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Date: 2026.02.26 17:42:06 EET
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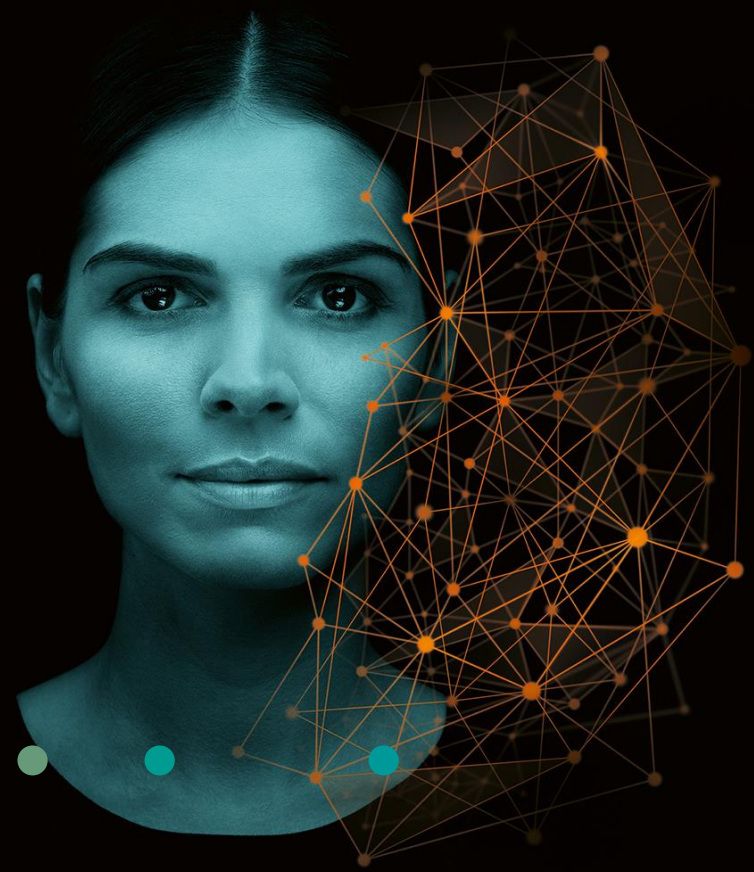
SIEMENS Healthineers

ACUSON Sequoia Ultrasound System

3D/4D Ultrasound Imaging Technology in OB (VB10)



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Objectives

- **Outline activation and volume acquisition**
- Describe volume manipulation
- Demonstrate optimization tools
- Explain FlexPlane Tool
- Explain Multislice feature
- Define volume store and editing
- Describe reviewing stored volumes

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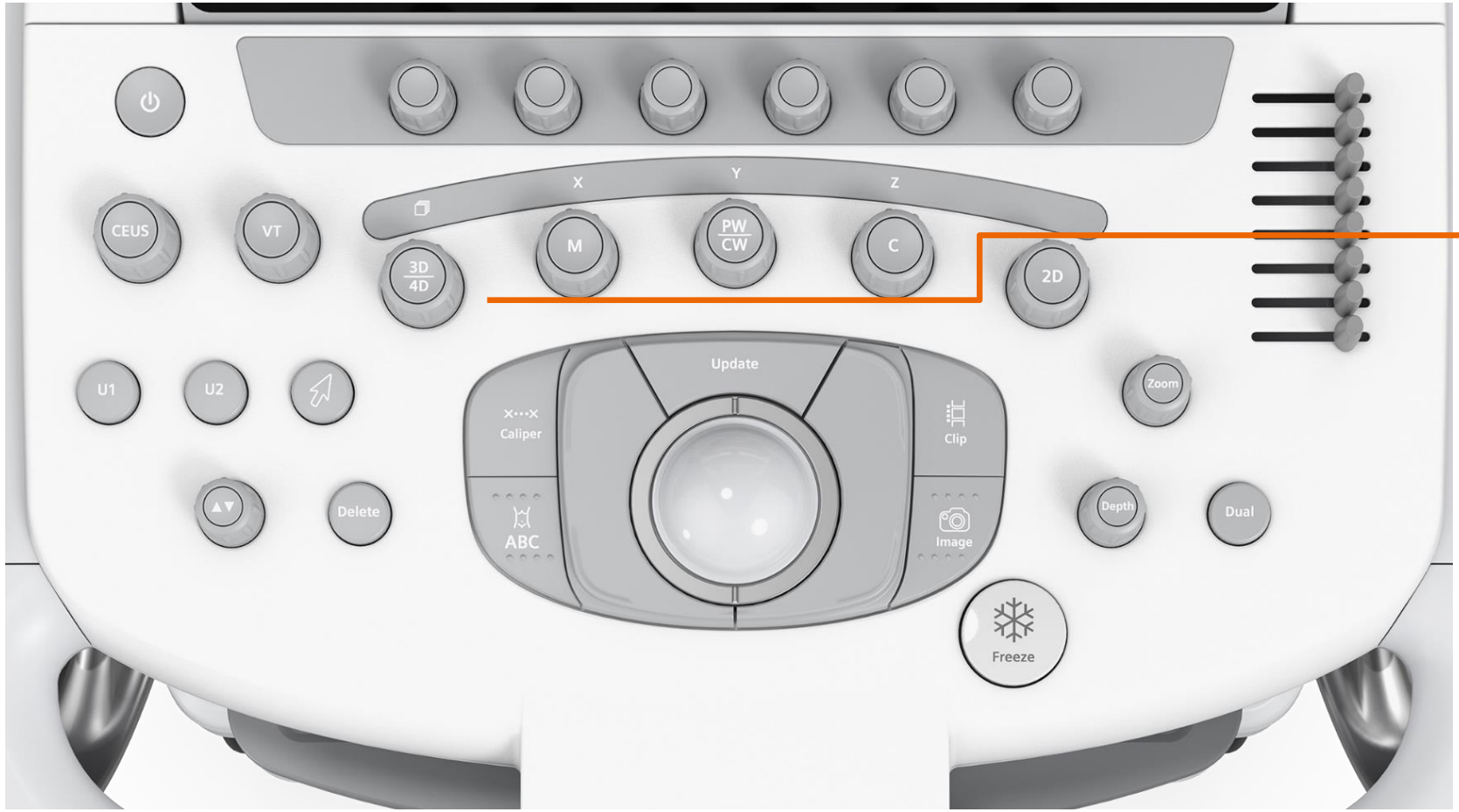
Activate 3D/4D



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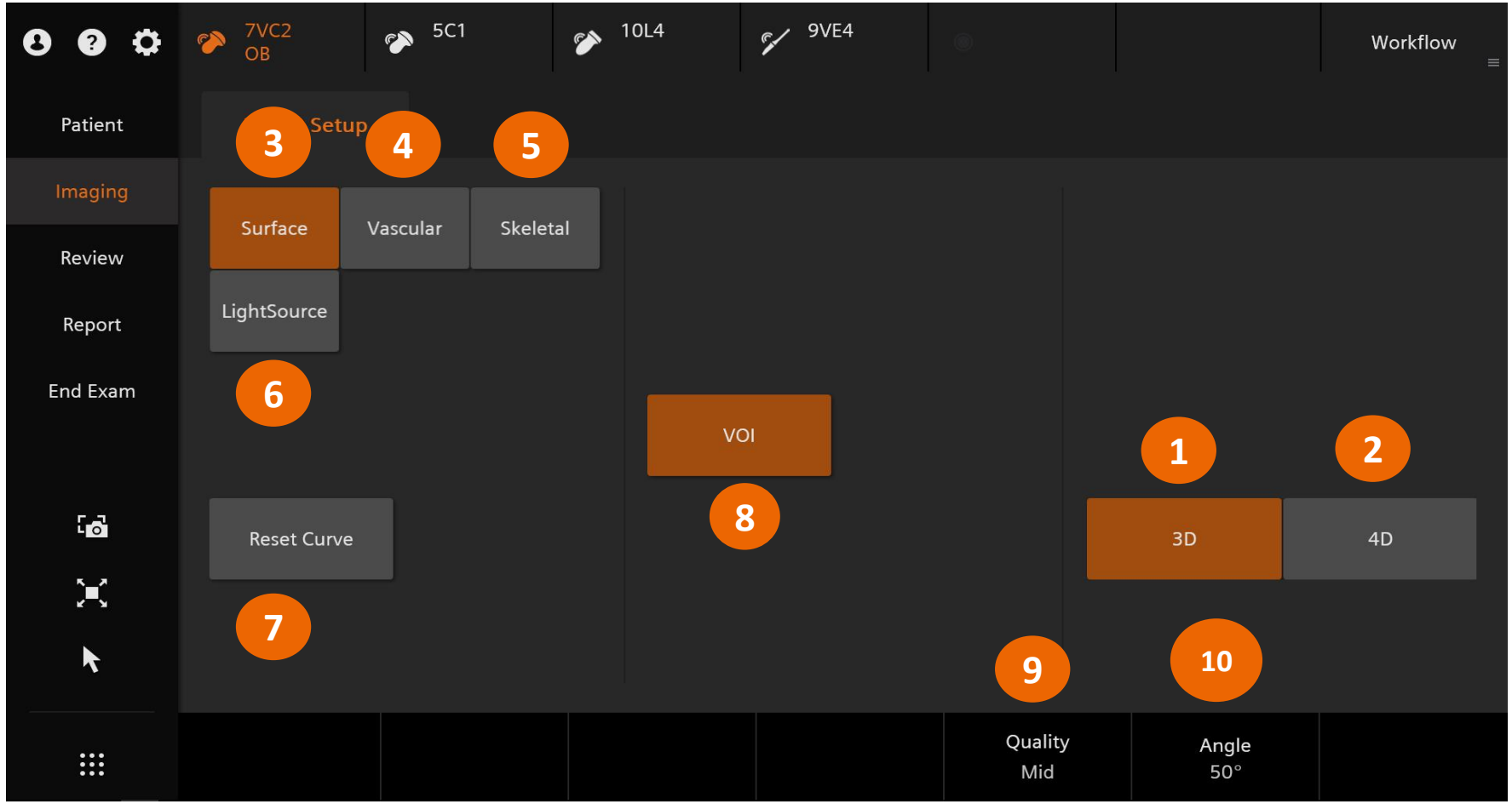
Touch Screen



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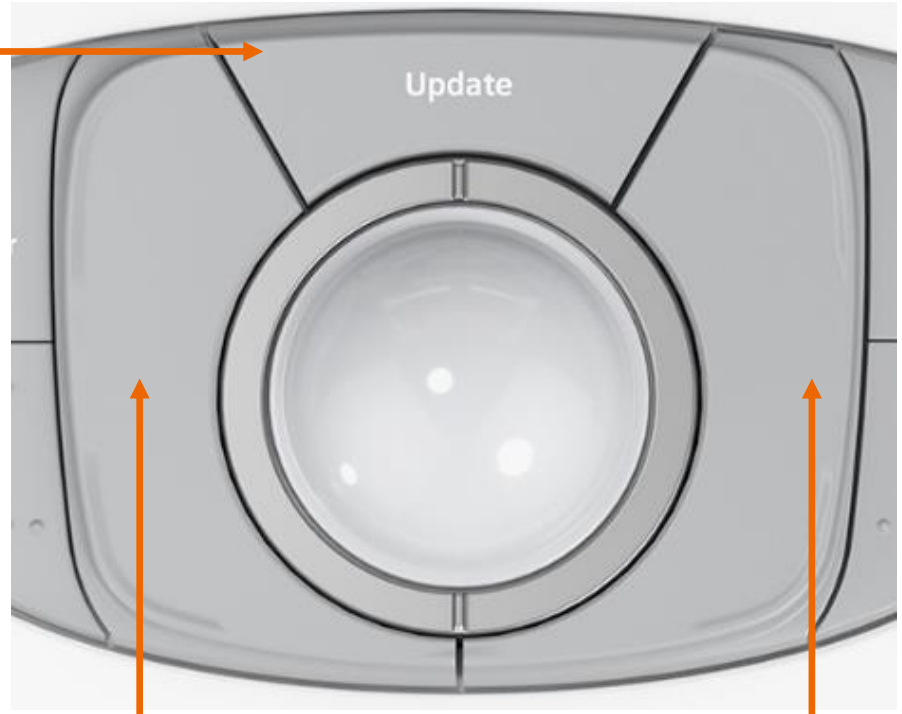
Home base

Update
Starts acquisition

Set
Size, position and curve of the ROI/VOI



Home Base Display

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Volume monitor layout

Volume Imaging parameters

Volume display field

Home Base display

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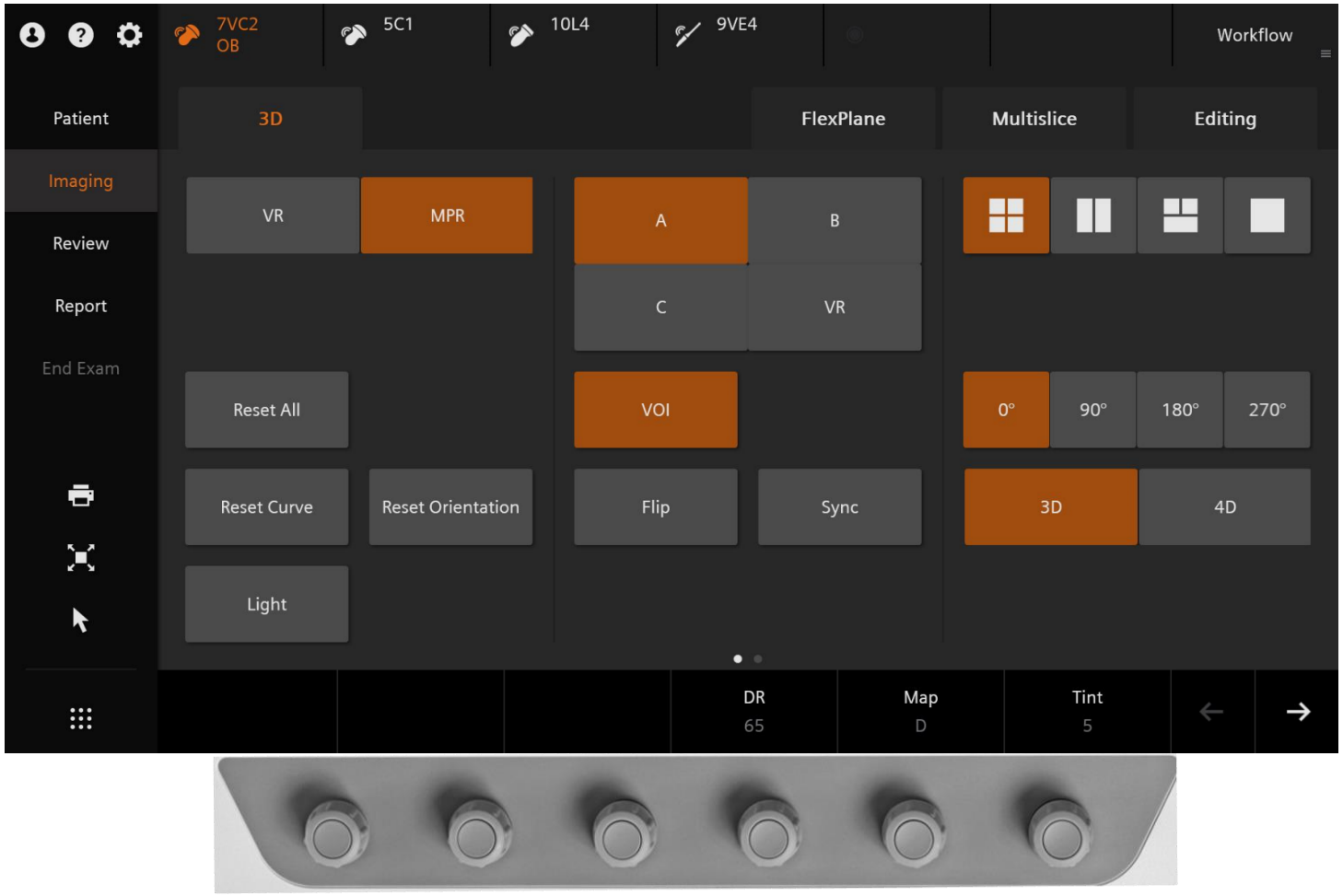
Volume Touch Screen



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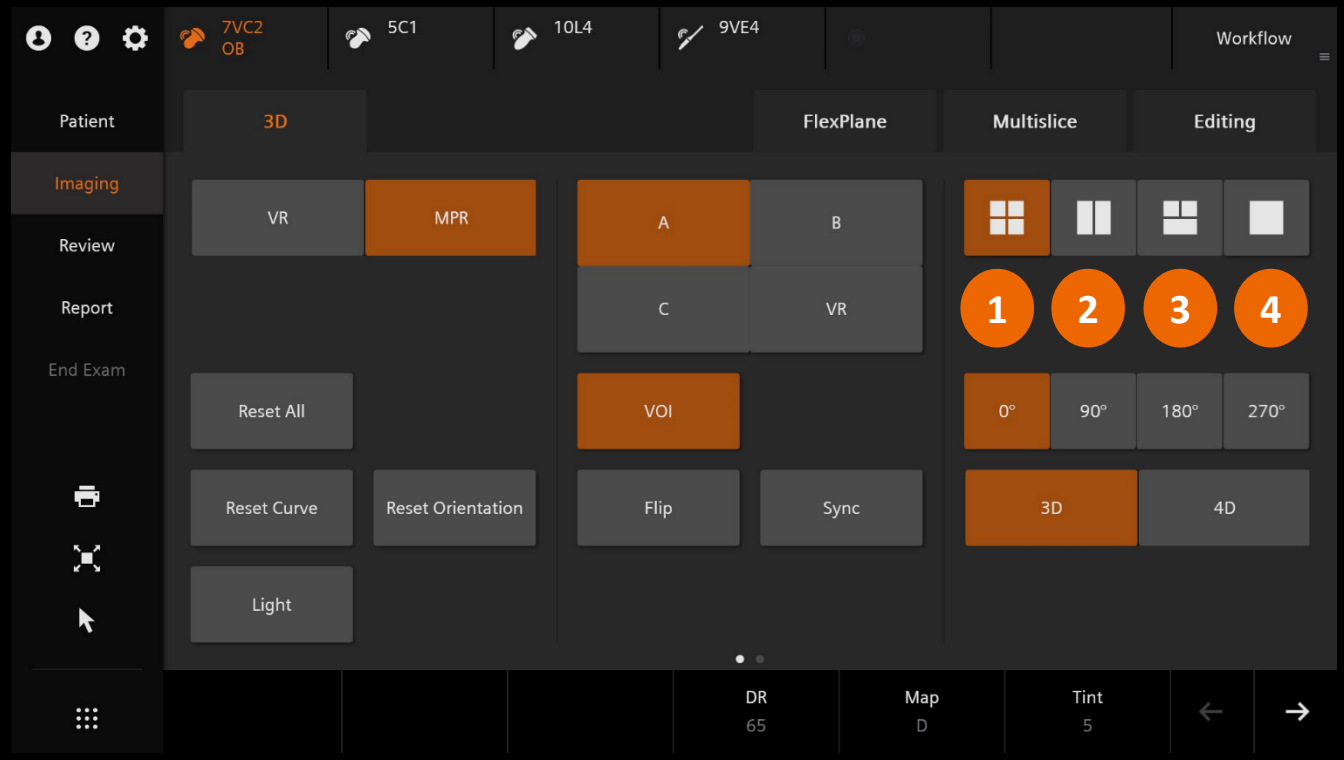
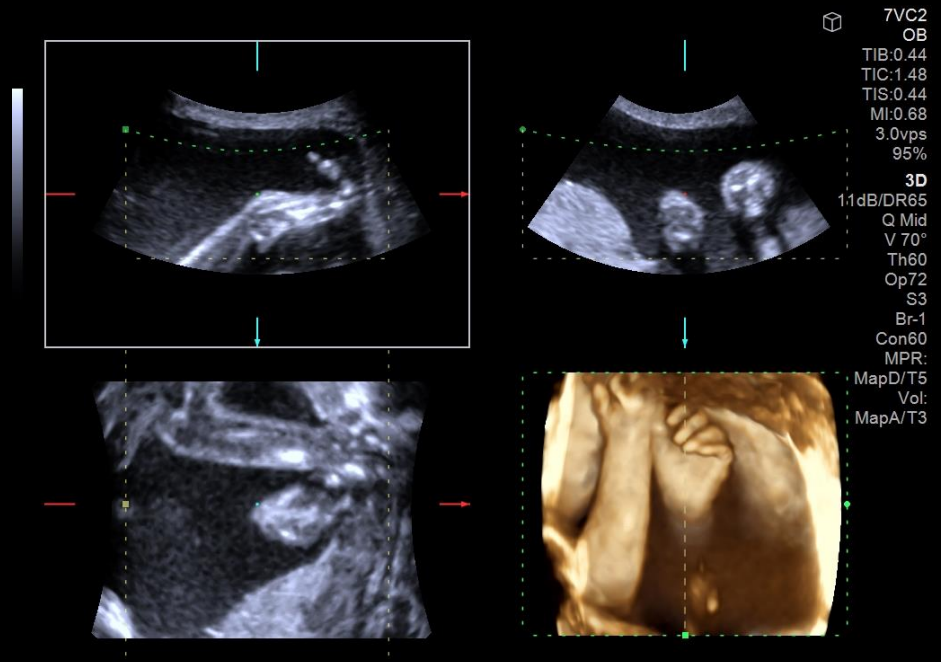
Display format





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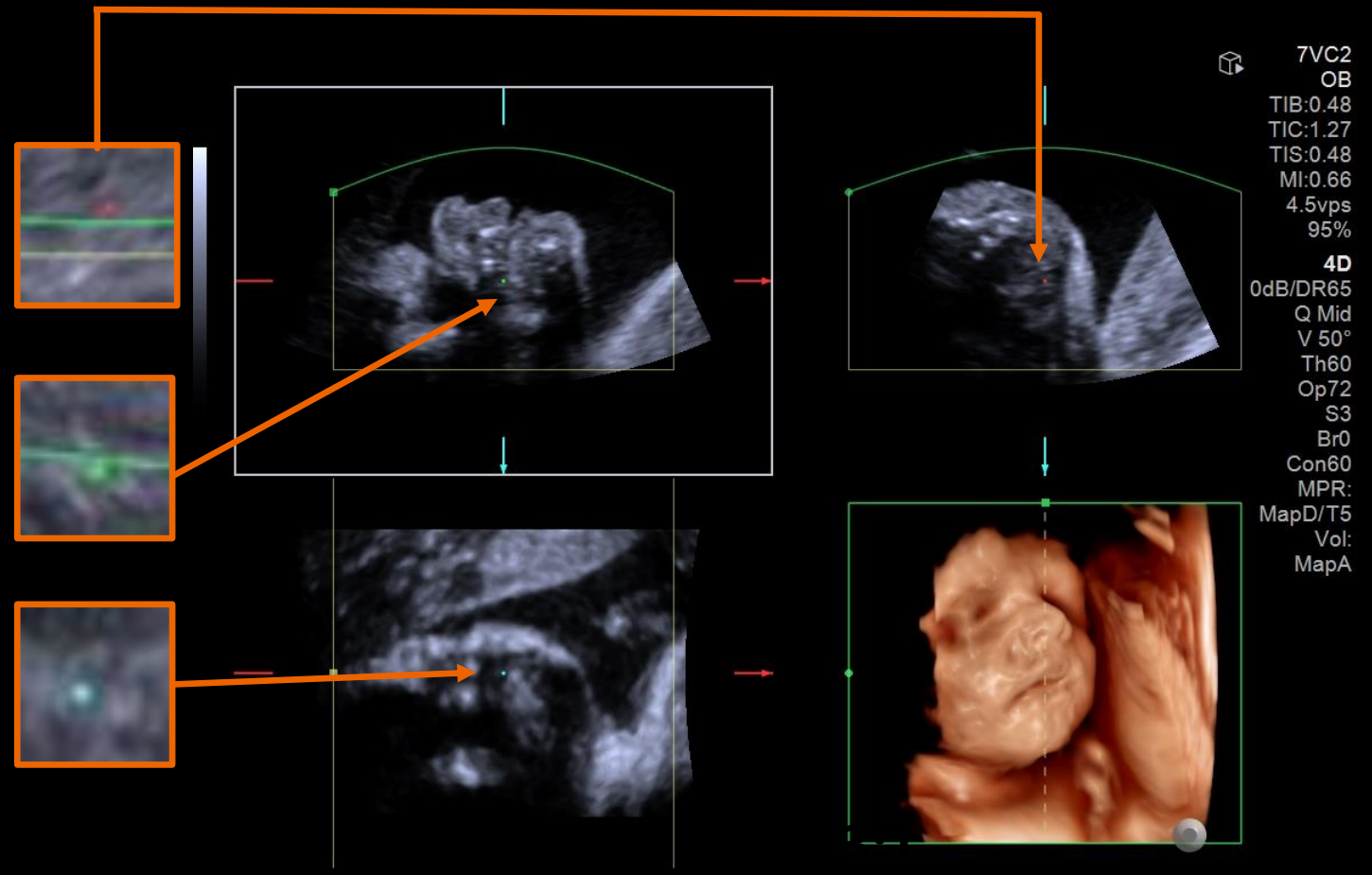
Reference point

- The reference marker is the pivot point to manipulate the Multiplanar Reconstruction (MPR) planes
- It represents the point where the A, B, and C plane intersect
- Place the desired anatomy at the reference point to display in all three planes



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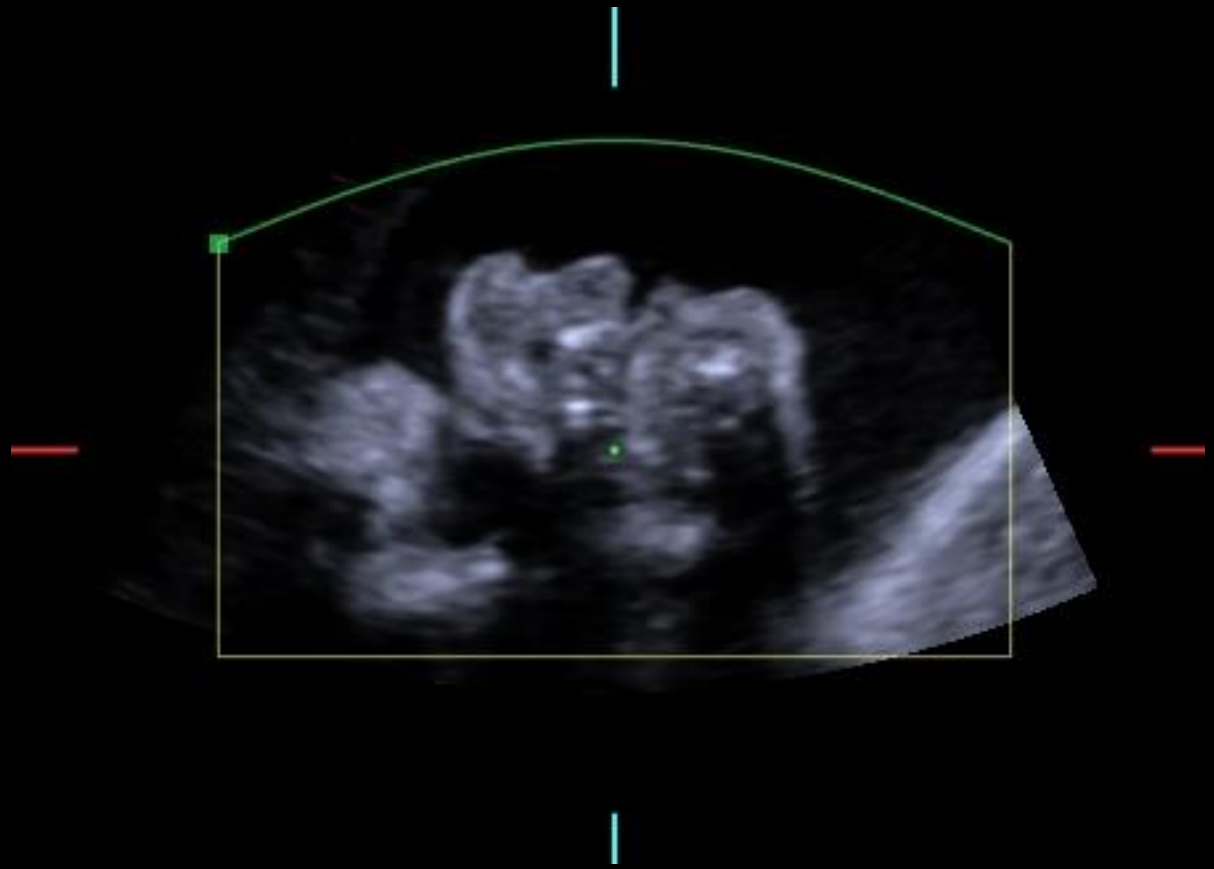
VOI Size and curve



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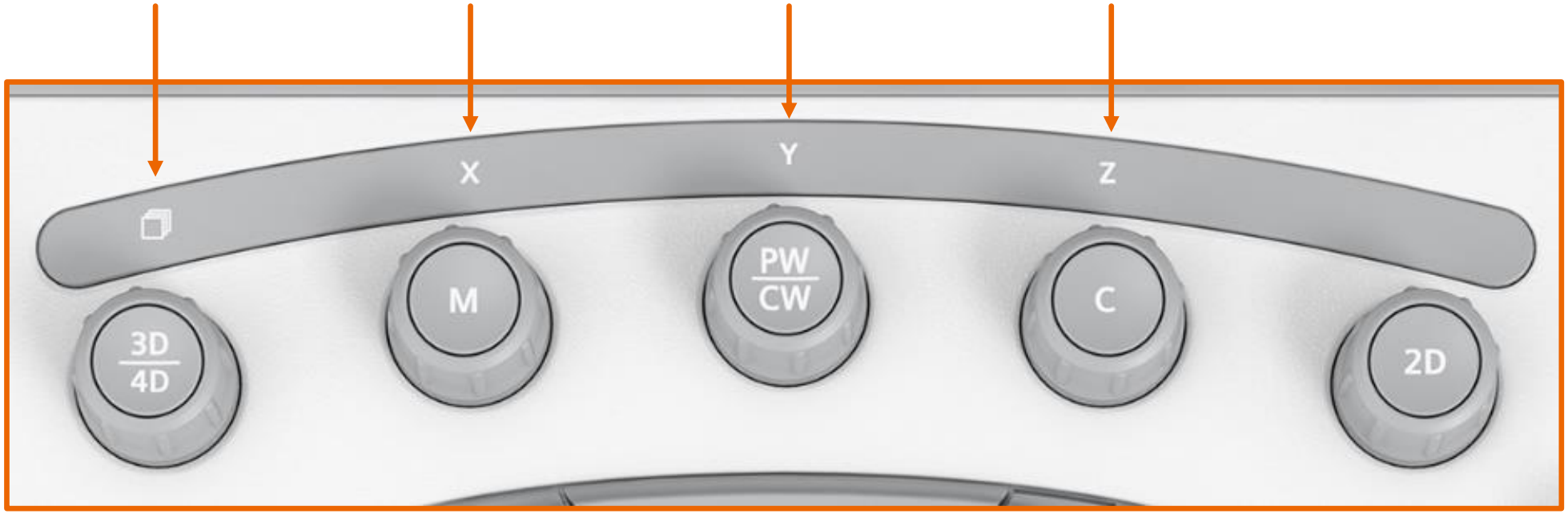
Control Panel



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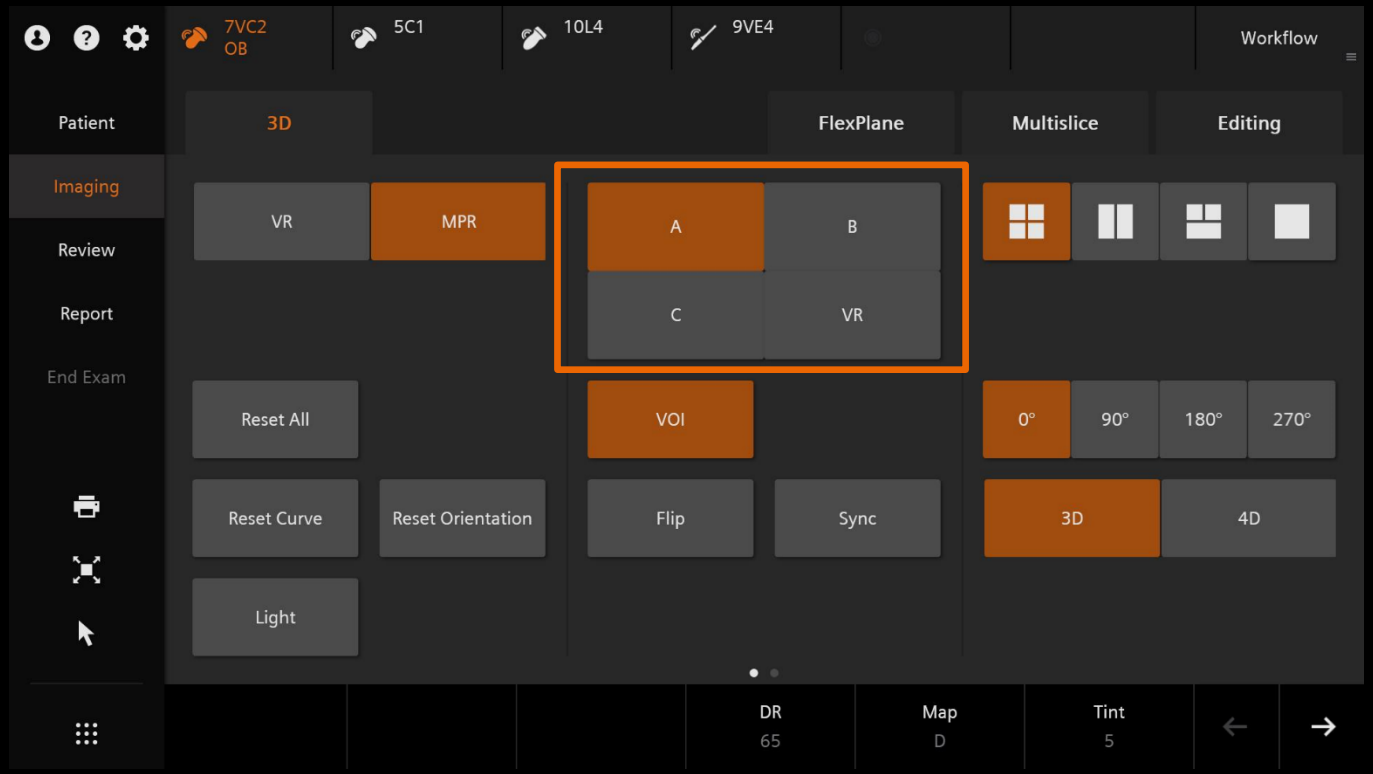
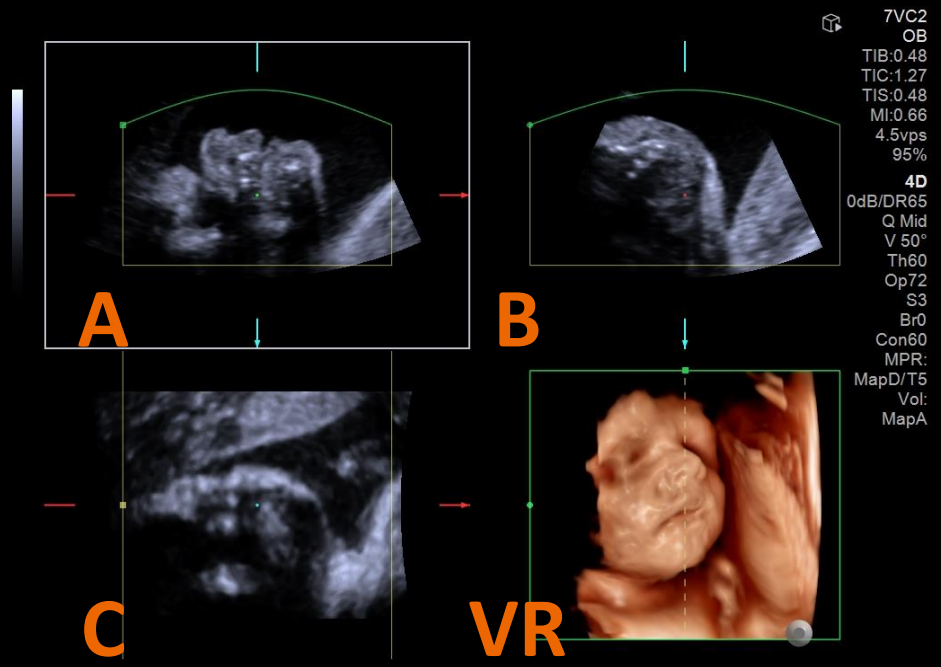
Quadrant selection





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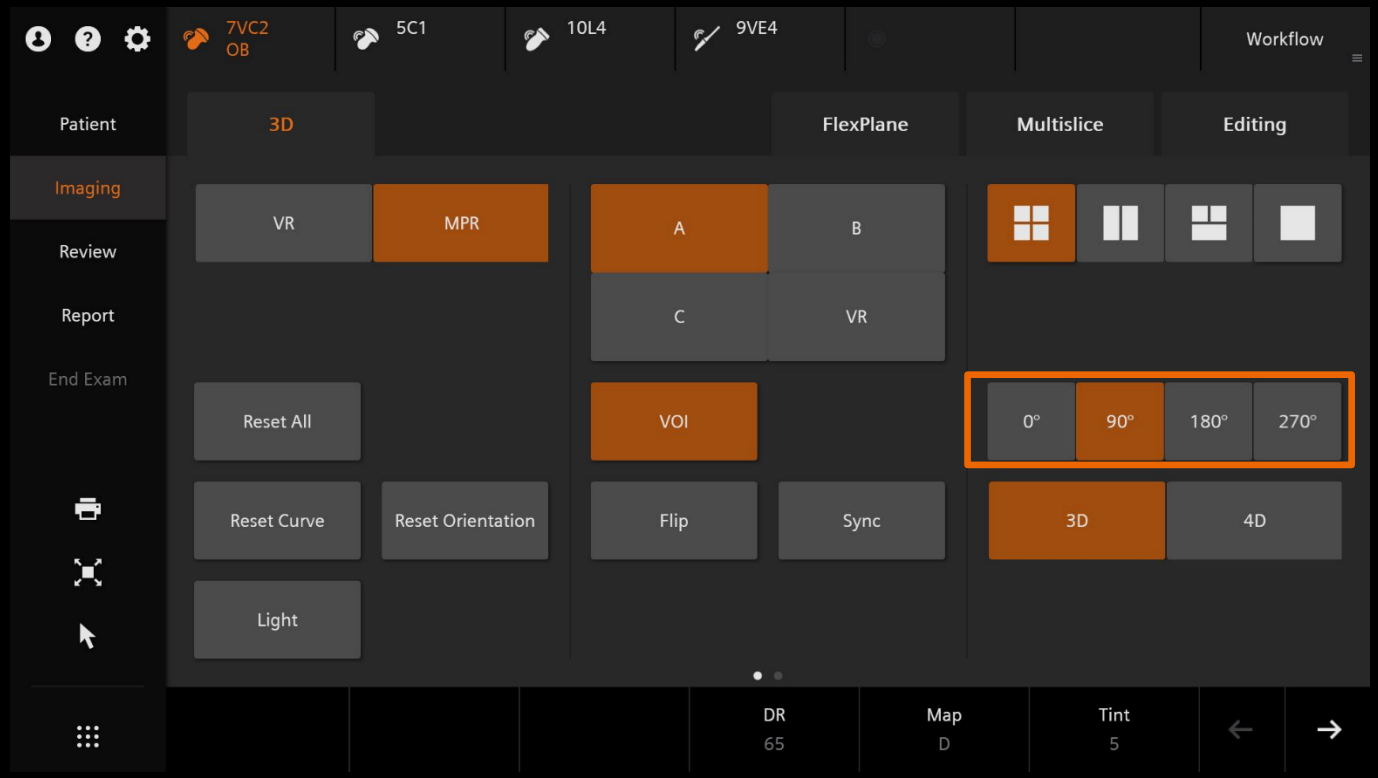
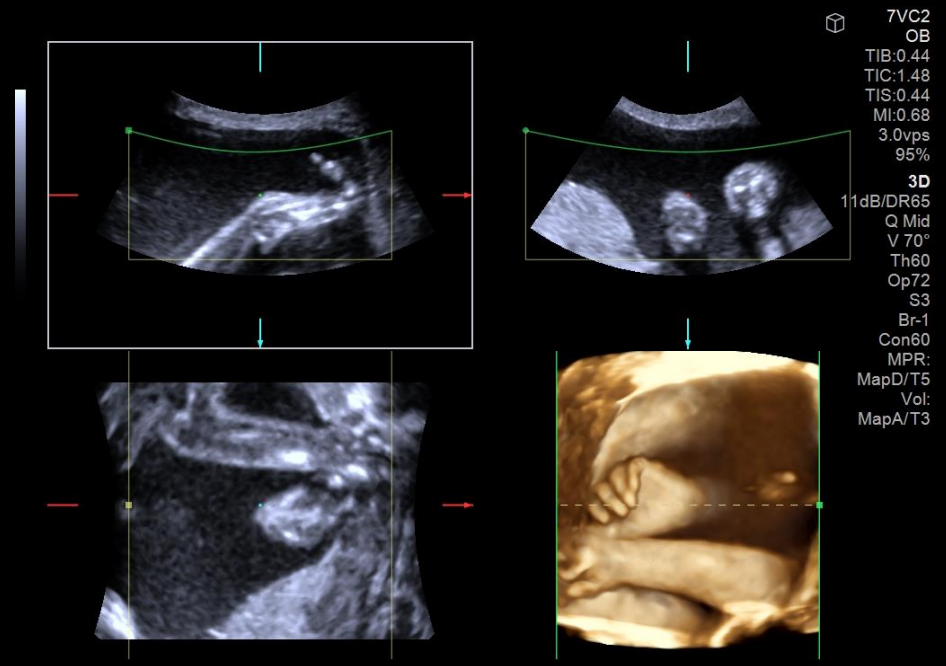
Volume rendering rotation





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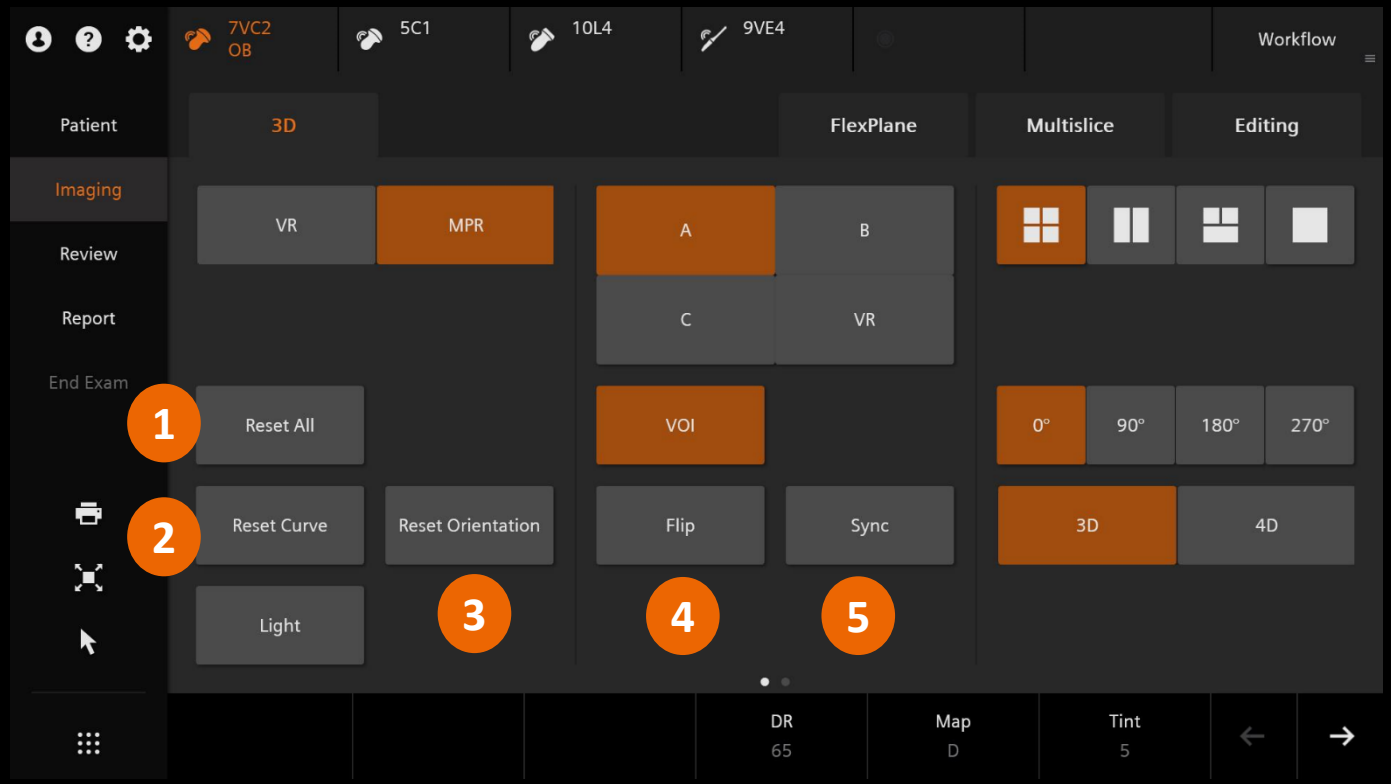
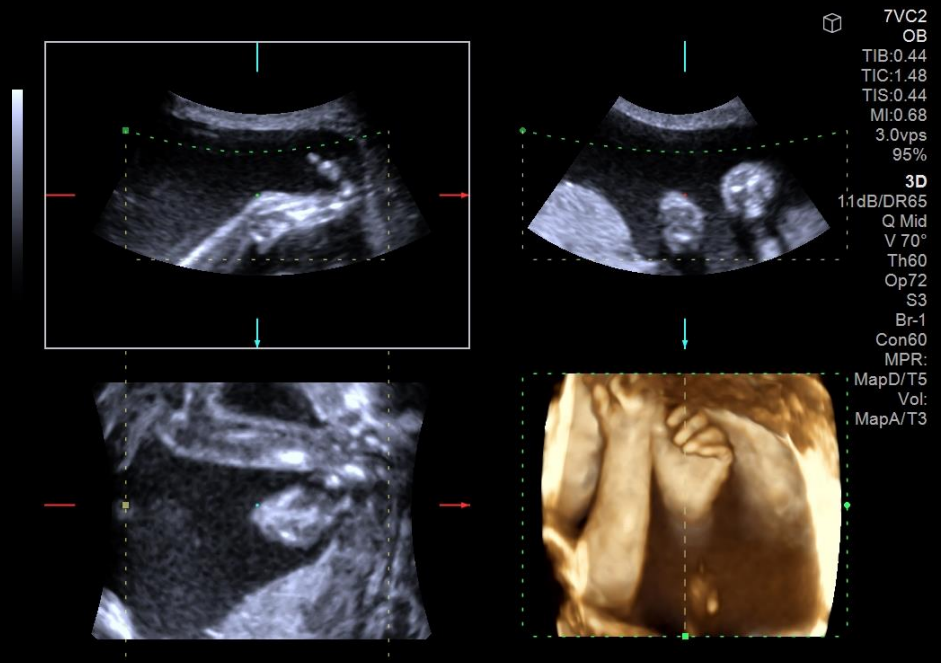
Touch Screen keys





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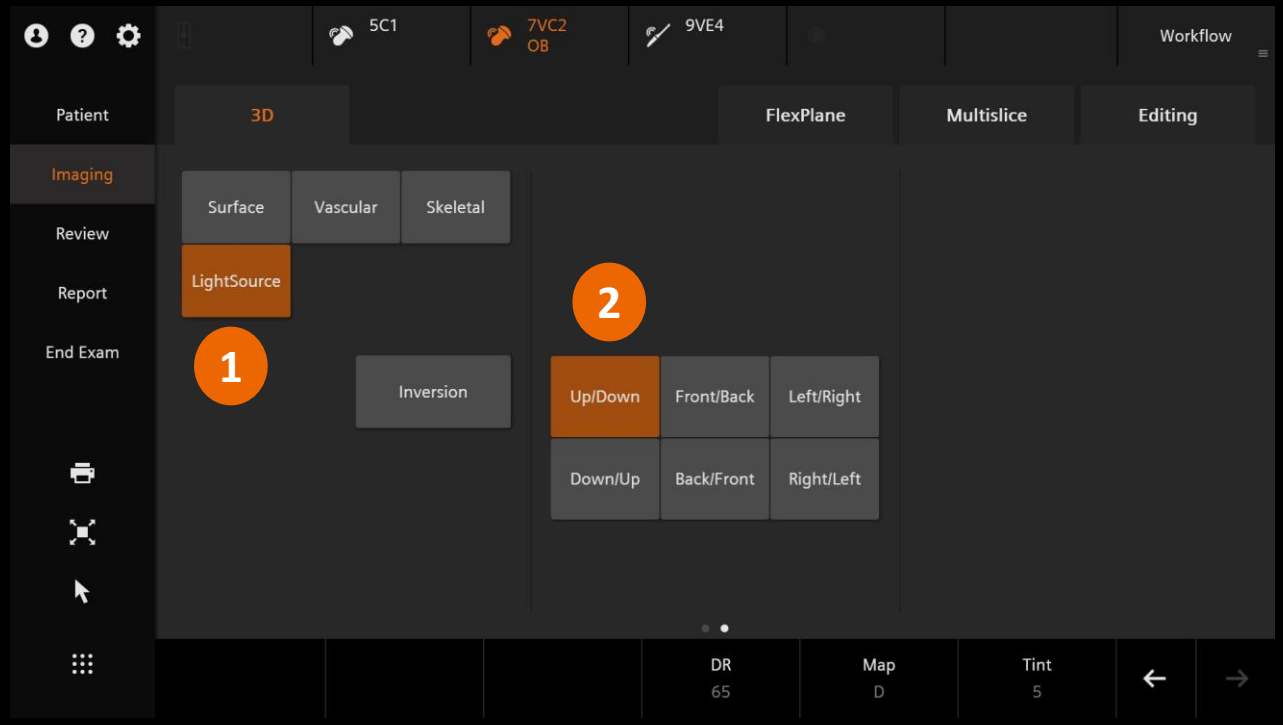
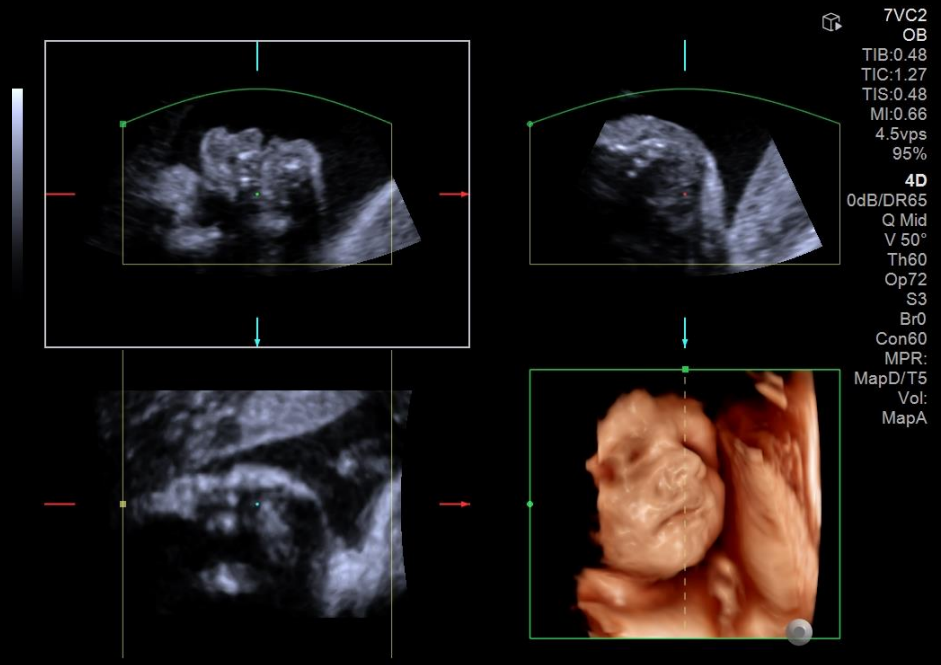
Touch Screen keys





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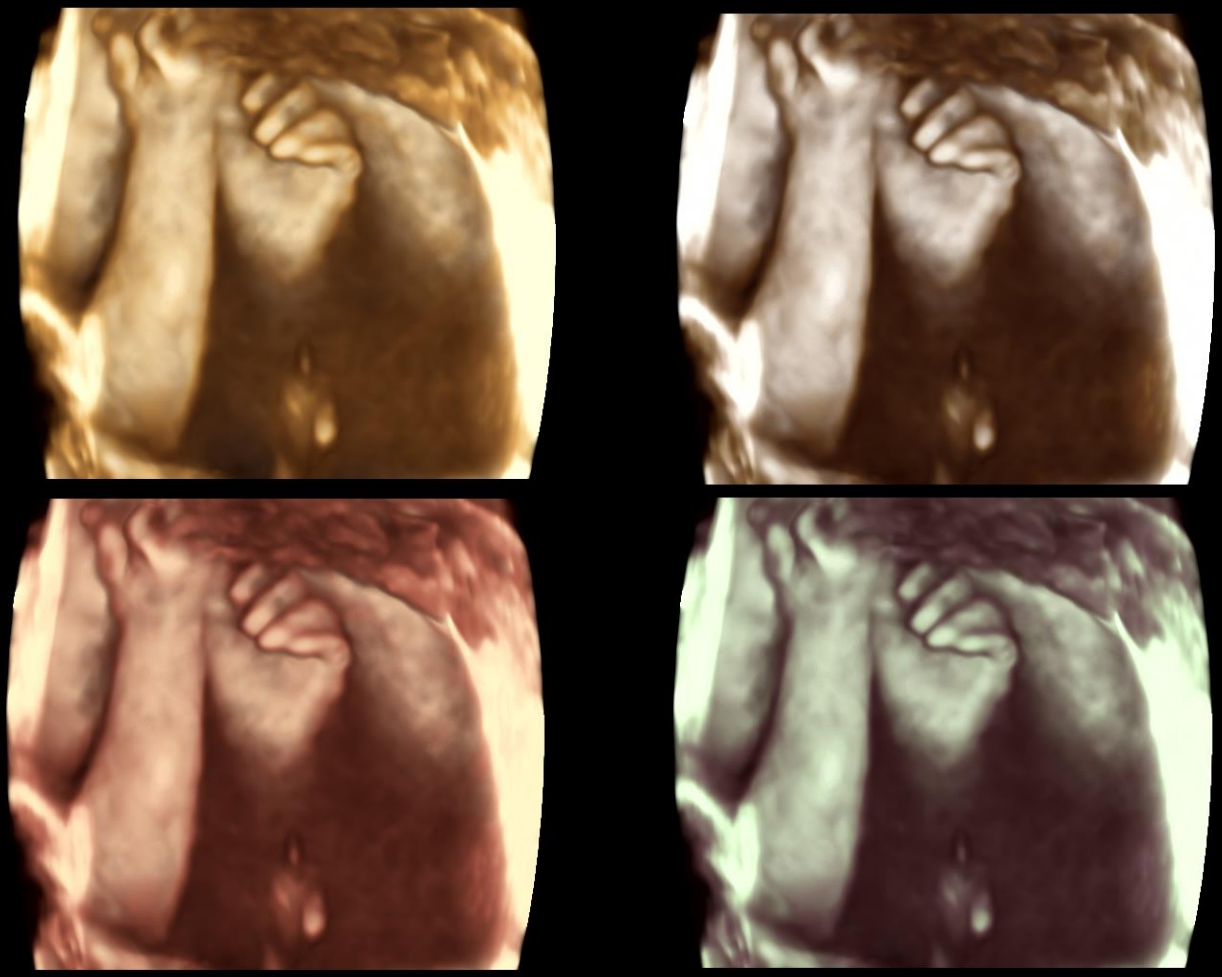
Surface

- Smooths the image contours
- Creates a soft sculptured appearance for highlighting surface features
- Uses the mode specific selections for opacity percentage and threshold
- Includes eight tint options



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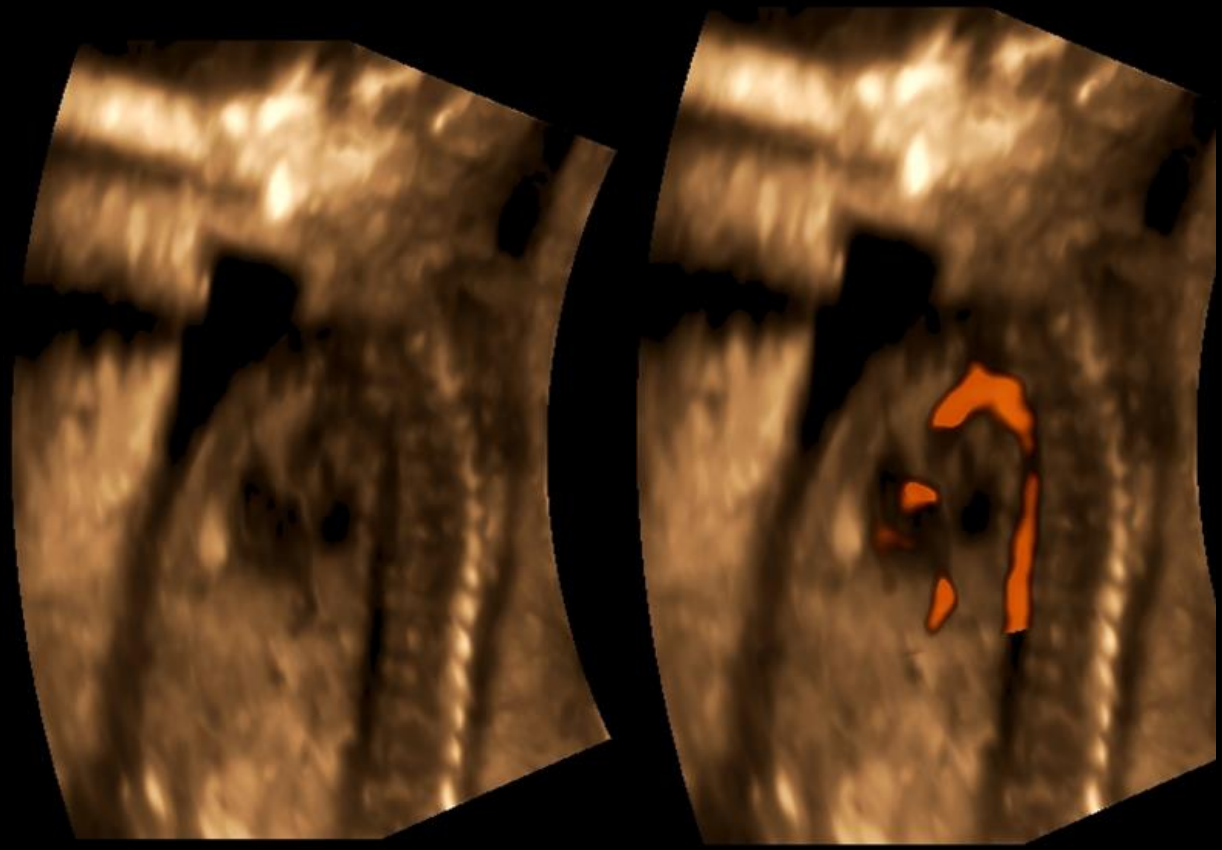
Vascular

Limits the display to minimum-value pixels with the lowest value along each projection of the volume to aid in visualizing hypo-echoic lesions and large vascular structures

- Fetal vessels, umbilical cord
- Cystic structures
- Abdominal vascularity



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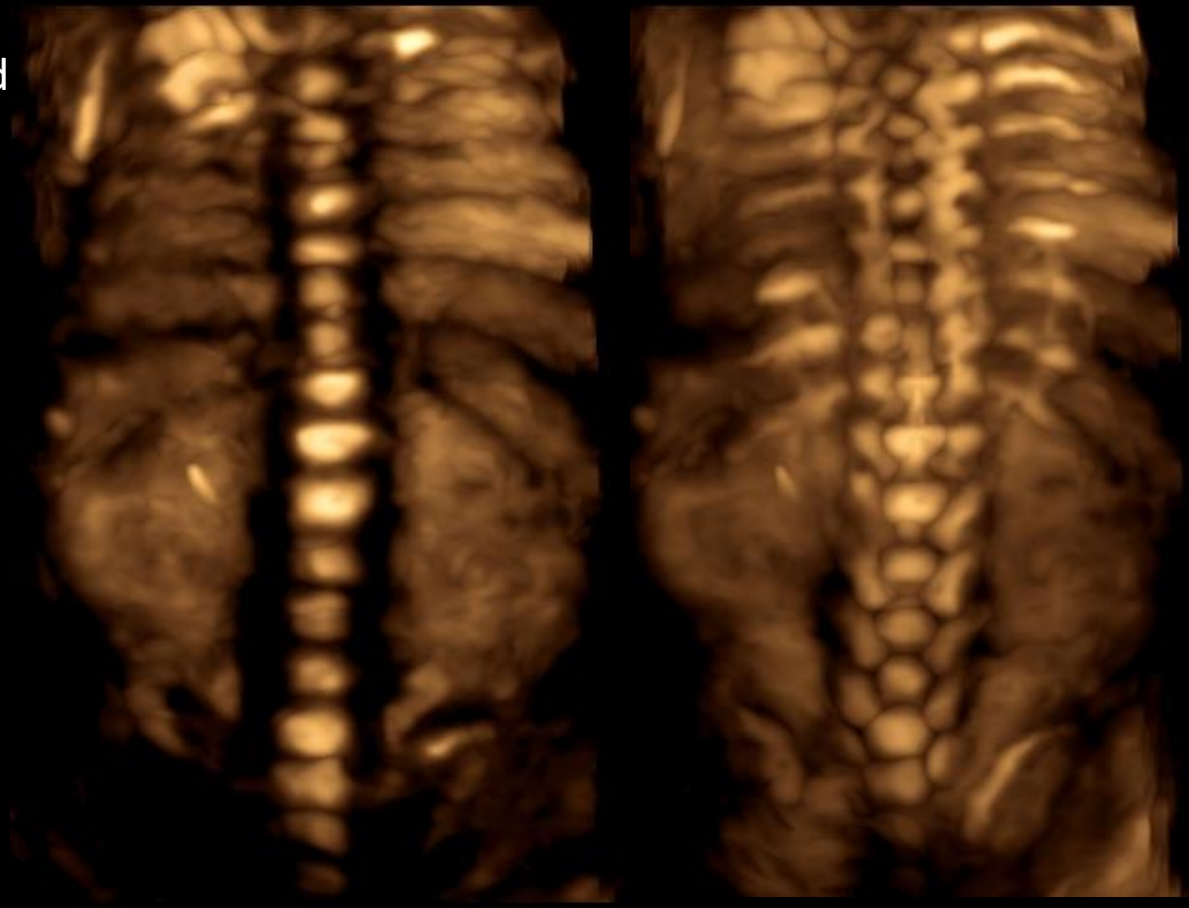
Skeletal

Limits the display to maximum-value pixels with the highest value along each projection of the volume to aid in visualizing hyper-echoic structures

- Fetal Spine
- Bony Structures
- Intrauterine devices



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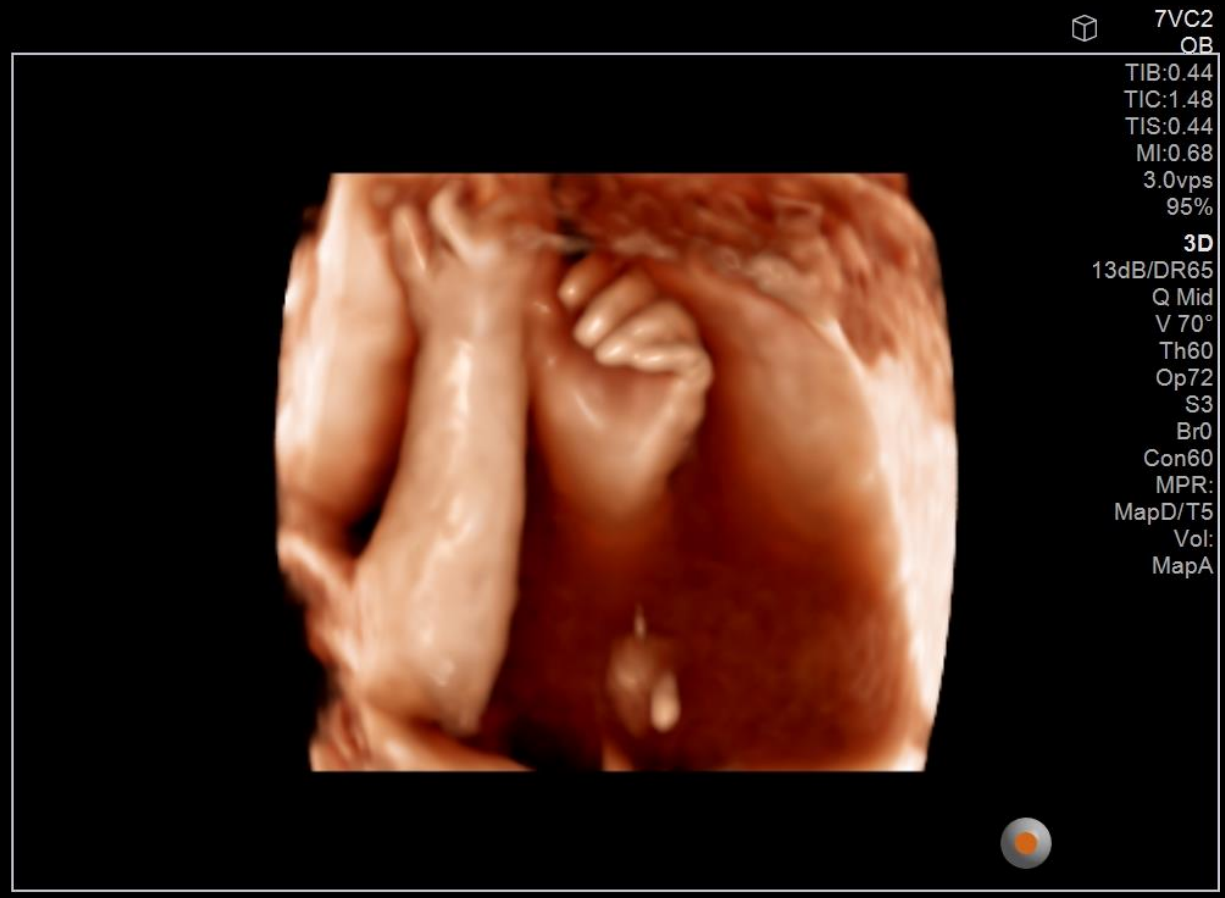
LightSource

- Increase depth perception
- Reveal surface details
- Deeper understanding of relational anatomy



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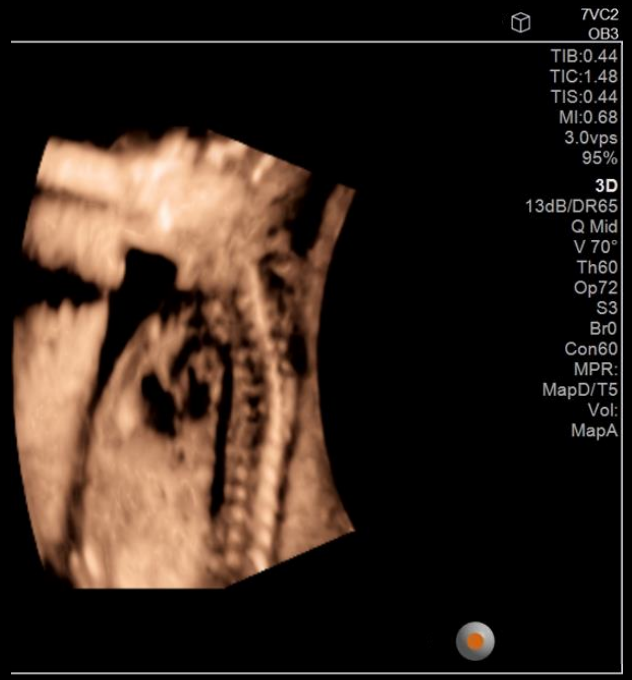
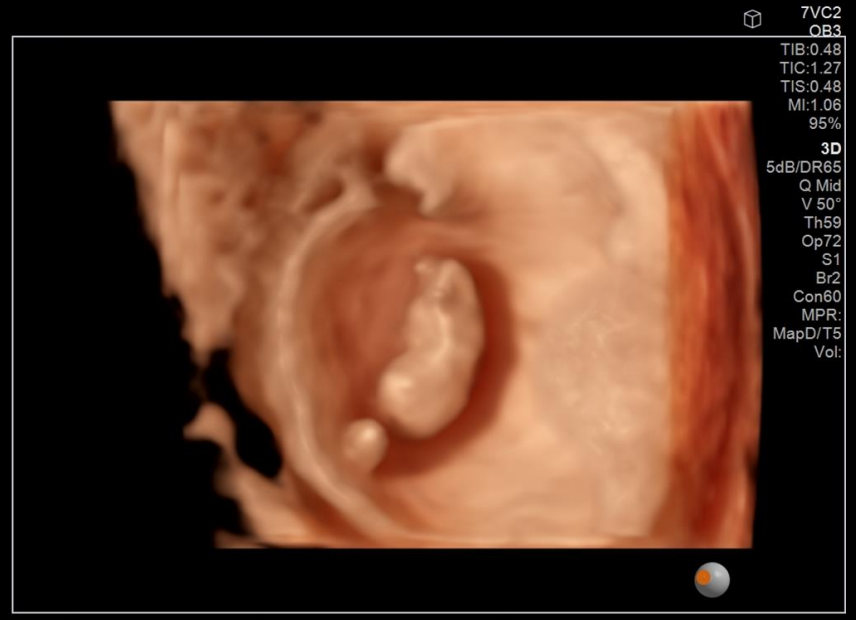
LightSource





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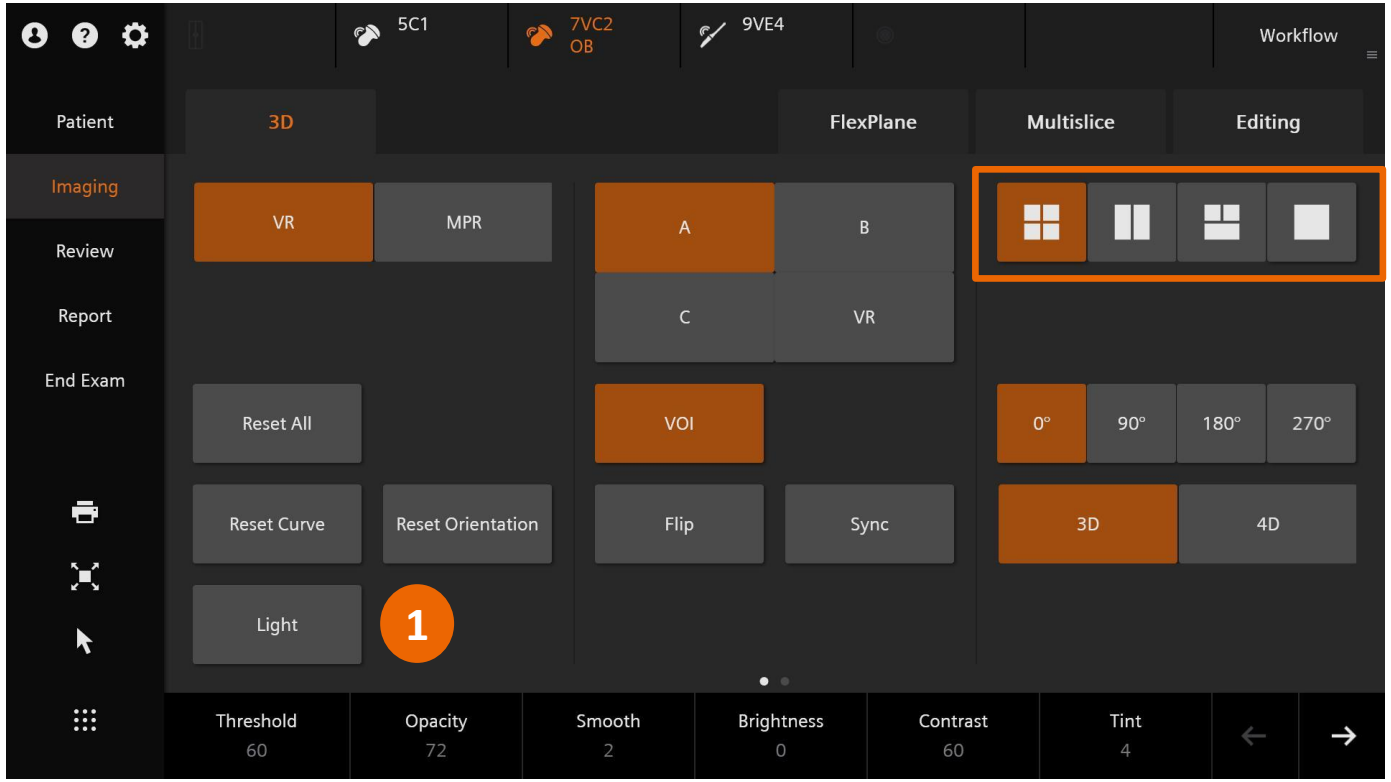
LightSource

1. Select **Light**

The light will default to on when a 1x1 display format is utilized



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LightSource

2. Use the trackball to adjust the point LightSource direction

3. The arrow on the point LightSource icon indicates the direction the light is shining

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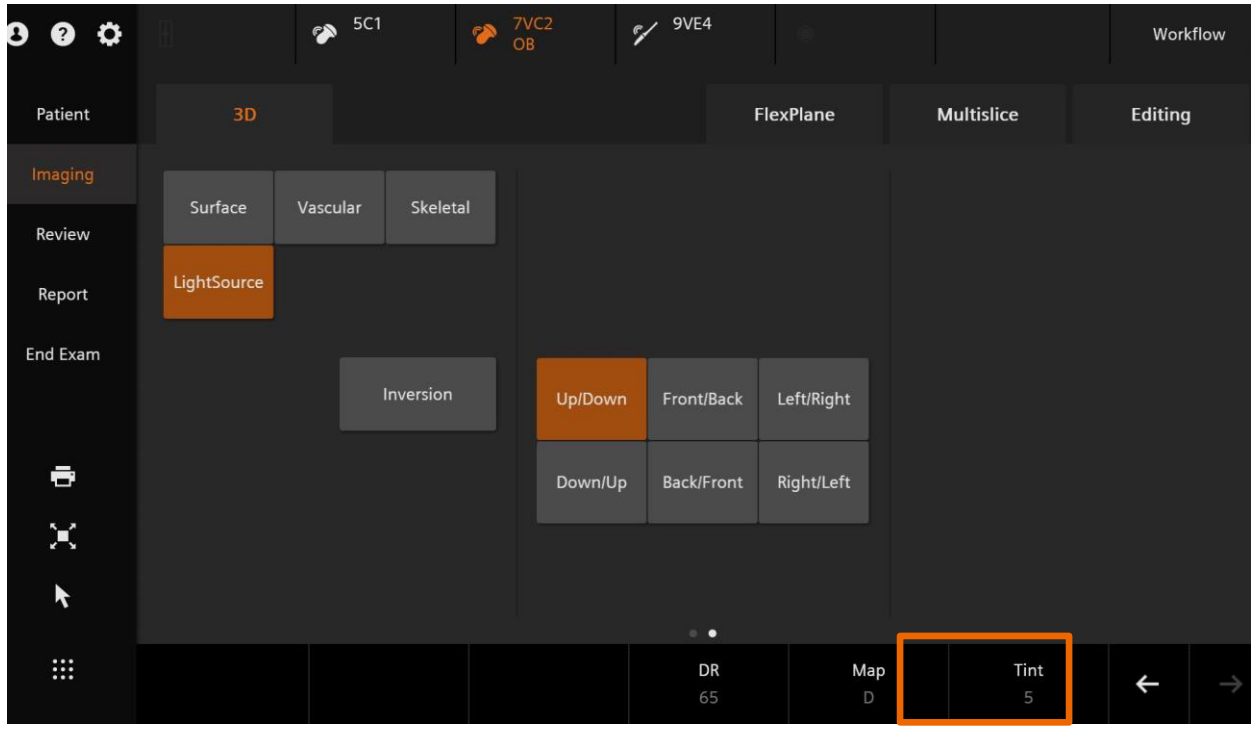
VR- LightSource tints

LightSource Tints provide

- Diversity in tints and skin tones
- A more even appearance to the surface render
- Enhance gynecological features

Available on the 7VC2 and the 9VE4



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VR- LightSource tints

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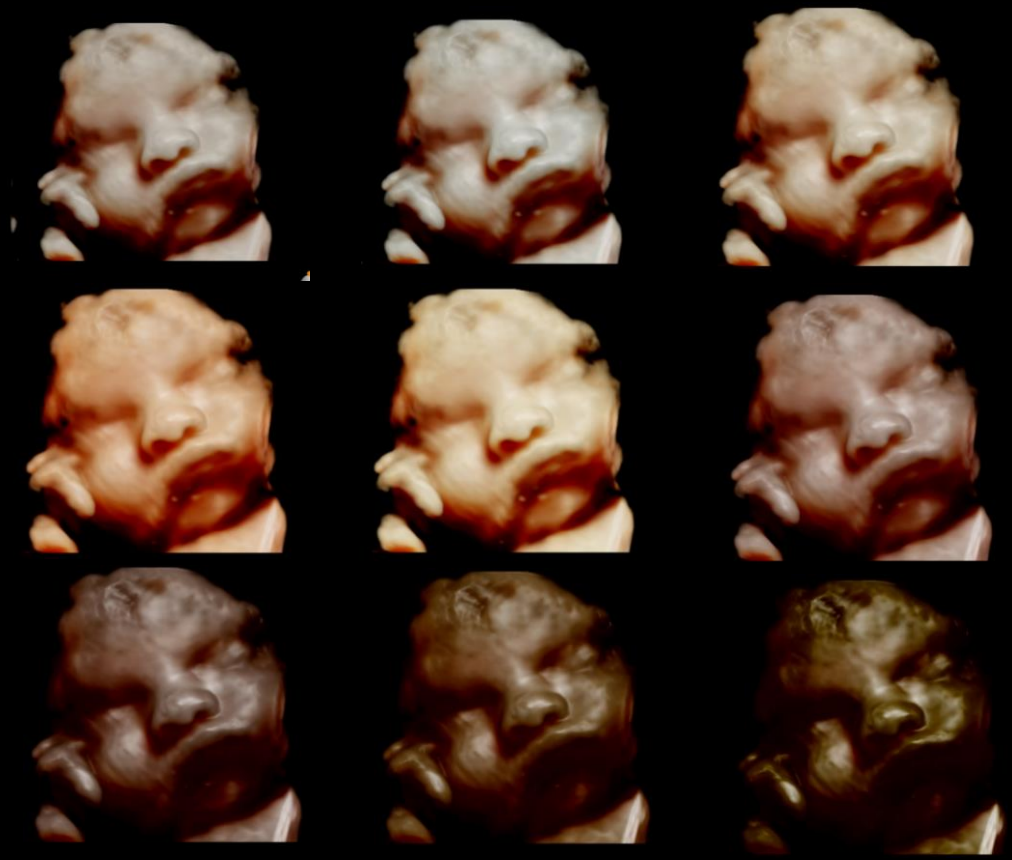
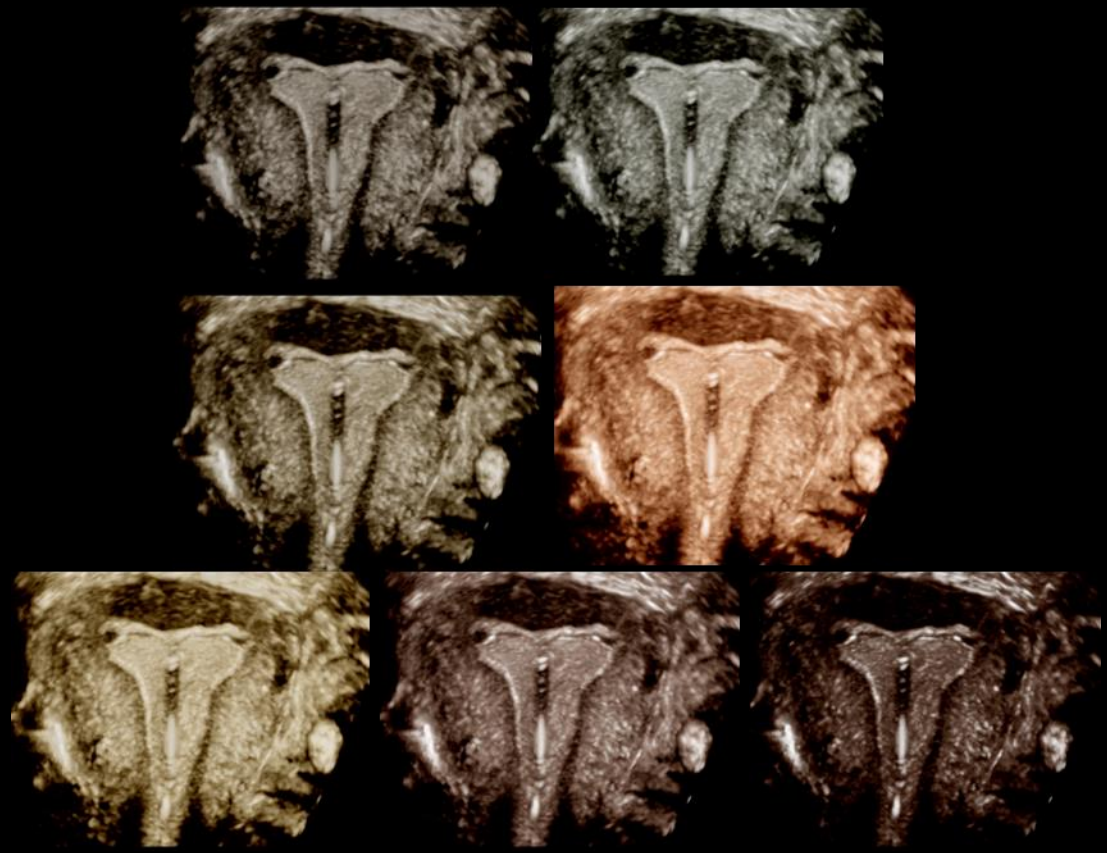
7VC2



9VE4



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Objectives

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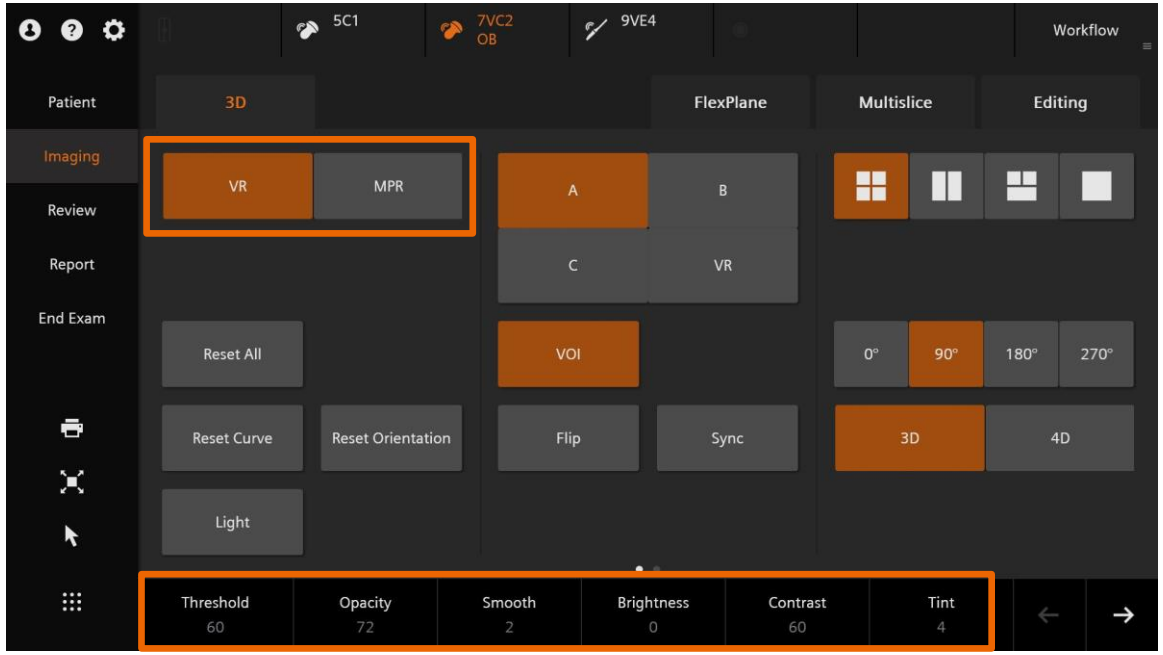
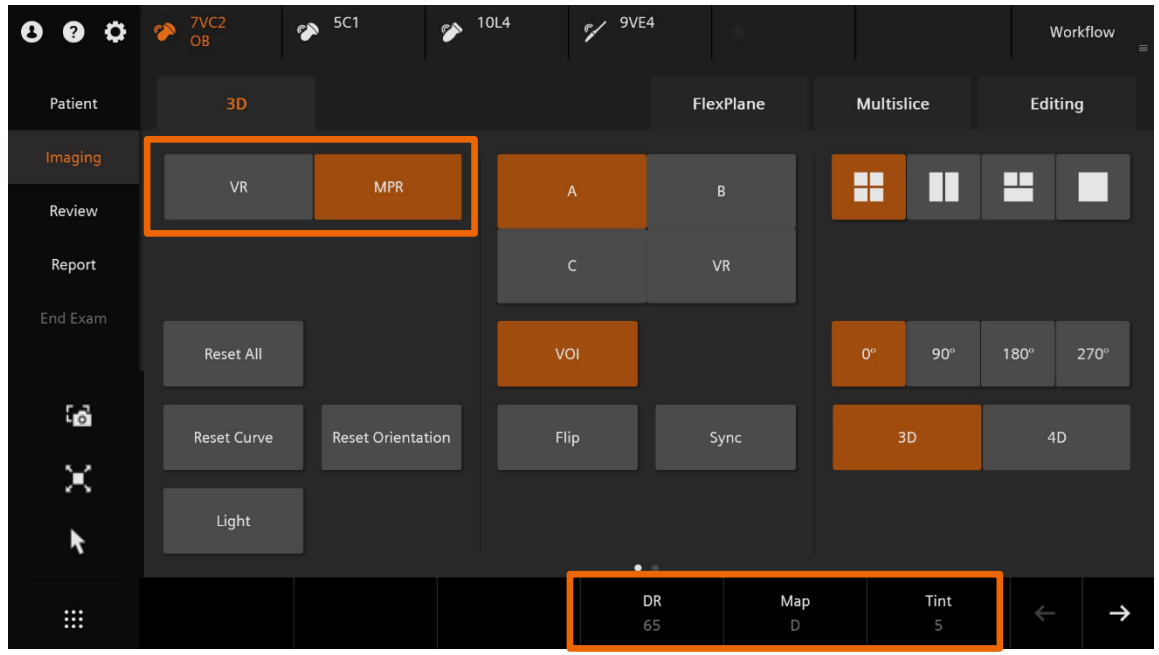
Optimization tools





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VR - Threshold

- Sets the threshold for the opacity curve
- Removes small echoes or noise that contain values lower than the selected threshold
- A lower setting creates a more saturated image
- Available for VR mode only

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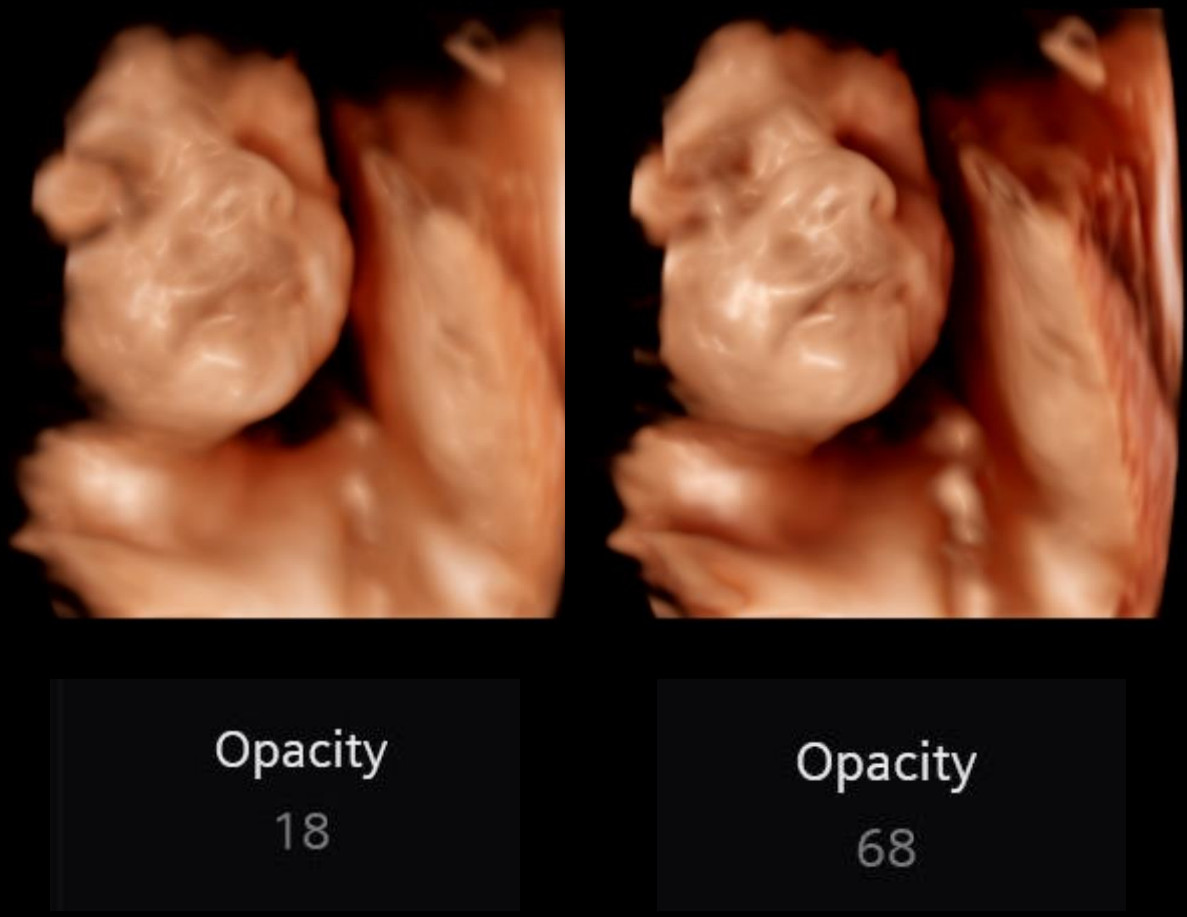
VR - Opacity

- Adjusts the percentage of opacity in the volume to create a softer or more sculptured appearance
- Decrease the value for a more transparent look
- Increase the value for more solid look
- Available for VR mode only



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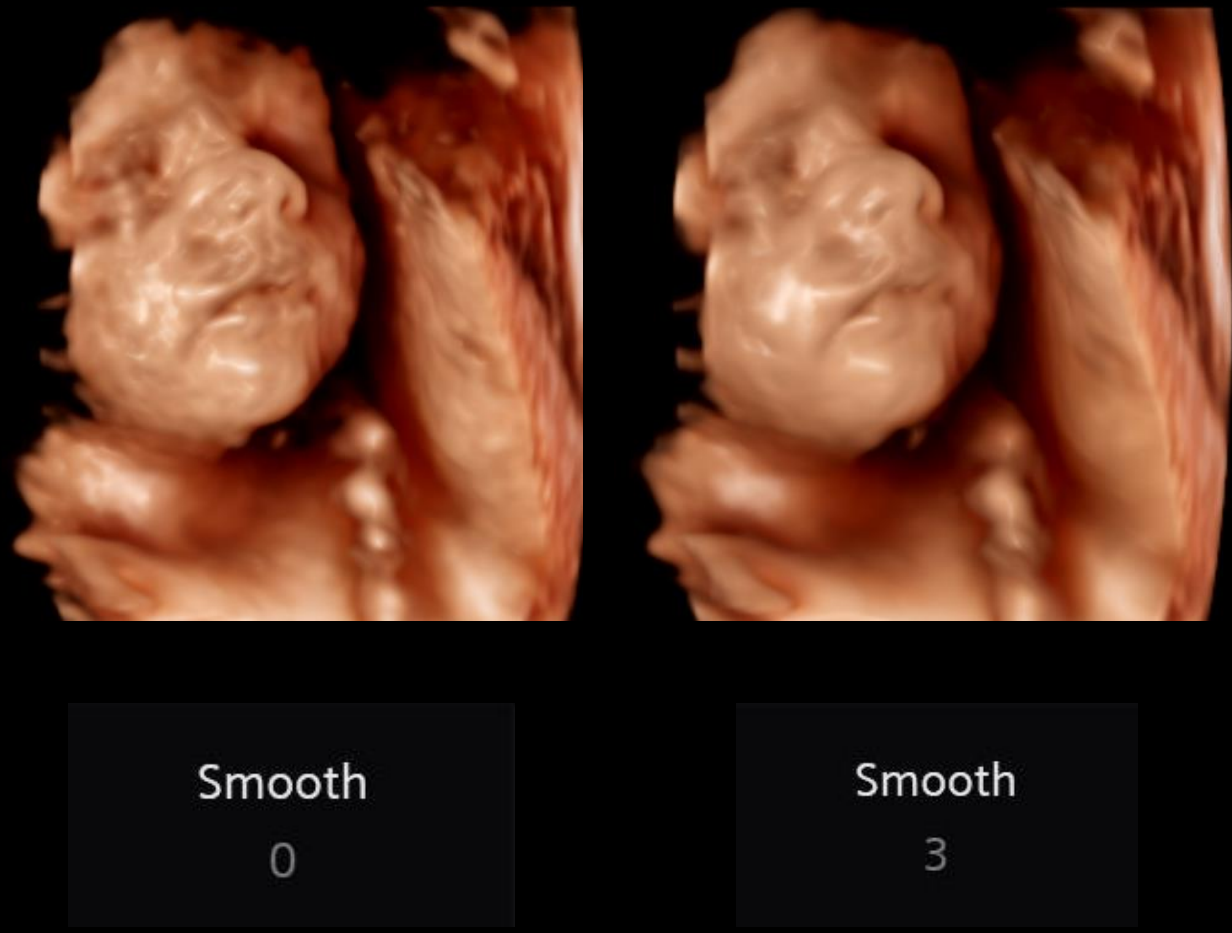
VR - Smooth

- Adjusts the amount of smoothing applied in the rendered volume
- Range is 0 – 4
- Available for VR mode only



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VR - Brightness

- Adjusts the brightness of the rendered volume
- An increase in brightness increases the saturation of voxels that have a higher and lower voxel value
- Available for VR mode only

Brightness
-16

Brightness
9

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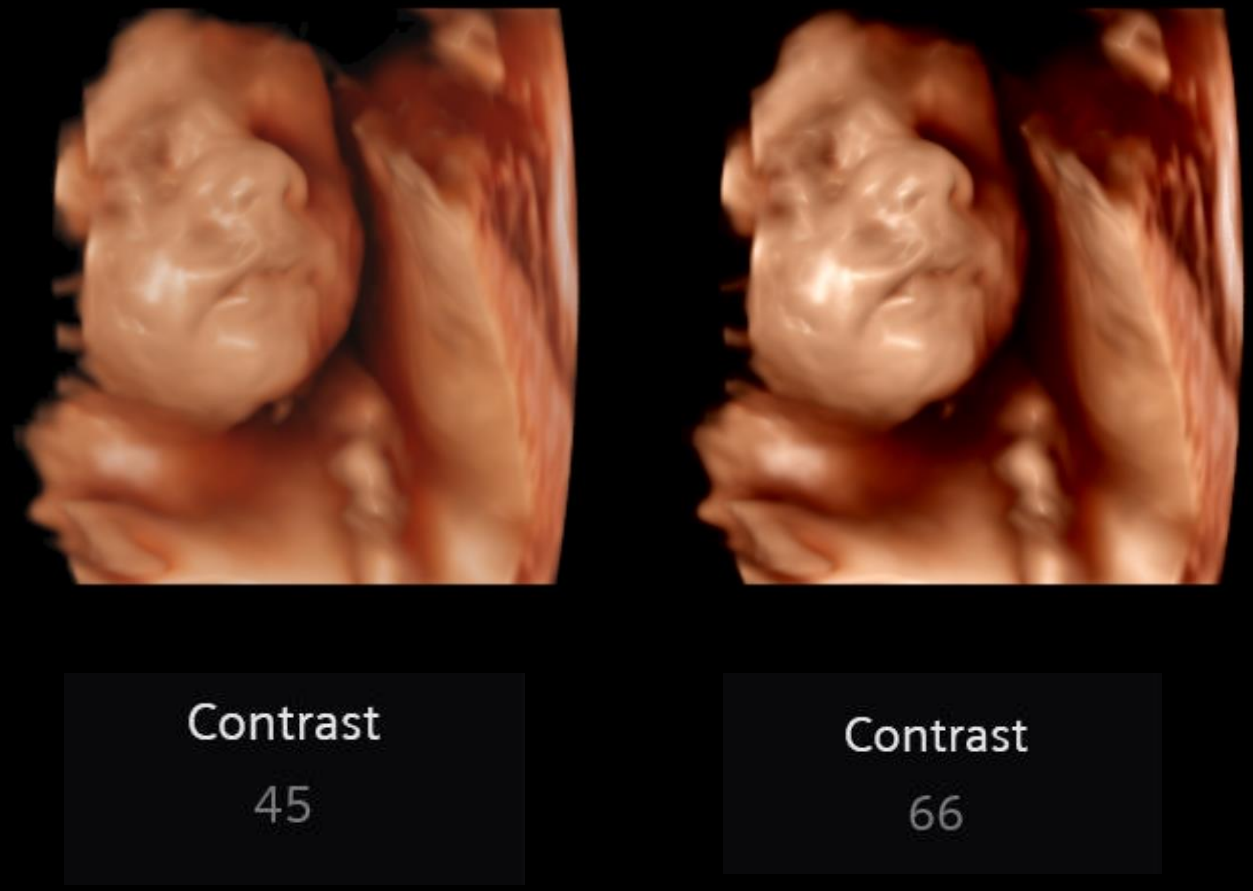
VR - Contrast

- Adjusts the percentage of contrast on the rendered volume
- Increase the value for increased contrast or decrease for less contrast
- Available for VR mode only



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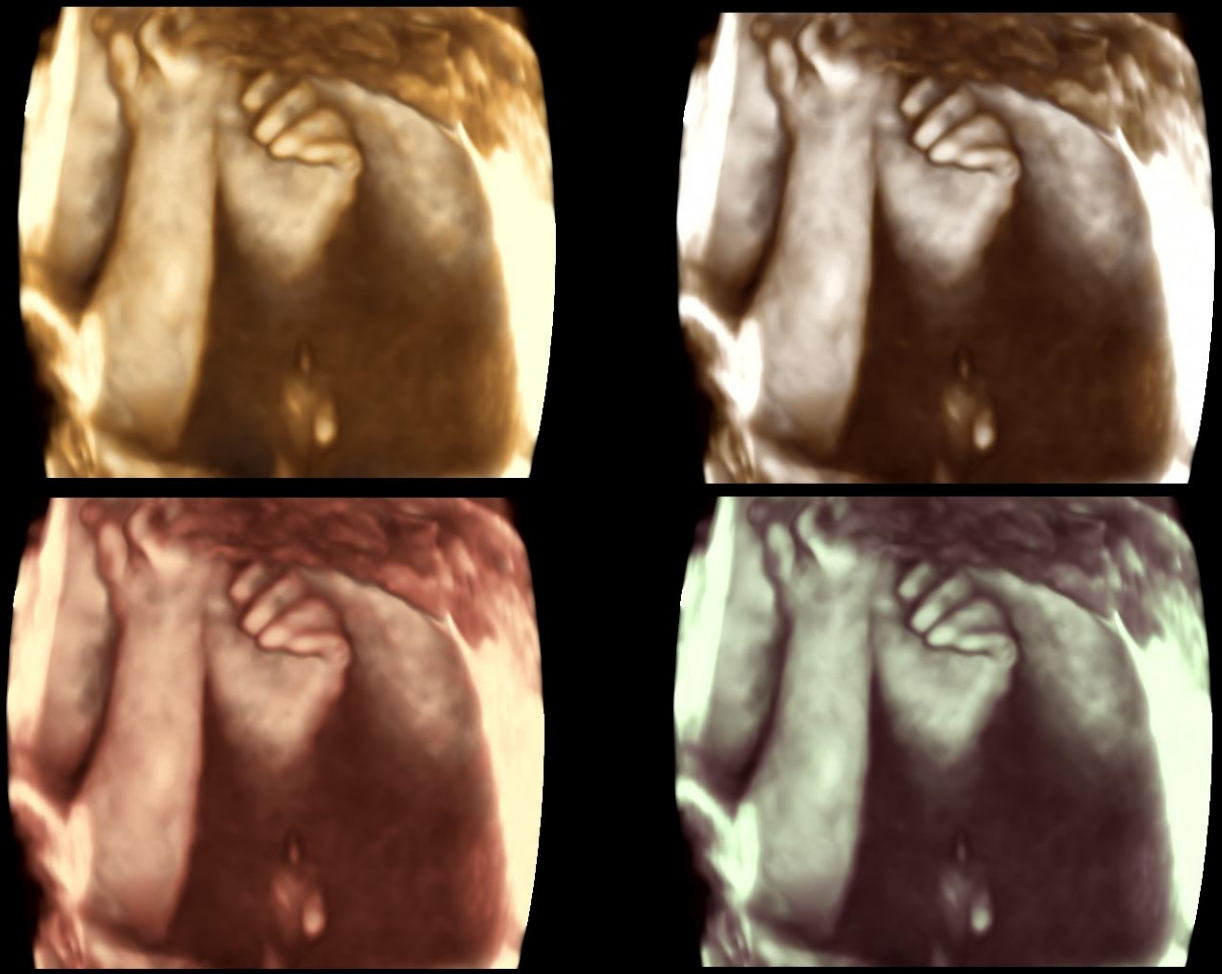
VR - Tint

- Applies the selected Tint to the rendered volume in Surface/Vascular/Skeletal
- Some Tint colors may require image adjustment
- A separate tint control is available for the MPR’s and in LightSource



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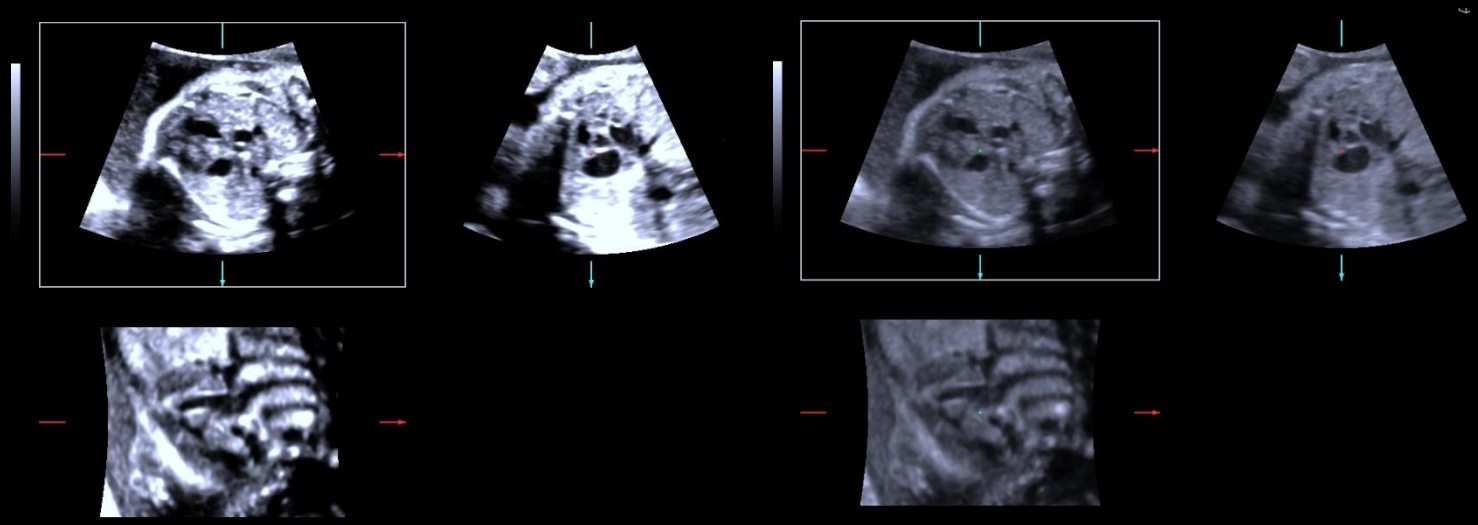
MPR – Dynamic Range

- Adjusts the number of gray shades displayed
- Increase for a softer image
- Decrease for more contrast
- Available in the MPR mode only



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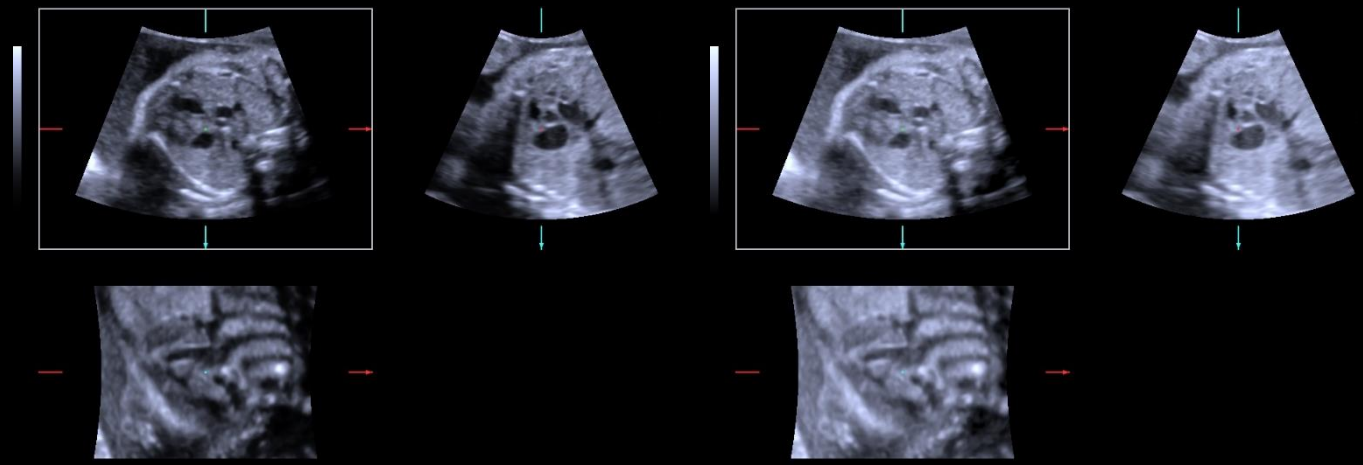
MPR - Map

- Selects a processing curve that assigns echo amplitudes to gray levels
- Uses the same maps as 2D
- Available for MPR planes



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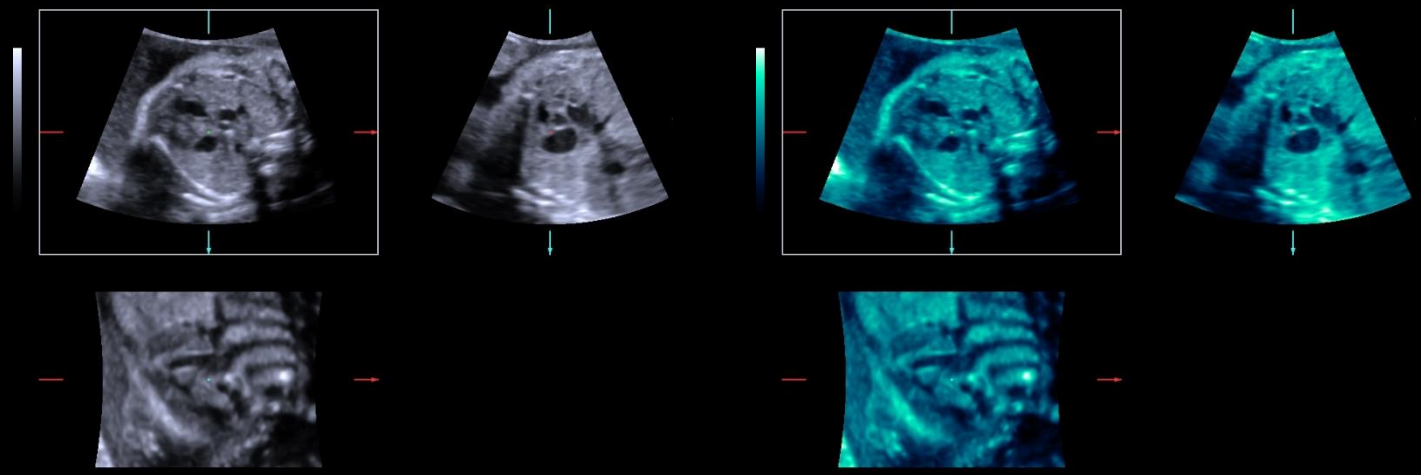
MPR - Tint

- Applies the selected Tint to the MPR images
- A separate tint control is available for the VR



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Power Doppler

- Applies colors to vascular structures based on flow amplitude
- Activate prior to entering acquisition mode

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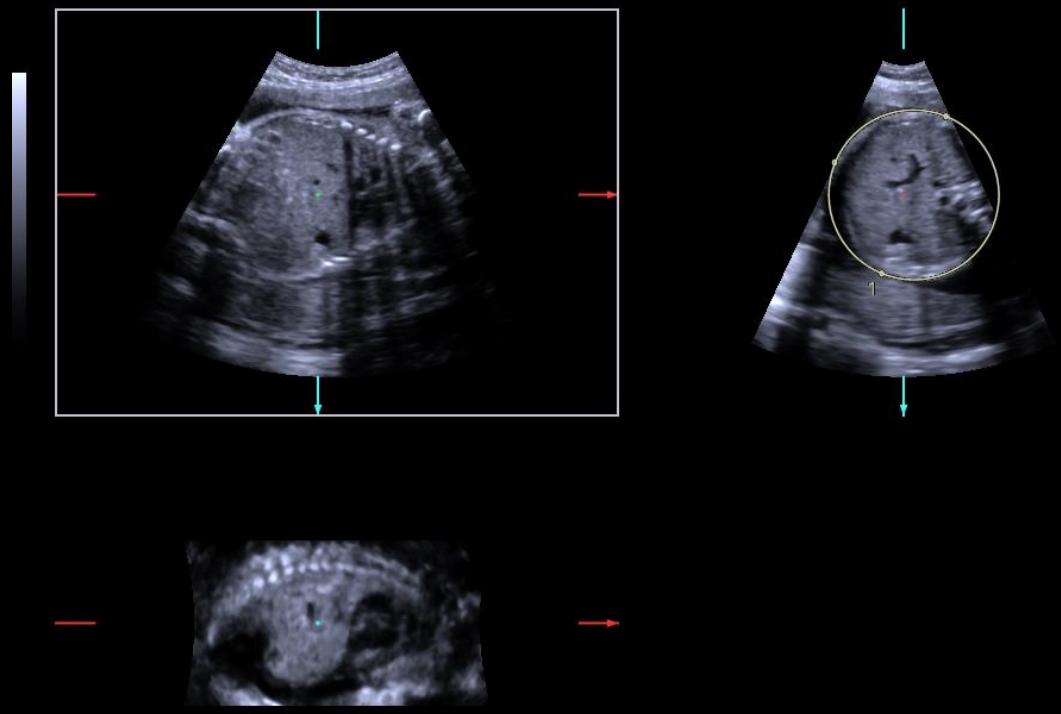
Measurements



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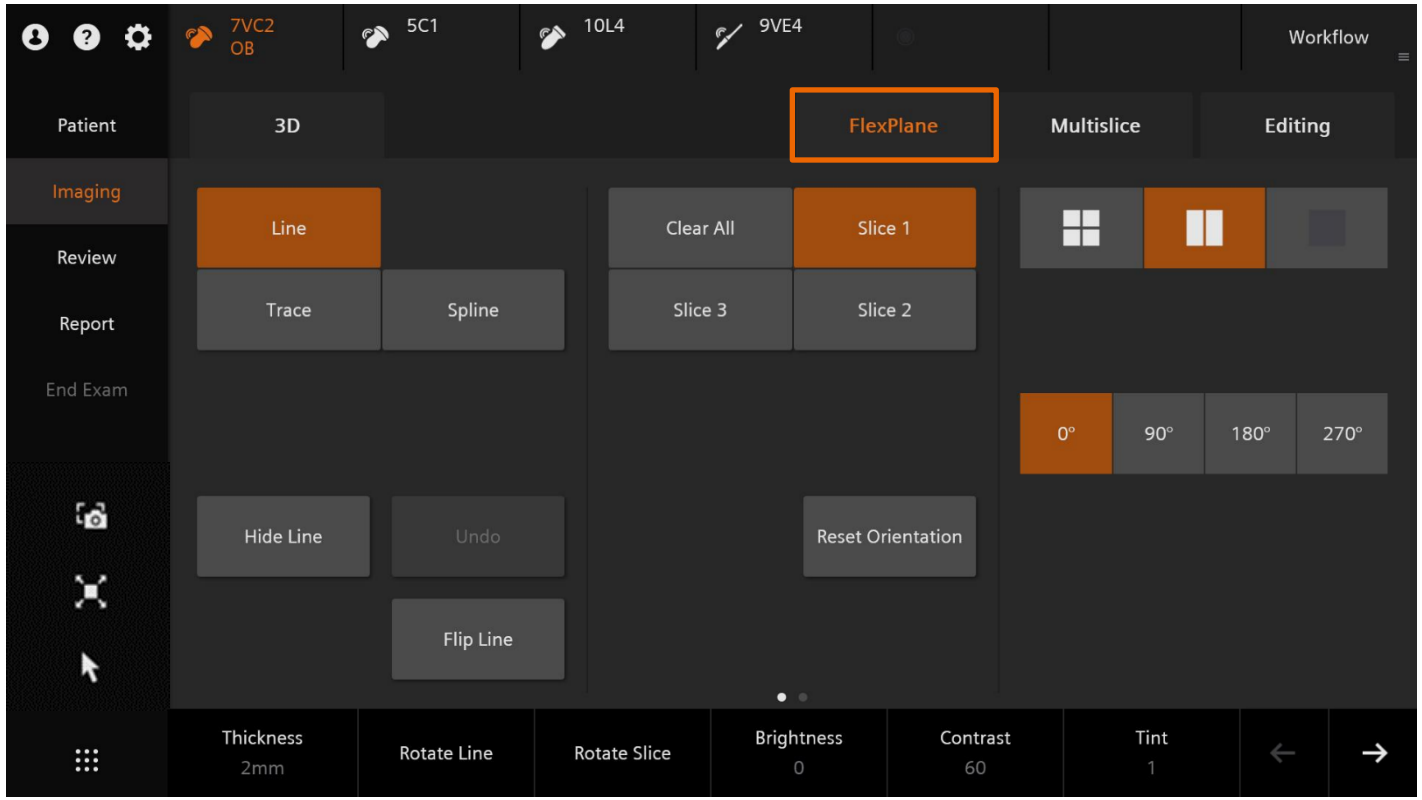
FlexPlane

- Visualization of anatomy along any plane or shape
- Reduces planar manipulation (X-Y-Z)



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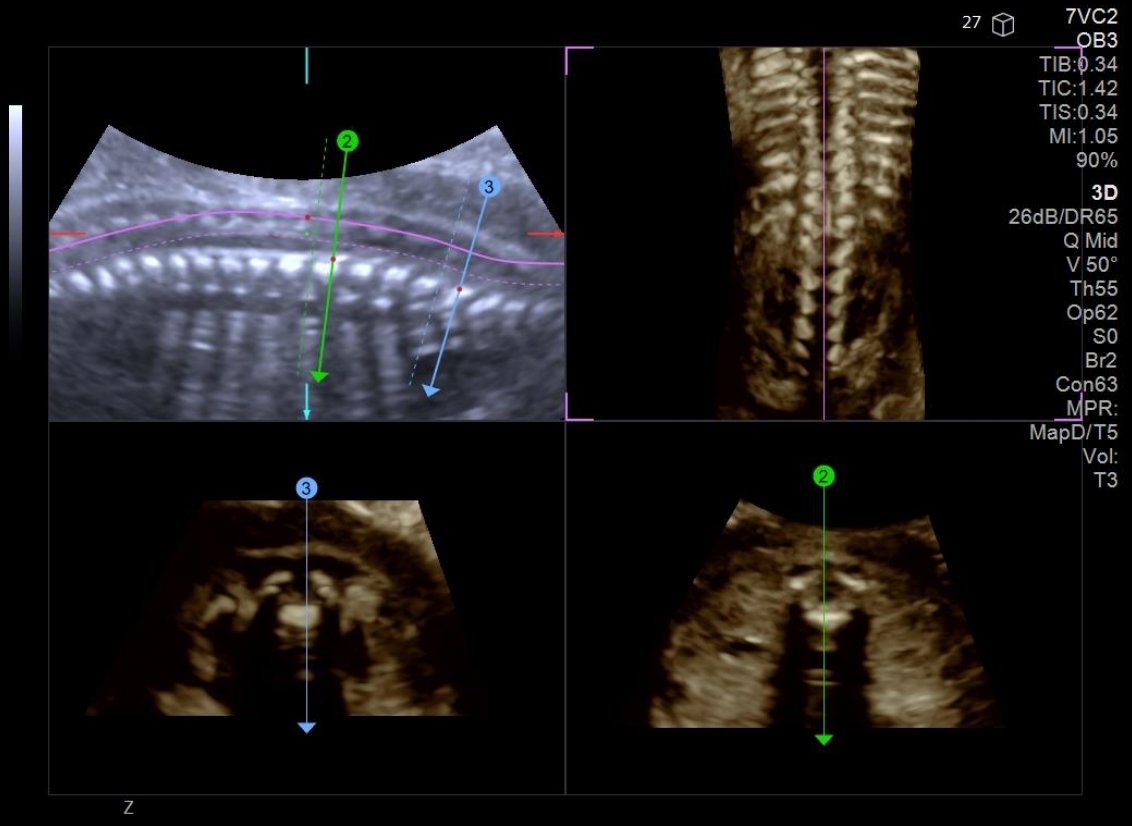
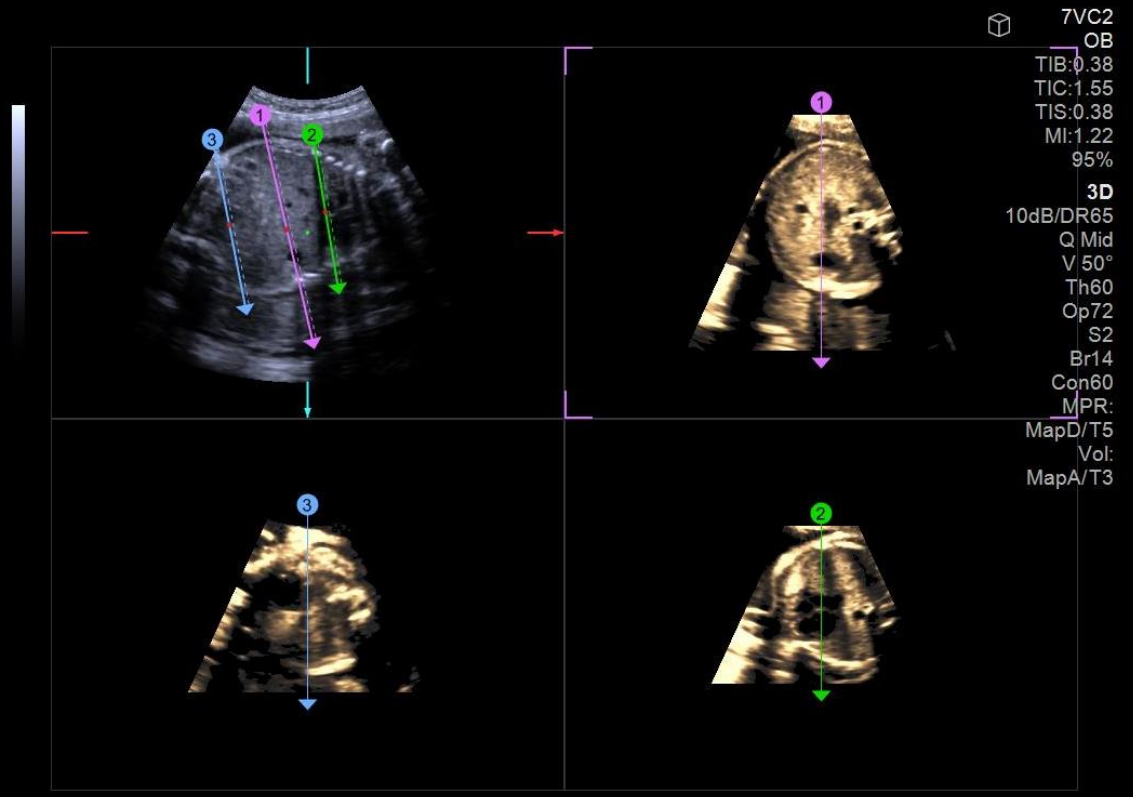
FlexPlane





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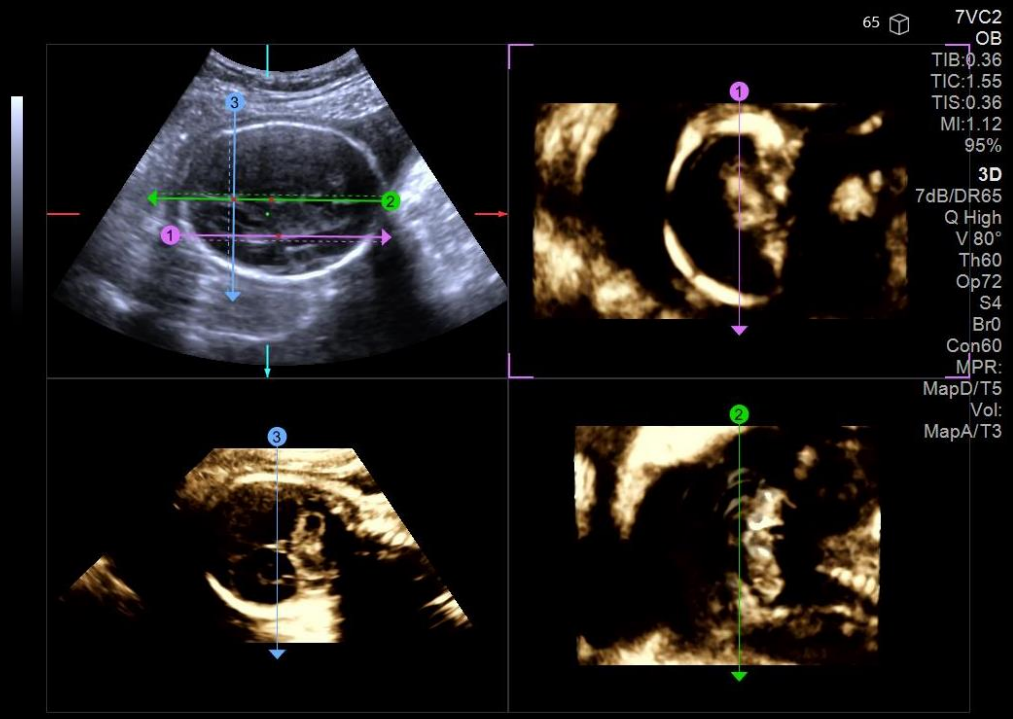
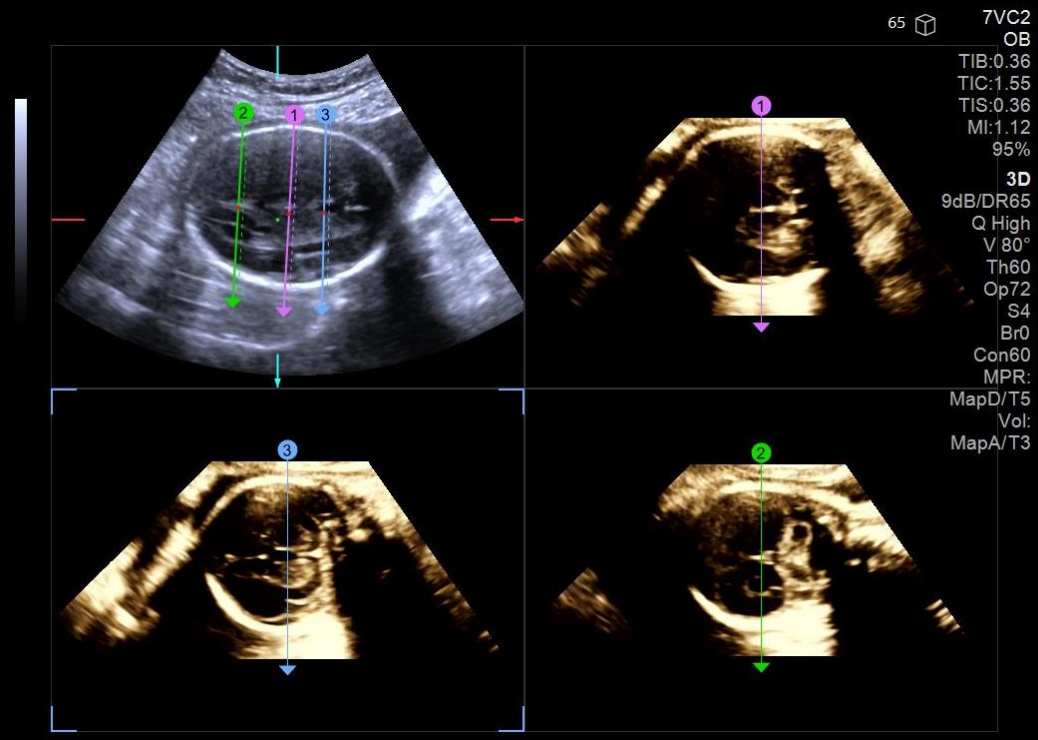
FlexPlane





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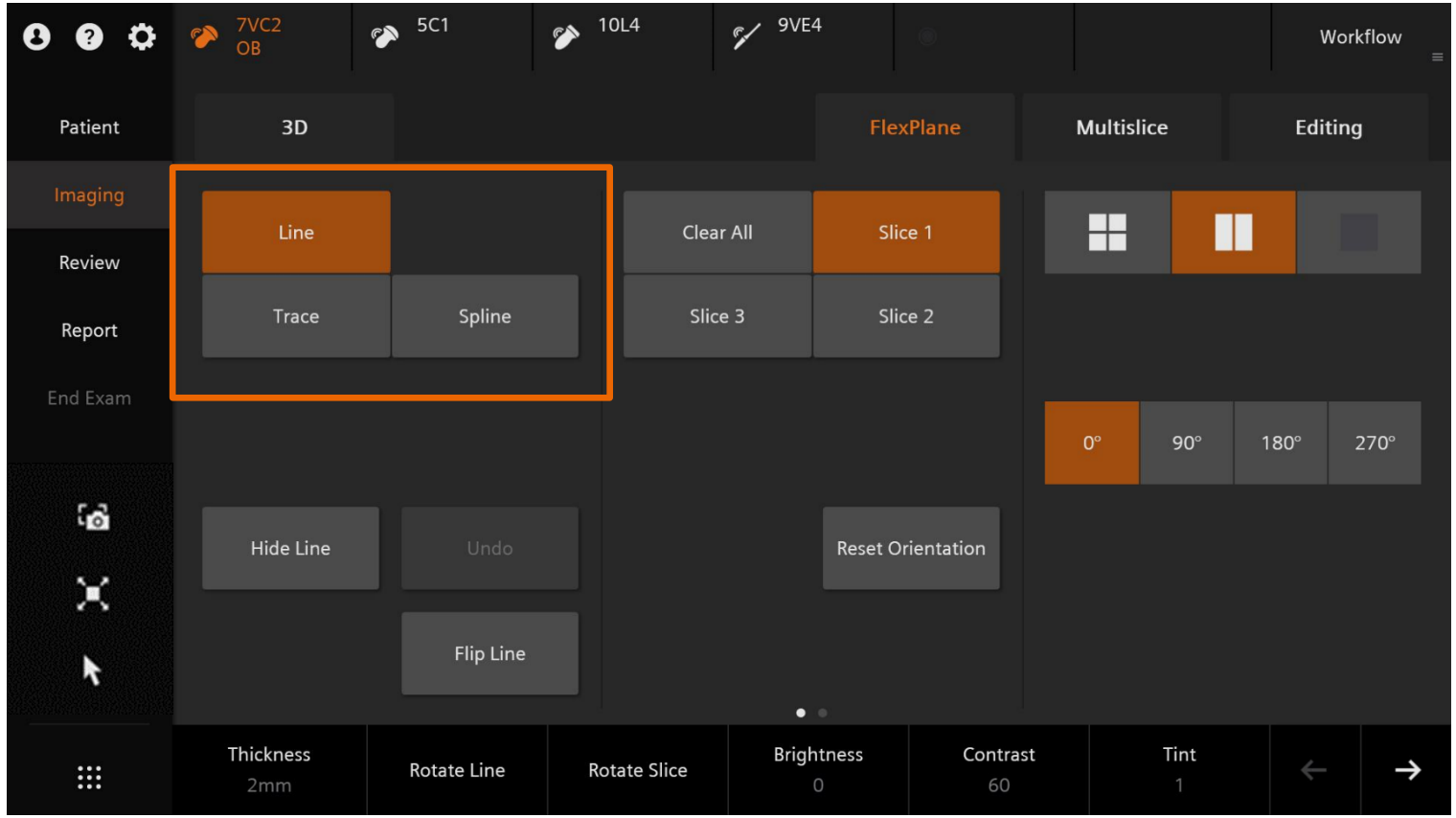
FlexPlane



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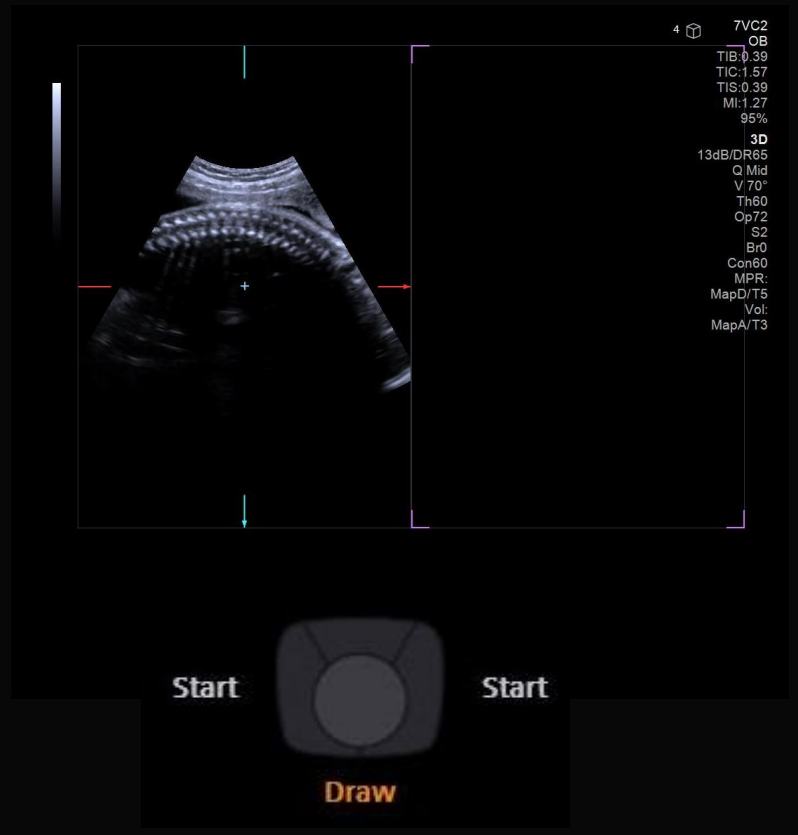
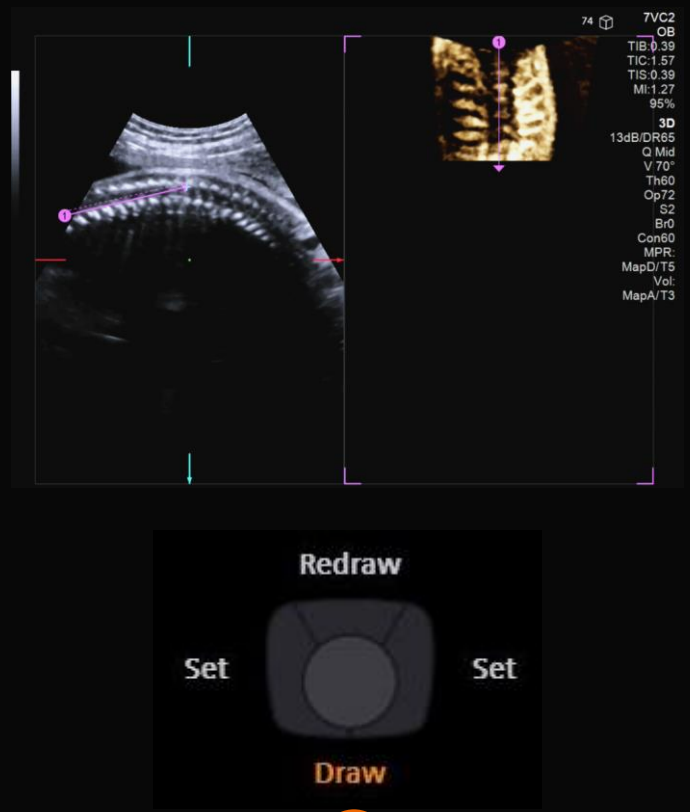
FlexPlane



1



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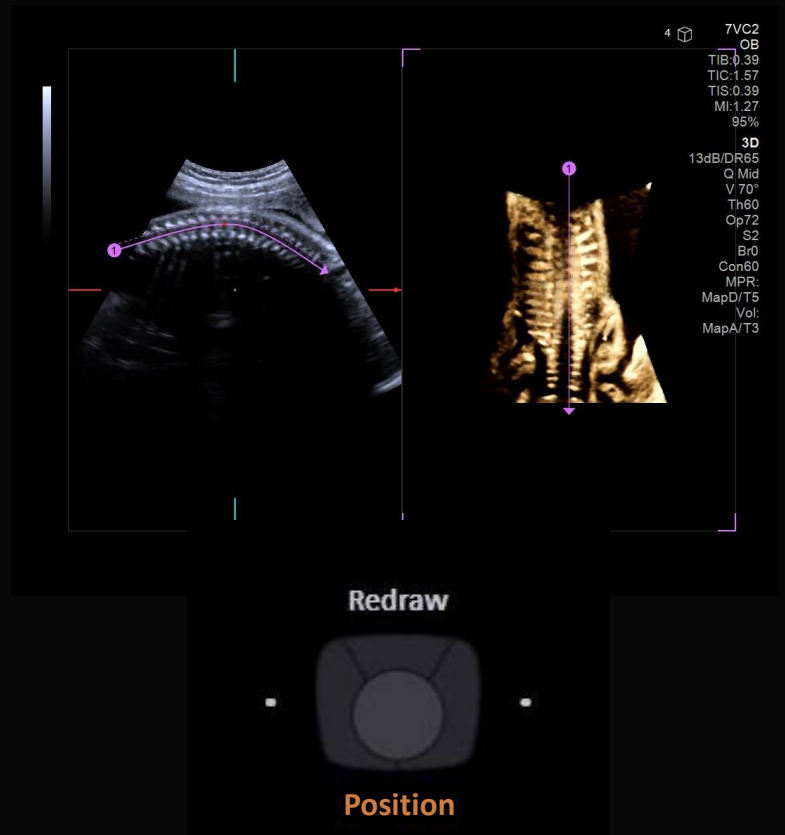

3

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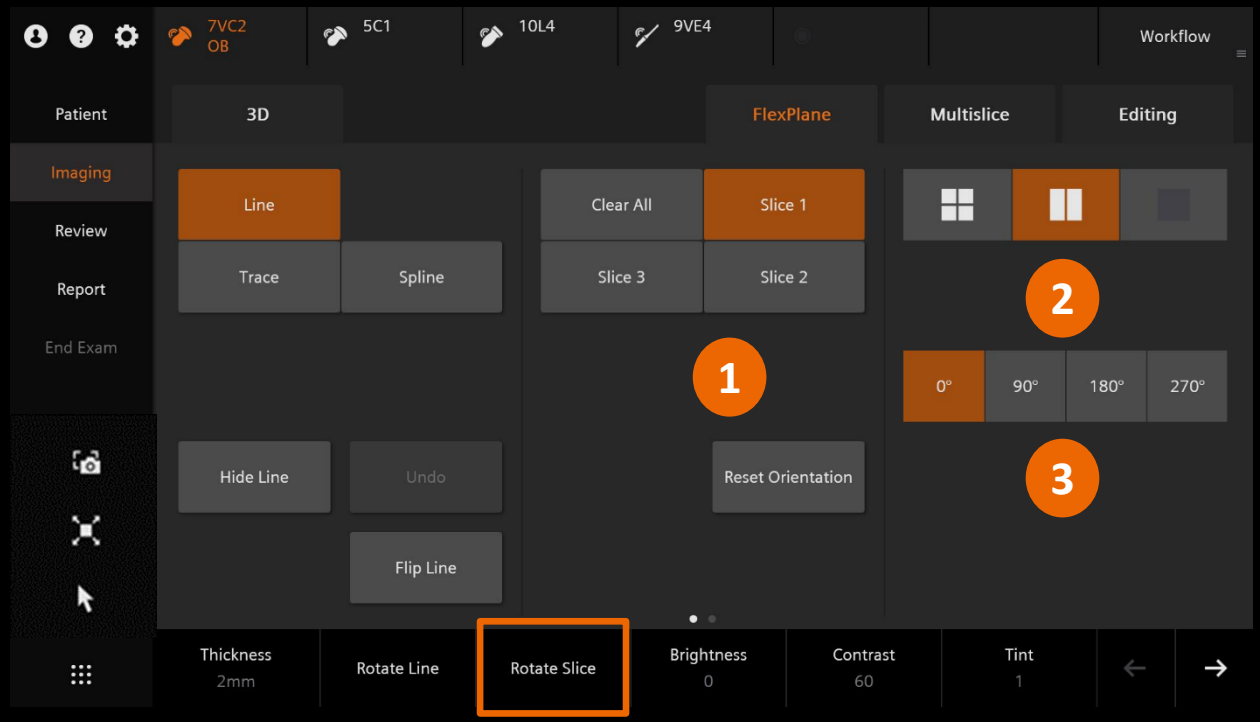
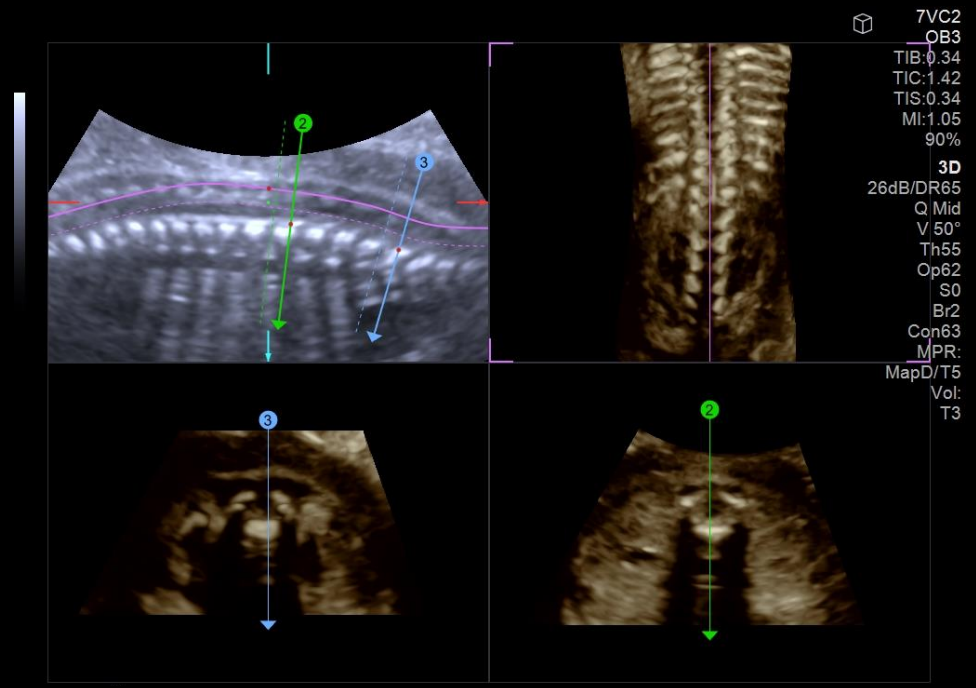
FlexPlane





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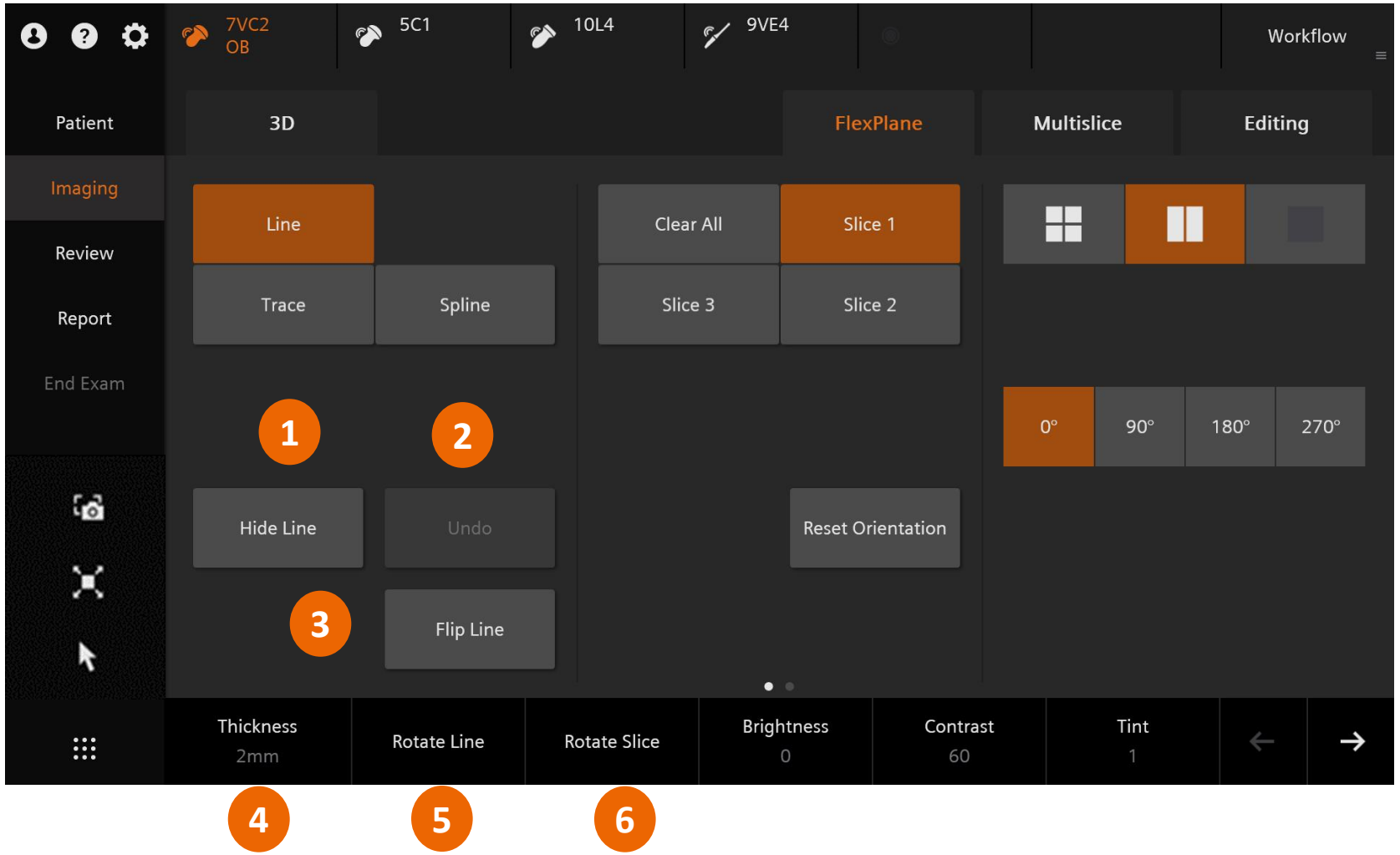
FlexPlane



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Objectives

- Outline activation and volume acquisition
- Describe volume manipulation
- Demonstrate optimization tools
- Explain FlexPlane Tool
- **Explain Multislice feature**
- Define volume store and editing
- Describe reviewing stored volumes

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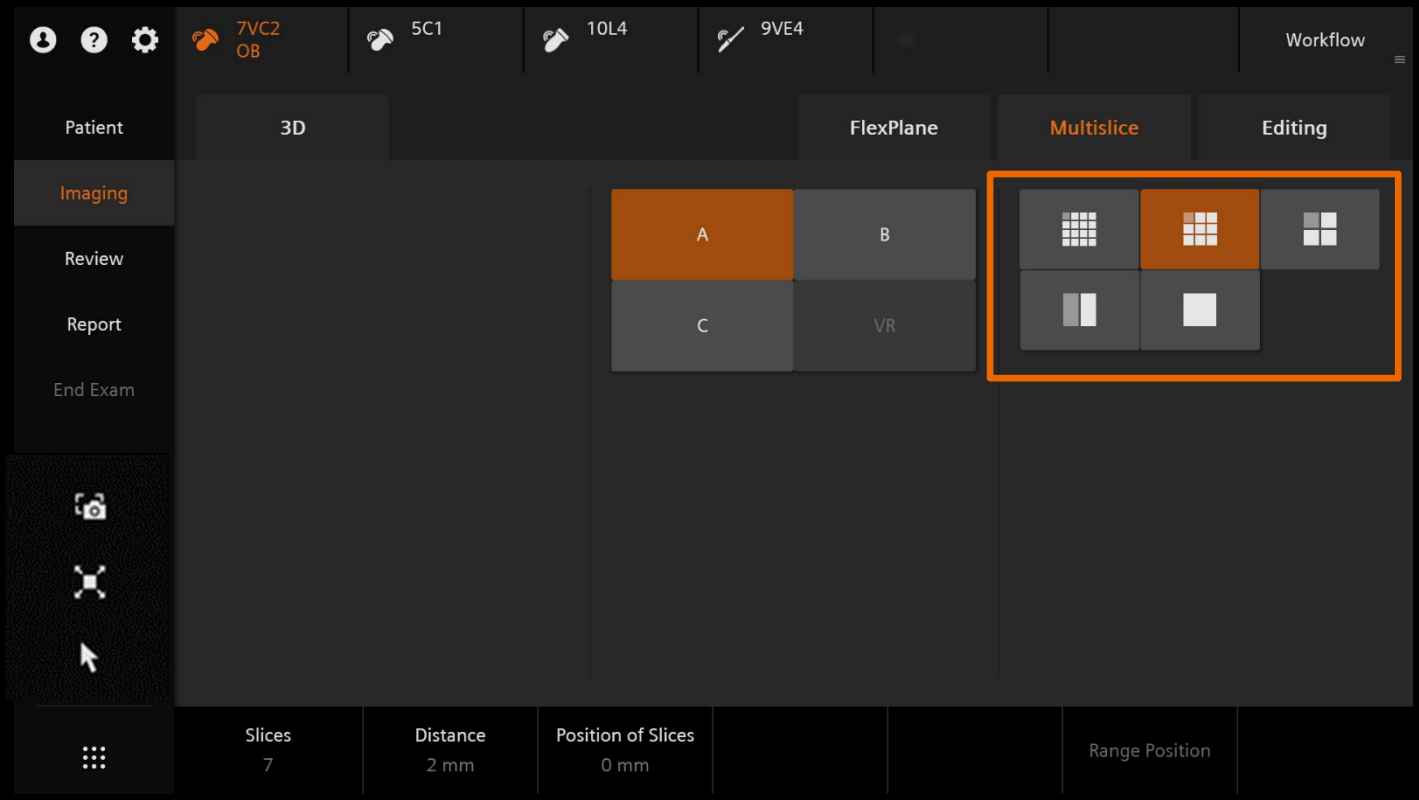
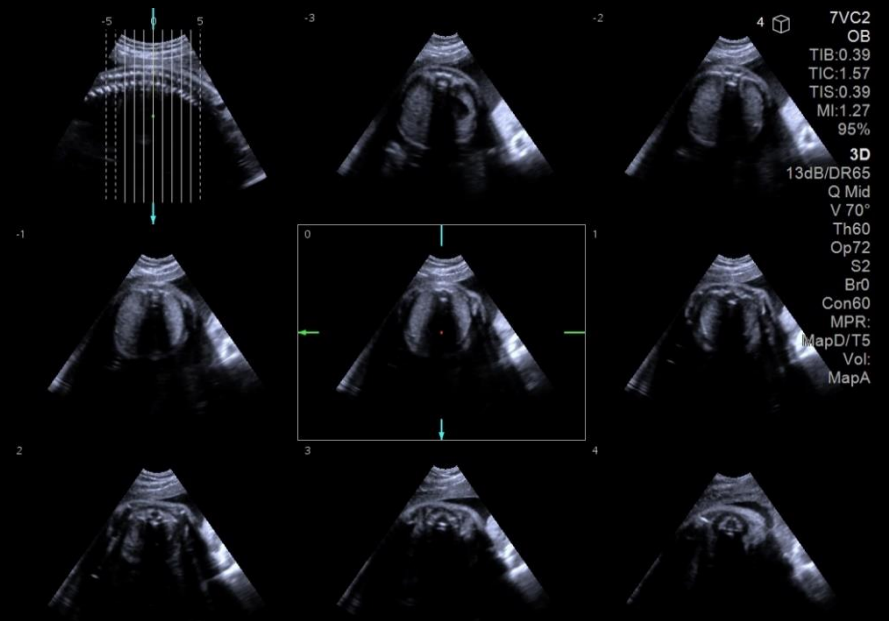
Multislice display layout





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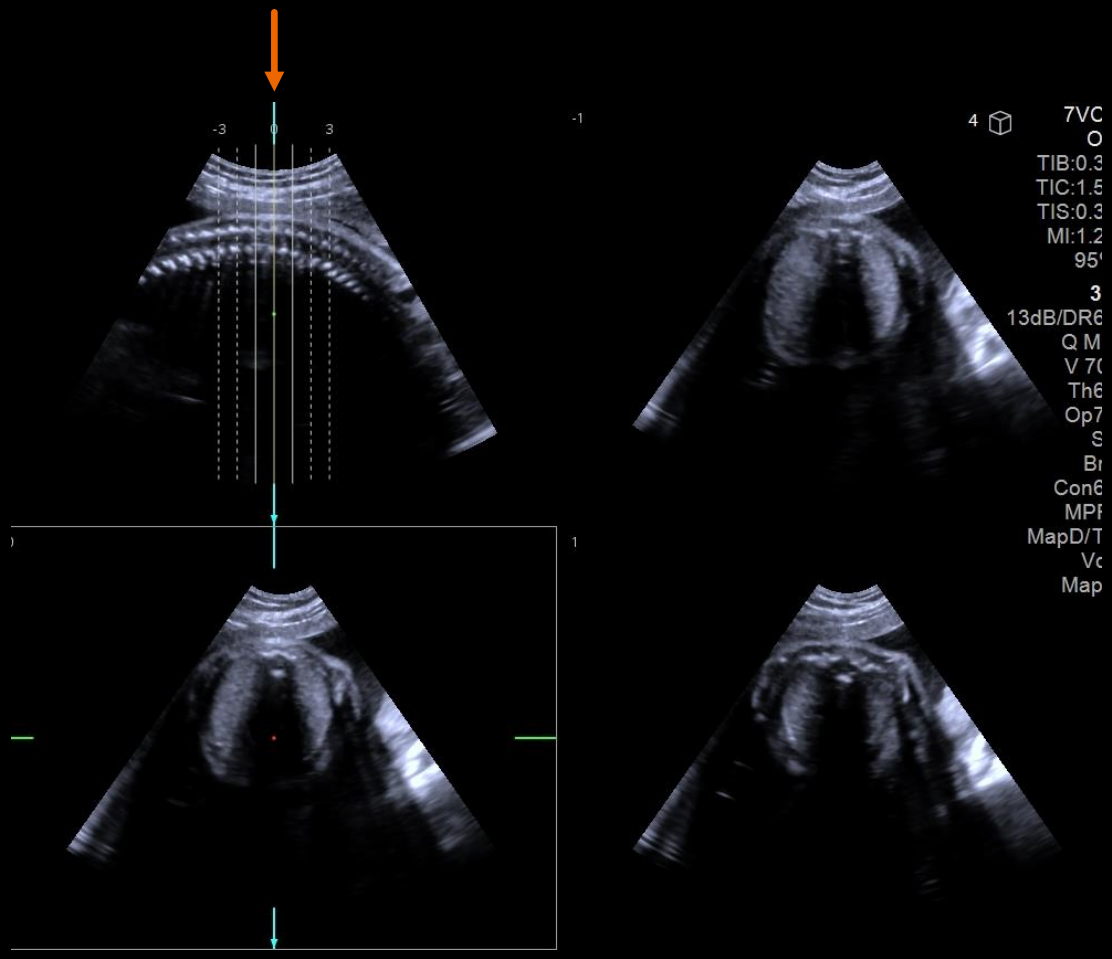
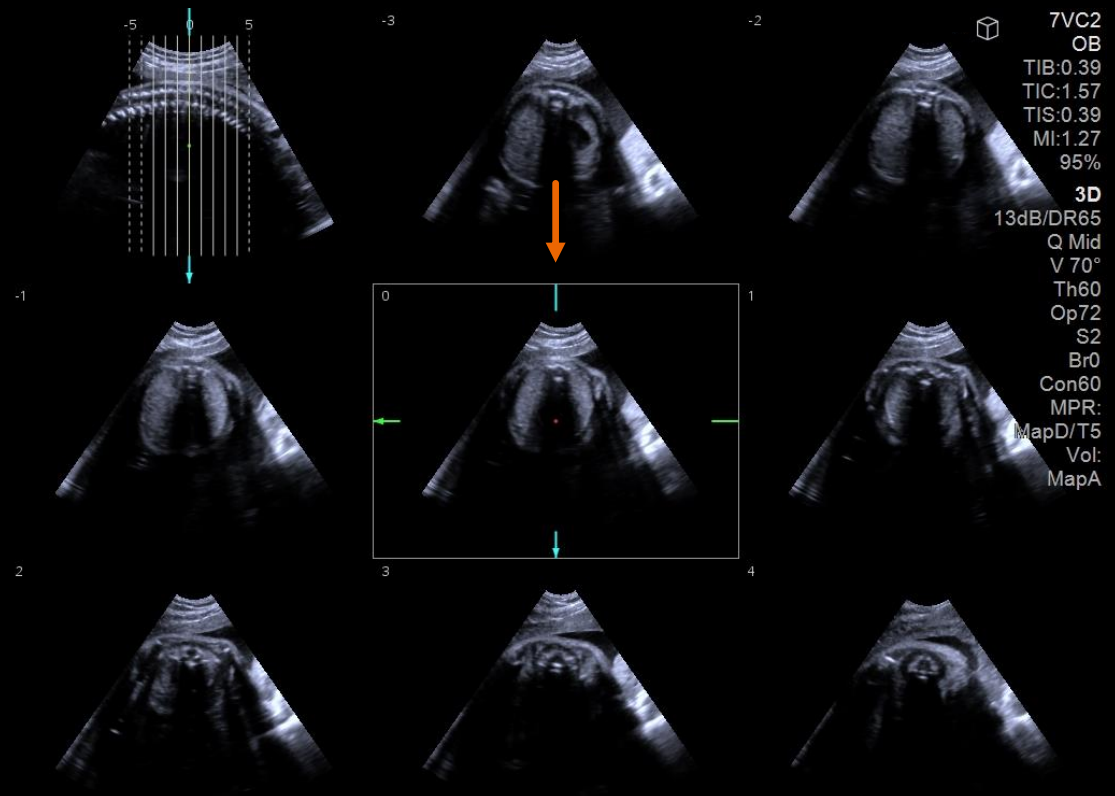
Multislice display layout





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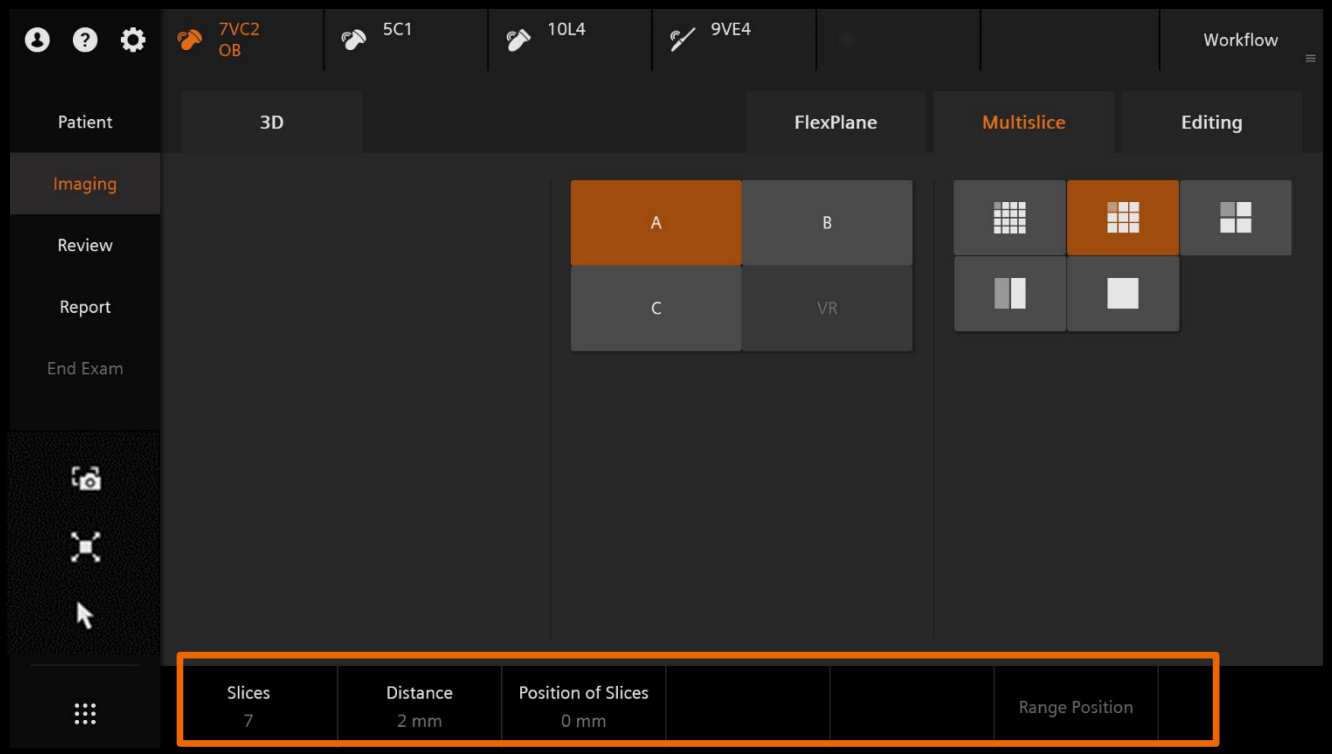
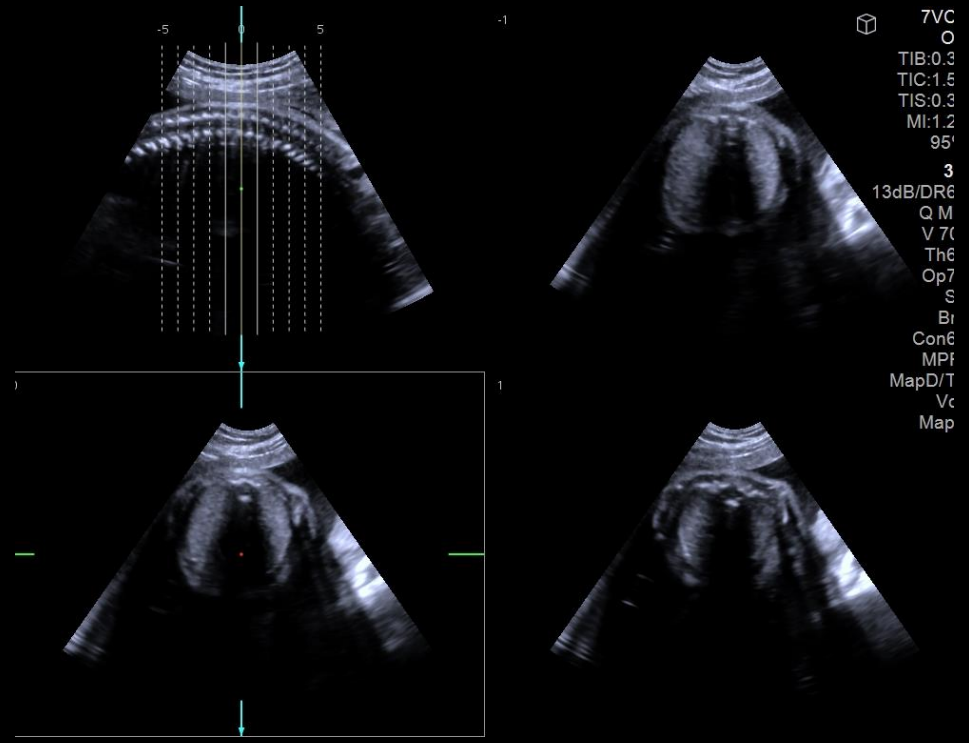
Multislice optimization





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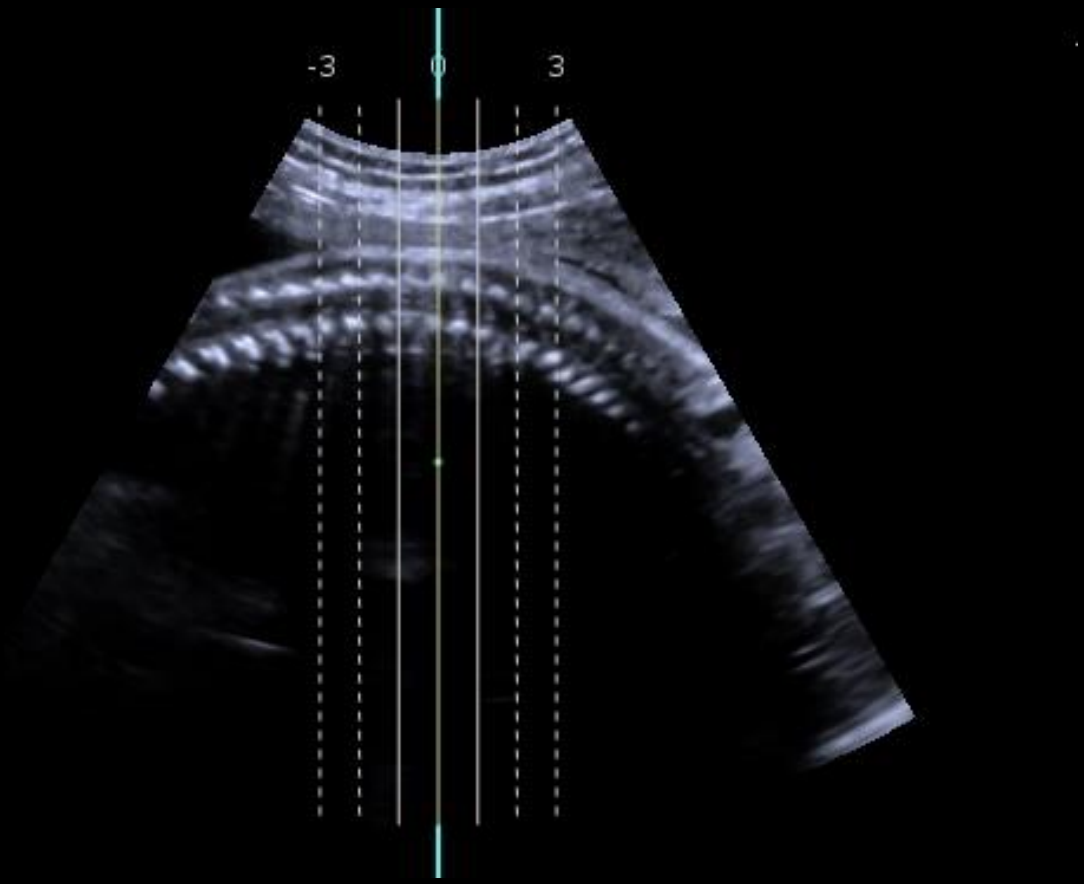
Multislice graphic

- Solid yellow line – Center slice displayed with white outline around corresponding slice
- Solid white line – Displayed slices
- Dashed white line – Available slices



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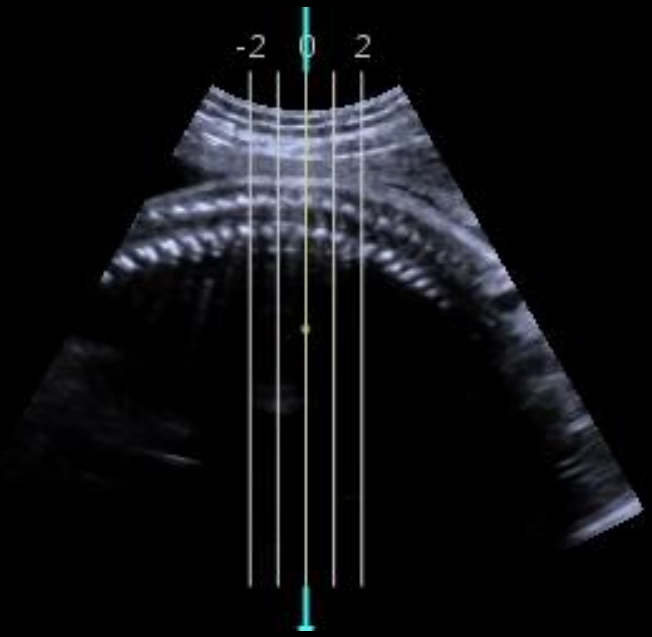
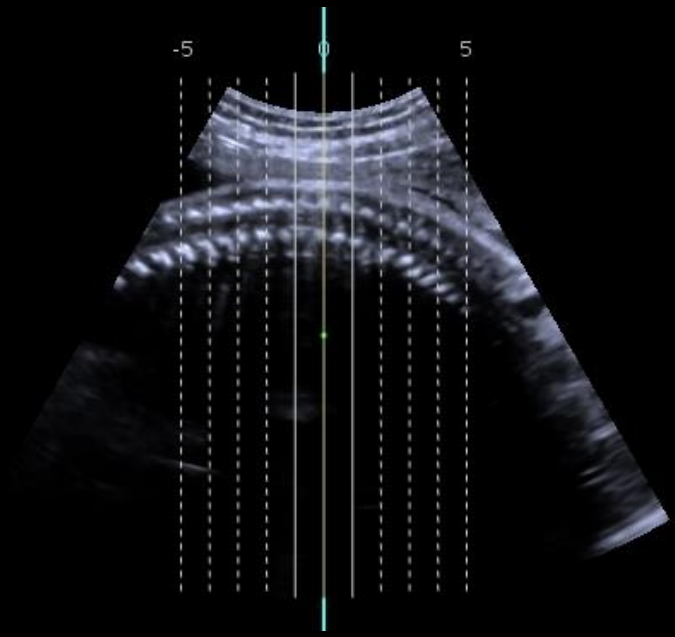
Slices

- Defines the number of slices evaluated
- Options are 1 – 17
- May be adjusted further using additional optimization tools



Less Slices



More Slices

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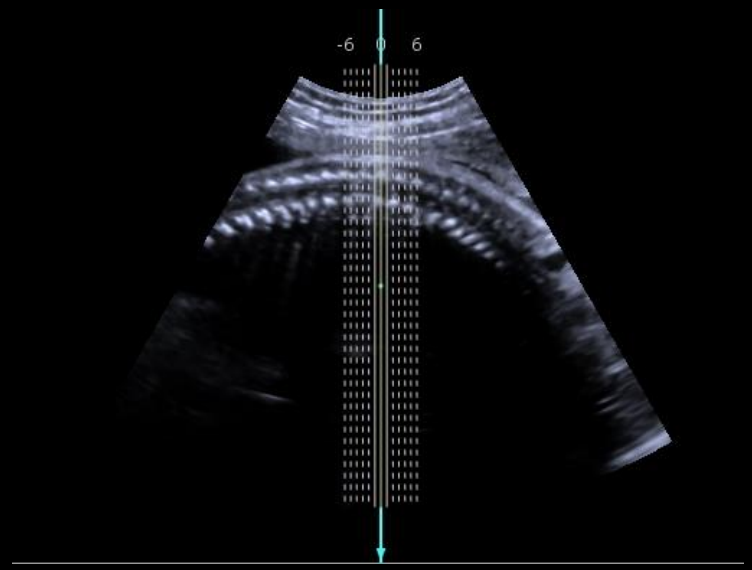
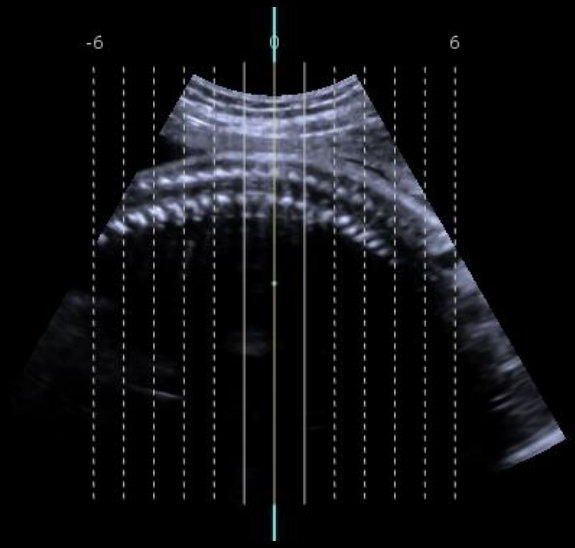
Distance

- Defines the distance between slices
- Options are 0.5 mm - 50 mm
- Slice graphic will reflect changes
- Increase for global view of region
- Decrease for greater detail



Less Distance



More Distance

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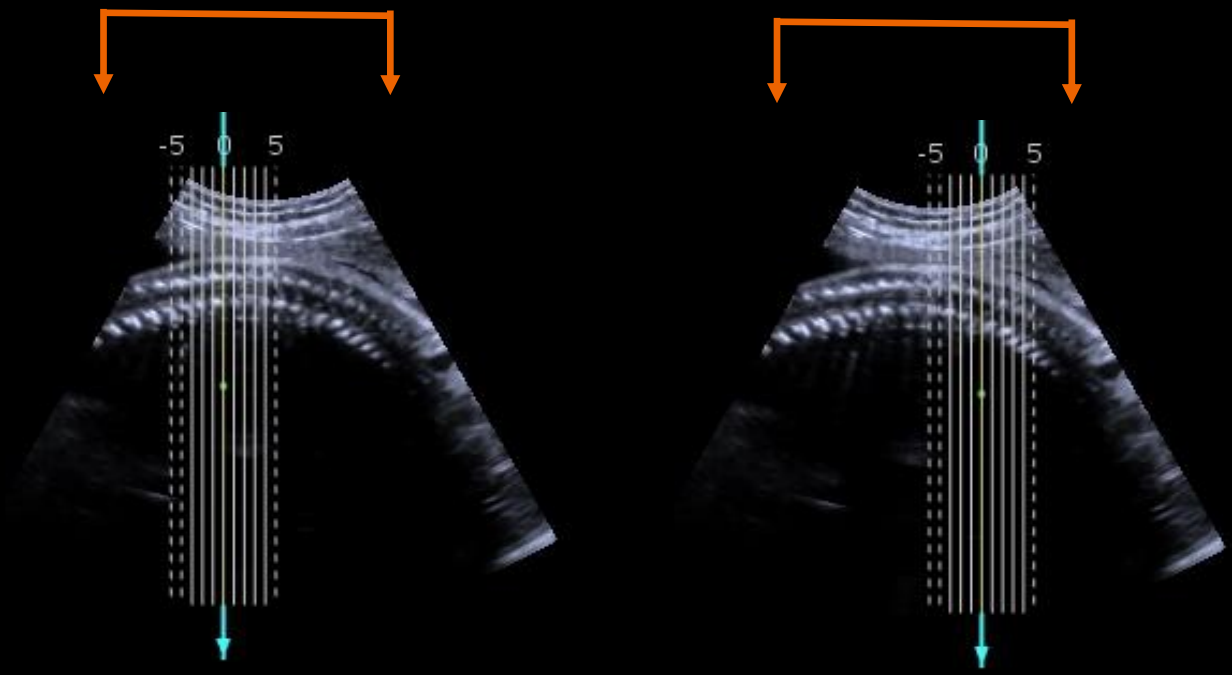
Position of Slices

- Defines the area of interrogation
- The slice graphic will indicate the position of the slices
- Indicated by the slice graphic lines
- Anatomy outside of the slice graphic is not available for display



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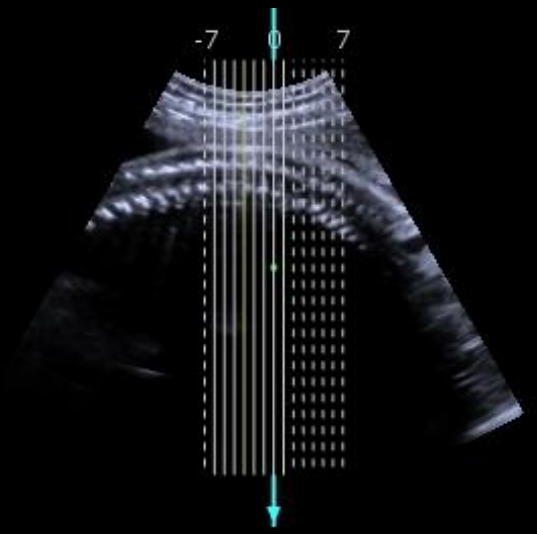
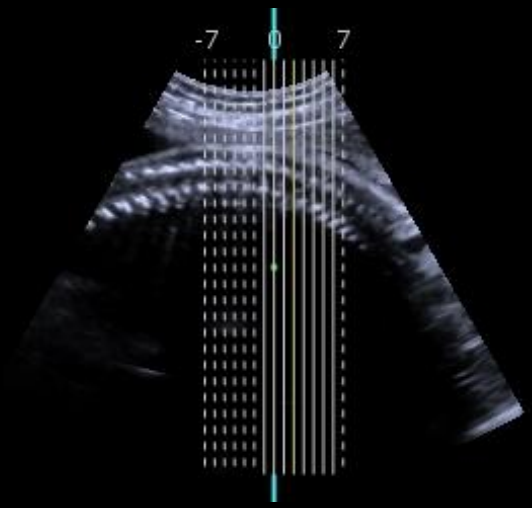
Range Position

- Defines the slices displayed at any given time
- Rotate to scroll through the available slices previously selected
- Slice graphic reflects the area currently displayed
- Number of white solid lines on the graphic is dependent on the selected layout



Higher Range Position



Lower Range Position

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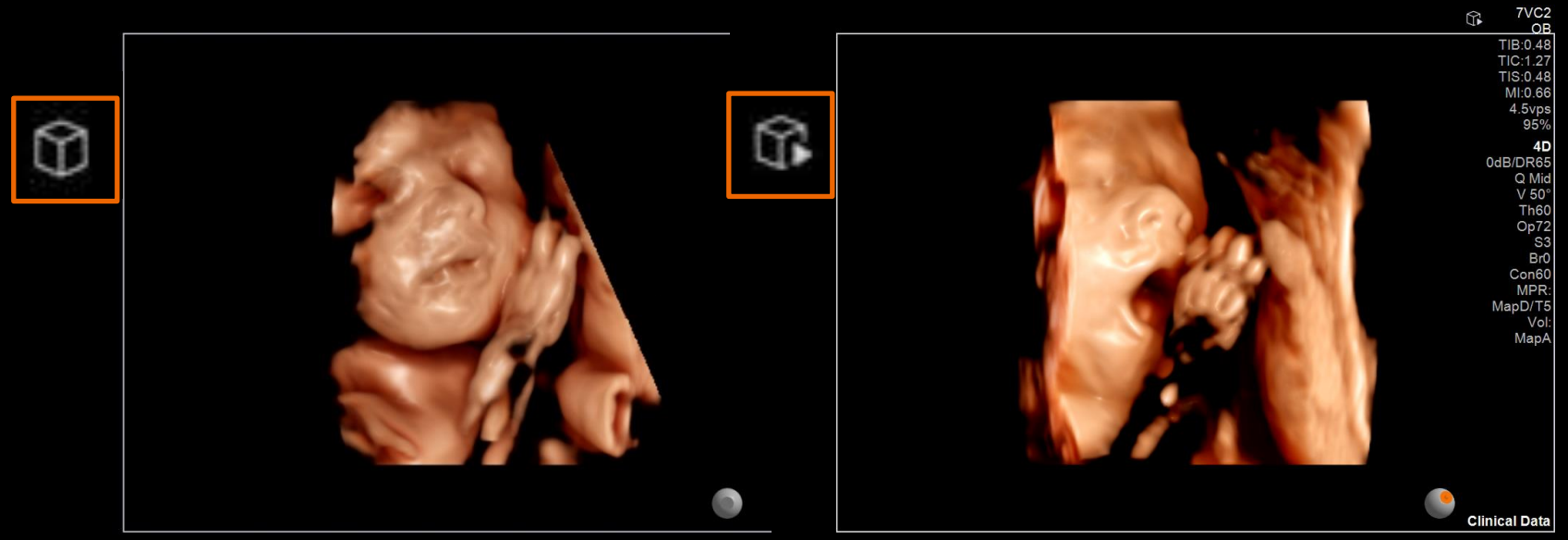
Image and volume storage



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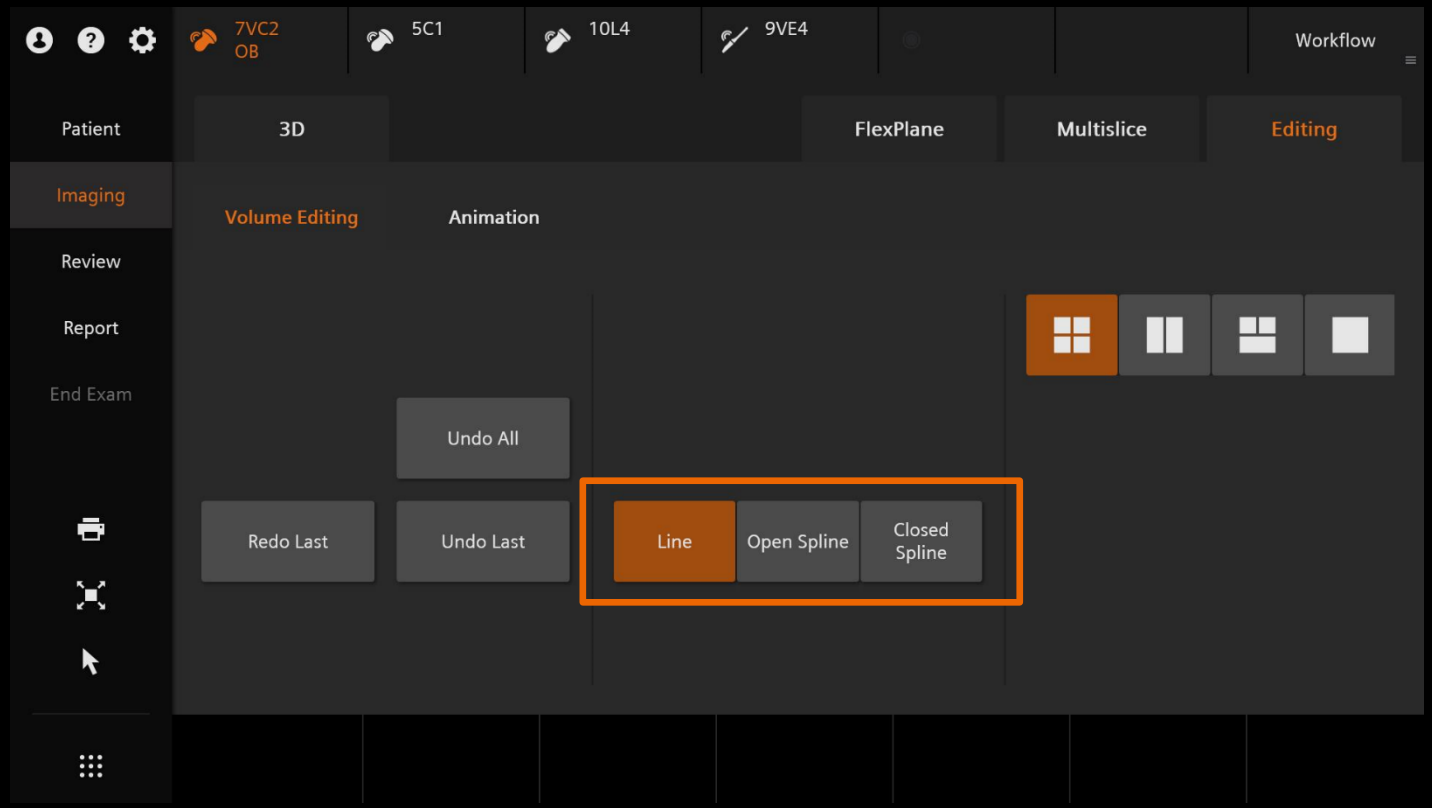
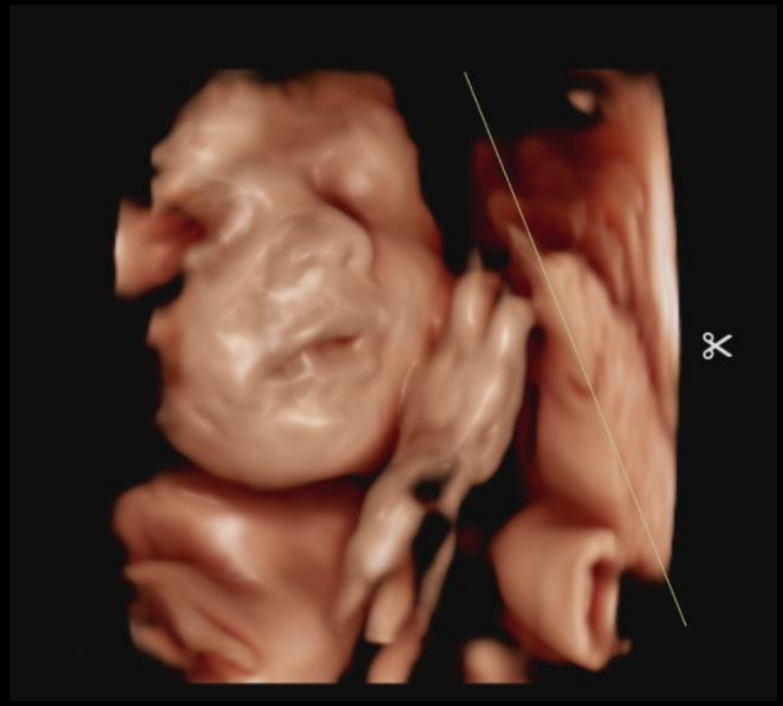
Additional controls





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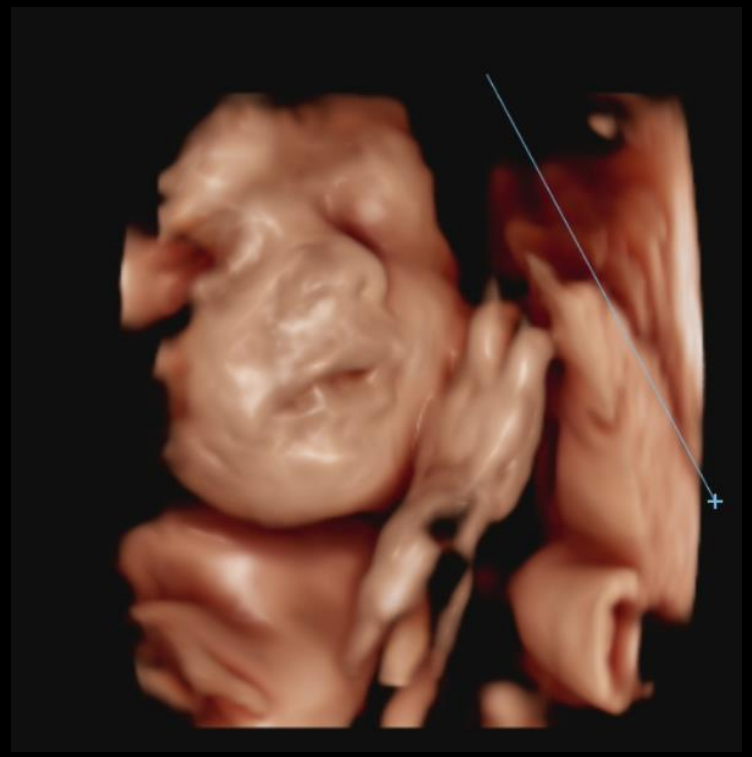
Line



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Open Spline

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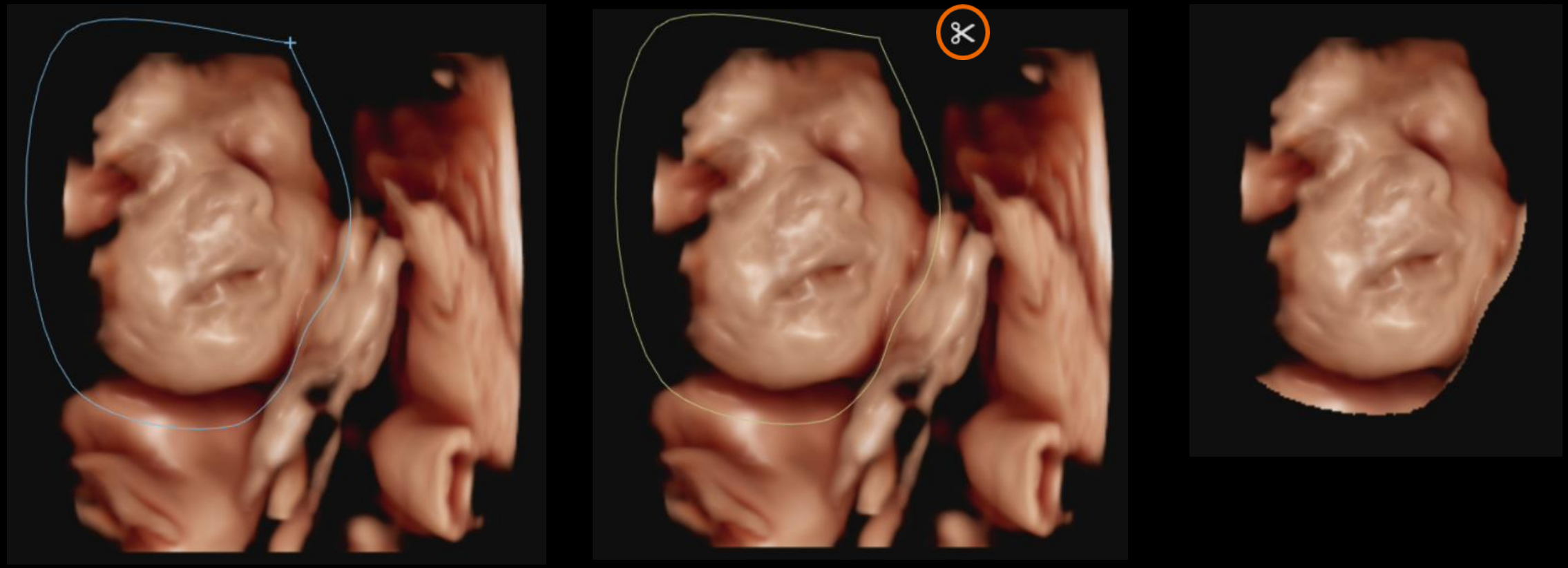
Closed Spline



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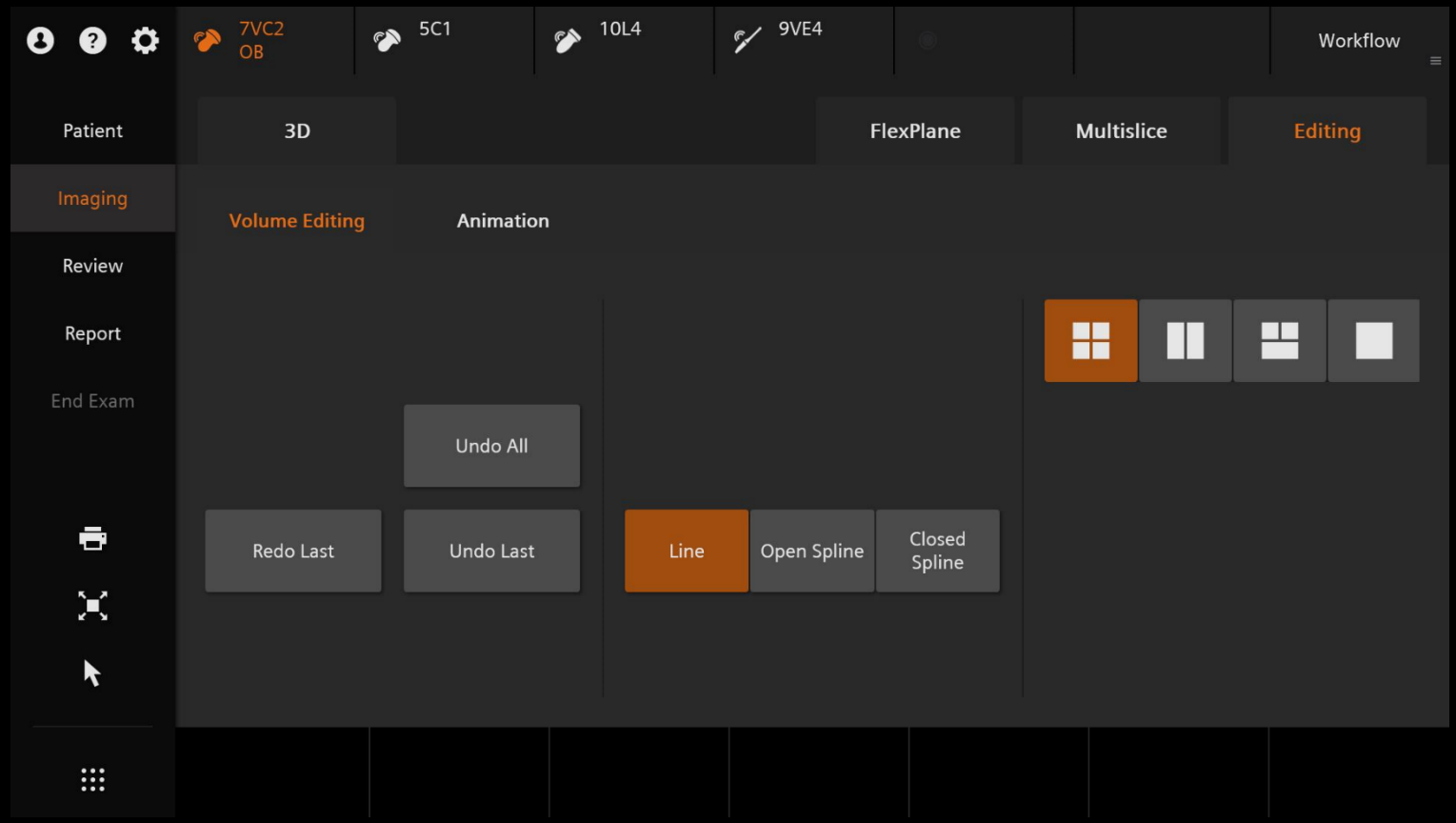
Additional edit controls



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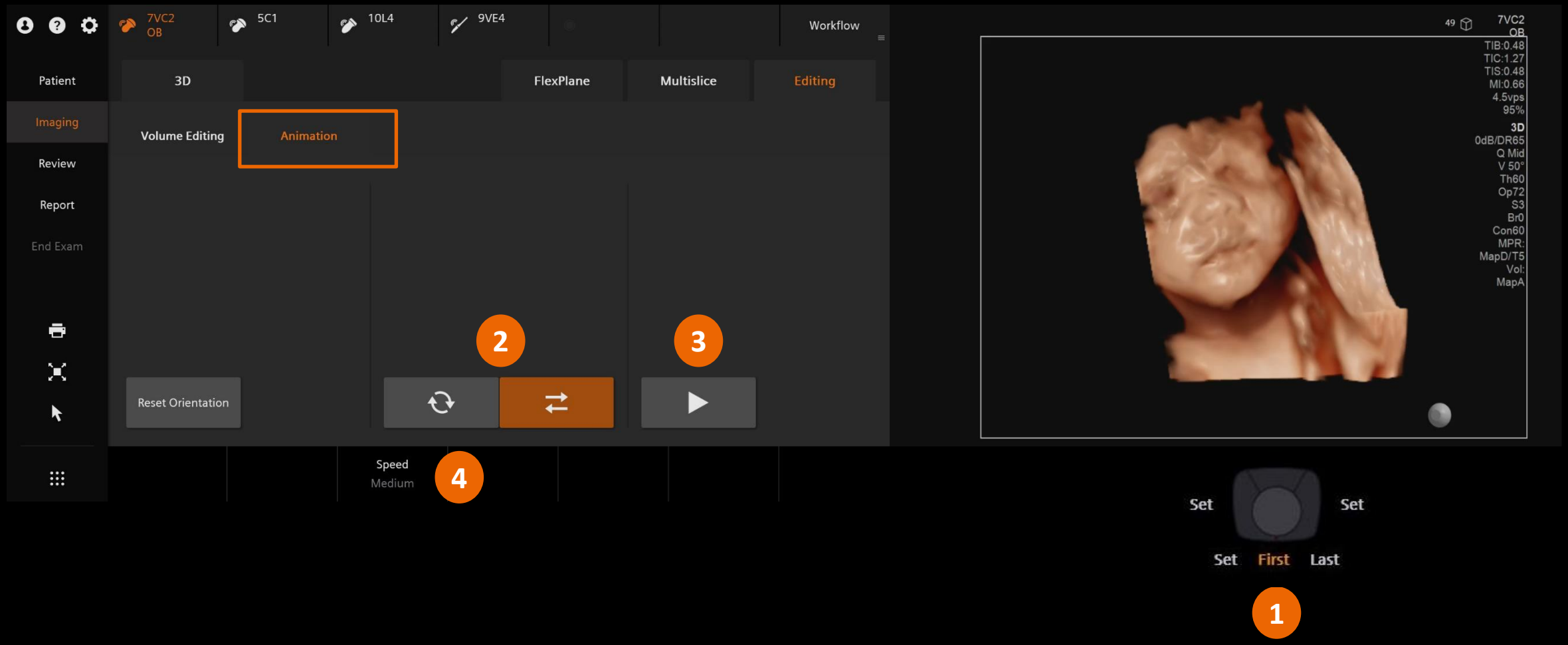
Animation



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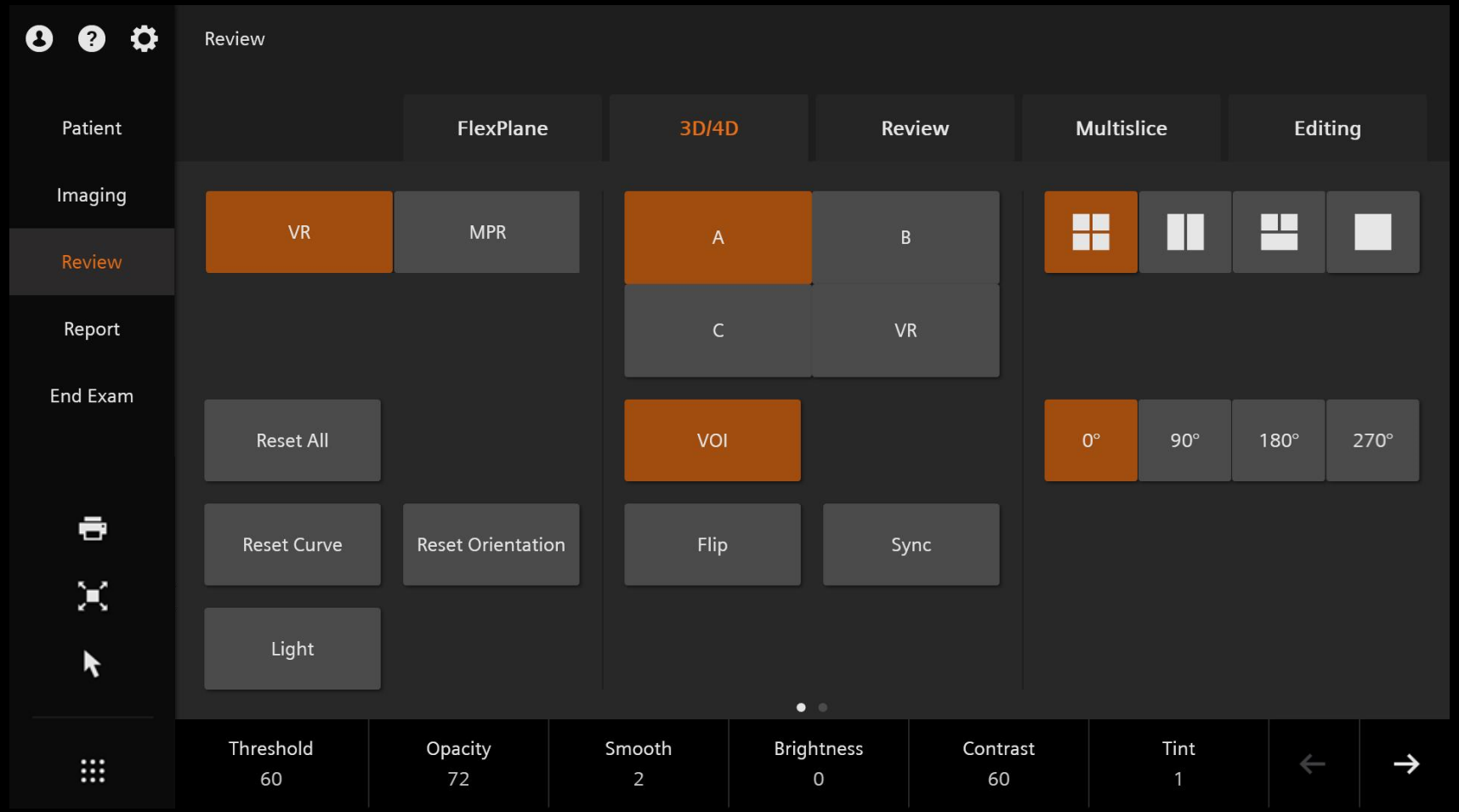
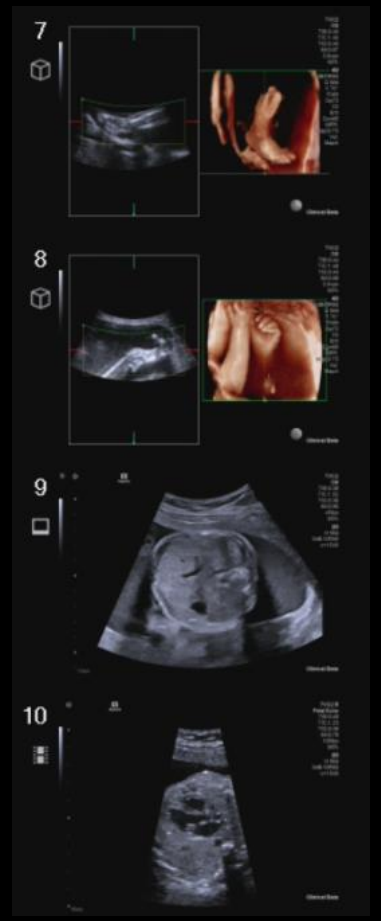
3D/4D review volume data





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Summary

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Questions?

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