

## Station 3: Neuraxial Ultrasound

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### *Ultrasound settings and Patient Position*

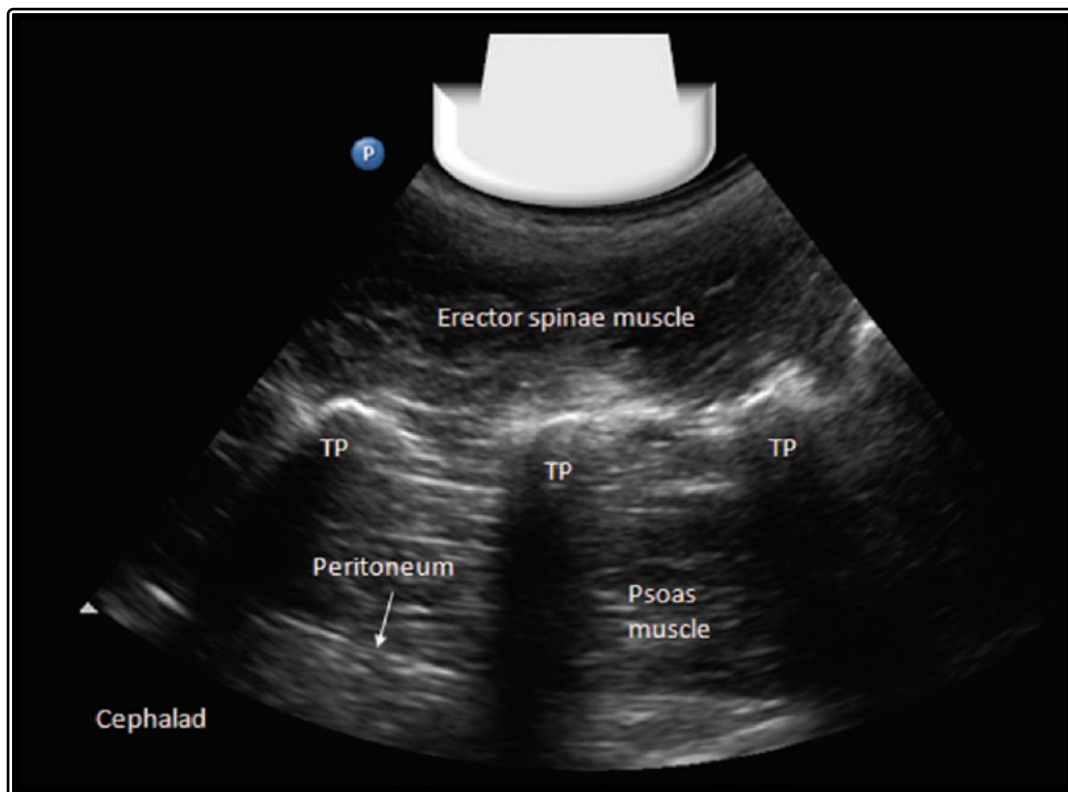
- Curved-array, low frequency (2-5 MHz) ultrasound probe
- Position patient for neuraxial procedure (Sitting or lateral)

### *Surface Anatomy landmarks*

- Midline: spinous processes and interlaminar spaces
- Iliac crests: usually corresponds to L4 spinous process
- L1 - Spinal cord terminates

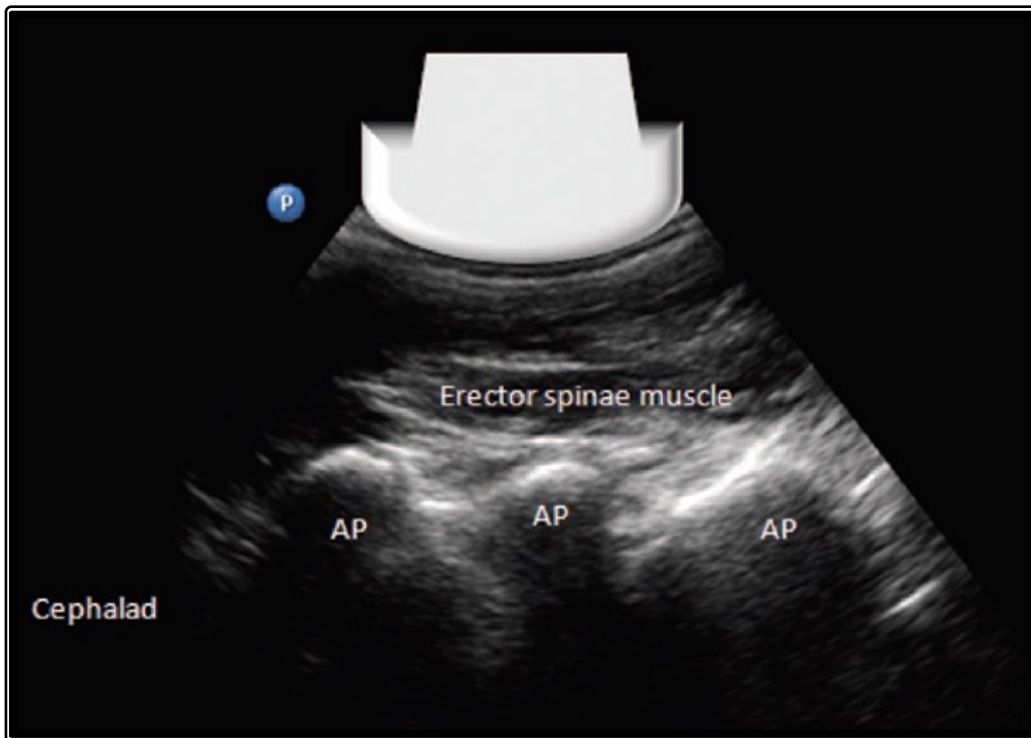
### *Sonoanatomy – Neuraxial Ultrasound*

- Preparation for scanning
  - Place patient in the position in which block will be performed
  - Select a low-frequency, curved array US probe and adjust depth (usually 7–10 cm), focus, and gain settings as required.
- Paramedian Sagittal (PS) Transverse Process View**
  - Place probe in a PS orientation 3-4 cm from the midline
  - “Trident sign” from transverse processes (TP)



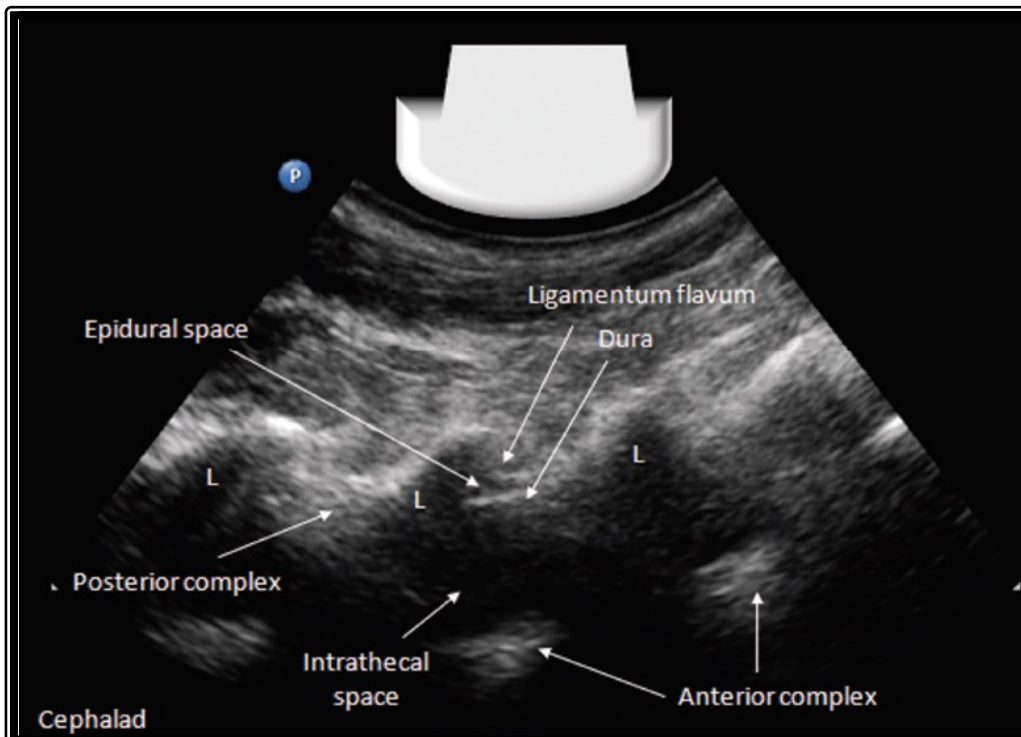
❑ **Paramedian Sagittal Articular Process View**

- ❑ Slide the probe medially toward the midline while maintaining a PS orientation
- ❑ Rounded humps of joint between superior and inferior articular processes (AP)

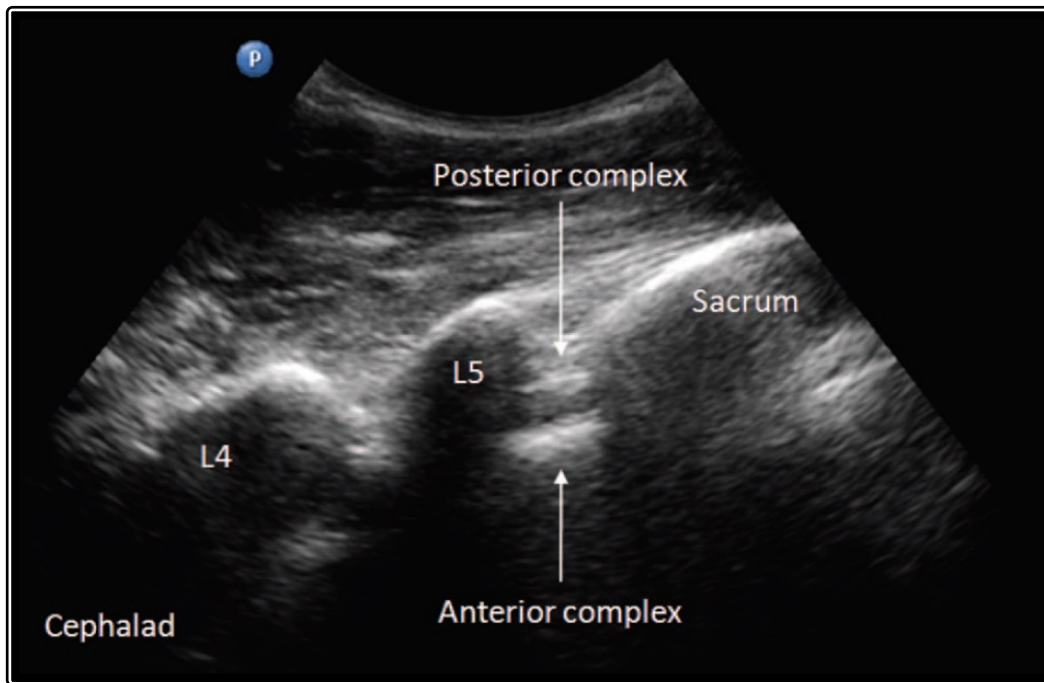


❑ **Paramedian Sagittal Oblique View**

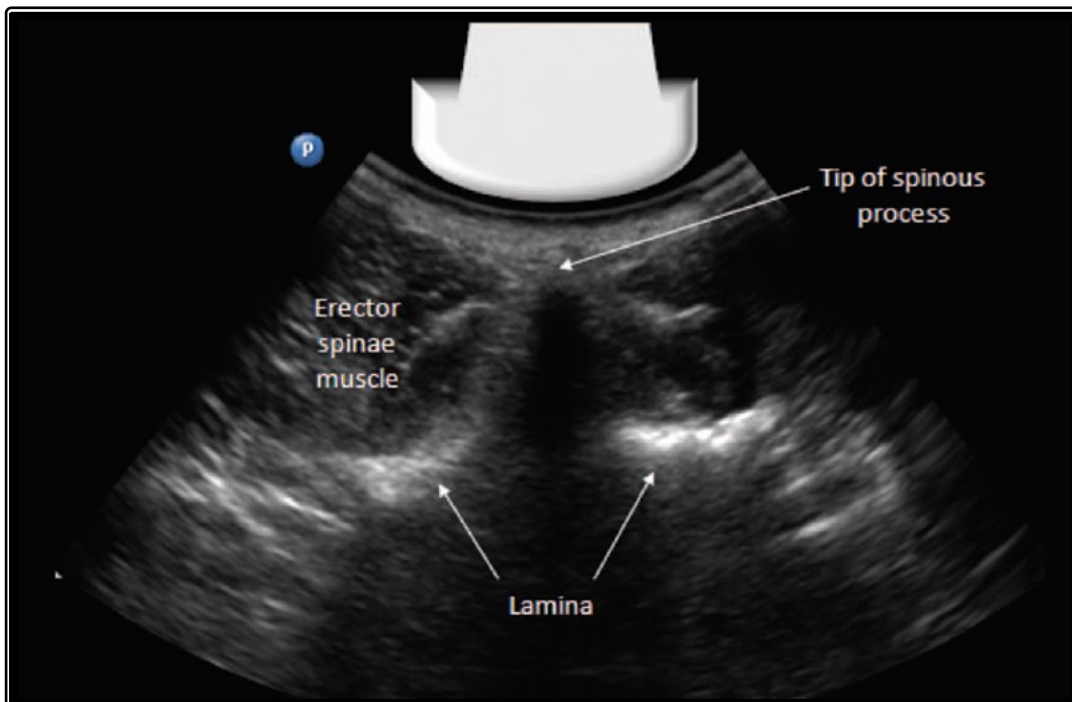
- ❑ Tilt the probe toward the midline to obtain the PS oblique view.
- ❑ “Sawtooth” appearance of the laminae (L)
- ❑ Locate the posterior complex (ligamentum flavum, epidural space, and posterior dura)



- Identify and mark intervertebral levels
  - Slide the probe caudad while maintaining a PS oblique orientation, until the L5–S1 intervertebral space is centered on the US screen.
  - Identify the sacrum as a horizontal hyperechoic line
  - Slide the probe cephalad centering each successive intervertebral space (L4-L5, L3-L4, L2-L3)

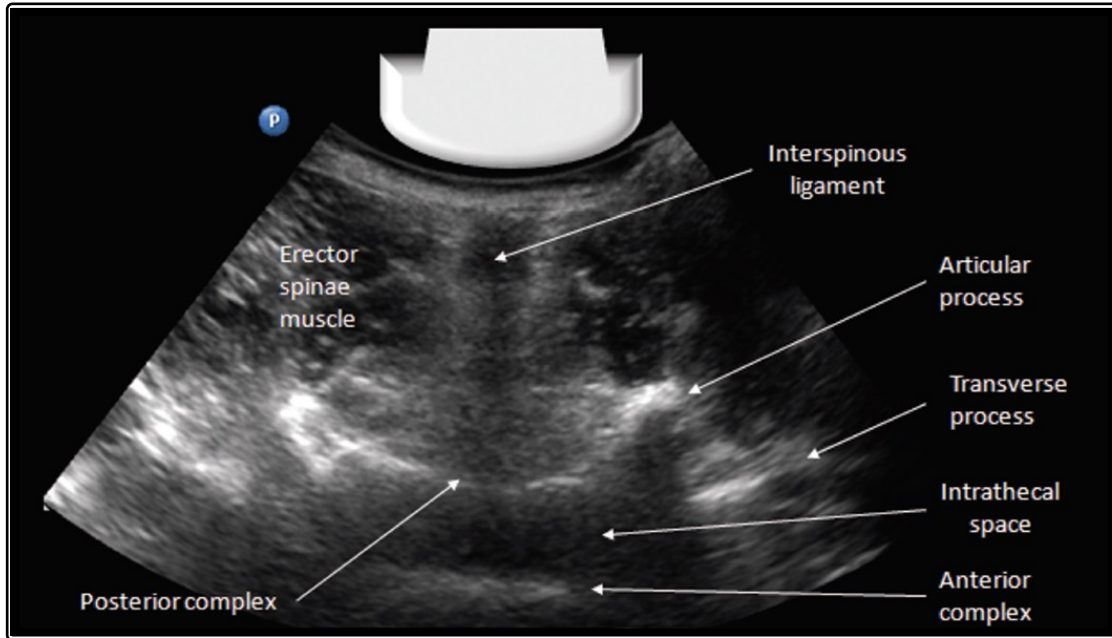


- **Transverse Spinous Process View**
  - Rotate the probe 90 degrees into a transverse orientation
  - The tip of the spinous process and the lamina are brightly hyperechoic with pronounced shadowing obscuring deeper structures



□ **Transverse Interlaminar View**

- Slide until the interlaminar view of the desired interspace is acquired
- Find the posterior complex and anterior complex
- Estimate the required needle insertion depth by measuring from the skin to the posterior complex using the US machine's electronic calipers.



- Mark needle insertion point for midline approach and perform spinal or epidural in usual fashion.