3D/4D Acquisitions and Manipulations in OB and GYN

For highest resolution always acquire volumes in 3D

Uterus Acquisition – Normal and IUD

Optimize 2D Image; adjust focal zone, gain, and frequency, open field of view to maximum or use Wide Sector button
Acquire in a sagittal plane centered on the endometrium or center of the uterus
Depth to include cul de sac area
Touch 3D
Choose Setting-Surface, Soft Tissue or Uterus if available
Choose Multiplanar
ROI opened to include fundus through cervix, take separate volume of cervical area if needed
Maximum quality
Maximum volume angle
Touch Start or Freeze button

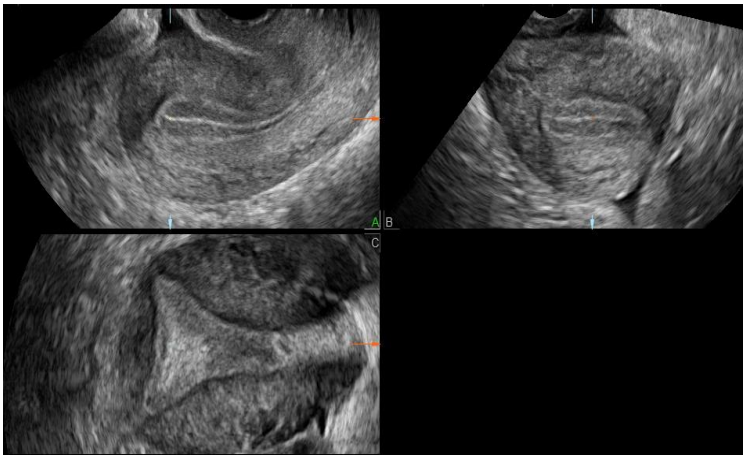
When scanning a Septate/ Bicornuate Uterus or an early gestation, the uterus is wider, acquire the volume in the transverse plane as you have a 180-degree sector angle with the endovaginal probe.

Uterus Manipulation

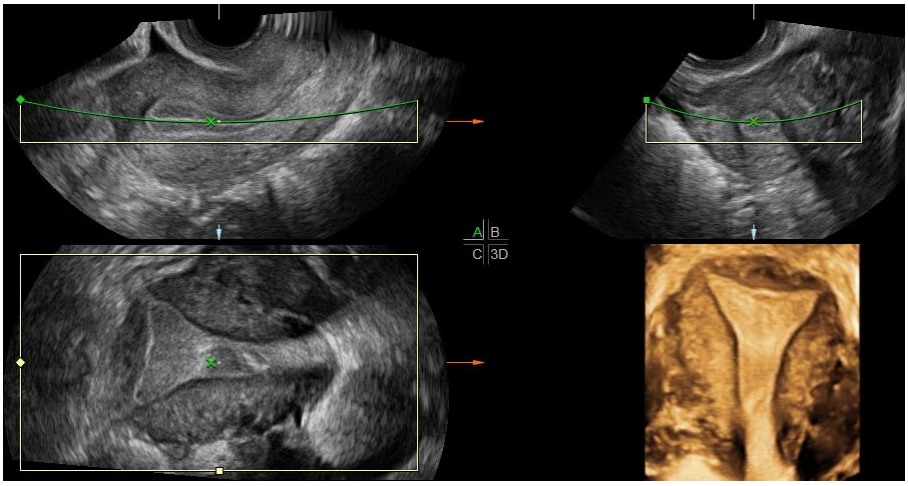
a. Multiplanar (touch panel), Quad Display (hard key)
b. Place axis dot in fundal sagittal endometrium
c. **Plane A** – Z rotate to align the long axis of the endometrial stripe or IUD is horizontal
d. **Plane B** – Z rotate to align transverse axis of endometrial stripe or IUD is horizontal
e. **Plane C** – Z rotate to align the mid-coronal plane of the uterus either horizontally or vertically (note: if you rotate the uterus vertically, the A and B planes will swap)

Render Technique

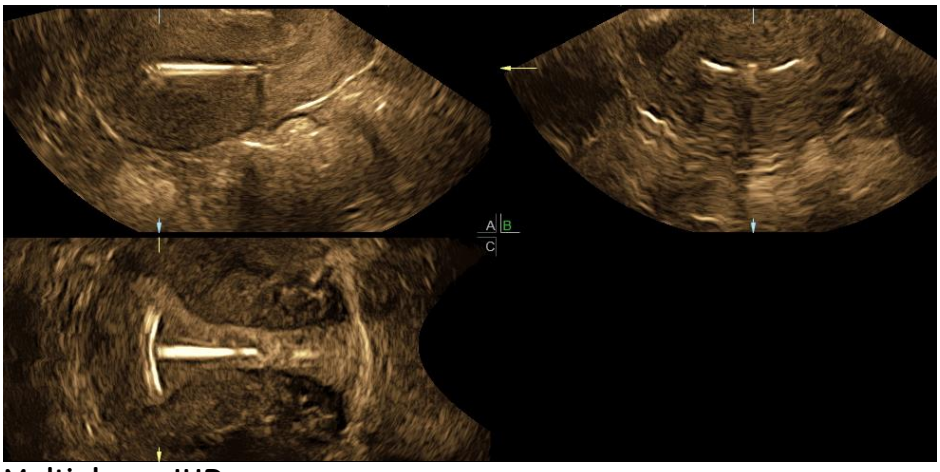
Use up/down render direction ("Sub 3D" on touch panel) in A-plane with green render line through endometrium excellent visualization of endometrial cavity (surface smooth, surface texture, or gradient light mixtures) Size of box should include entire uterus, location of green render line is most important in surface rendering modes.



Multiplanar Uterus



Rendered Uterus



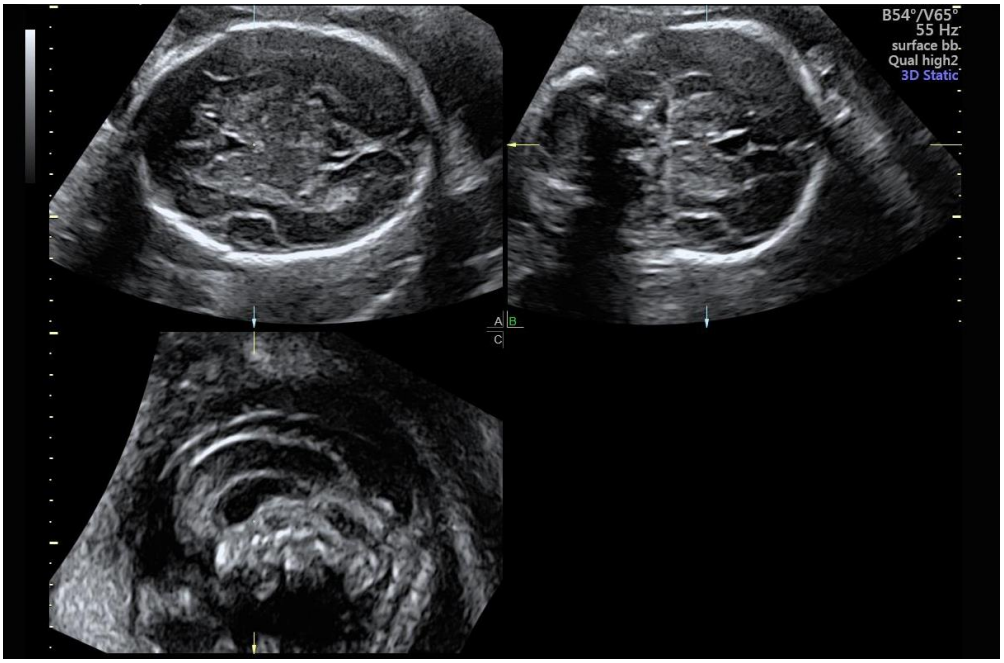
Multiplanar IUD

Brain Acquisition - to include the Corpus Callosum, Vermis, Ventricles

Acquire in an axial plane centered on the lateral ventricles/CSP (BPD plane)
Depth to include entire skull
Touch 3D
Choose Setting-Surface
Choose Multiplanar
ROI opened to include skull
Quality to maximum mode if possible
Volume angle to include entire skull and superior C-spine
Touch Start or Freeze button

Brain Manipulation - Parallel shift through the volume to display the Cerebellum

a. Multiplanar (touch panel), Quad Display (hard key)
b. Place axis dot on the midline if imaging the corpus callosum or in the middle of the cerebellum if measuring the vermis
c. **Plane A –** Z rotate until the midline is horizontal
d. **Plane B –** Z rotate until the midline is horizontal
e. **Plane C –** Z rotate until the head is upright, Parallel shift until the midline structures are seen



Multiplanar Brain

Palate Acquisition

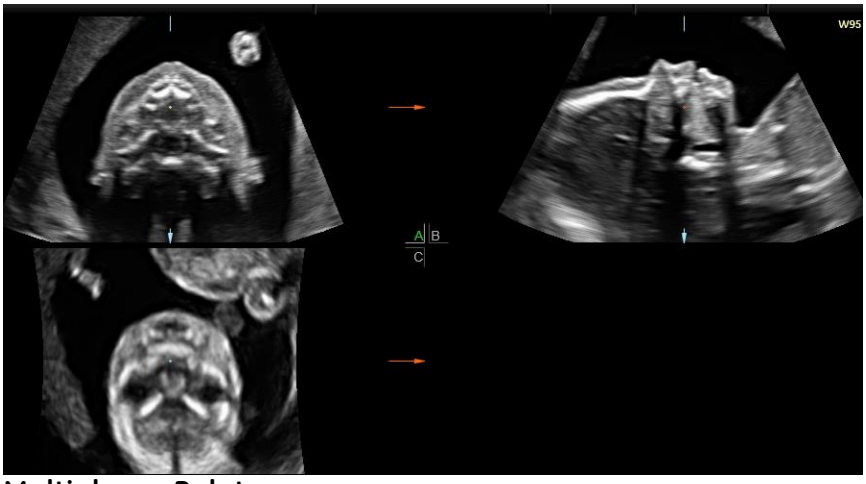
Acquire with fetus in a supine position, in an axial or transverse plane centered on the palate, soft tissue/surface setting
Depth to include the fetal skull
Touch 3D
Choose Setting-Surface
Choose Multiplanar
ROI opened to include skull, centered on the palate or alveolar ridge
Quality to maximum mode if possible
Volume angle to include orbits through mandible
Touch Start or Freeze button

Palate Manipulation

a. Multiplanar (touch panel), Quad Display (hard key)
b. **A Box** move reference dot so orbits are visible in **C Box**
c. **A Box**-Z rotation so palate is upright
d. **B Box**-Z rotation to line up the face, forehead, nose and chin are horizontal
e. **C Box**-Z rotation so orbits are horizontal
f. **B Box**-Move reference dot to upper lip to visualize upper lip in **C Box**, rotate 180 degrees or use arrow to rotate 180 degrees, so lips are upright in **C Box**
g. Scroll through the palate in **A Box** with Parallel Shift or use TUI with 9 slices to demonstrate from orbits through mandible

To Render Image:

a. **B Box**-Z rotation to stand up head
b. Go to Render
c. ROI Direction-Up to Down
d. **B Box**-Use narrow render box, place render line curved on palate
e. Adjust so palate is visualized in rendered image



Multiplanar Palate

Spine Acquisition- Ribs, Scapula

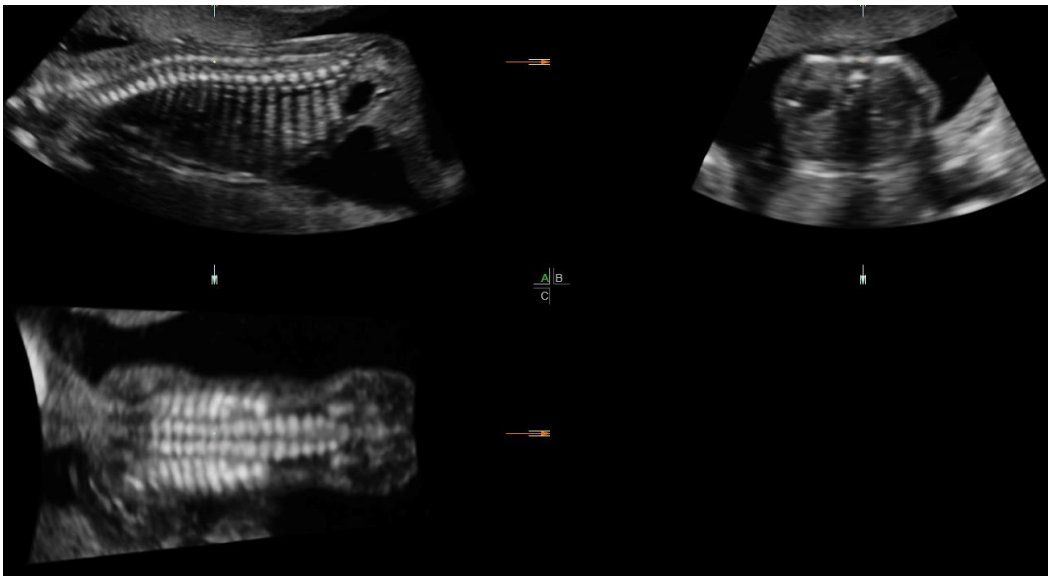
Acquire with fetus in the prone position and in a sagittal plane, skeletal setting
Depth to include entire fetal skeleton
Touch 3D
Choose Setting-Skeletal or Surface
Choose Multiplanar
ROI to include entire spine, area of interest along with cervical or sacral area
Quality to maximum mode if possible
Volume angle to include fetal ribs
Touch Start or Freeze button

Spine Manipulation

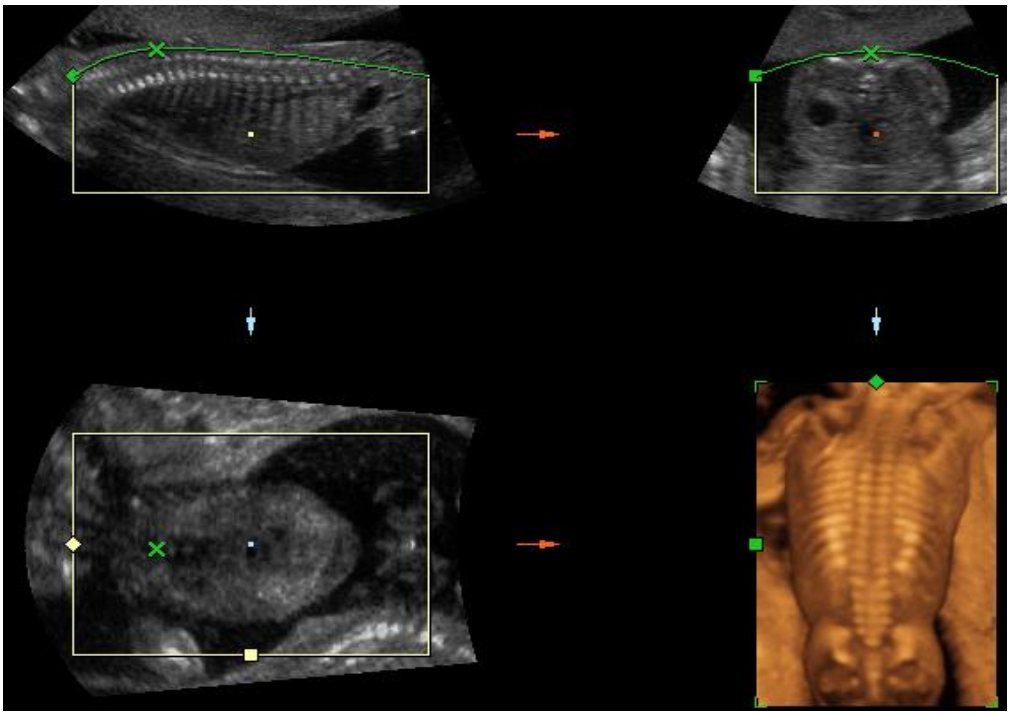
a. Multiplanar (touch panel), Quad Display (hard key)
b. Place axis dot in any echogenic portion of the vertebrae
c. **Plane A** – Z rotate sagittal spine to align the long axis horizontally
d. **Plane B** – Z rotate to align the transverse axis of the spine to 12 o'clock
e. **Plane C** – Z rotate to align the mid-coronal plane of the spine horizontal

Render Technique to count vertebrae (follow above steps):

1. Activate 3D Frame ("Sub 3D" button on touch panel)
2. With spine, sagittal in A-plane, activate B-plane (transverse)
3. Parallel shift through B-plane to T-12 (last ribs visualized on rendered image
4. Continue parallel shifting through B-plane as you count vertebrae in rendered image until you determine location of spinal defect



Multiplanar Spine



Rendered Spine