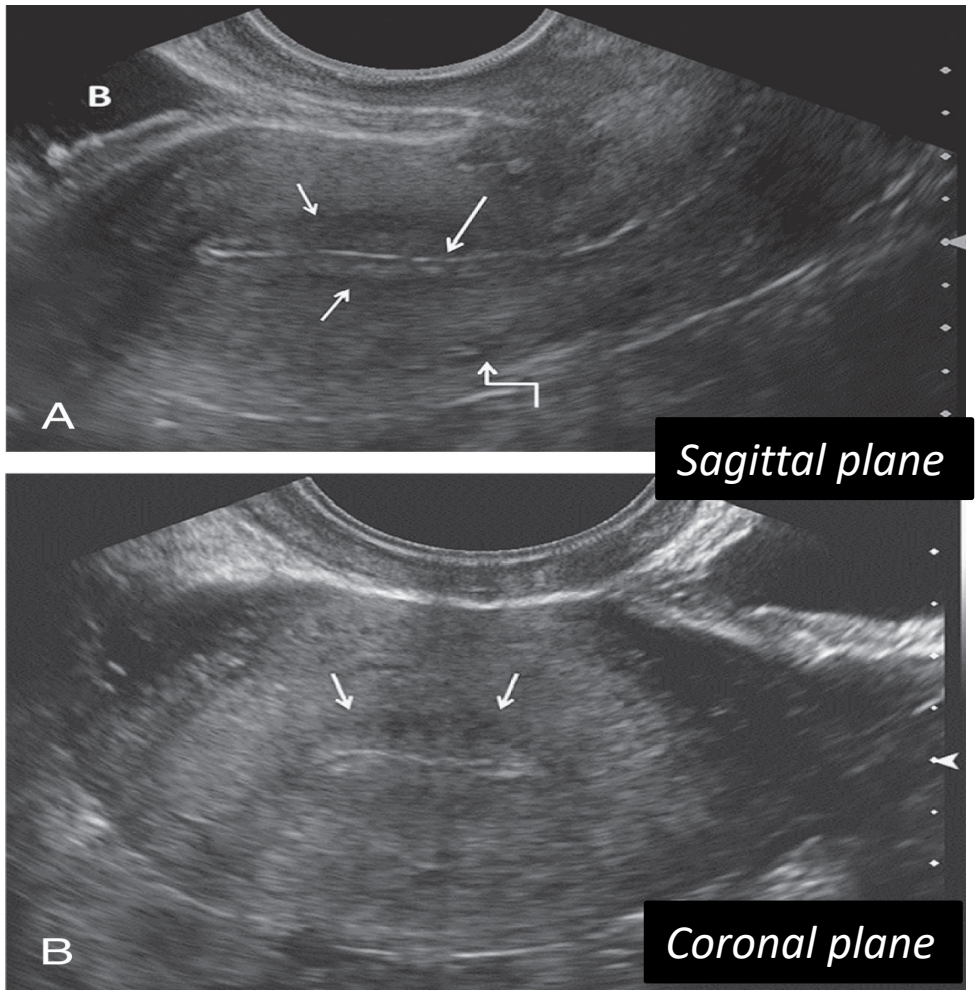
Scan Protocole

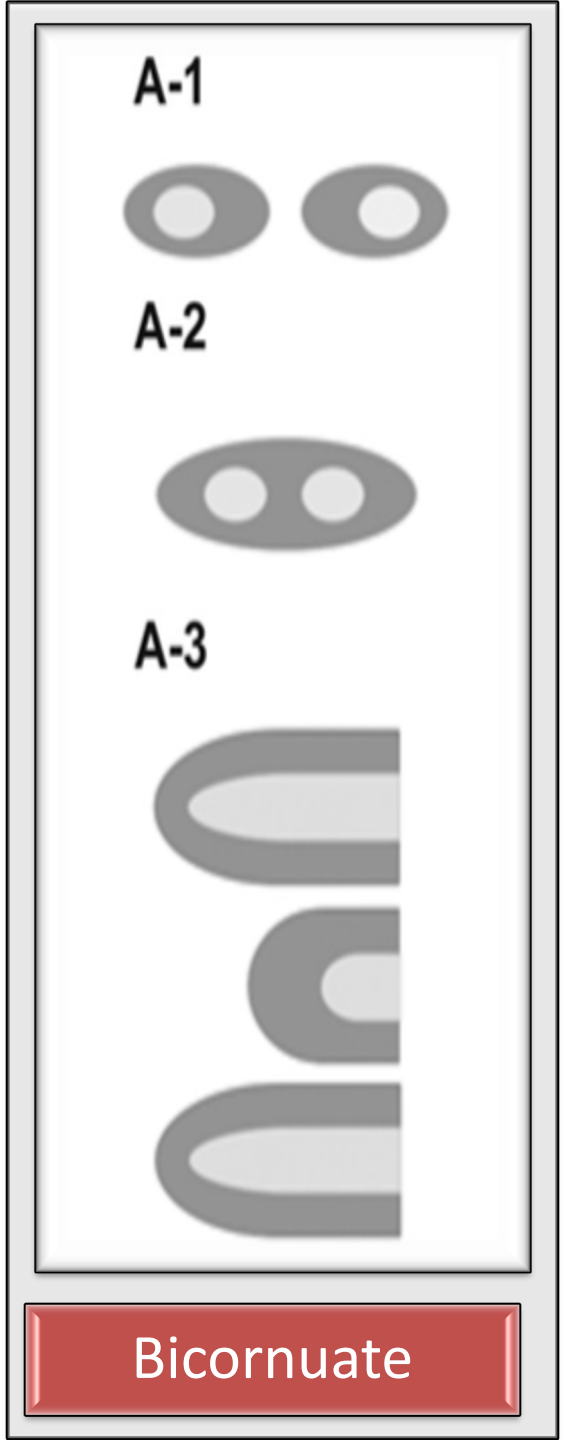
*uterus should cover at least 70% of the whole screen

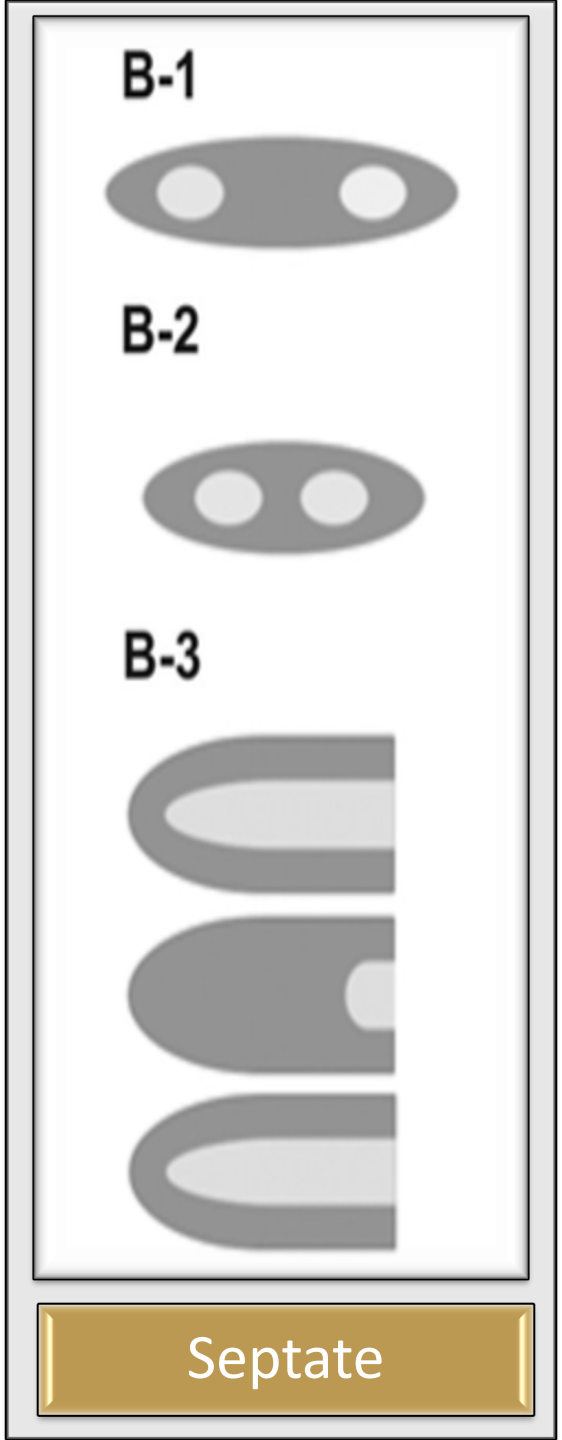
*First fundus to cervix in sagittal plane

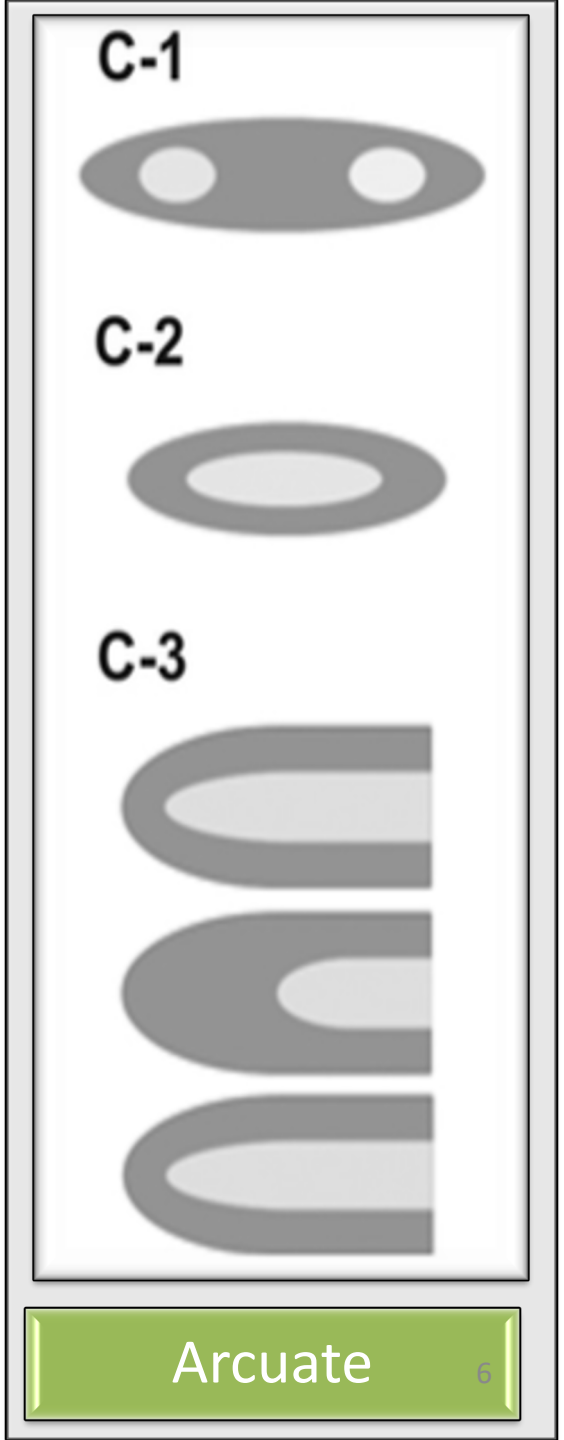
Then by slowly sweeping the beam in a sagittal plane from the midline through both adnexa to the lateral pelvic sidewalls.

The probe is then rotated to the coronal plane, and the beam is swept from the cervix to the fundus of the uterus




A-1
A-2
A-3
Bicornuate

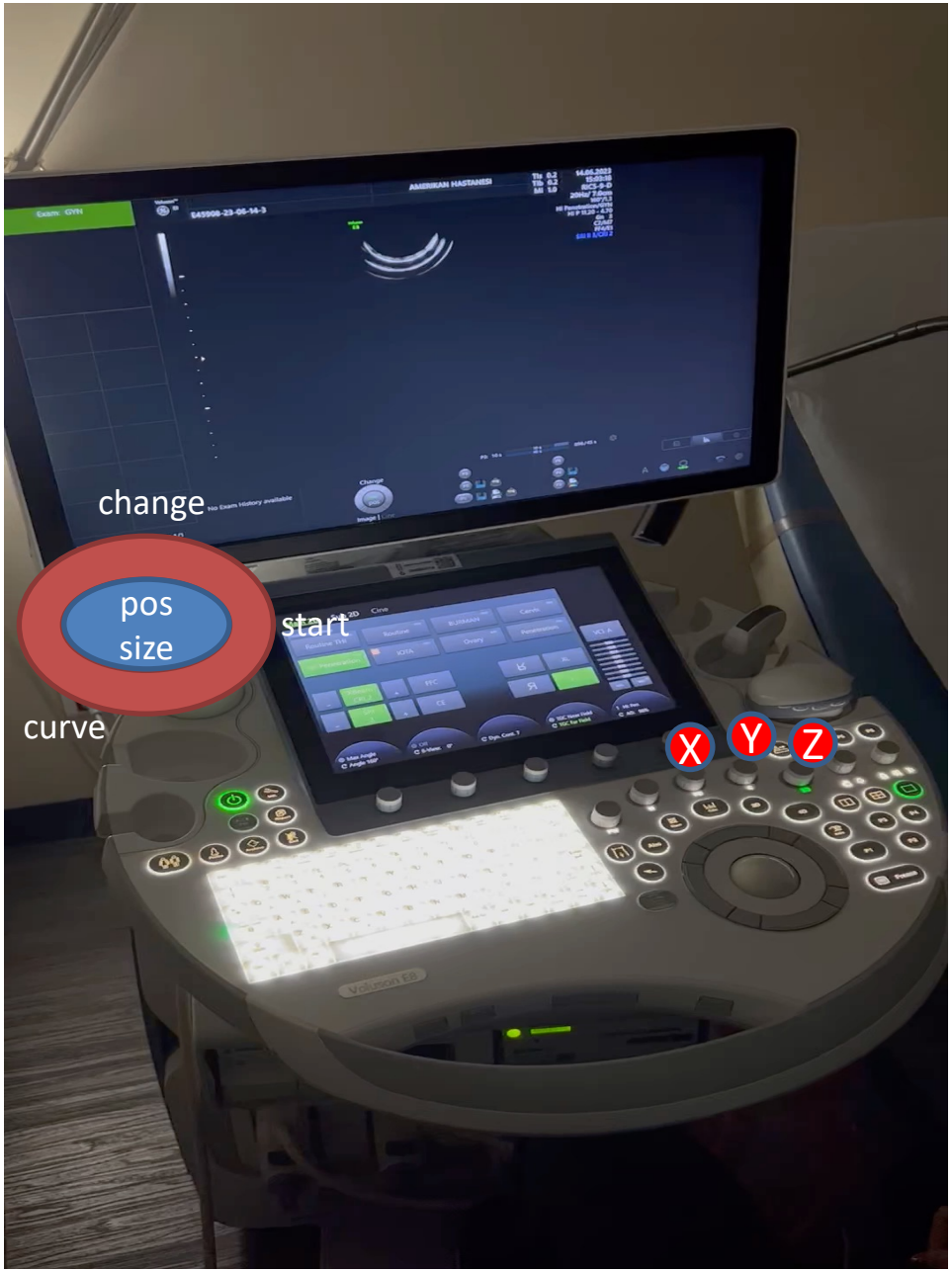

B-1
B-2
B-3
Septate


C-1
C-2
C-3
Arcuate

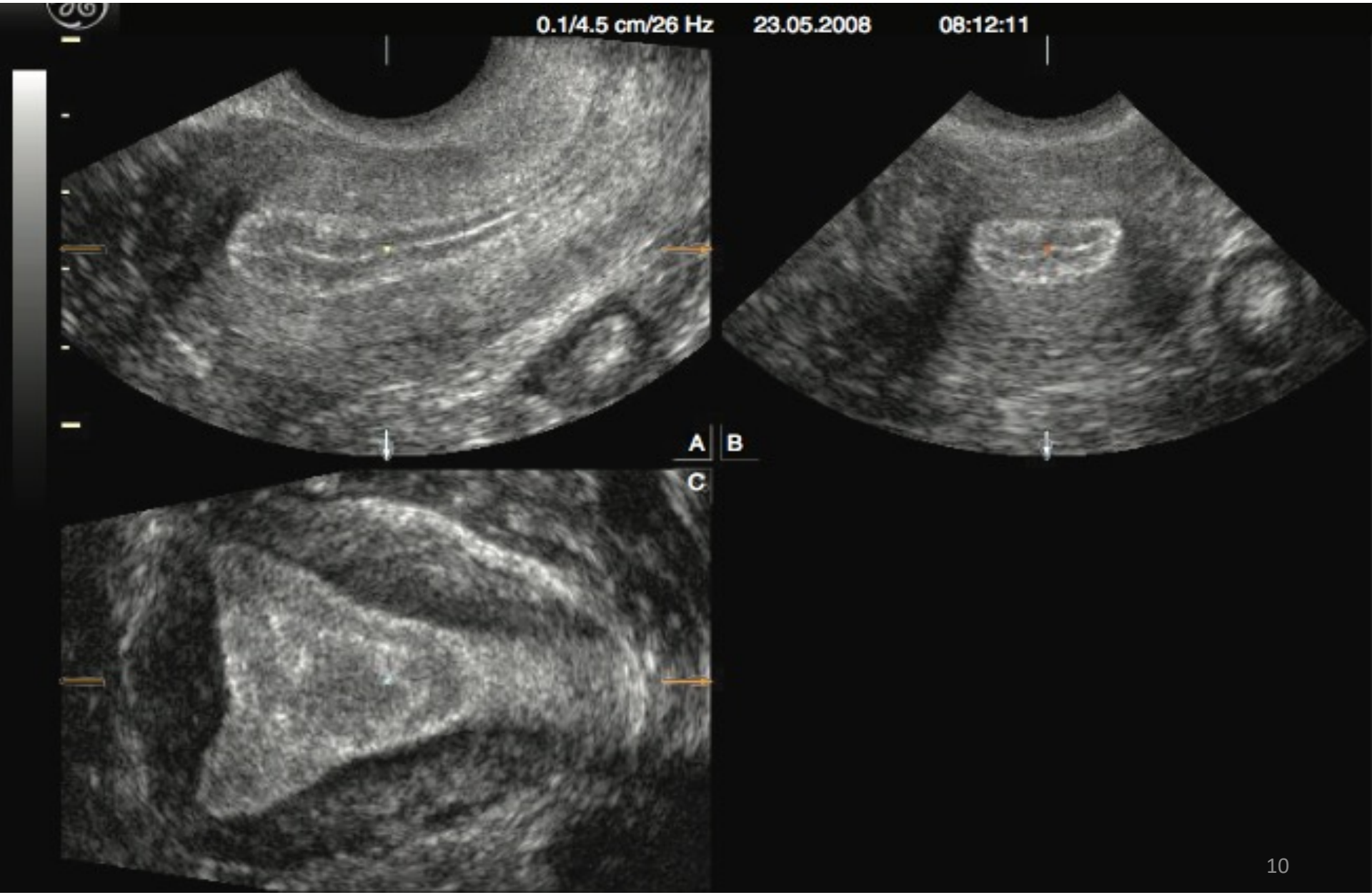
3D
Reconstruction of coronal plane

- 3D ultrasound should be used as an adjunct to 2D ultrasound and performed after a baseline assessment has been concluded.
- Datasets of these organs are typically acquired and analyzed after the patient has gone (virtual review).

- X-Y-Z axis and coronal plane
- ROI (region of interest) line or curve meet with endometrium
- Construct coronal plane

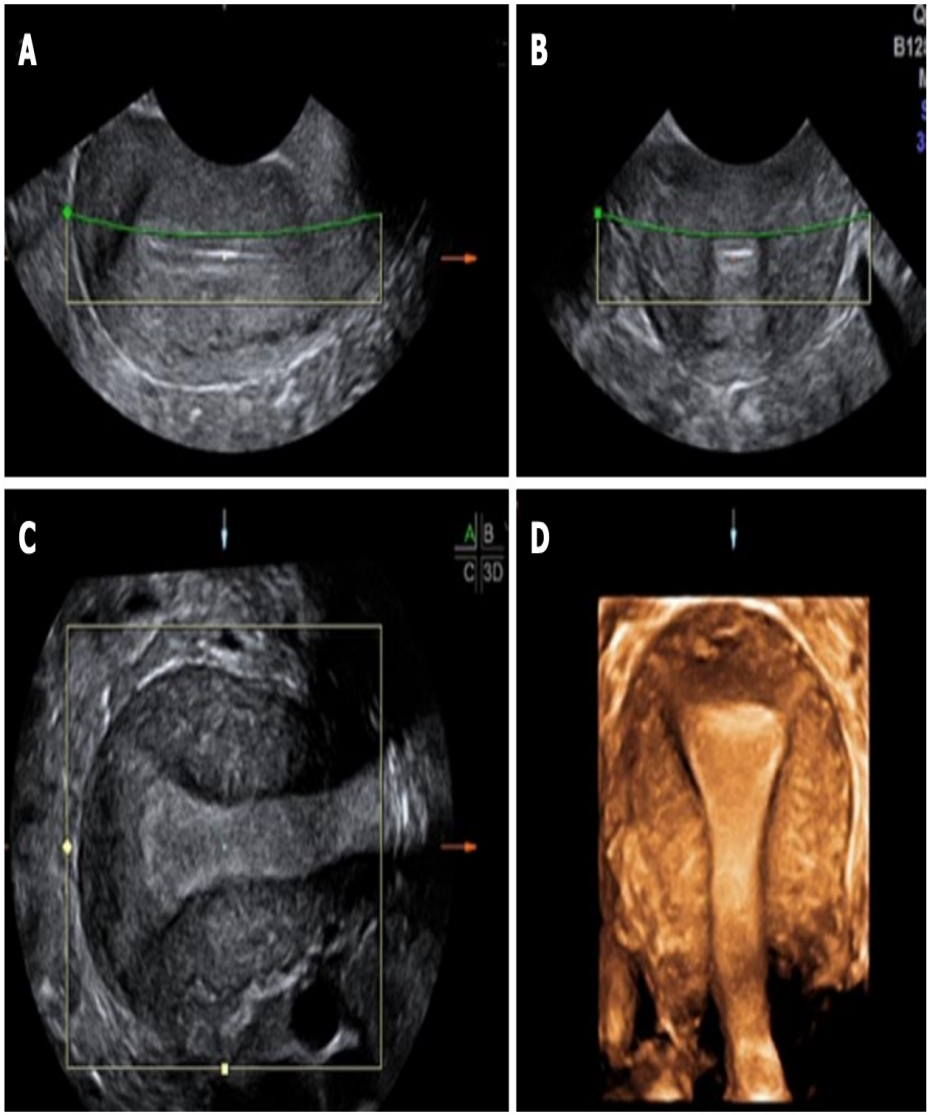


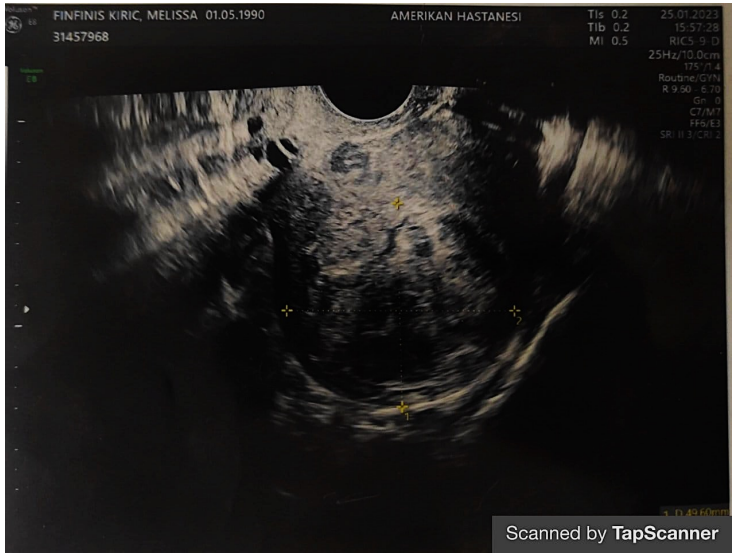
Multiplanar image

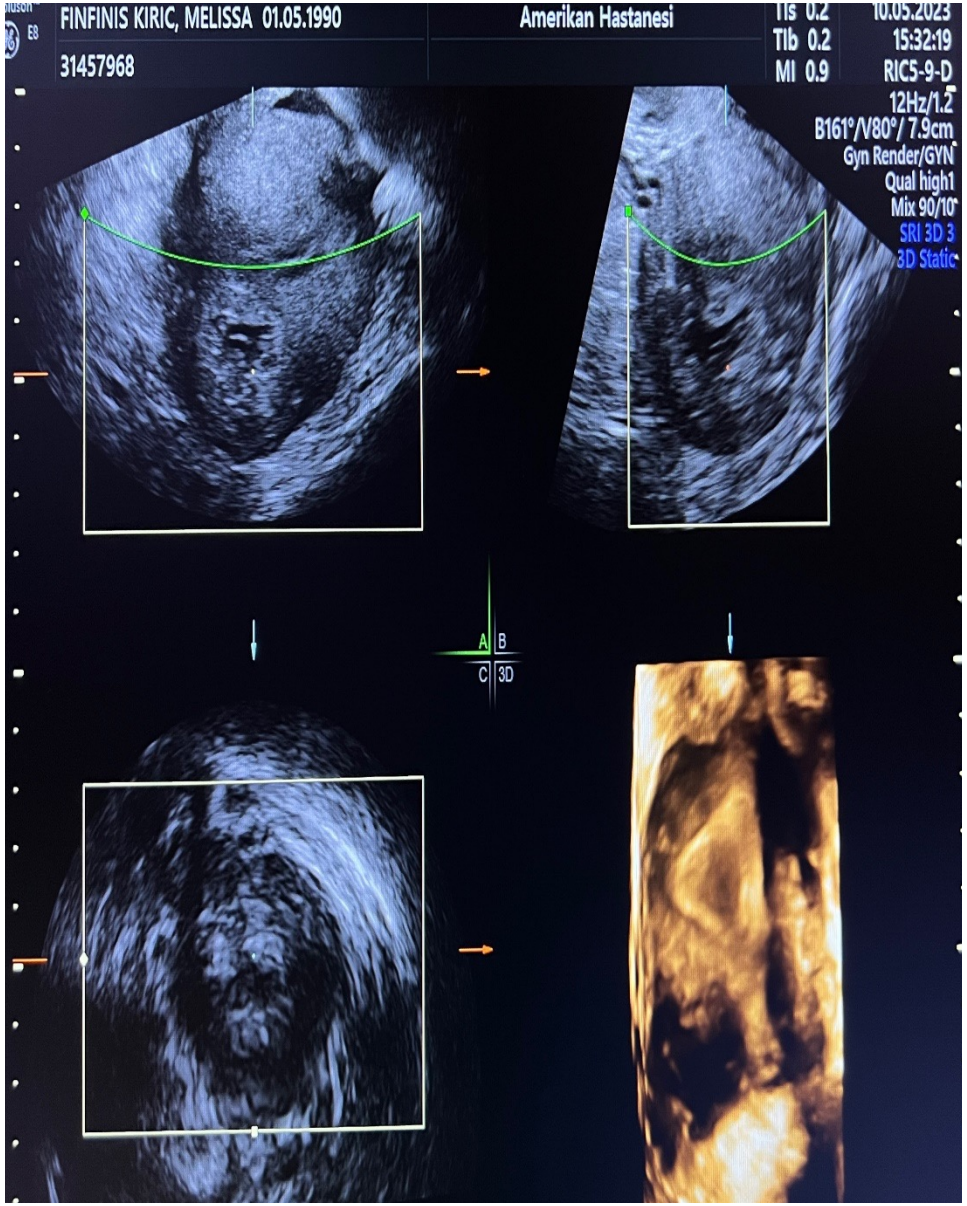


Steps for the application of the "Z rotation" technique

- Step 1: Position the reference marker/dot et the level of the mid-cavity over the endometrial stripe in the sagittal plane (A)
- Step 2: Use the Z rotation to align the long axis of the endometrial stripe along the horizontal axis in the sagittal plane of the uterus
- Step 3: Position the reference marker/dot et the level of the of the mid-cavity over the endometrial stripe in the transverse plane (B)
- Step 4: Use the Z rotation to align the endometrial stripe with the horizontal axis in the transverse plane of the uterus
- Step 5: Following step 4, the coronal plane of the uterus will be displayed in plane C (C); use the Z rotation on plane C to display the midcoronal plane in the conventional orientation (D)







PREOP

POSTOP 15.GÜN

Start via 2D

Maximal sweep angle 120°

Render box include all part of uterus

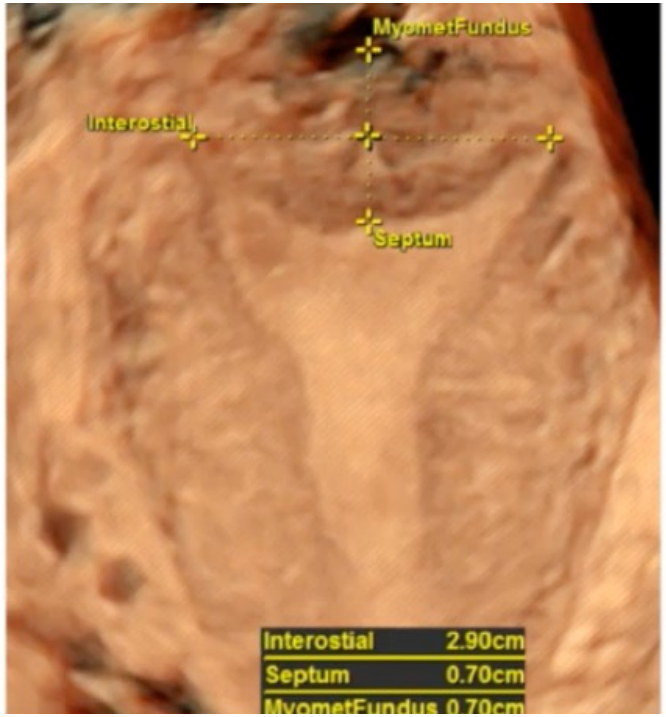
Keep probe in a stable position

Tell your patient holding the breath

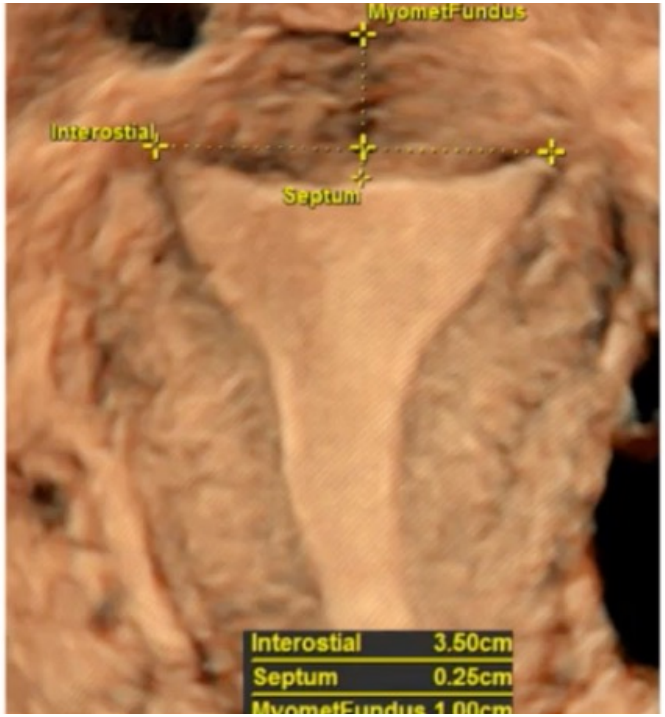
POSTOP 45.GÜN


Exam: GYN
Clipboard: 8/231.93 MB
OZKAN, BUSRA 28.09.1994
31466862
AMERIKAN HASTANESI
No Exam History available
Page 1/1
Main 3D
Sub 3D
xTouch

Ideal time: midluteal phase



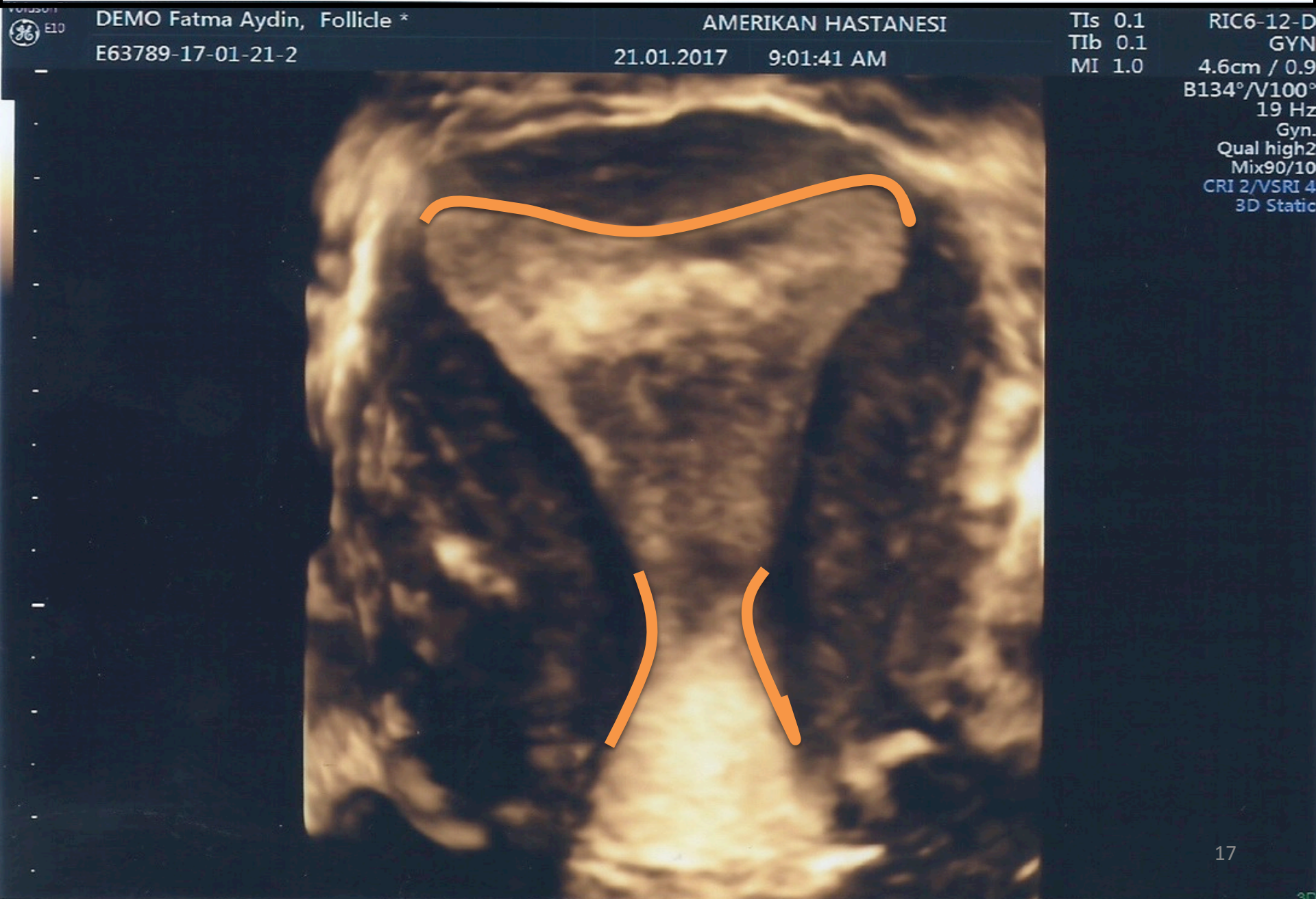
Early follicular



Midluteal

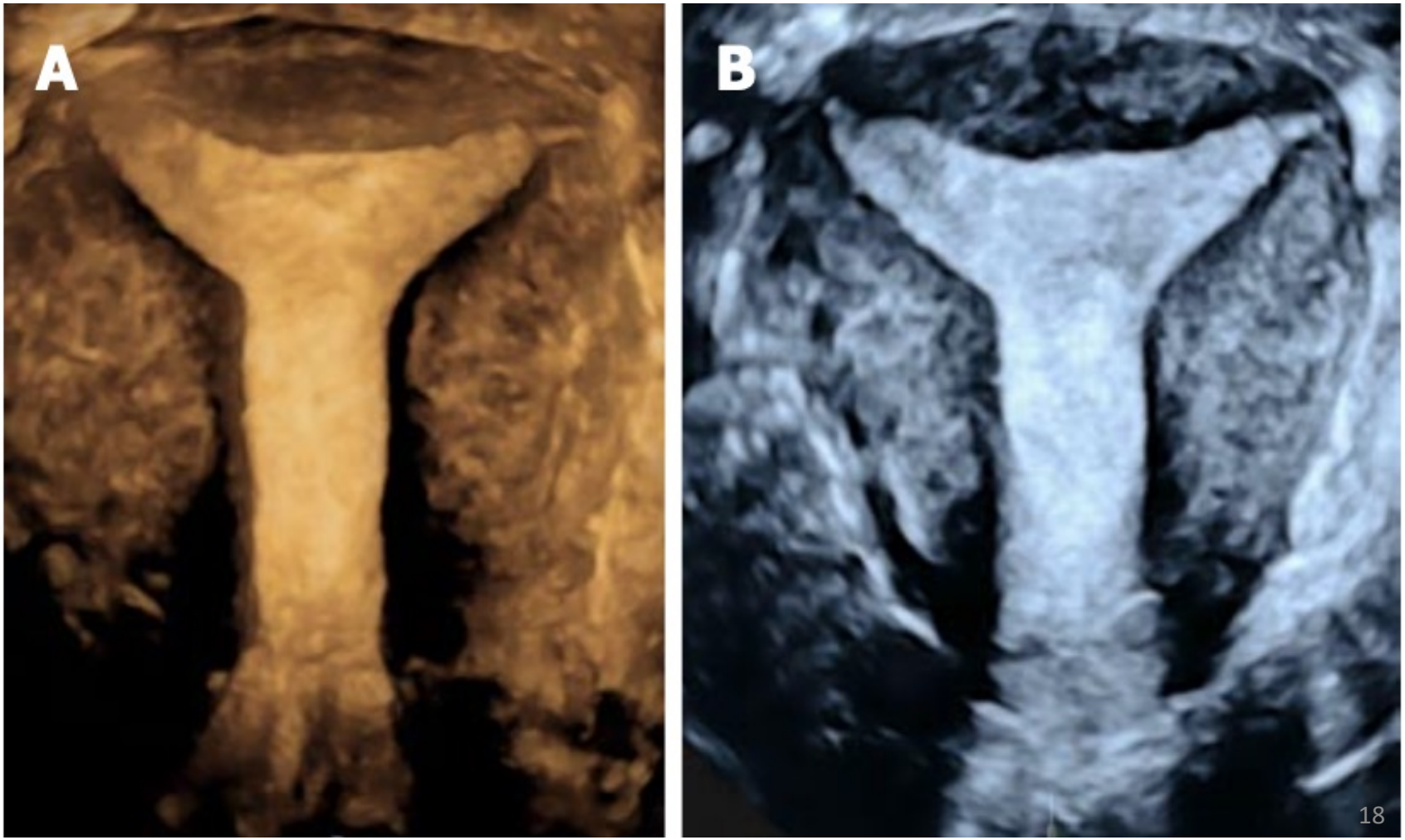
Uterus anomalileri

Rendering image



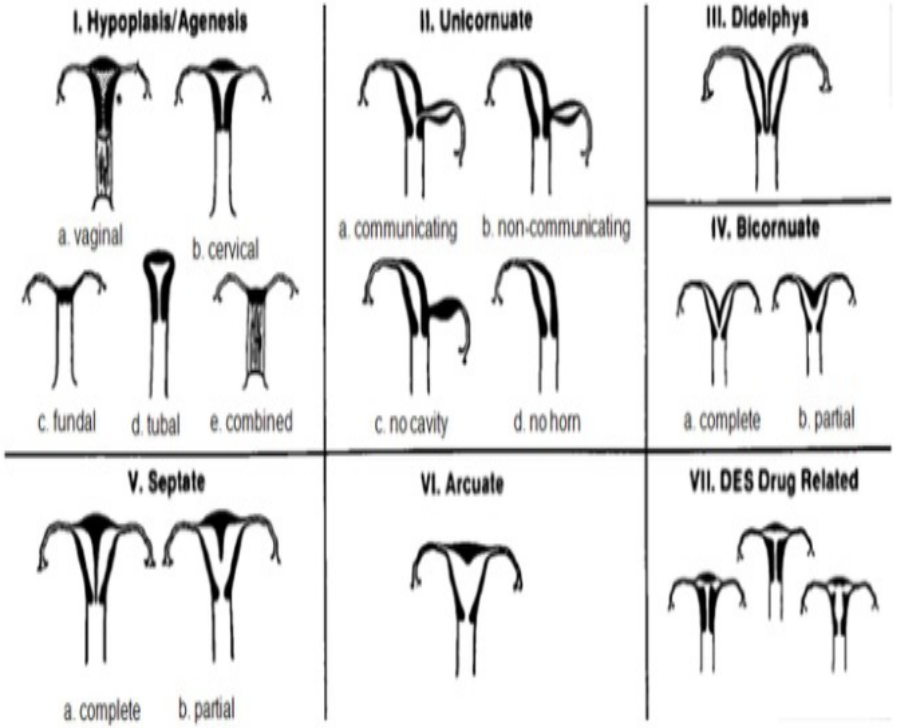
post-processing functions

surface render volume contrast imaging

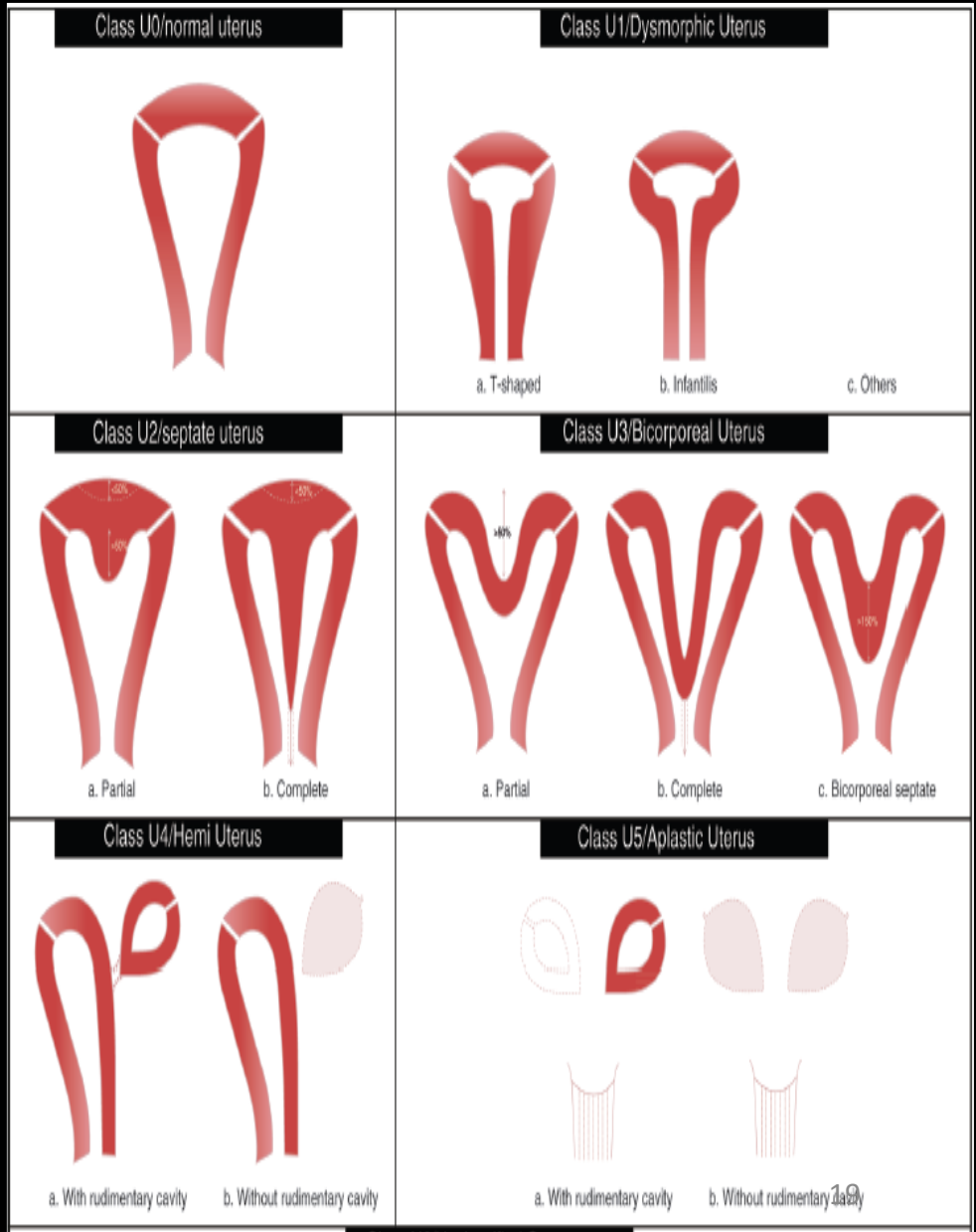


ASRM 1988

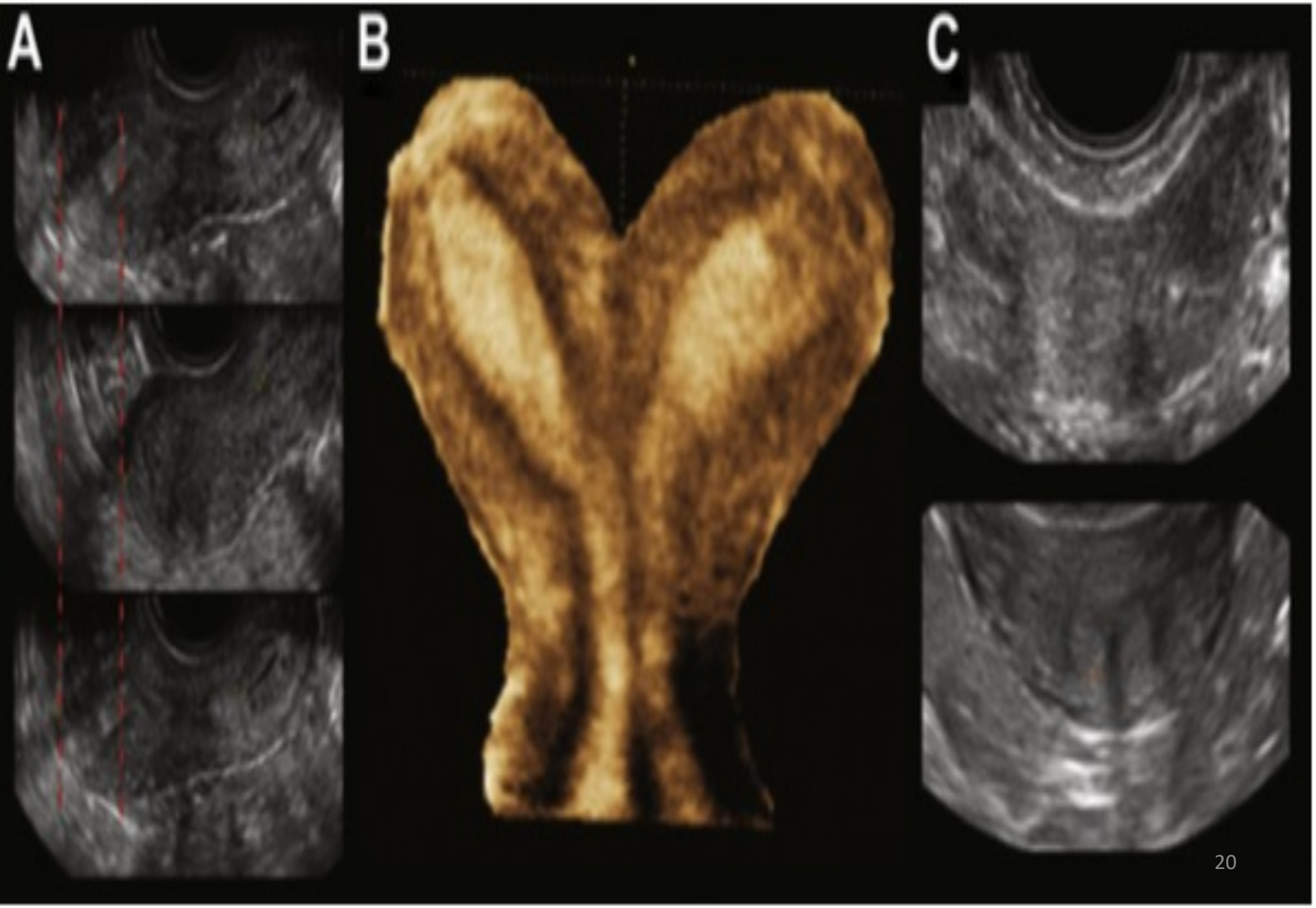
Current Classification of Müllerian Anomalies



ESHRE-ESGE 2013



2D sagital view and 3D view of a bicornuate uterus



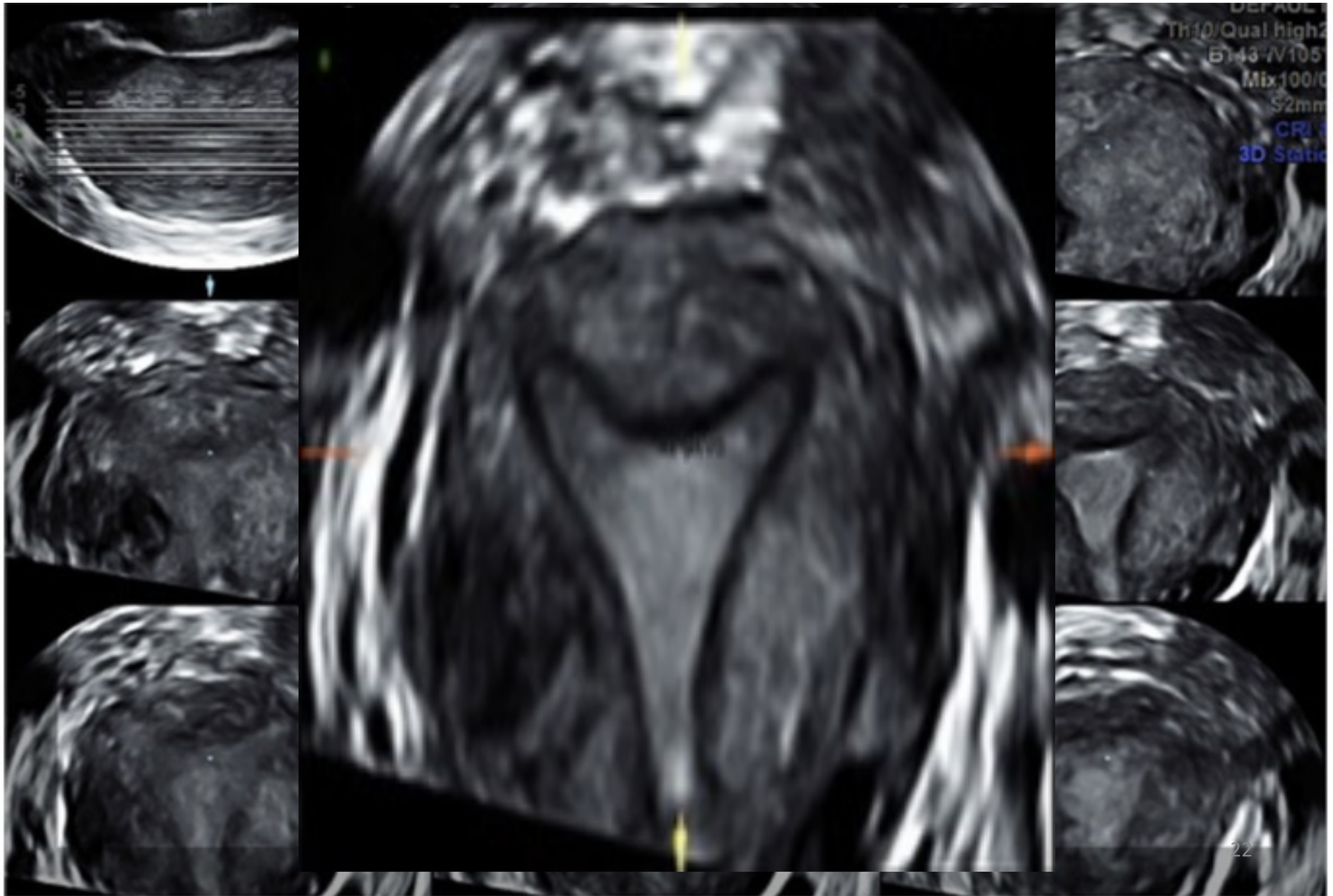
Different USG examination methods in the general detection of the most common congenital uterine anomalies

	Initial 2D-TVS	Expert 2D-TVS	2D-SIS	3D-TVS	3D-SIS
AUC (CI)	0.544 (0.365–0.723)	0.911 (0.814–1.000)	0.930 (0.835–1.000)	0.990 (0.966–1.000)	1.000 (1.000–1.000)
Accuracy	77.8%	90.6%	94.0%	97.4%	100.0%
Specificity	25.0%	91.7%	83.0%	100.0%	100.0%
Sensitivity	83.8%	90.5%	94.3%	97.1%	100.0%
PPV	90.7	99.0	99.0	100.0	100.0
NPV	15.0	52.4	64.7	80.0	100.0

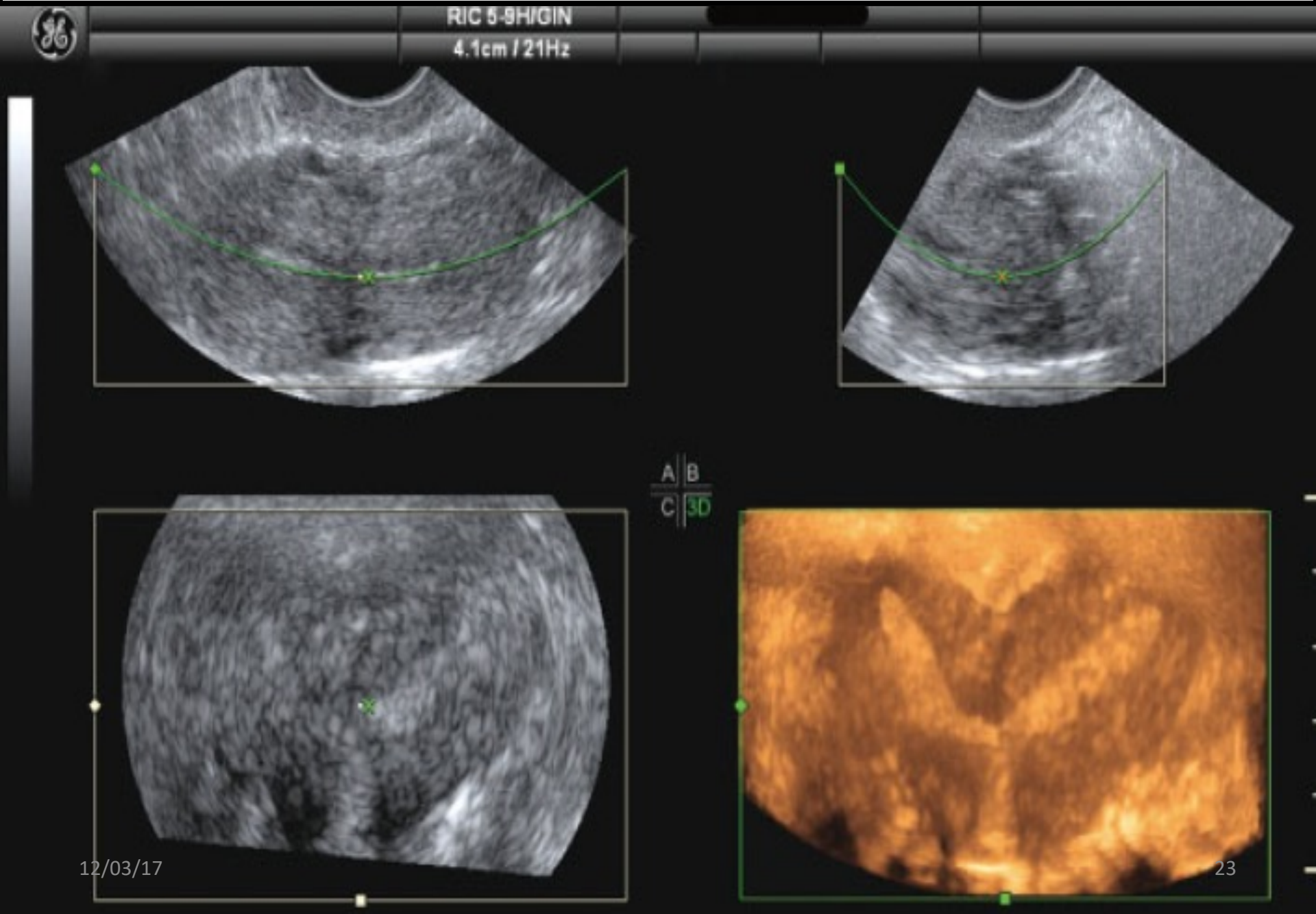
AUC = area under curve; CI = confidence interval; PPV = positive predictive value; NPV = negative predictive value.

From Ludwin A et al., 2012

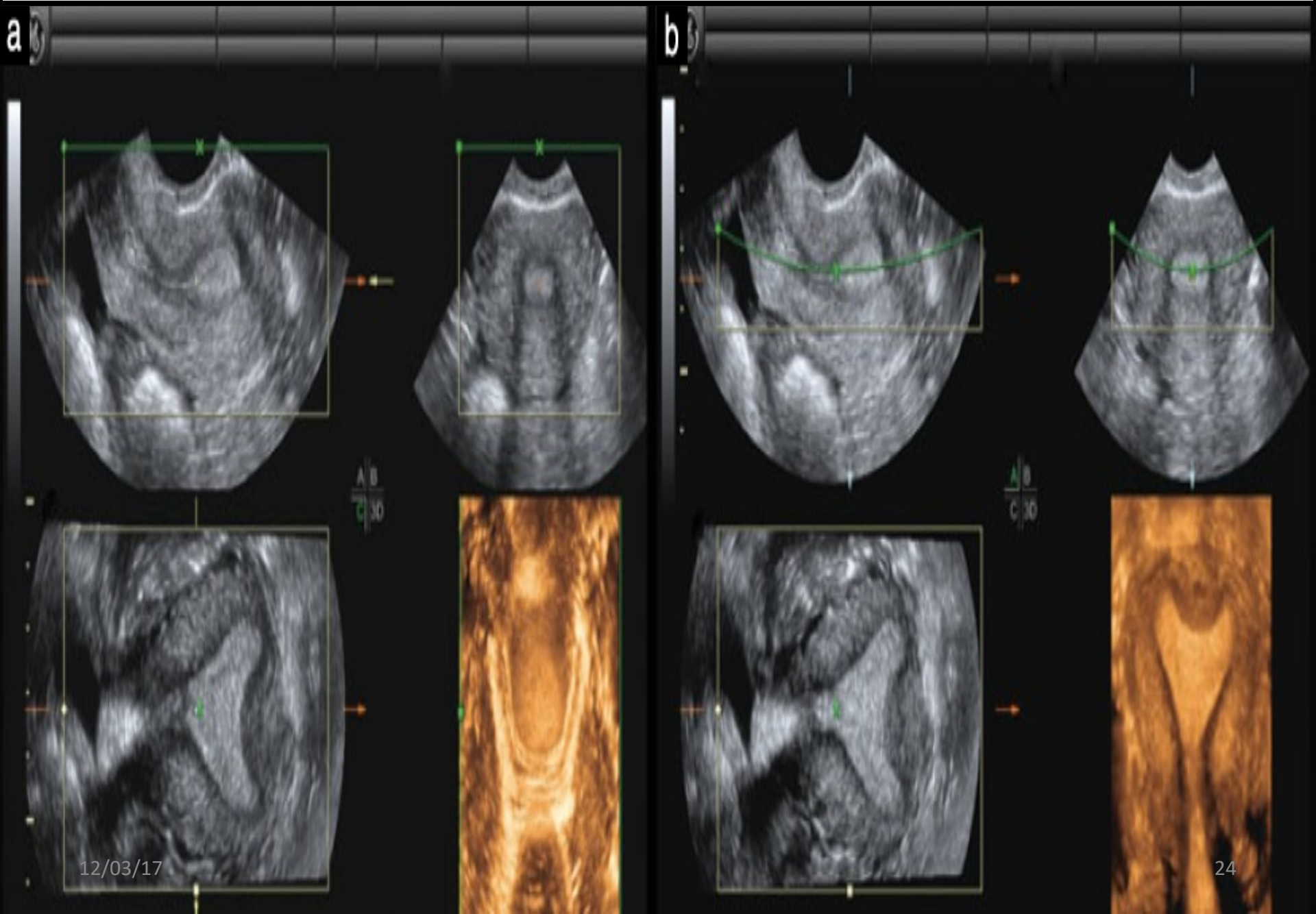
Step 1: Obtain an optimal coronal view



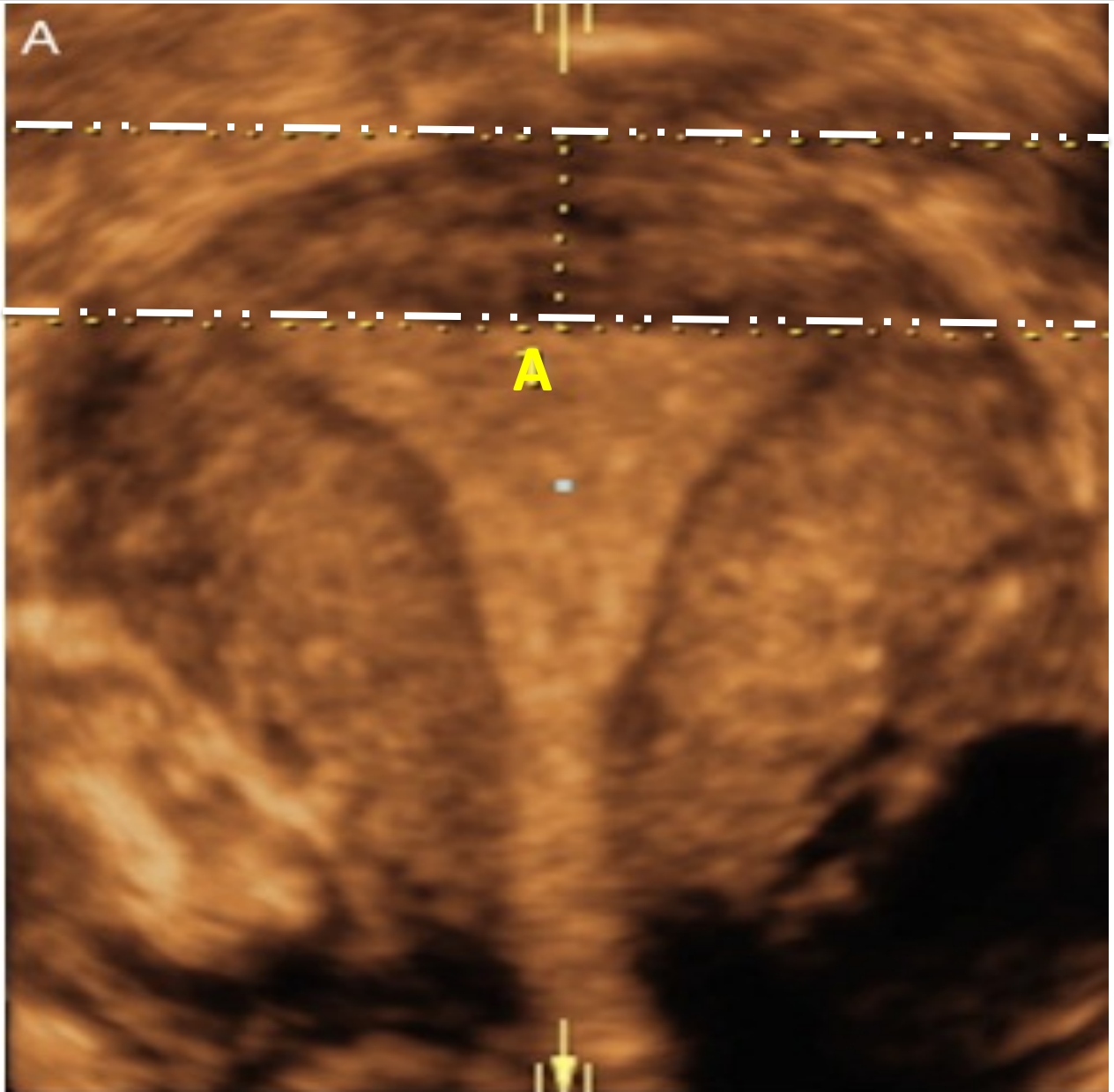
Procedure to obtain a rendered image of an bicornuate uterus



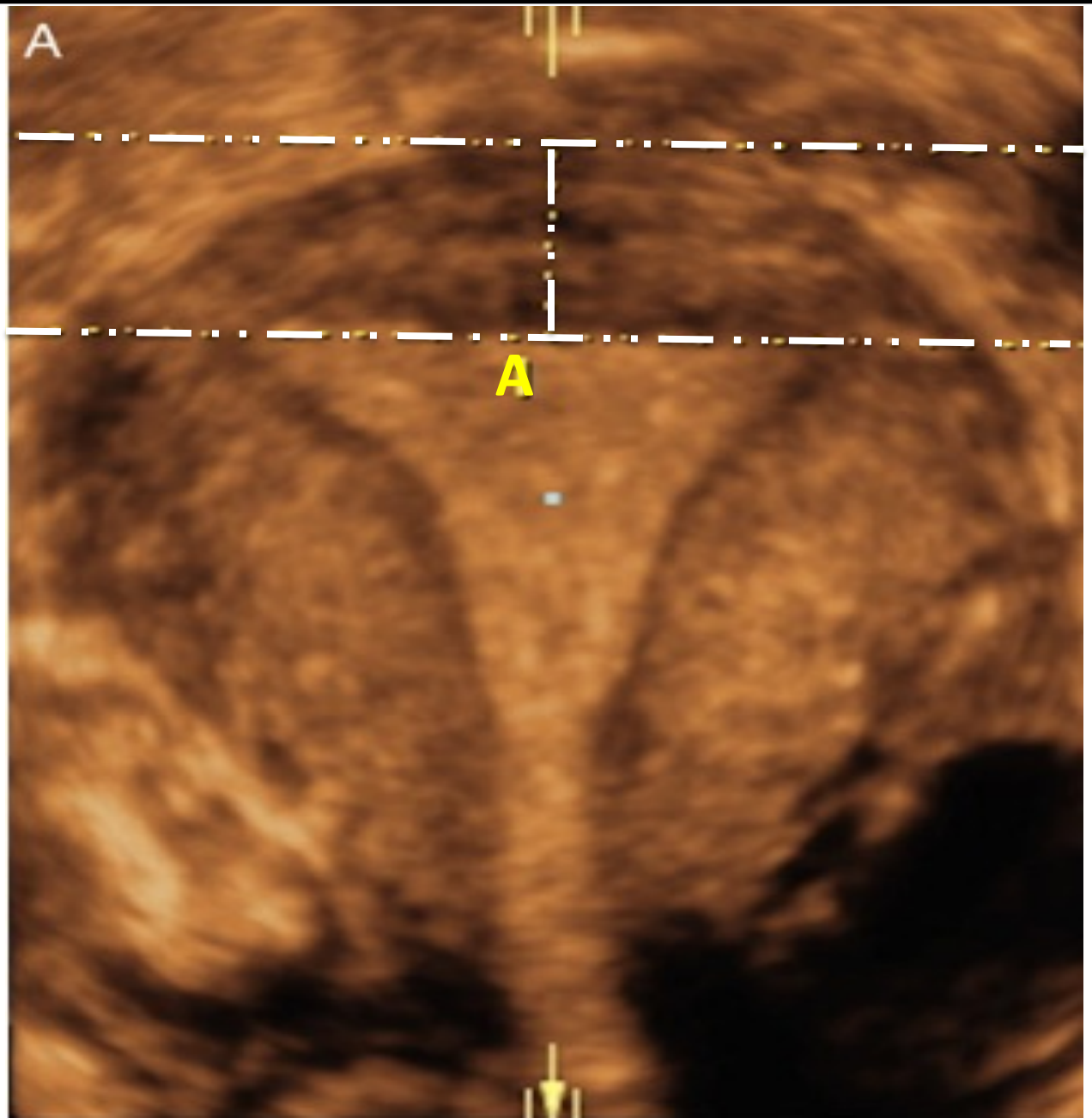
Procedure to obtain a rendered image of an arcuate uterus



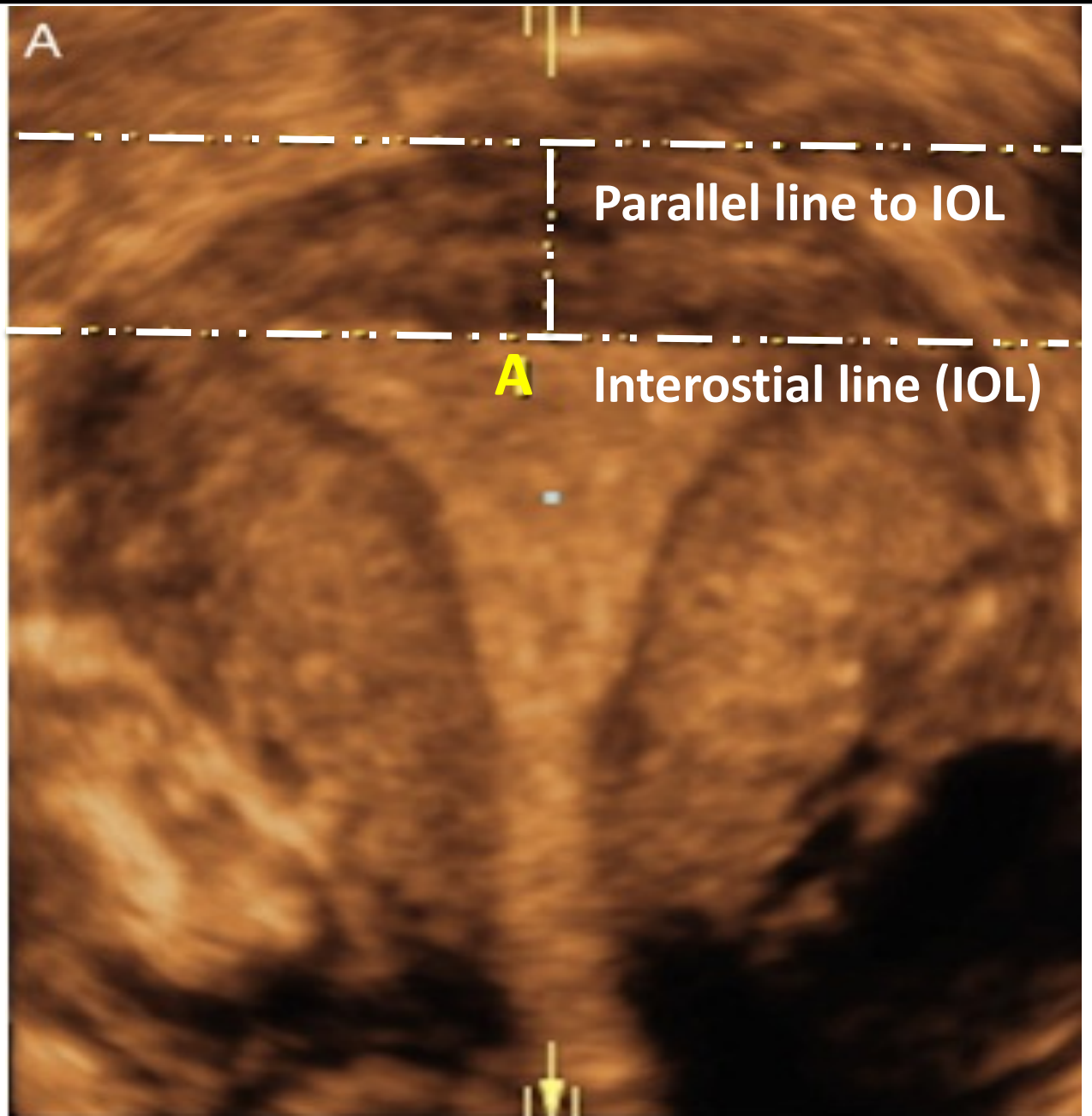
Step 1: Draw the line connecting the tubal ostia and external uterine outline



Step 2: Measure the uterine wall thickness

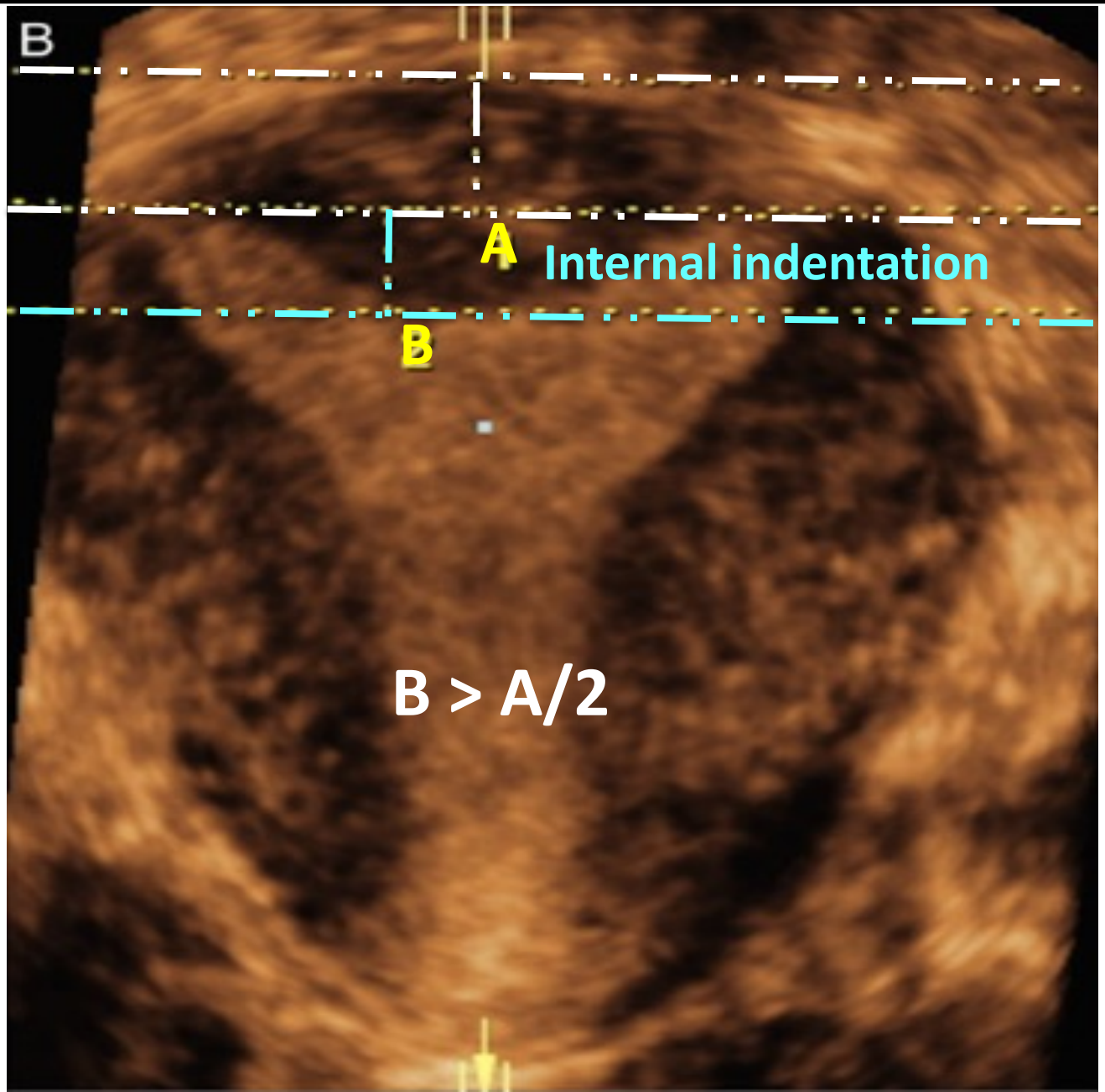


Step 3: Estimating the length of any internal indentation



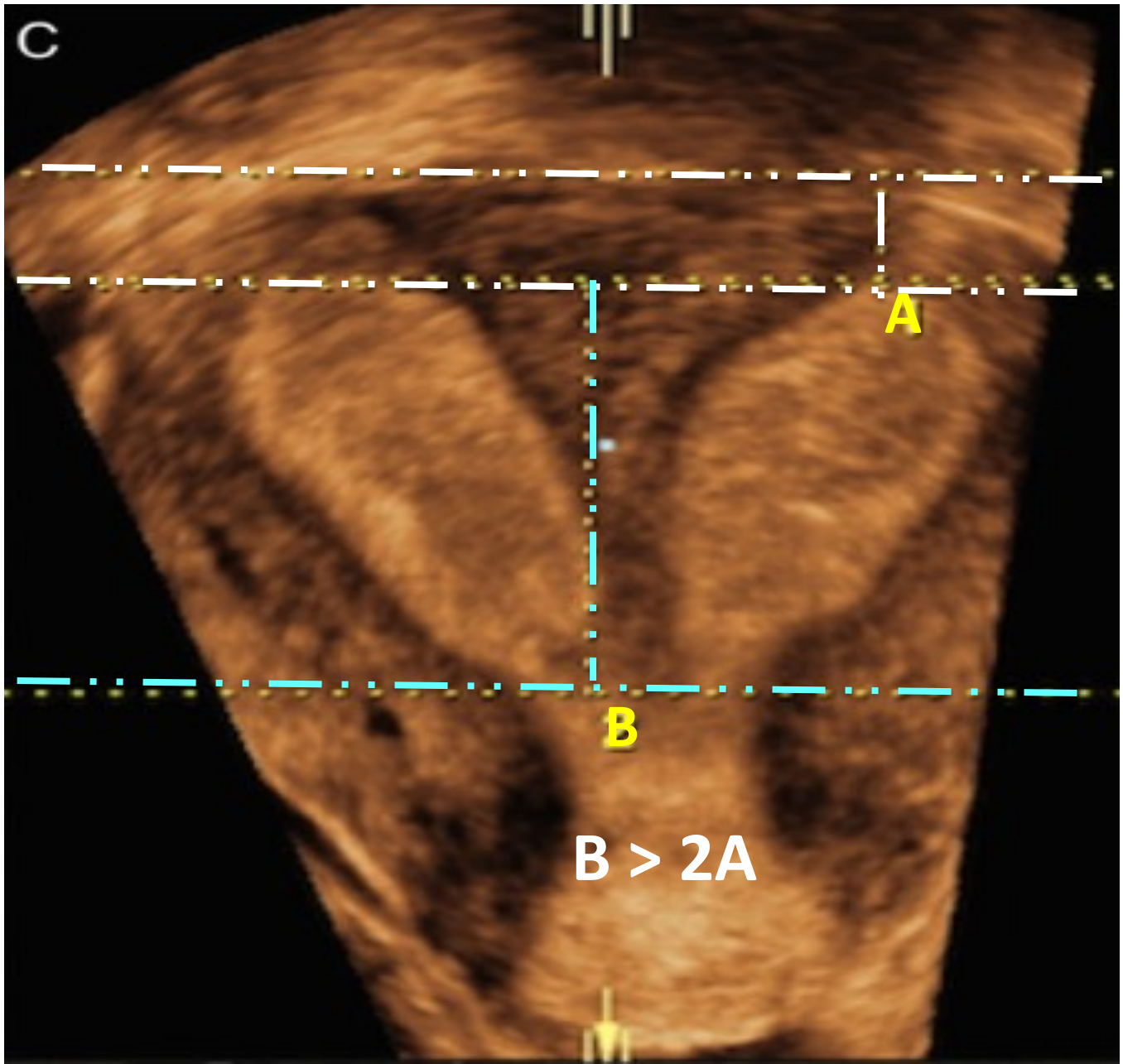
Step 4: Estimating the length of any internal indentation

Partial septate uterus



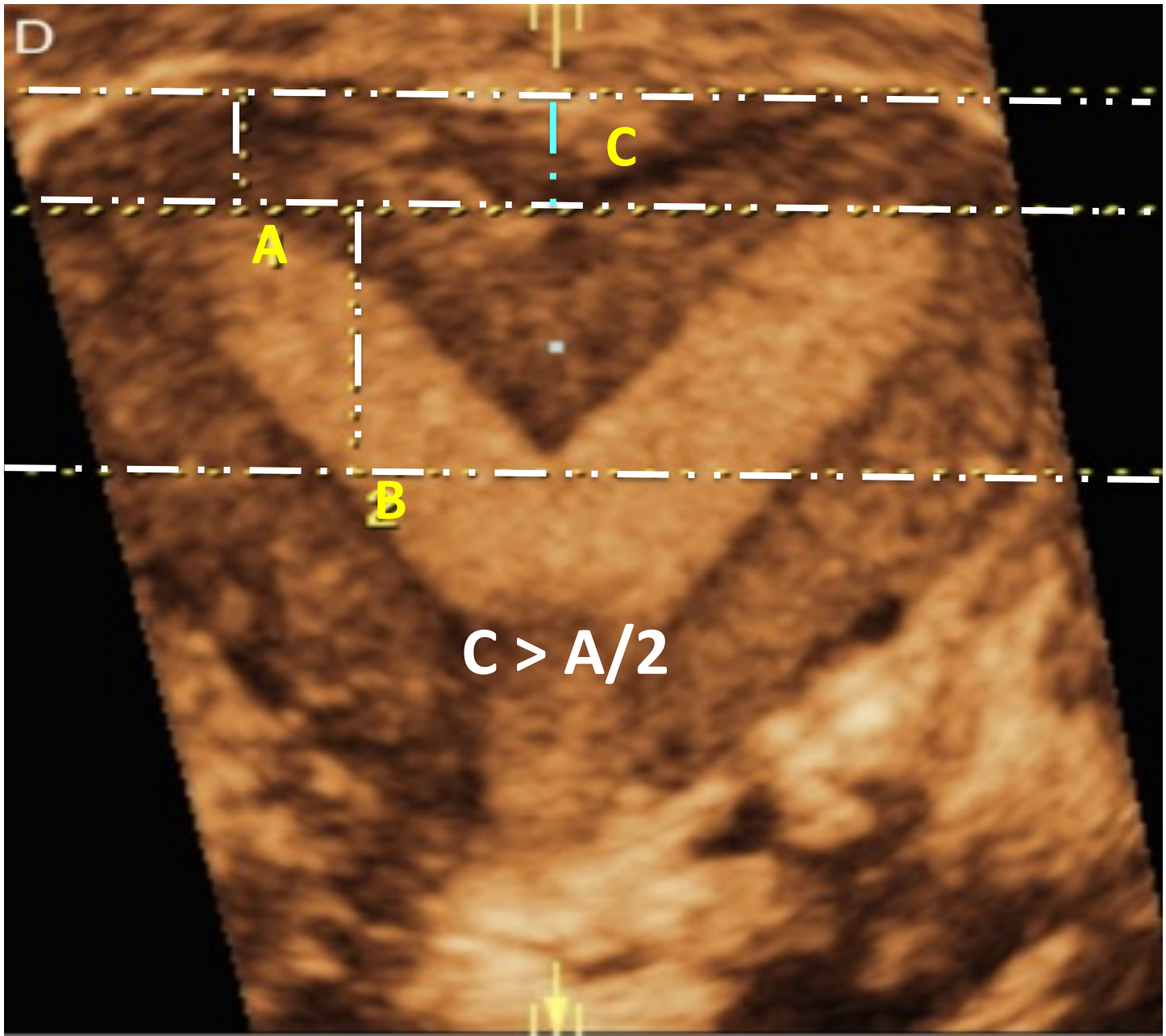
Step 4: Estimating the length of any internal indentation

Complete septate uterus

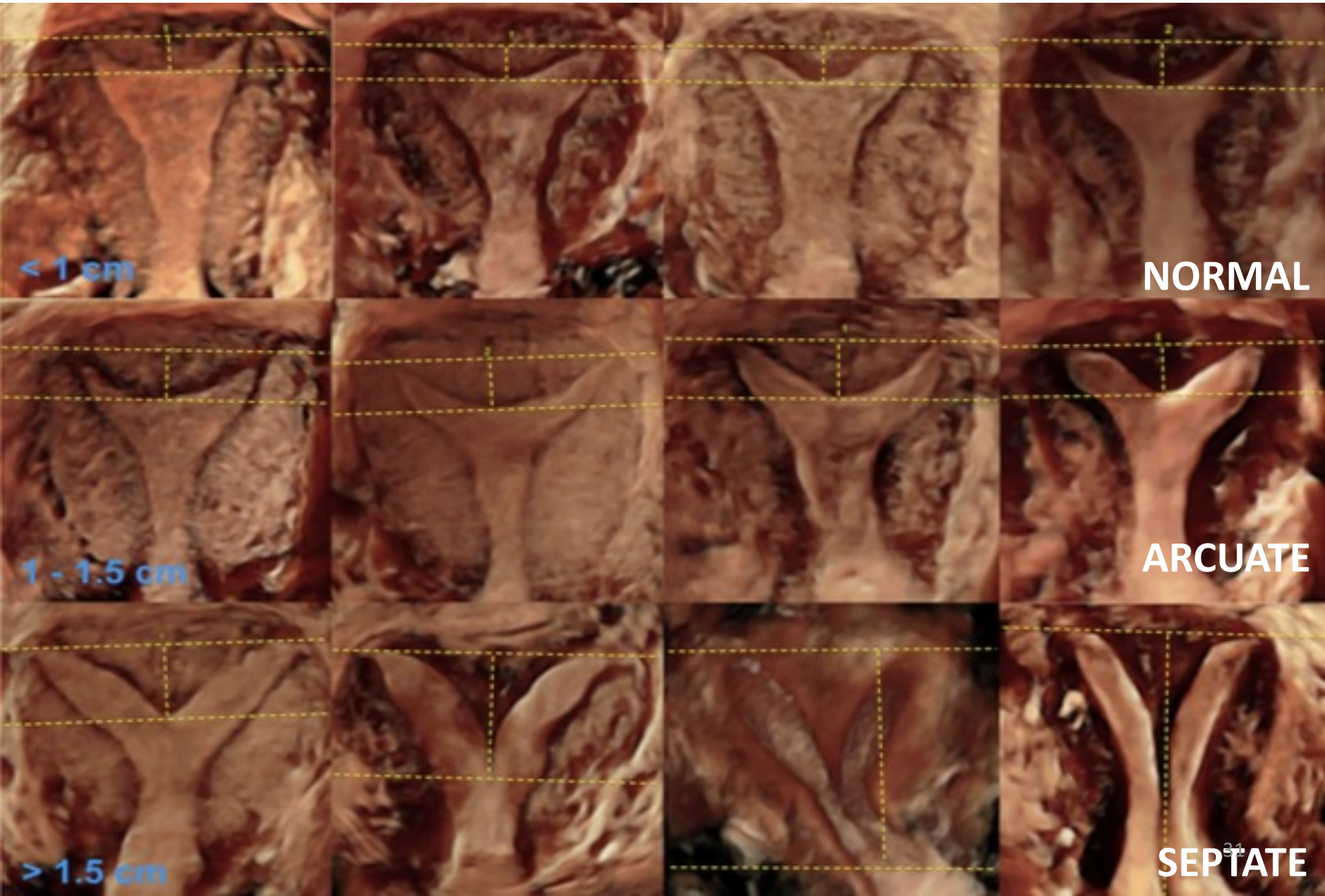


Step 4: Estimating the length of any external indentation

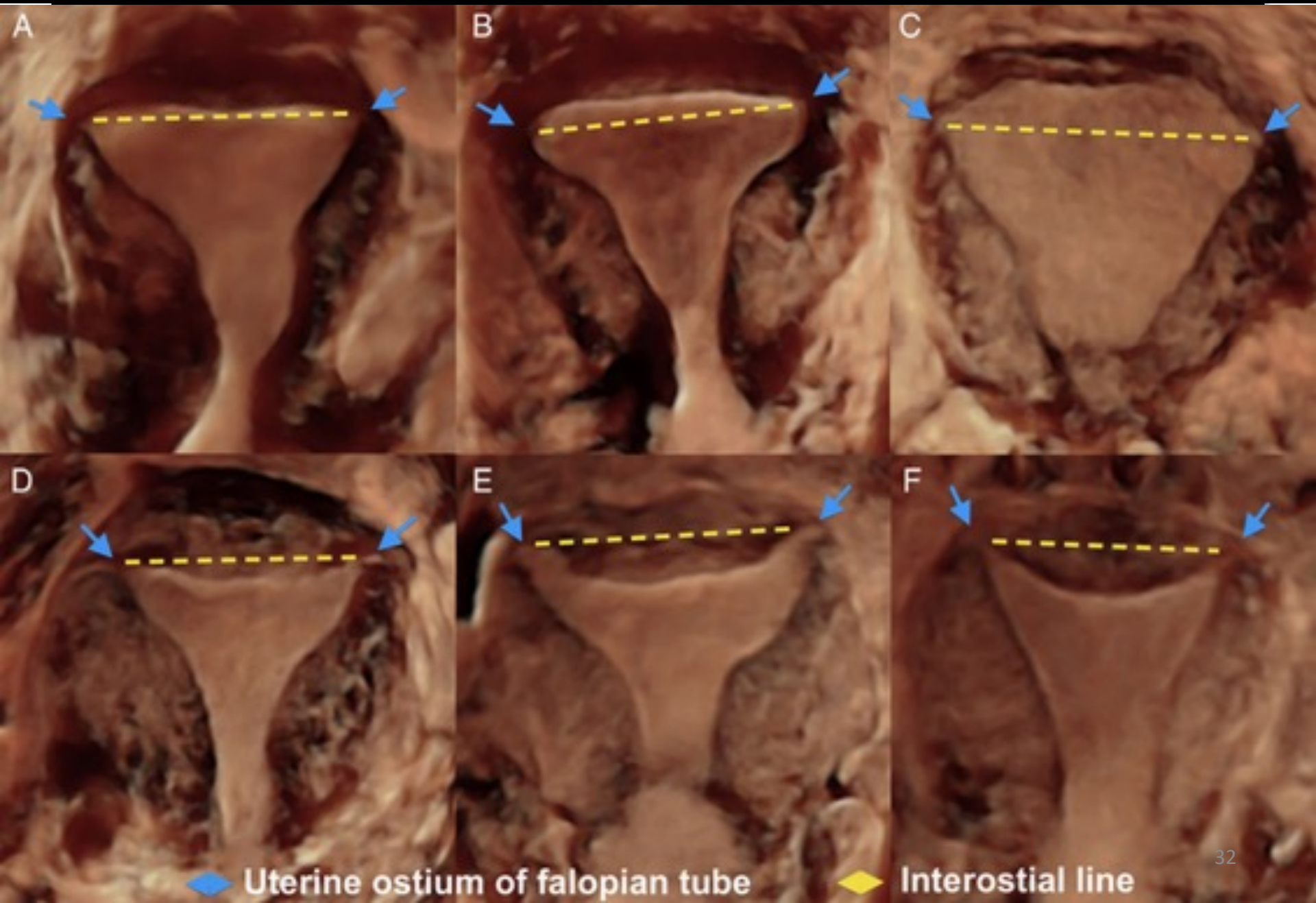
Bicornuate septate uterus



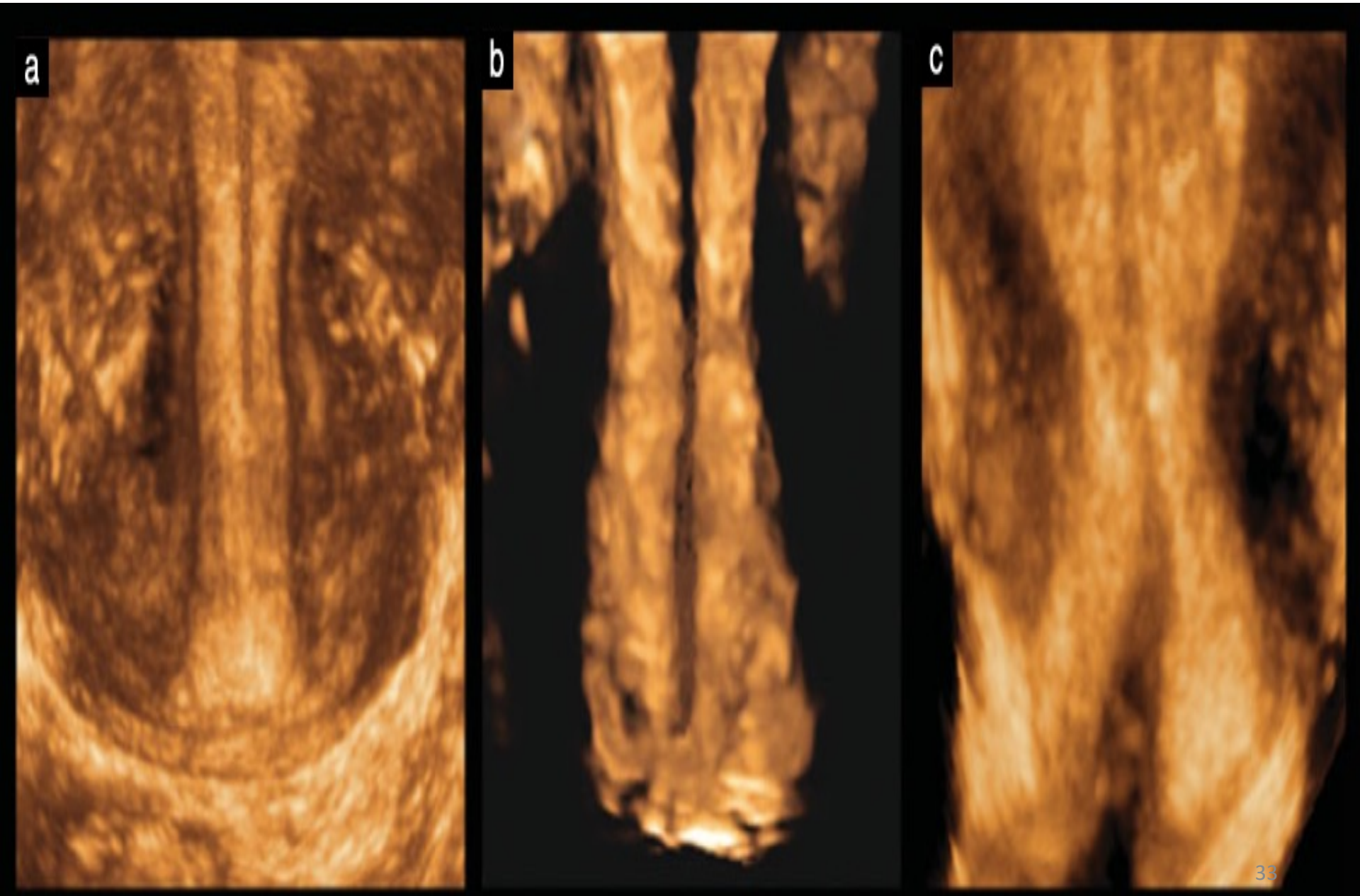
Septate uterus by ESHRE–ESGE



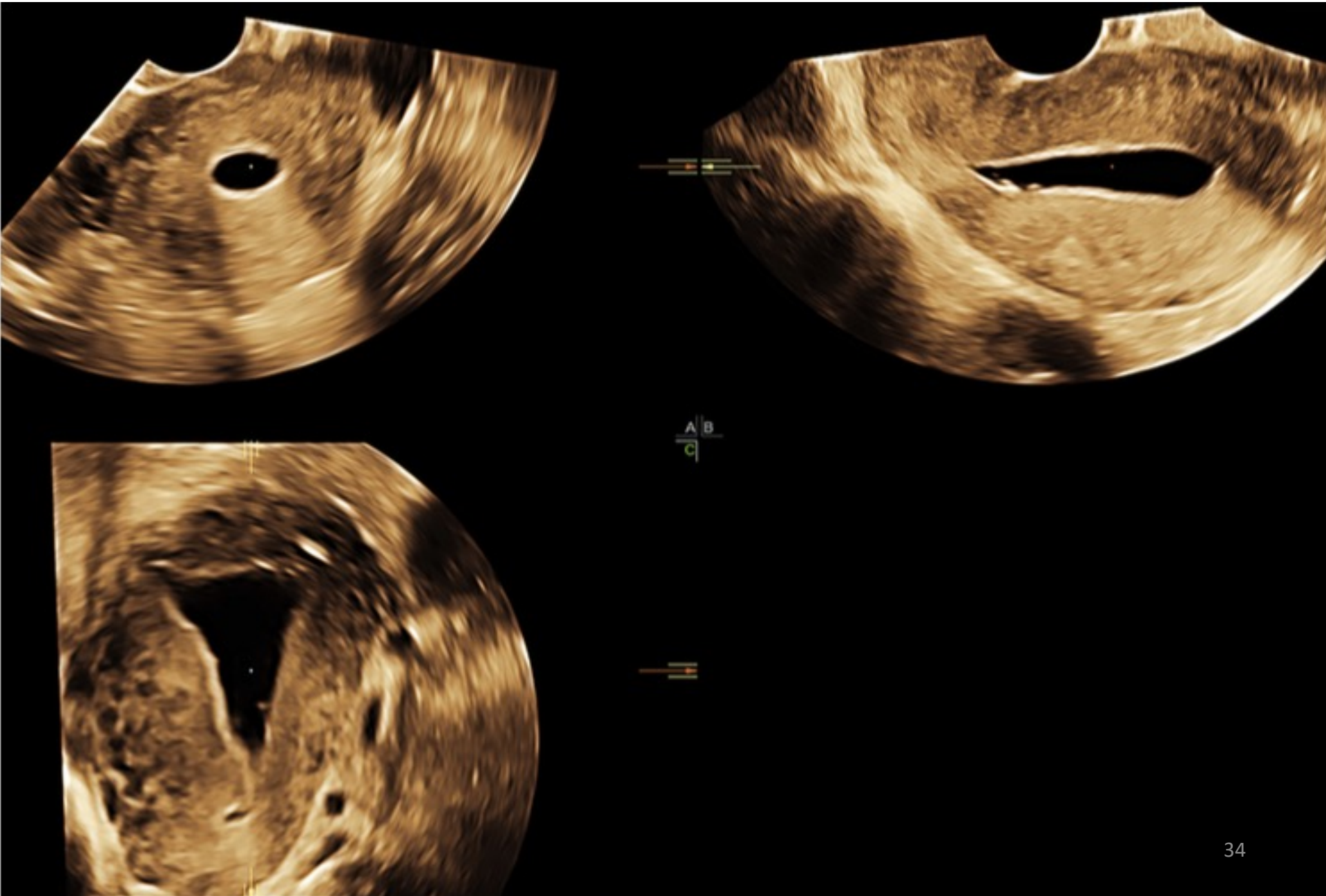
Dysmorphic uterus or not?



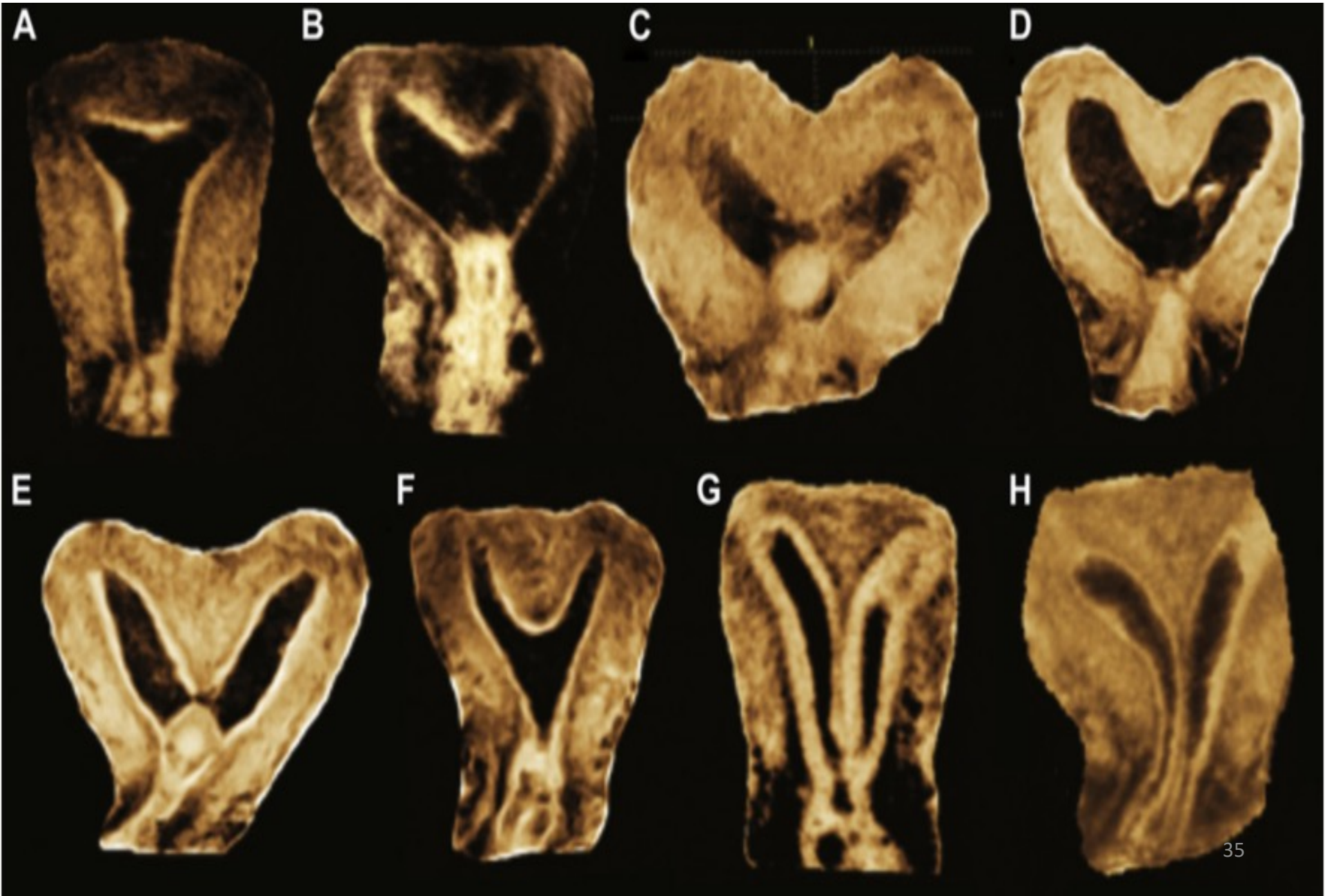
Cervical anomalies



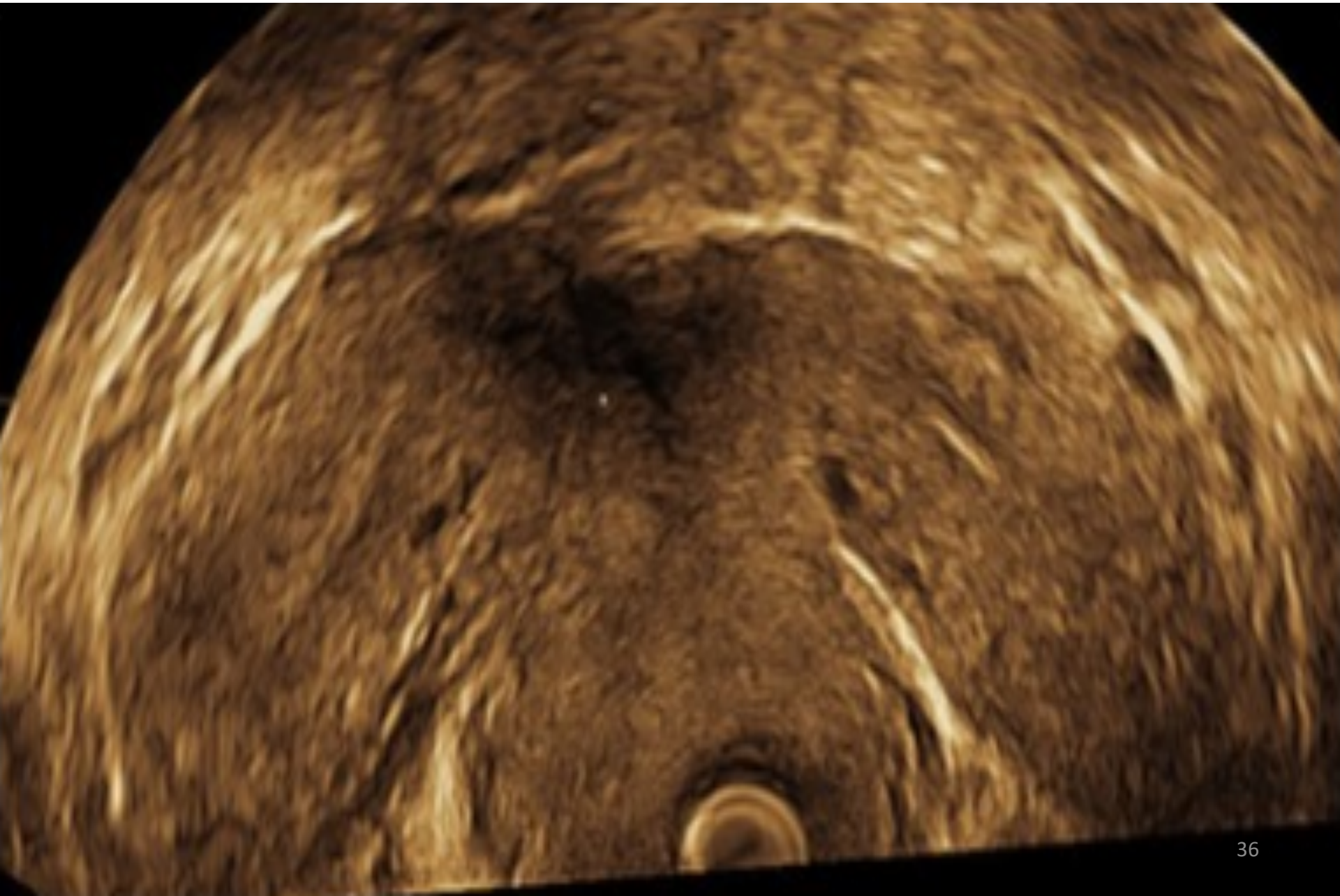
Sonohysterography



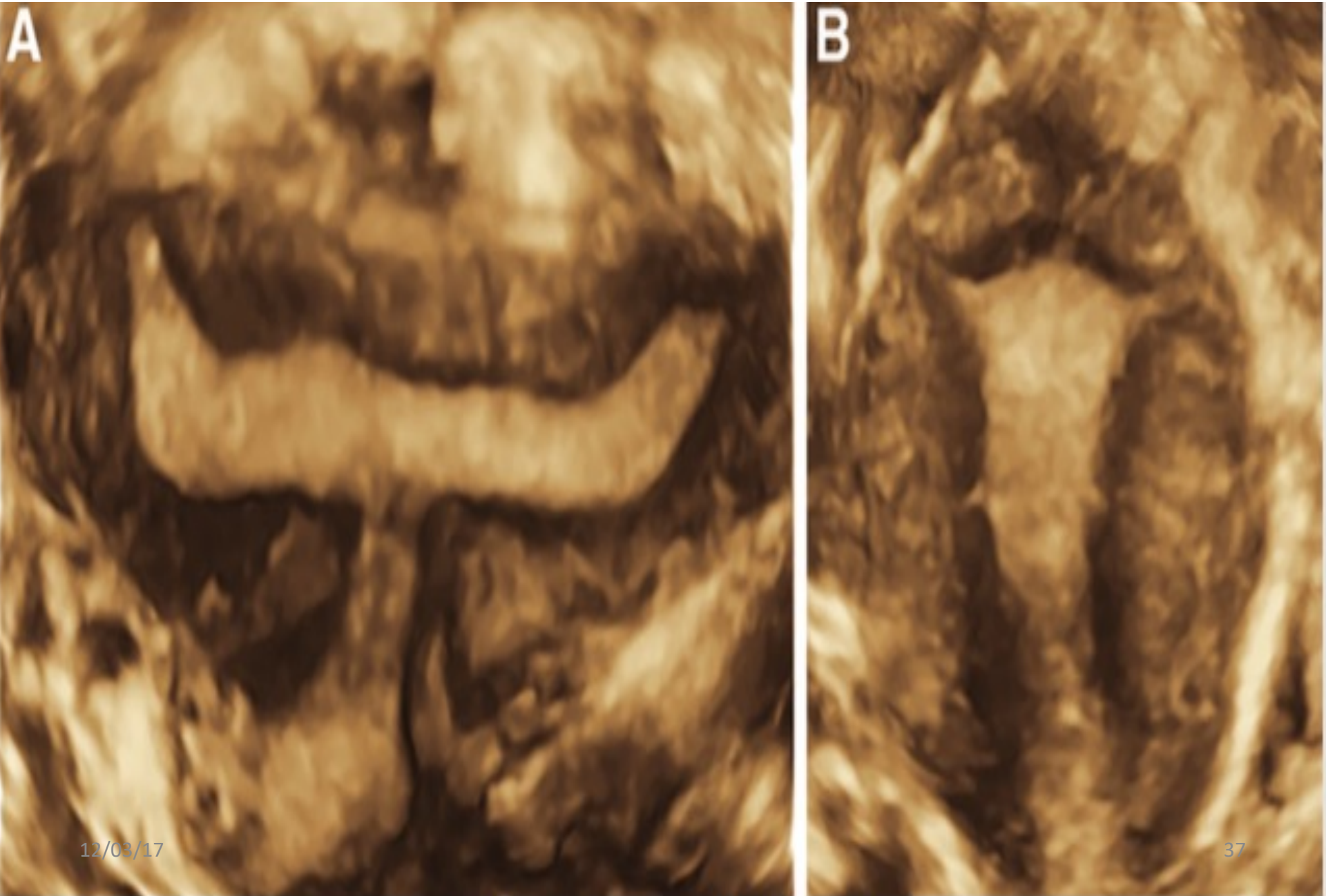
3D-SIS coronal view of the uterus



Didelphic uterus



Unclassified uteri



Normal

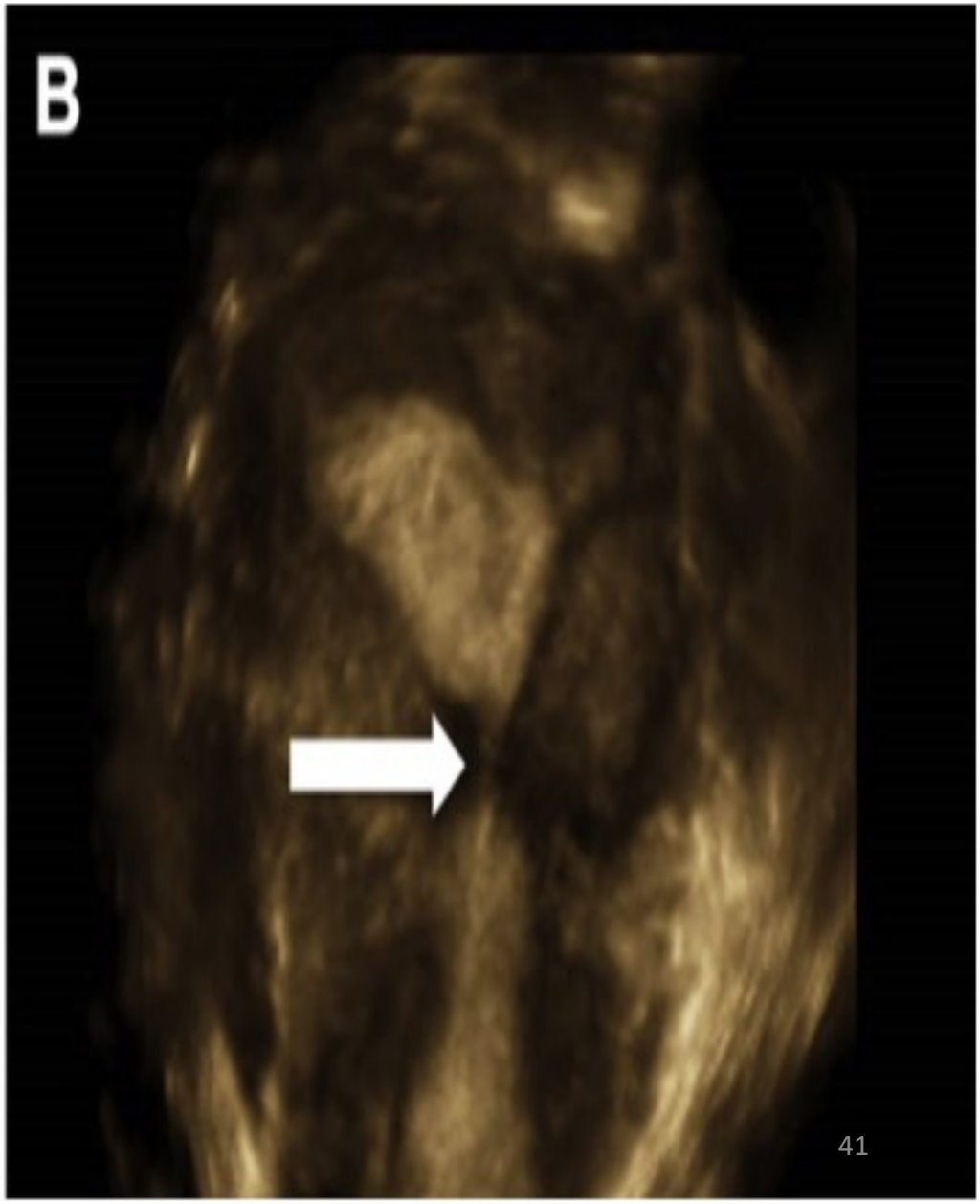
Unclassified/Normal

Unicorn uterus

Septate uterus

Sinesi

Adhesion causing narrowing the endometrial cavity

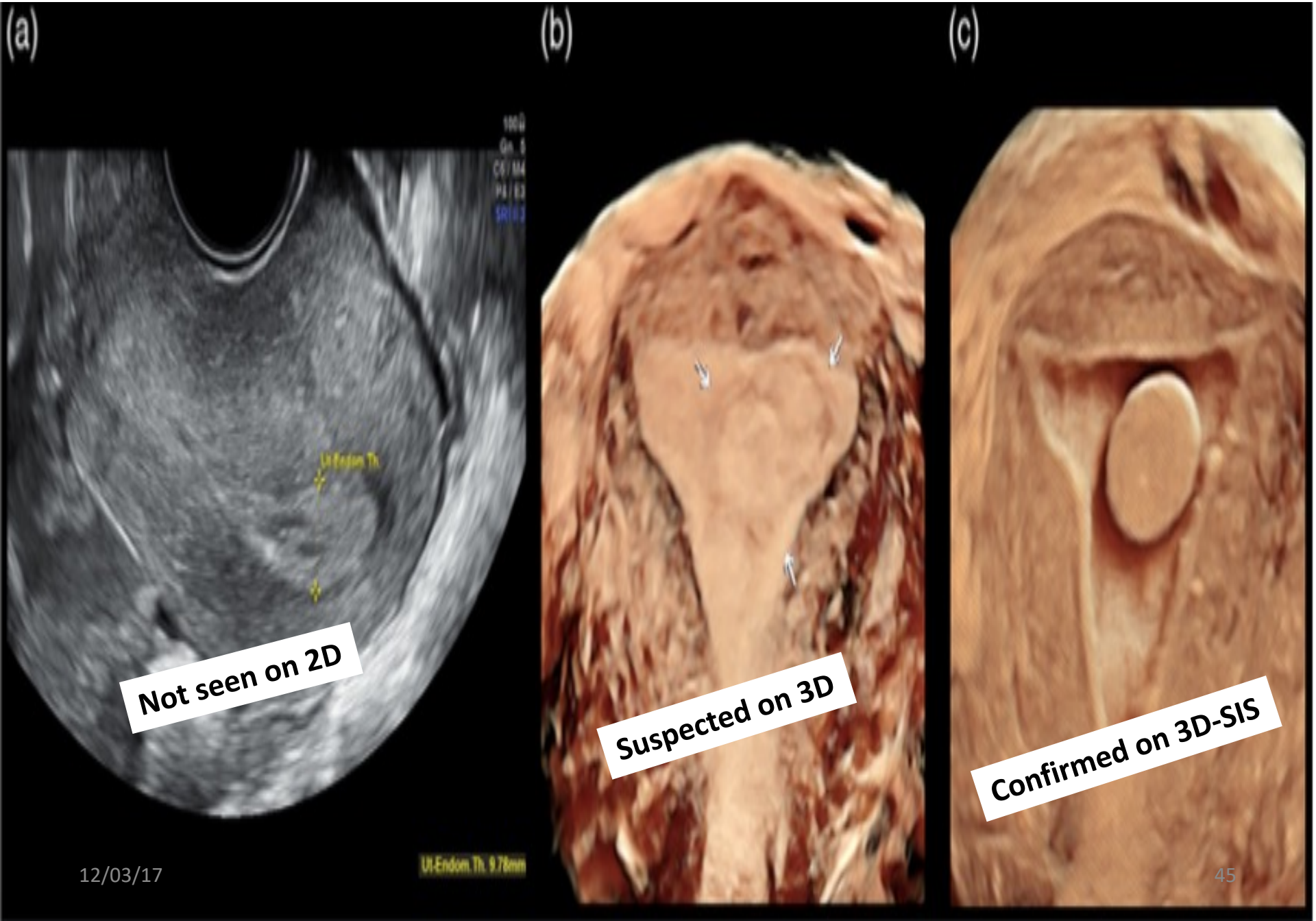


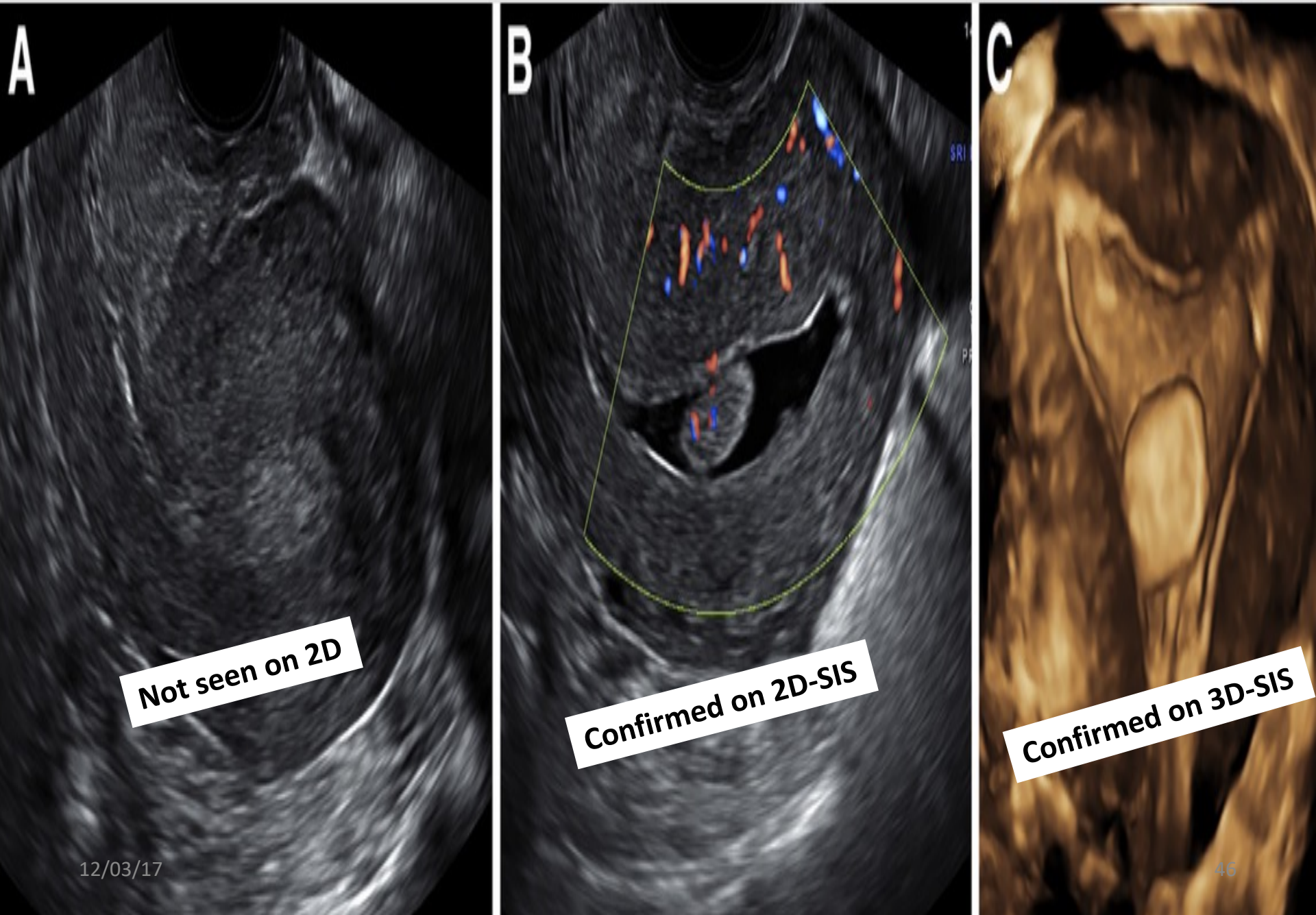
Synechia


DEMO-NILUFER AKGUL, SYNECHIA *
AMERIKAN HASTANESI
E63789-17-01-27-3
27.01.2017 3:39:17 PM
TIs <0.1
TIb <0.1
MI 1.0
RIC6-12-D
GYN
5.2cm / 1.1
B163°/V100°
16 Hz
Gyn.
Qual high2
Mix90/10
CRI 2/VSRI 4
3D Static

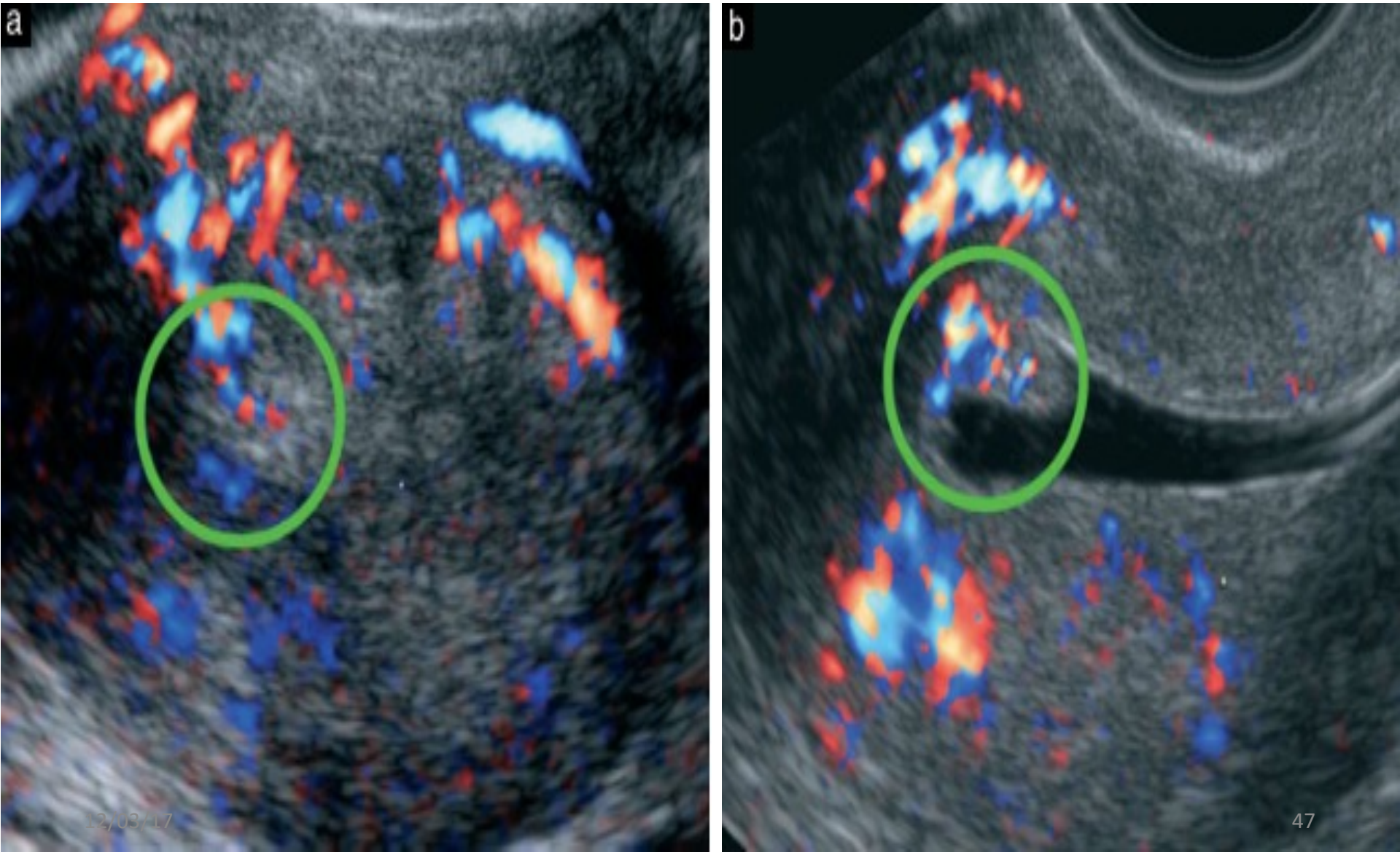
Asherman syndrome

Polip


(a)
(b)
(c)
Not seen on 2D
Suspected on 3D
Confirmed on 3D-SIS

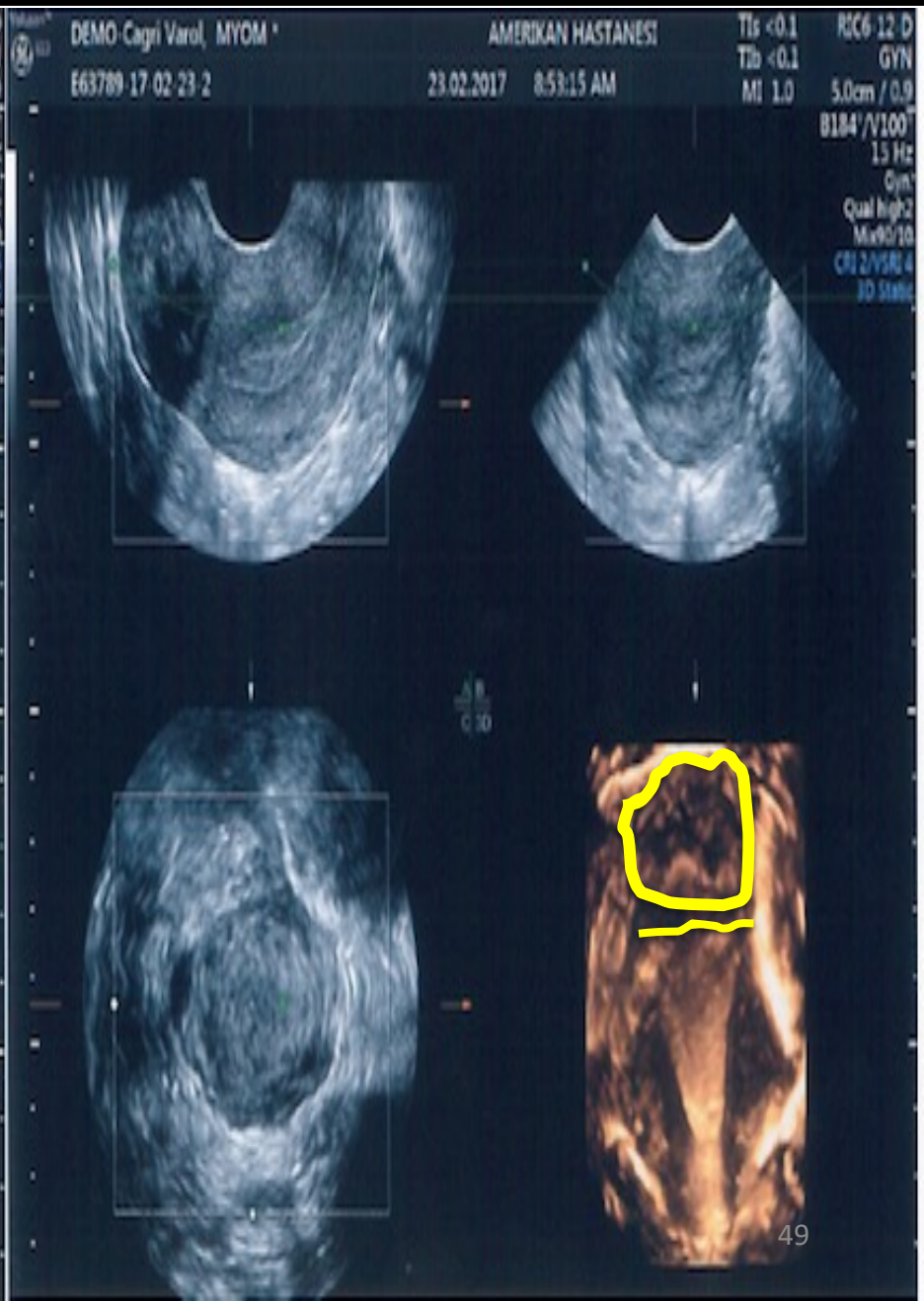

A
Not seen on 2D
B
Confirmed on 2D-SIS
C
Confirmed on 3D-SIS

Gel installiation sonography on Doppler USG

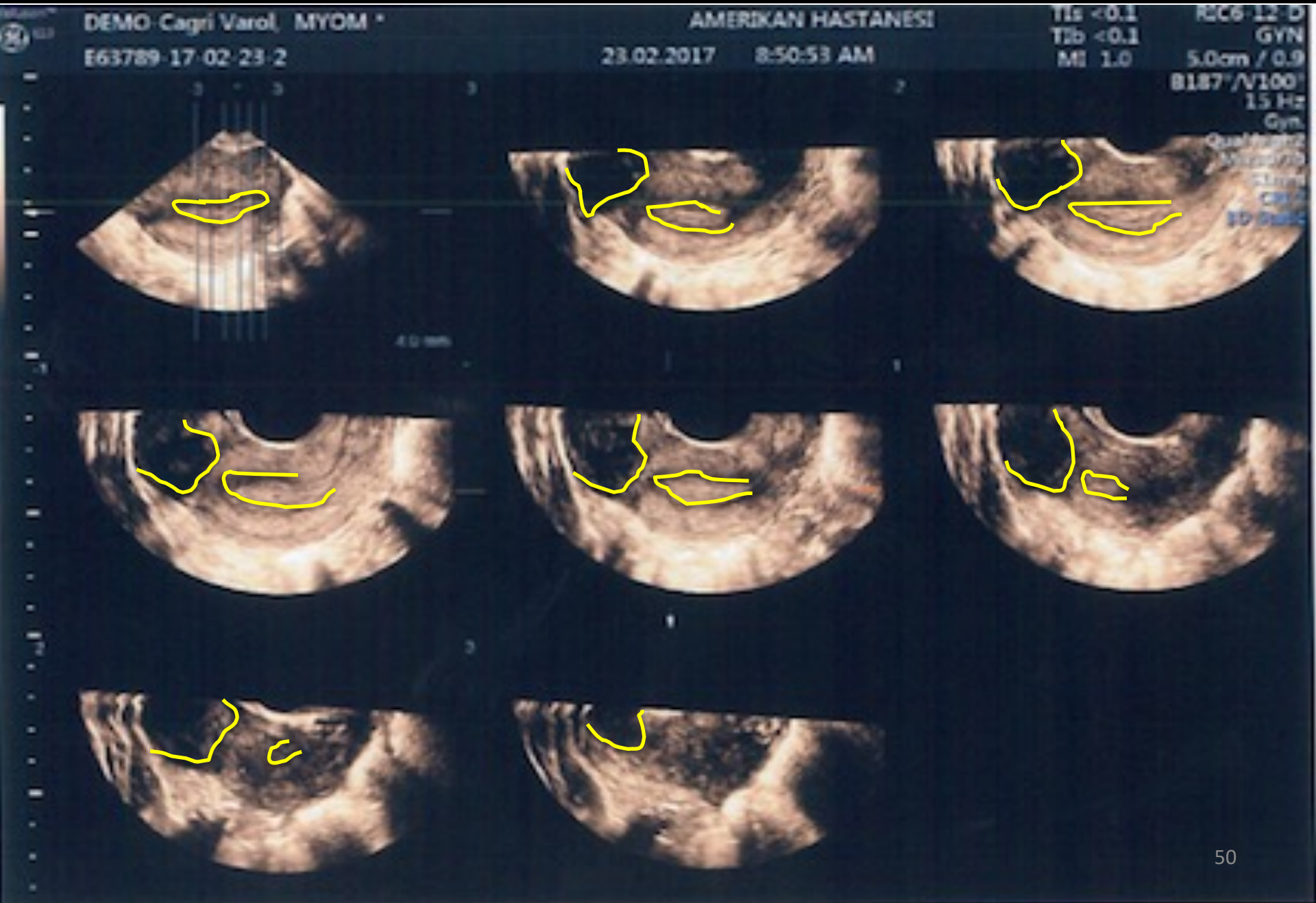


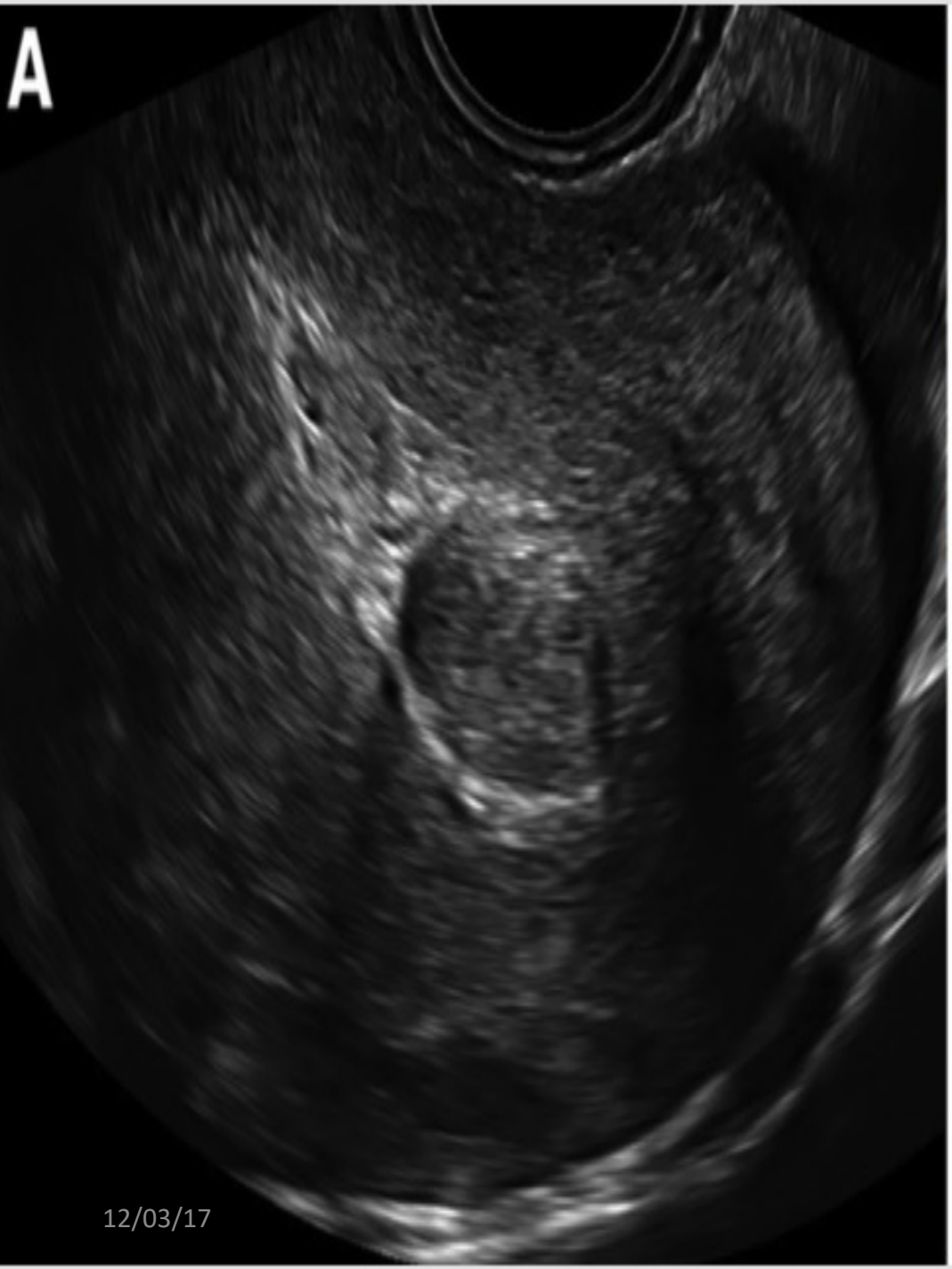
Fibroid

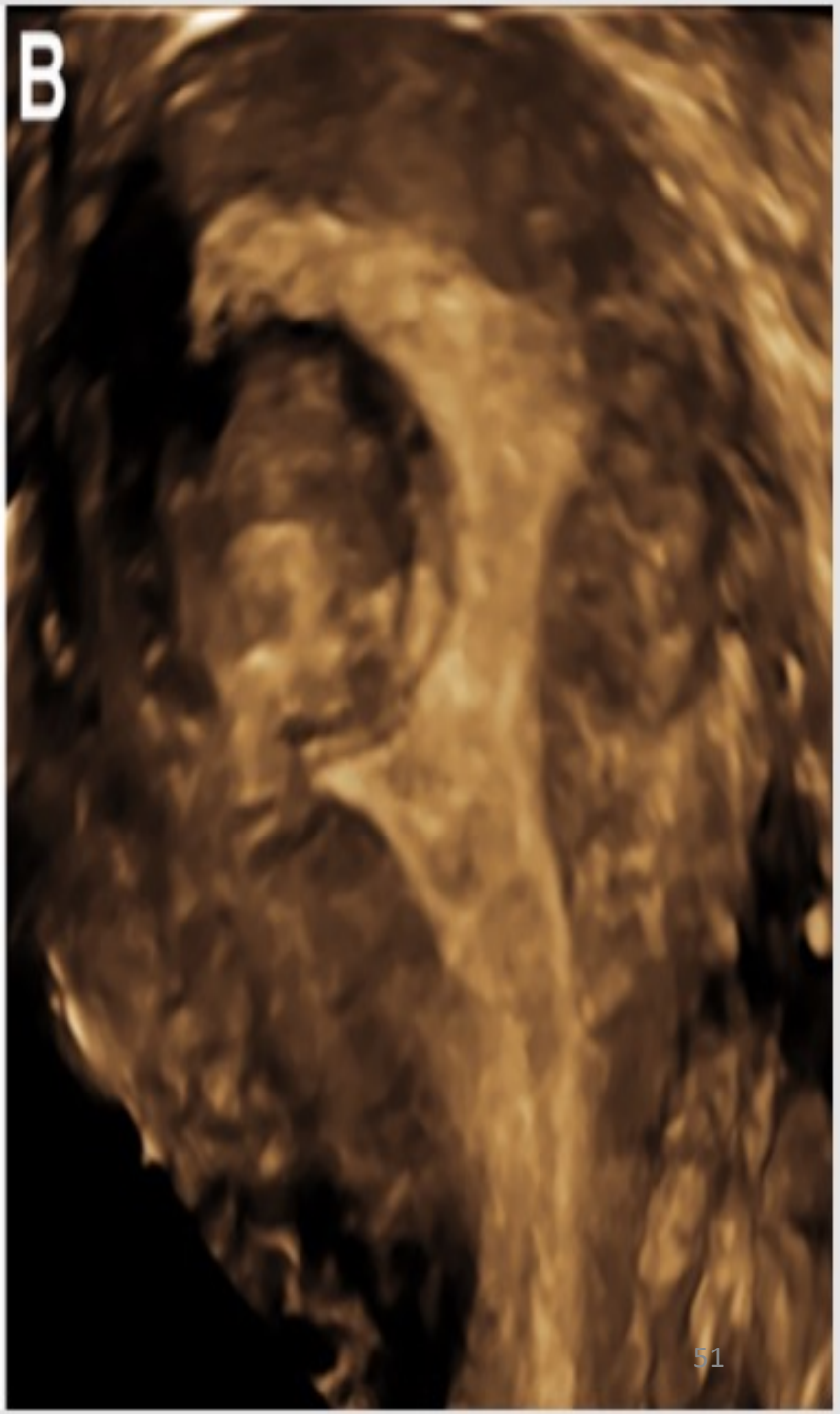
Step 1: Obtain a rendered image of the myoma



Step 2: Map the exact localization of the myoma

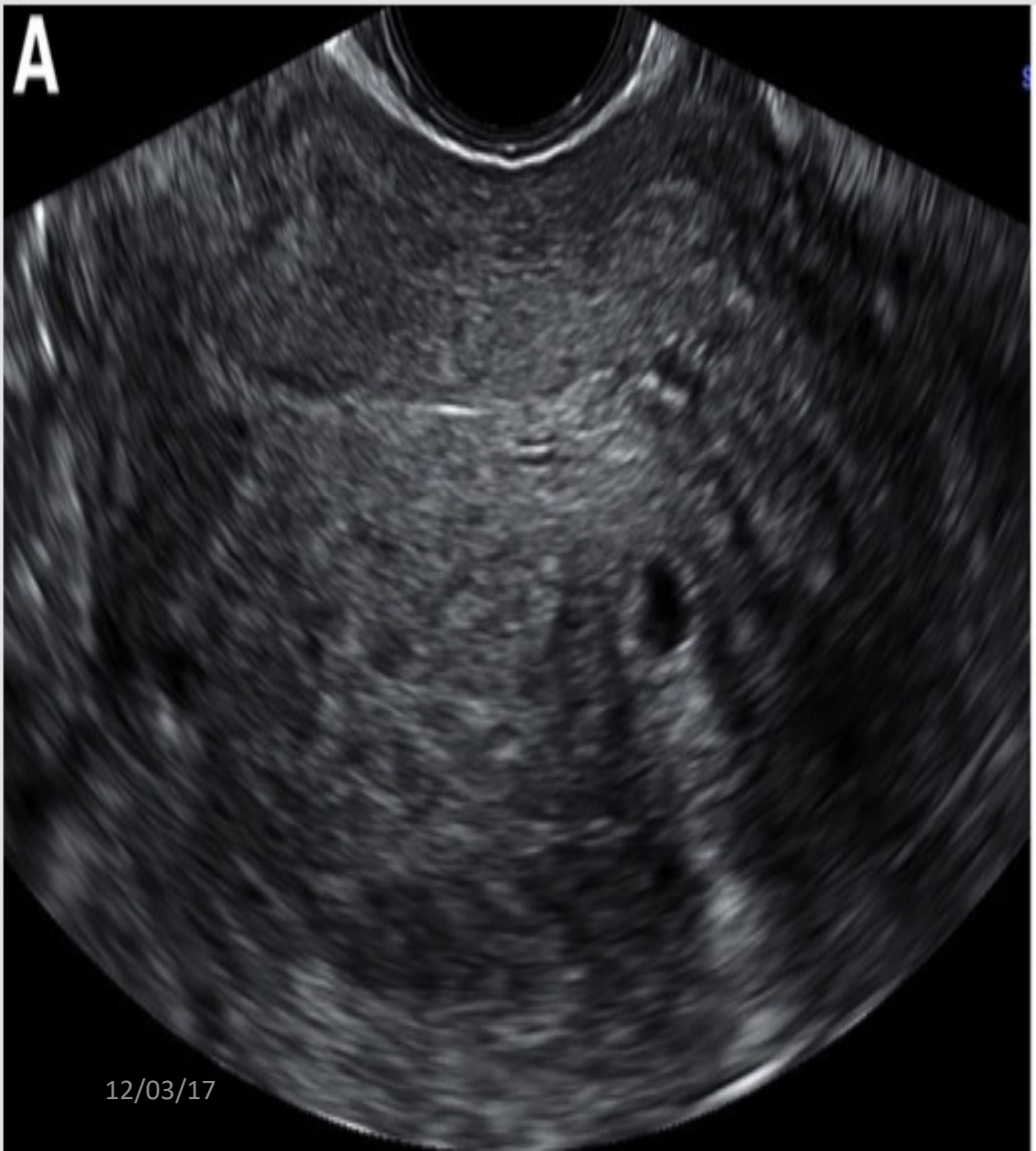


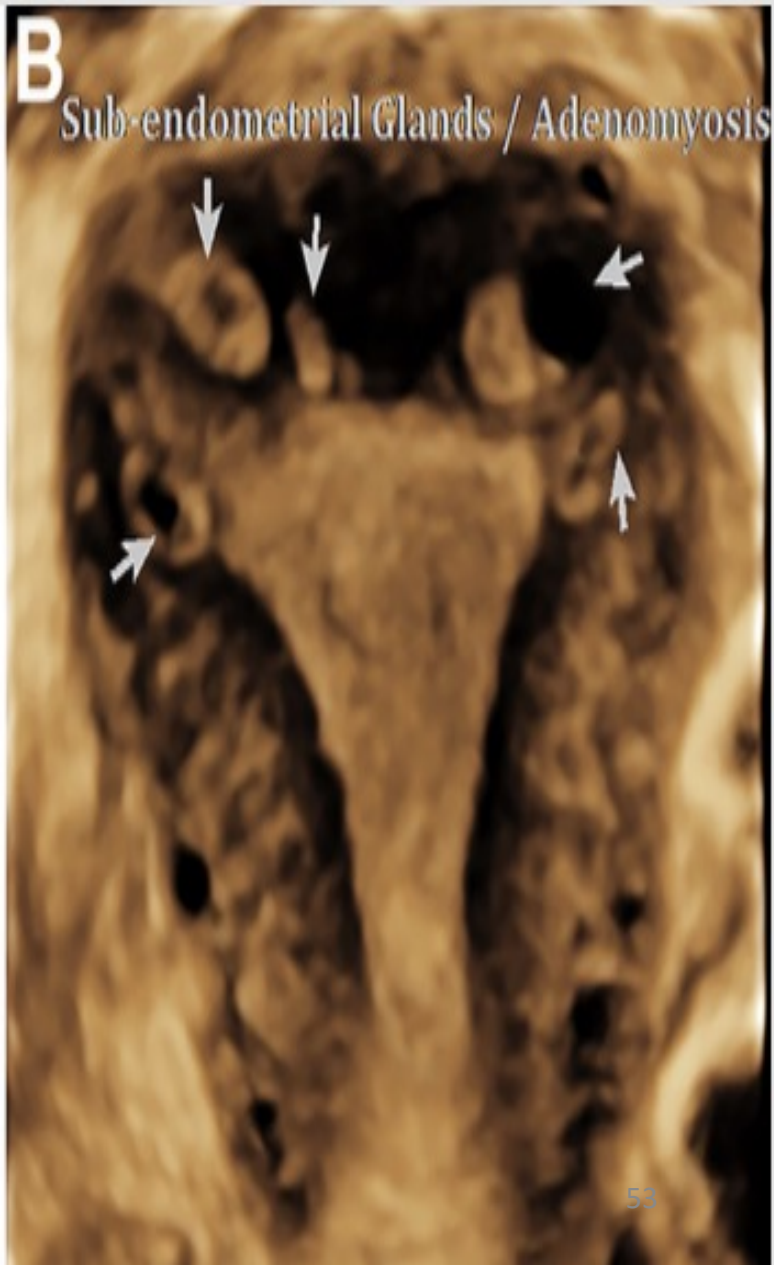

A


B

Adenomyosis

Extensive adenomyosis with interrupted JZ





2D findings

- Globally enlarged uterus (round cystic area within the myometrium)
- Asymmetrically enlarged uterus
- Myometrial hypoechoic linear striations
- Ill-defined endometrial stripe
- Diffusely spread of small vessels

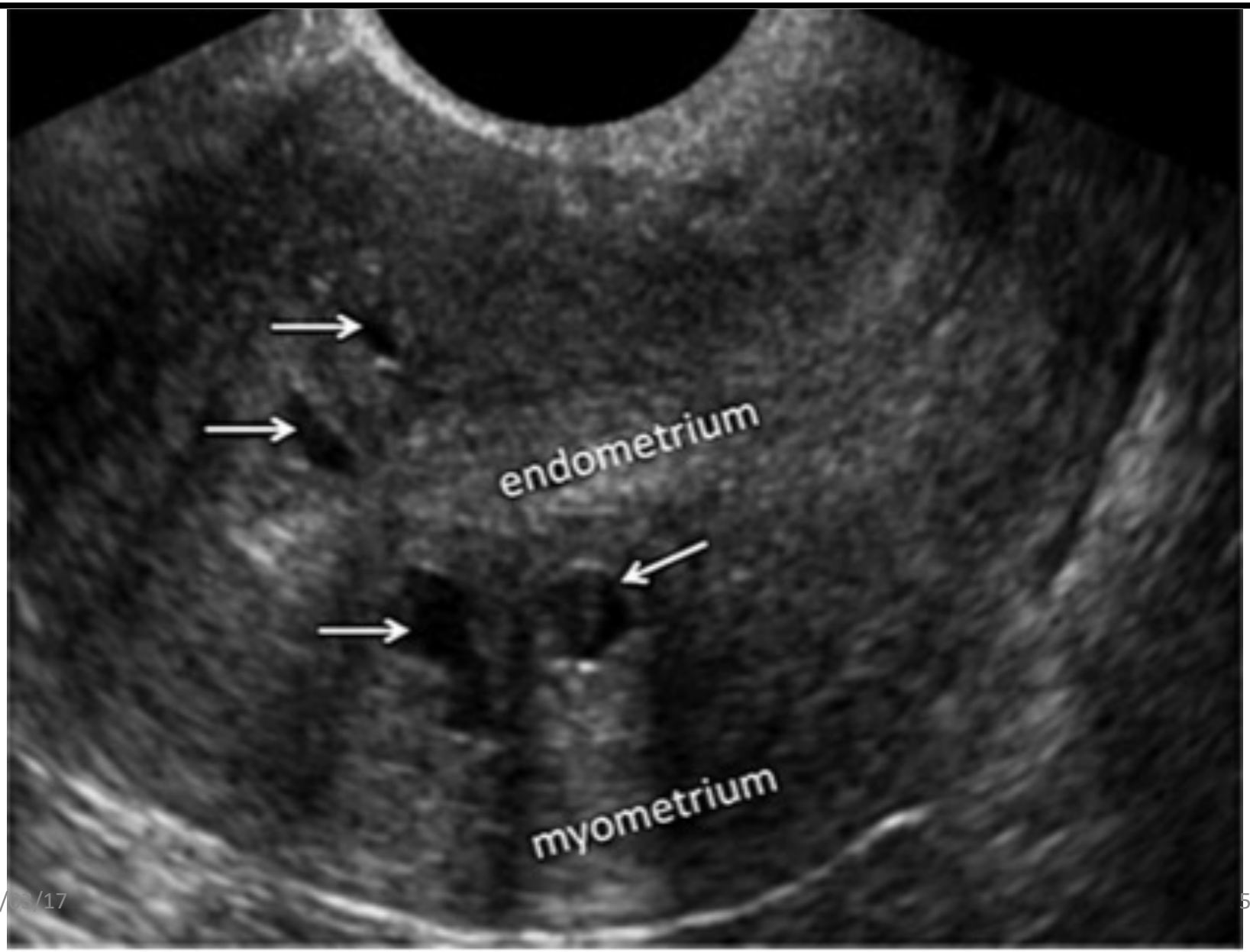
3D findings

- Disruption and infiltration of the hypoechoic junctional zone
- Objective parameter

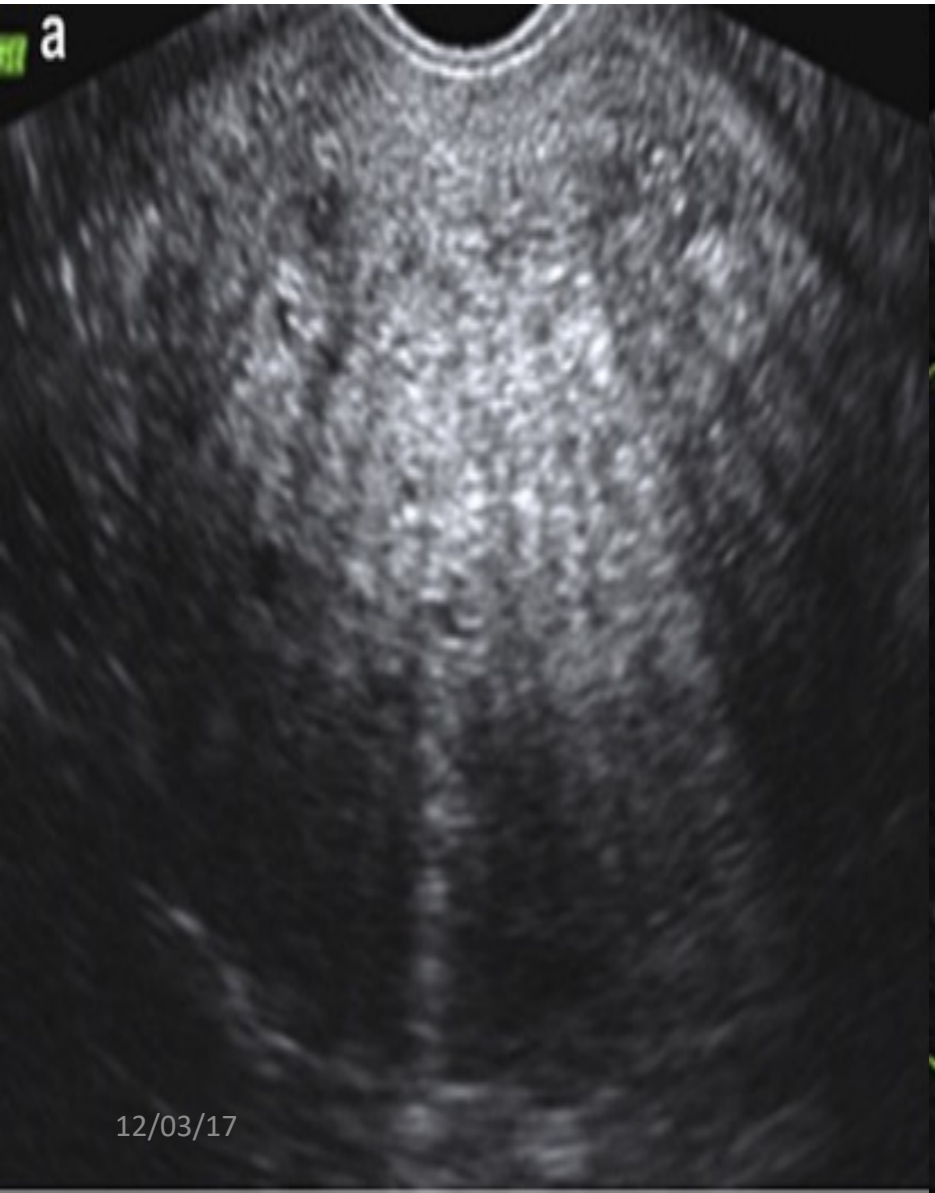
  *maximal JZ thickness (Jz_{max}) ≥8 mm

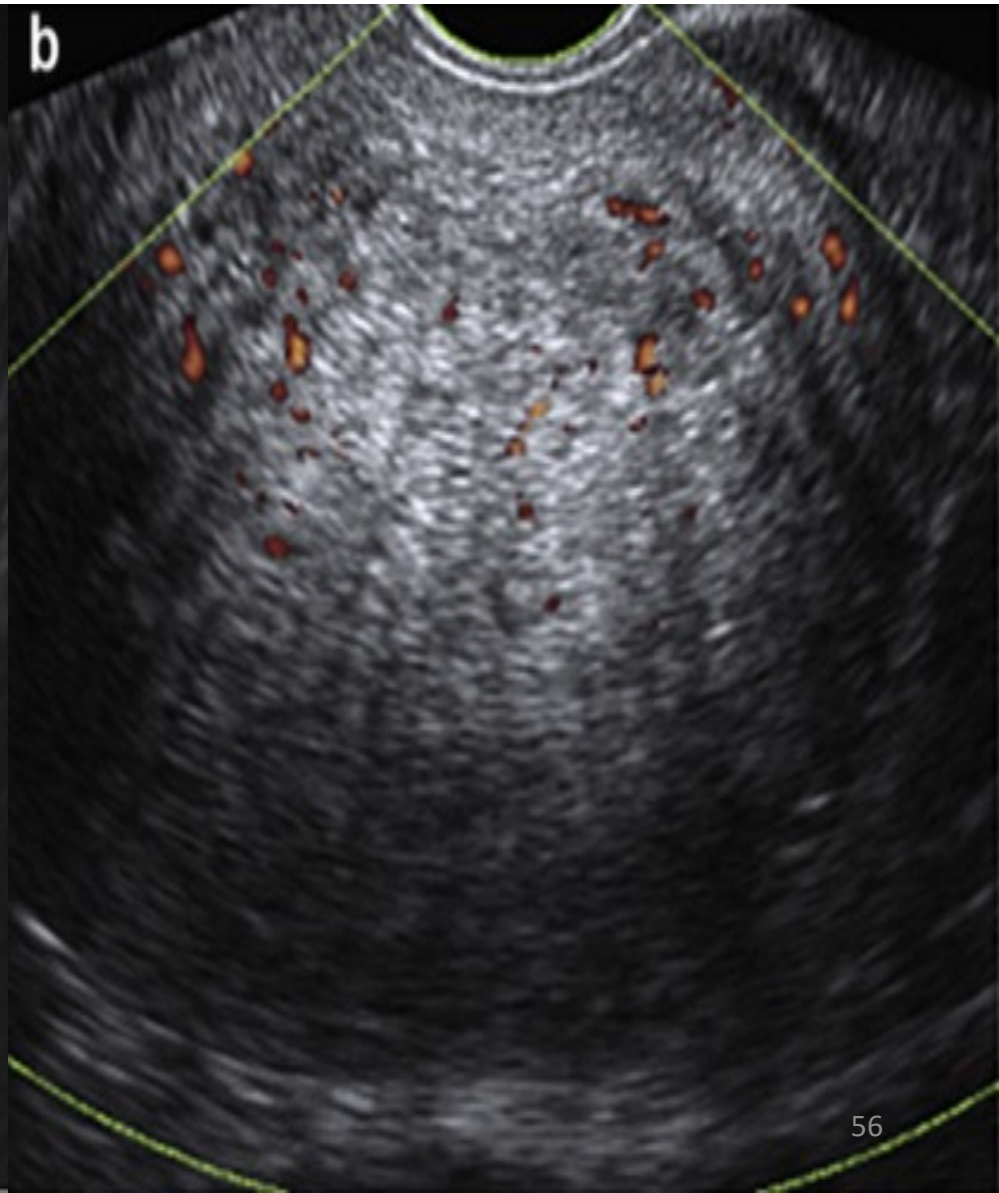
  *$Jz_{max} – Jz_{min}$ ≥4 mm

Round, cystic, anechoic areas in the myometrium below the endometrium in the JZ

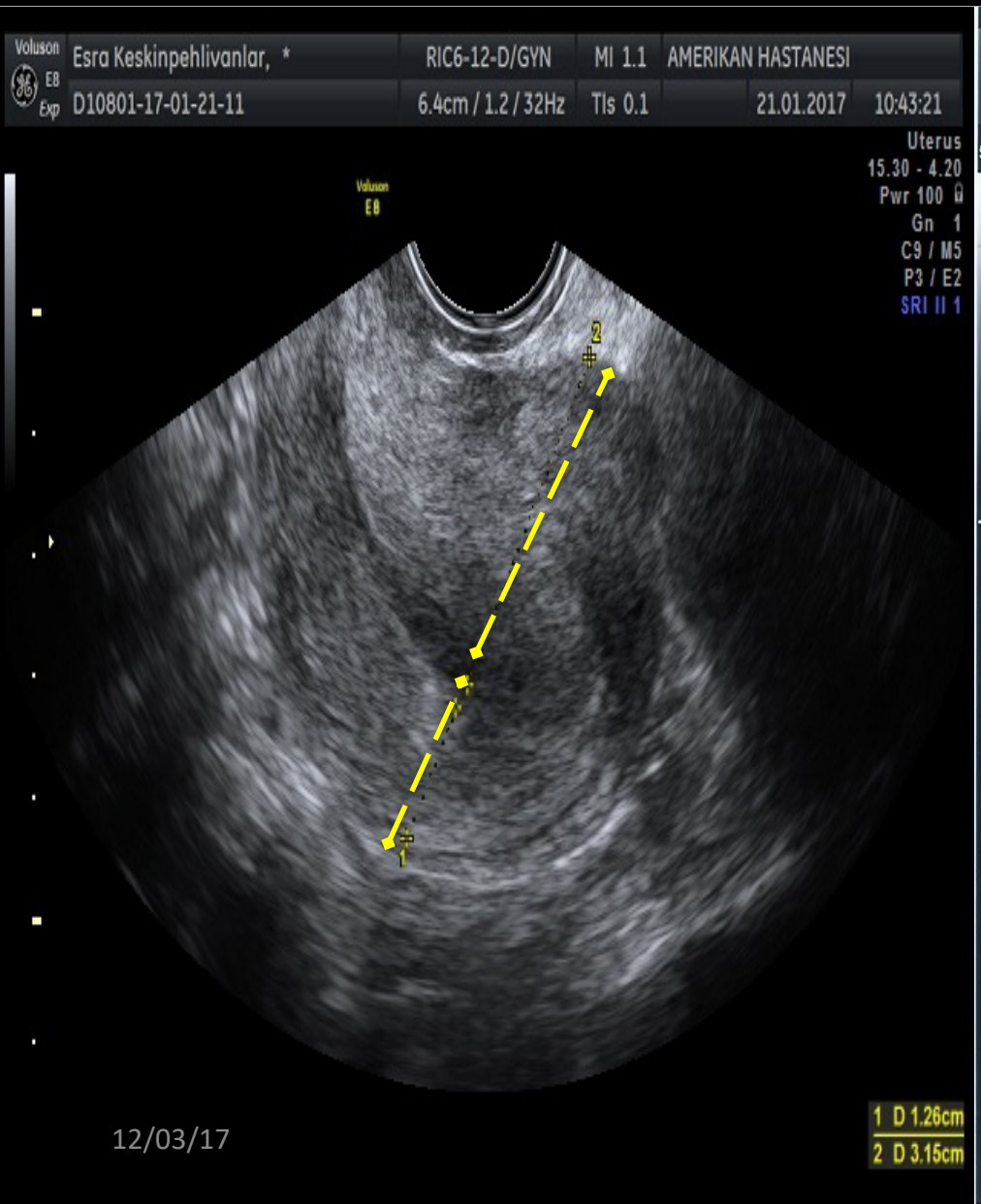


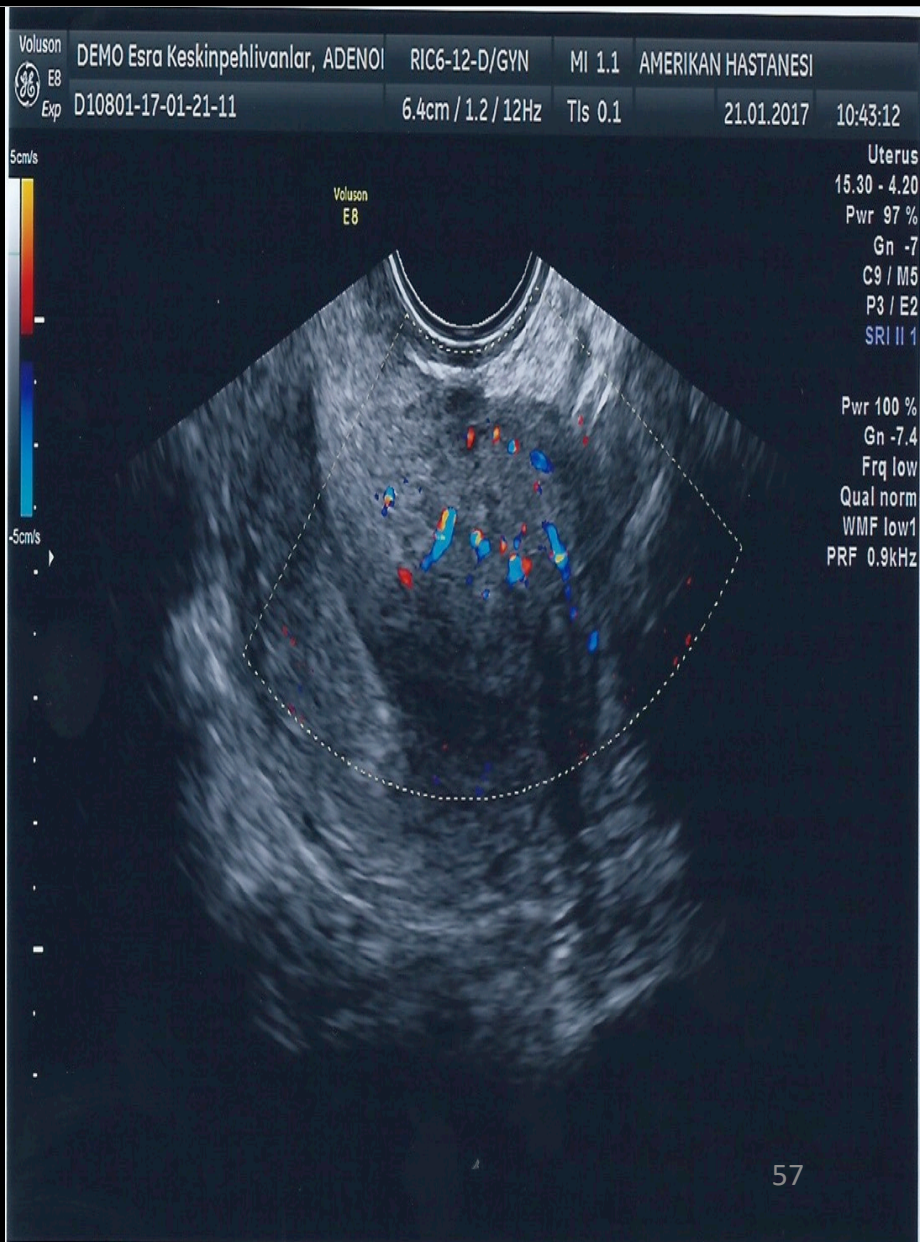
Hyperechoic irregular myometrial areas and a radiating pattern of linear striations



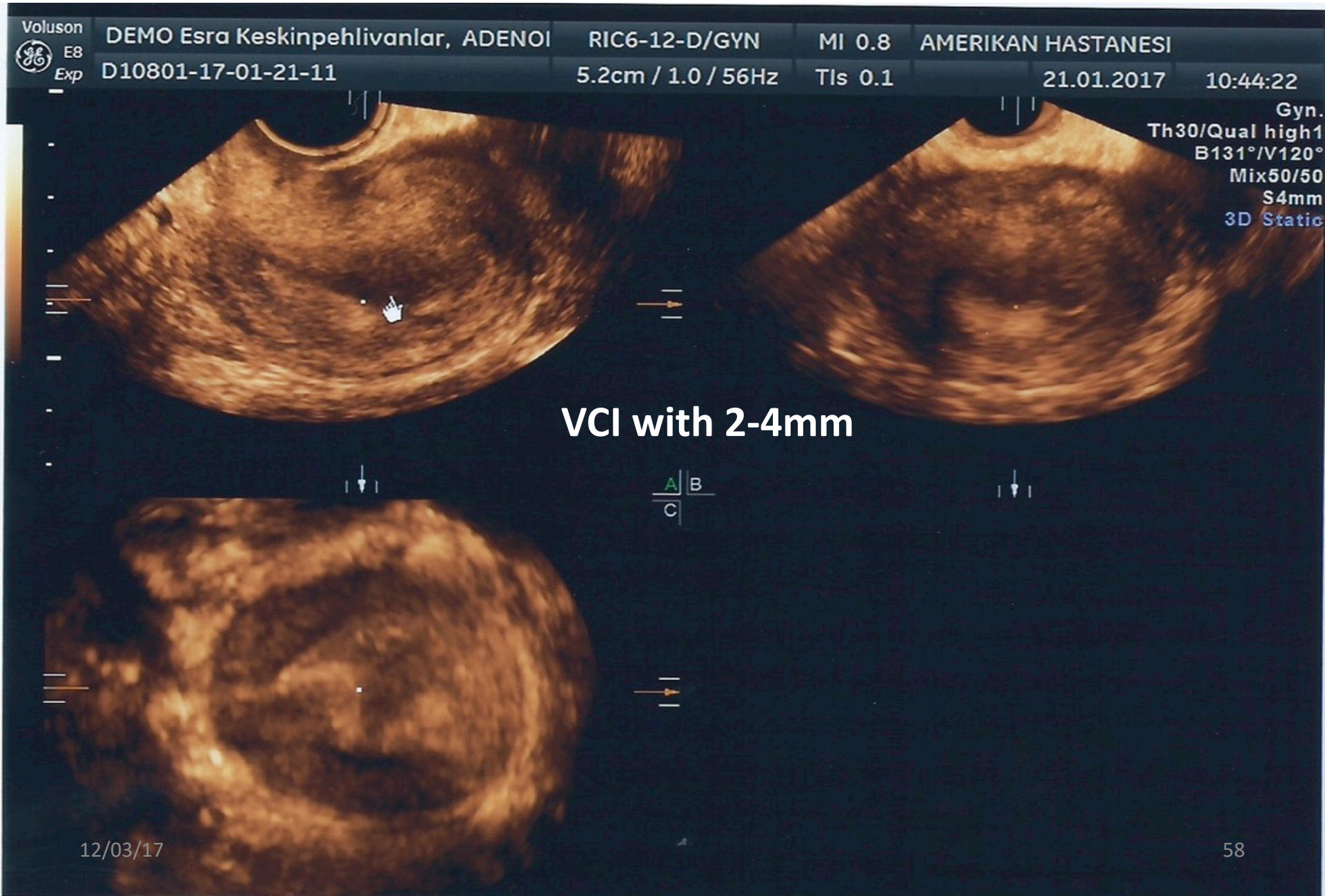


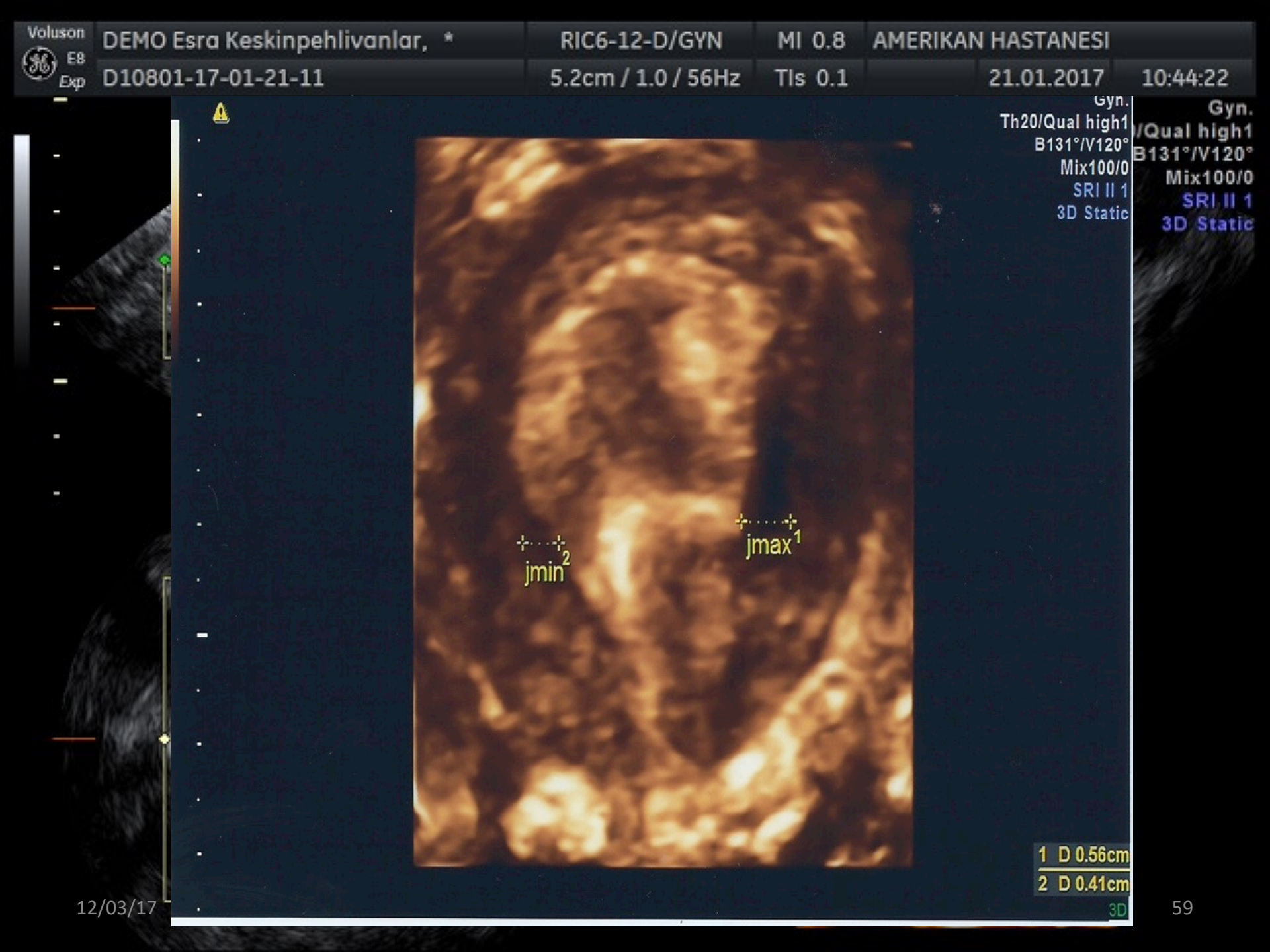
Asymmetrically thickened post. uterine wall and diffusely spread small vessels





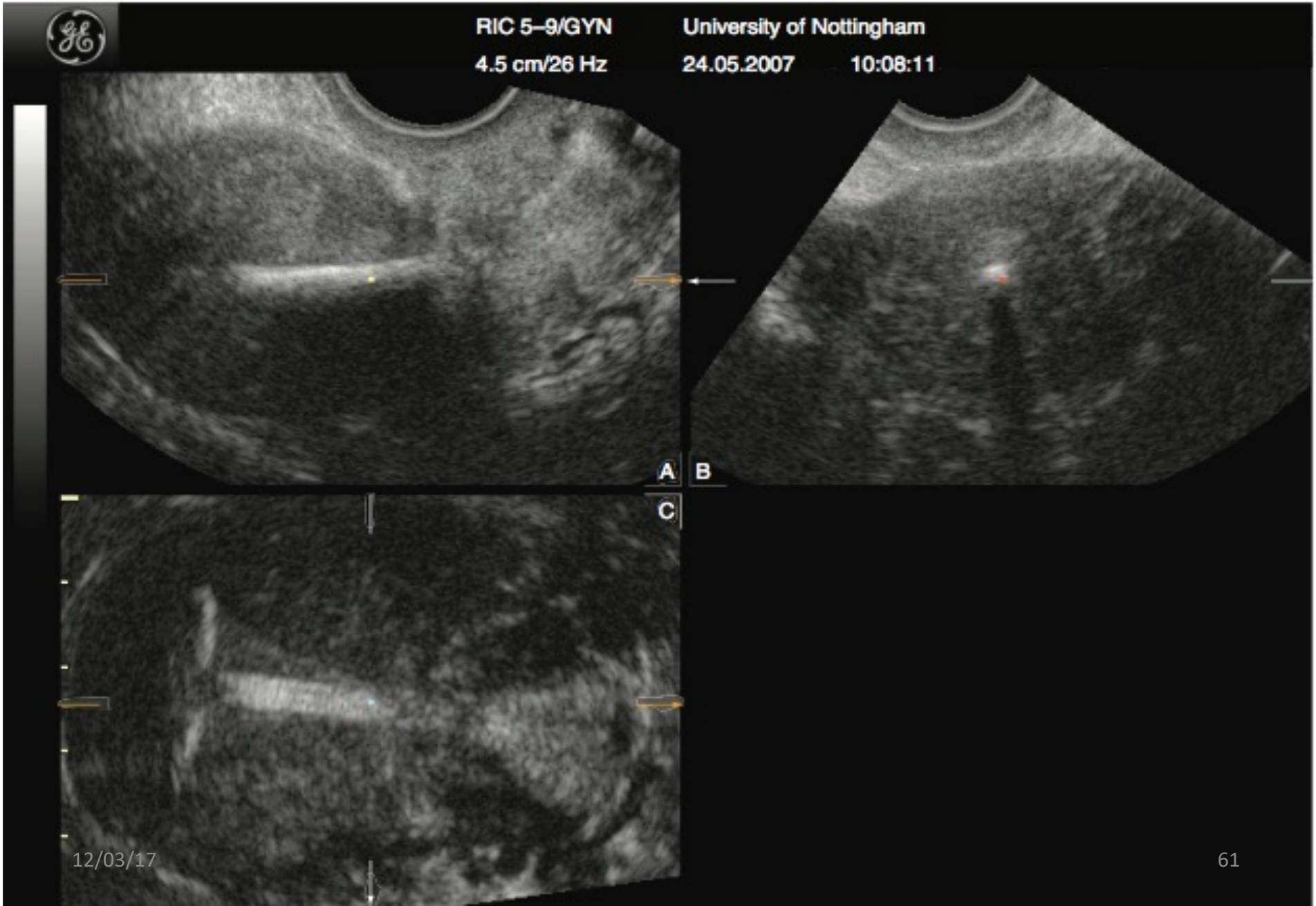
Hypoechoic JZ is rarely seen




Voluson
E8
Exp
DEMO Esra Keskinpehlivanlar, *
RIC6-12-D/GYN
MI 0.8
AMERIKAN HASTANESI
D10801-17-01-21-11
5.2cm / 1.0 / 56Hz
TIs 0.1
21.01.2017
10:44:22
Gyn.
Th20/Qual high1
B131°/V120°
Mix100/0
SRI II 1
3D Static
jmax 1
jmin 2
1 D 0.56cm
2 D 0.41cm
3D

Miscellanous

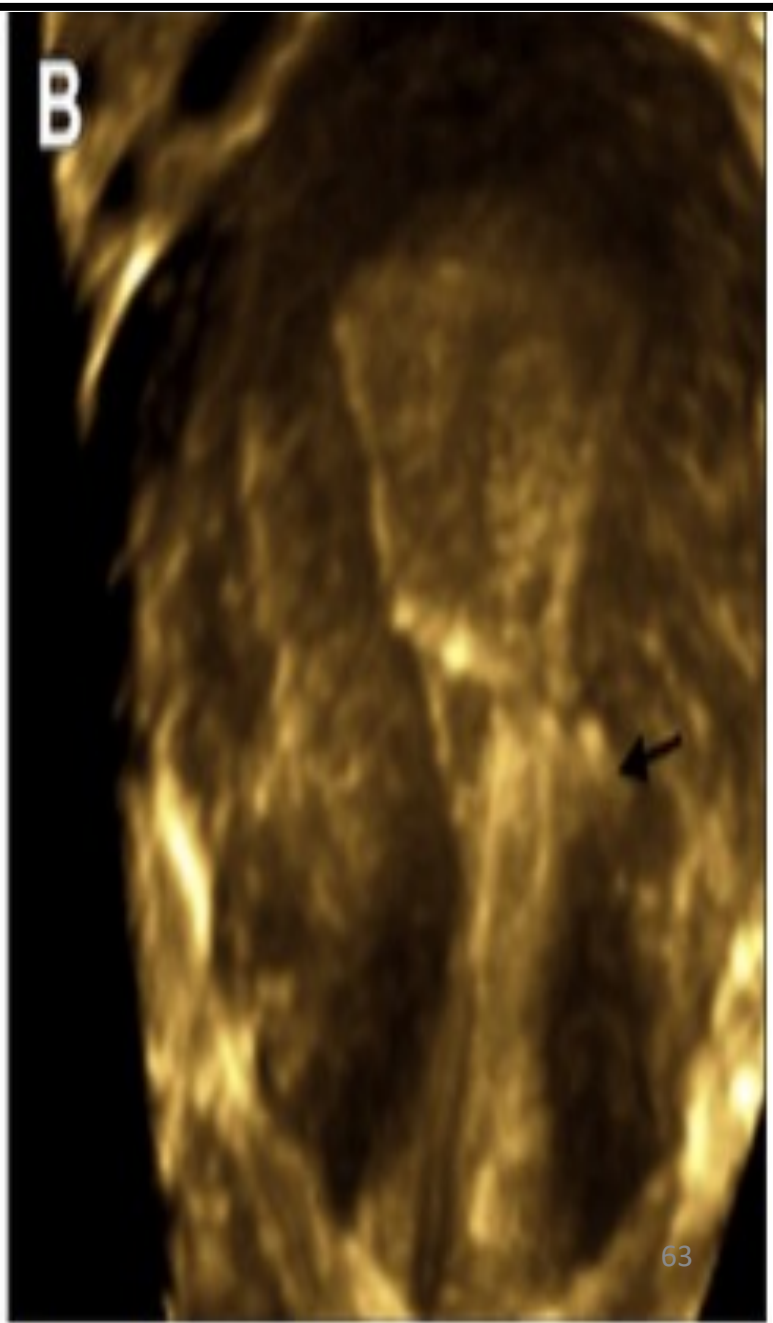
Well placed intrauterine device



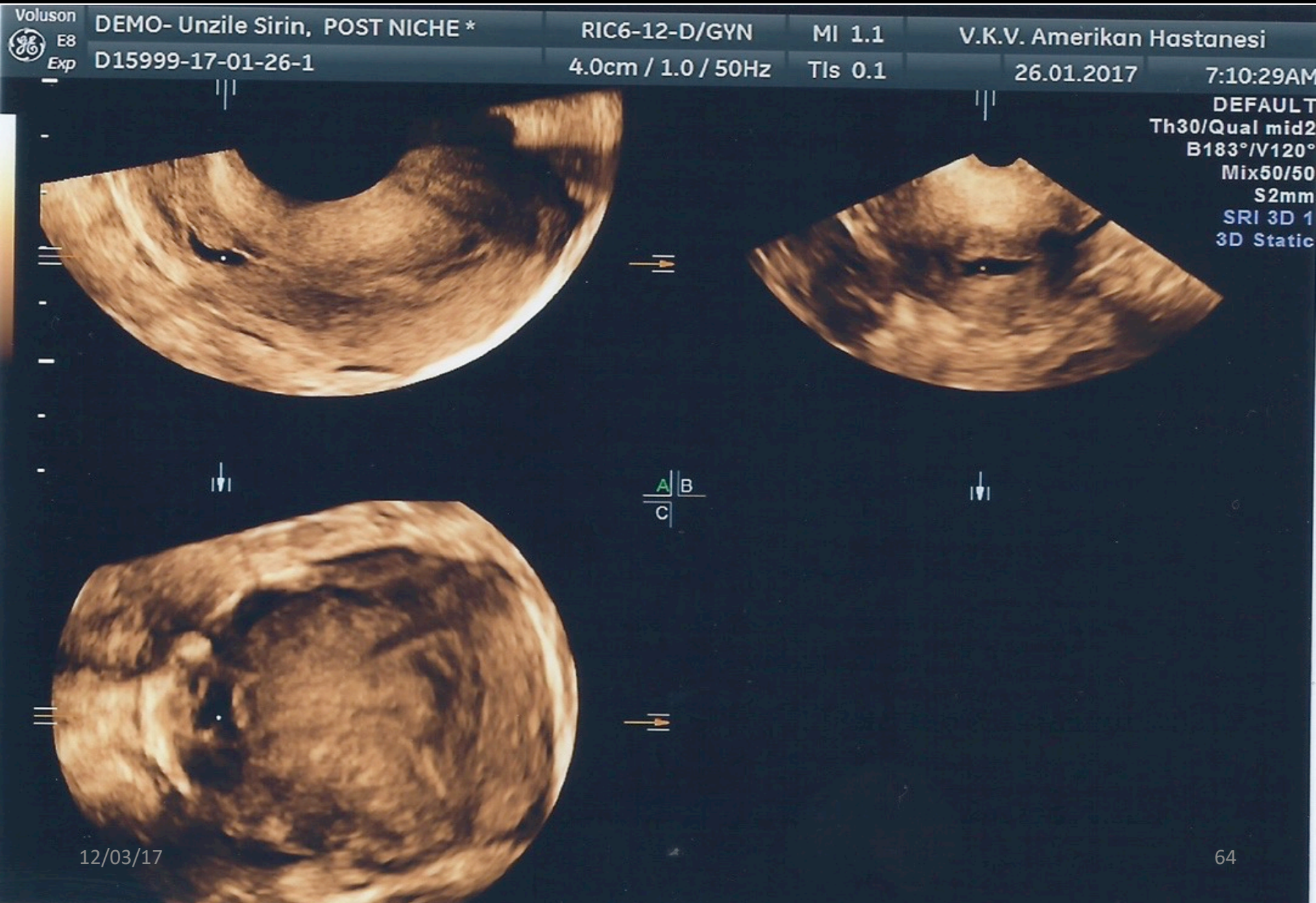
Well placed IUD

Dislocated IUD

Dislocated IUD



Isthmocele (niche)



Isthmocele (niche)