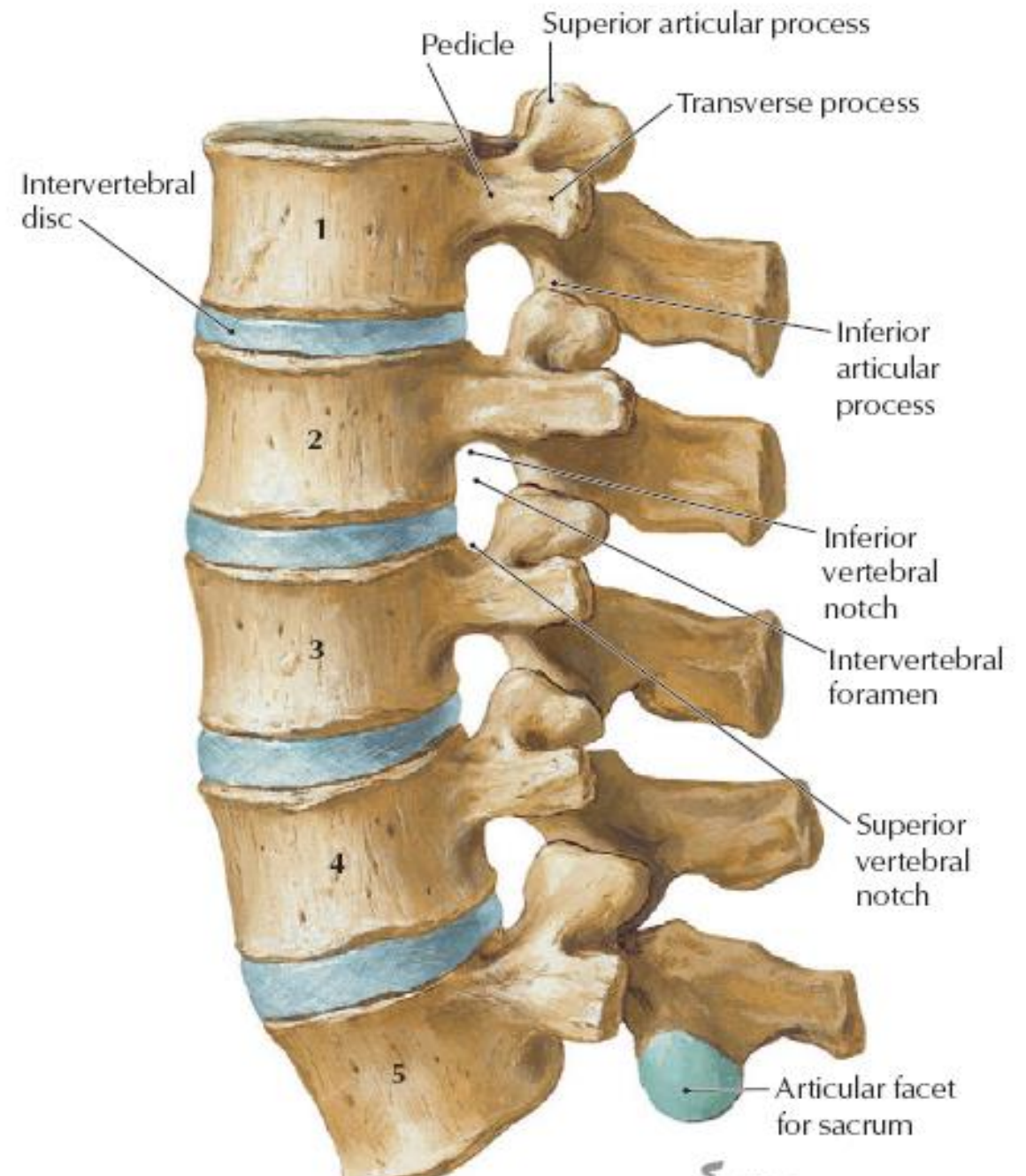


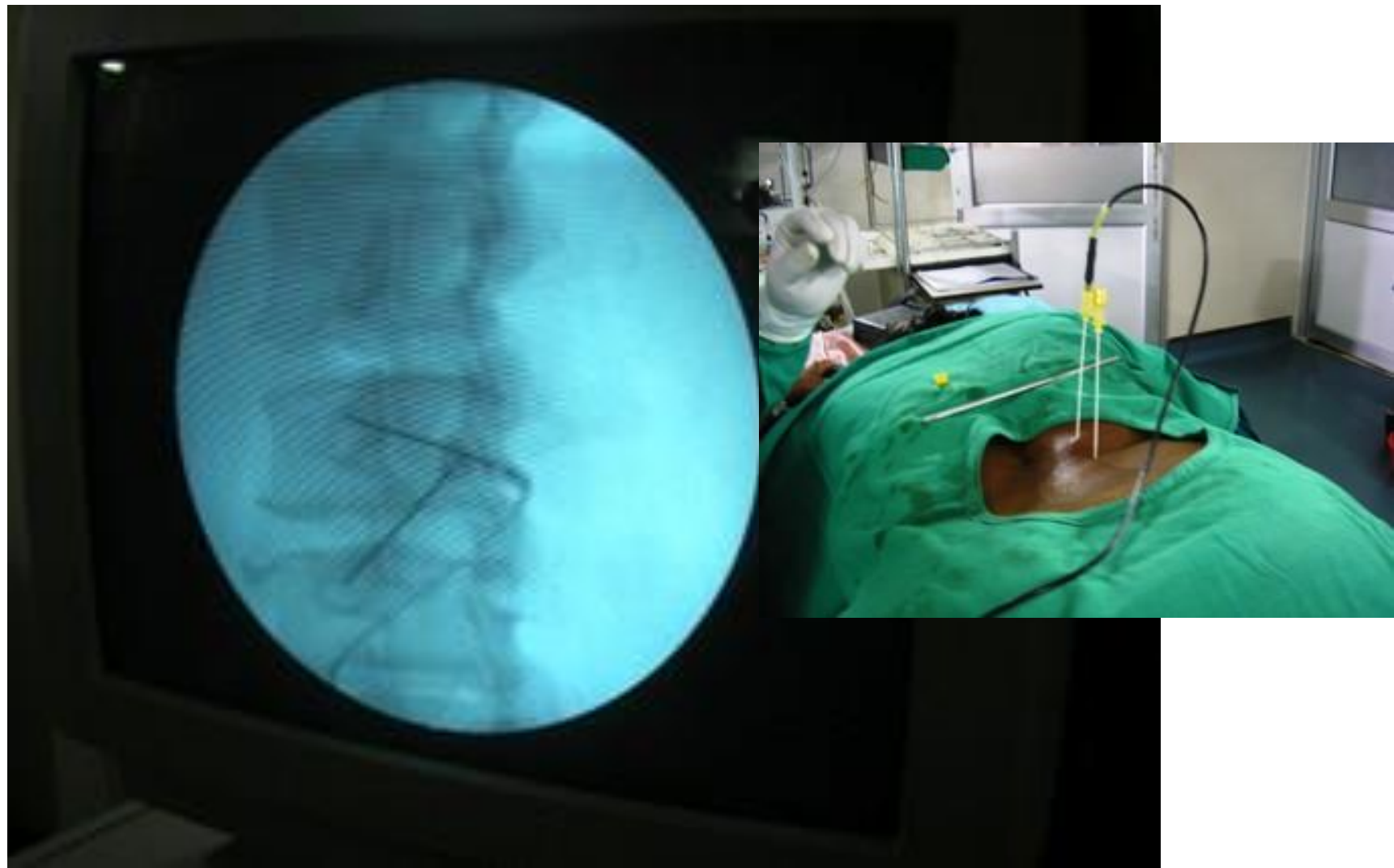


Contraindications: Epidural Blockade

Absolute	Relative	Controversial
Patient refusal	Coagulopathy	Inadequate training/experience
	Platelet count <100,000	
Uncorrected hypovolemia	Uncooperative patient	Elaborate tattoos at the needle insertion site
Increased ICP	Severe anatomic abnormalities of spine	Positioning that compromises respiratory status
Infection at site	Sepsis	Anesthetized patient (cervical/thoracic)
Allergic to amide/ester LA	Hypertension	Previous back surgery



Lumbar facet joint denervation



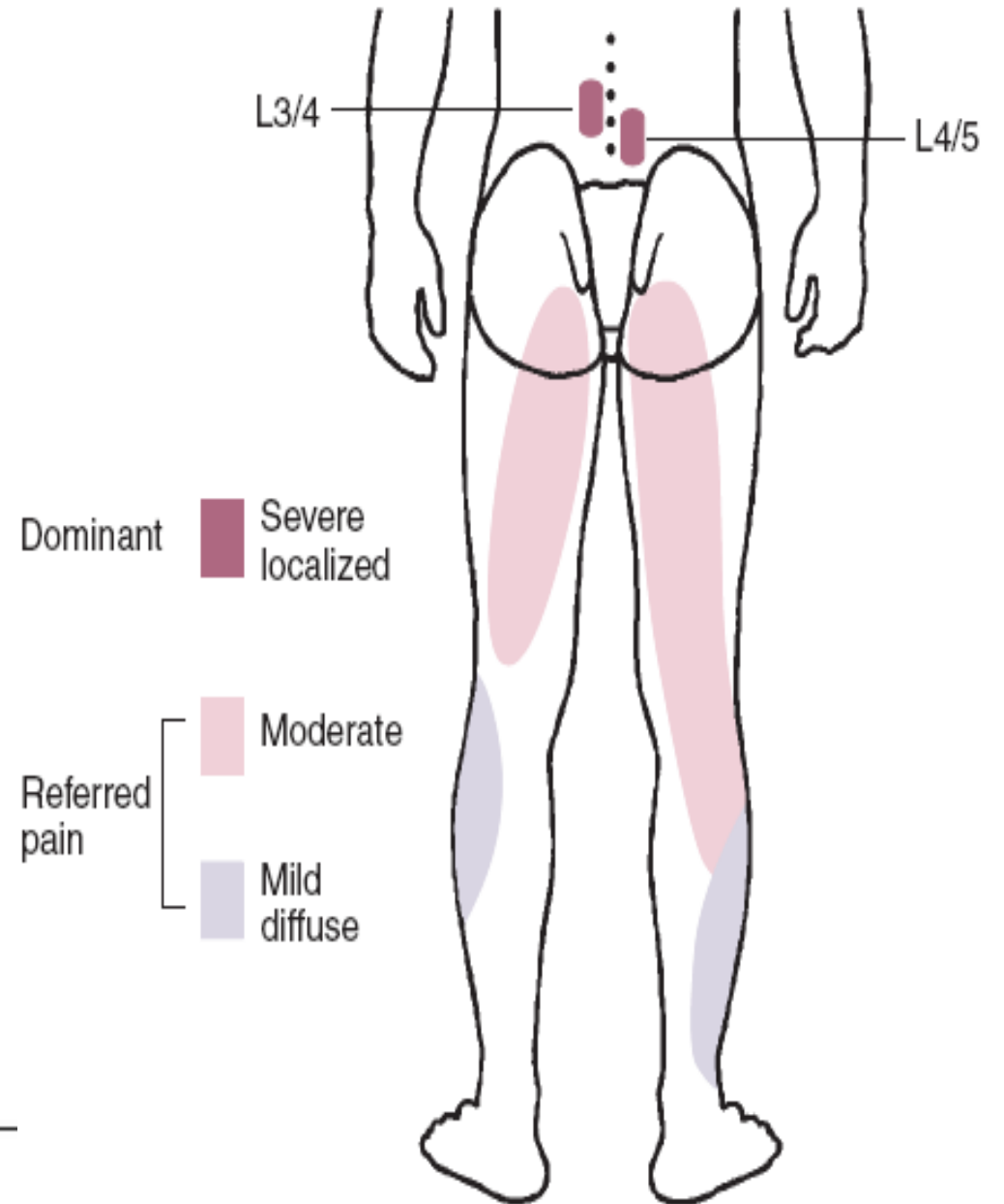
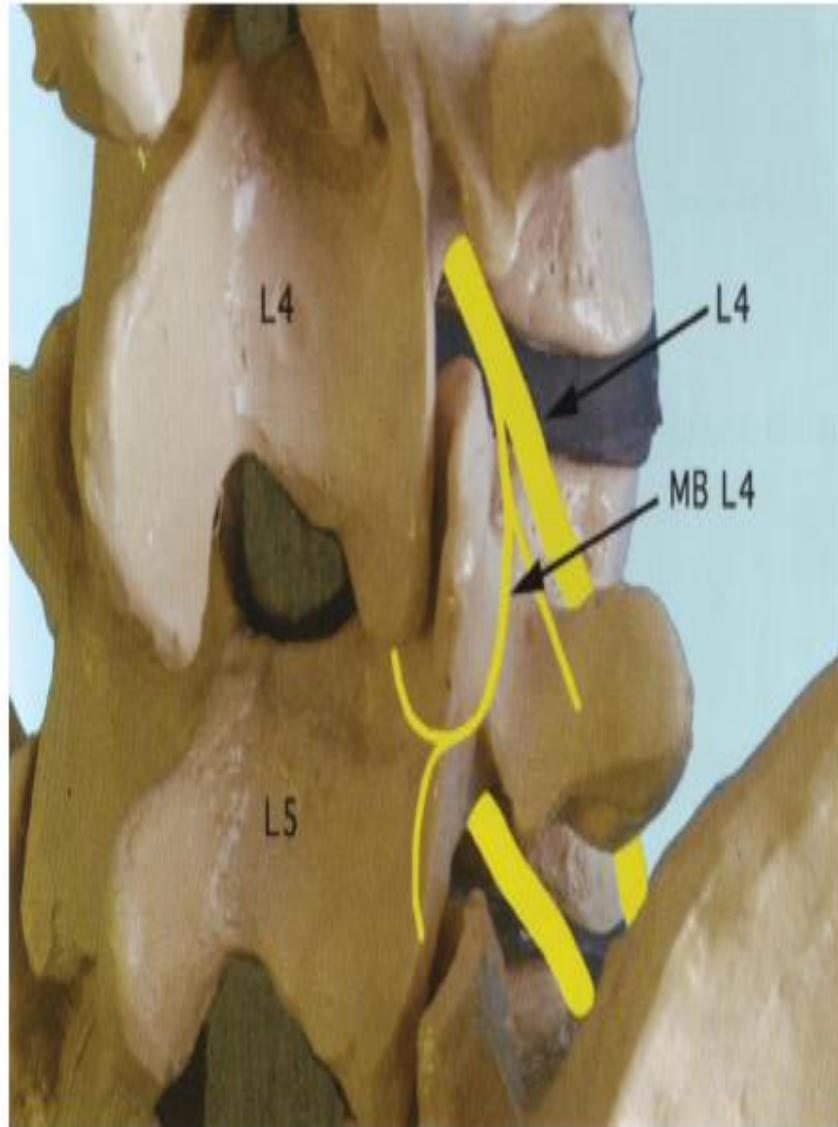
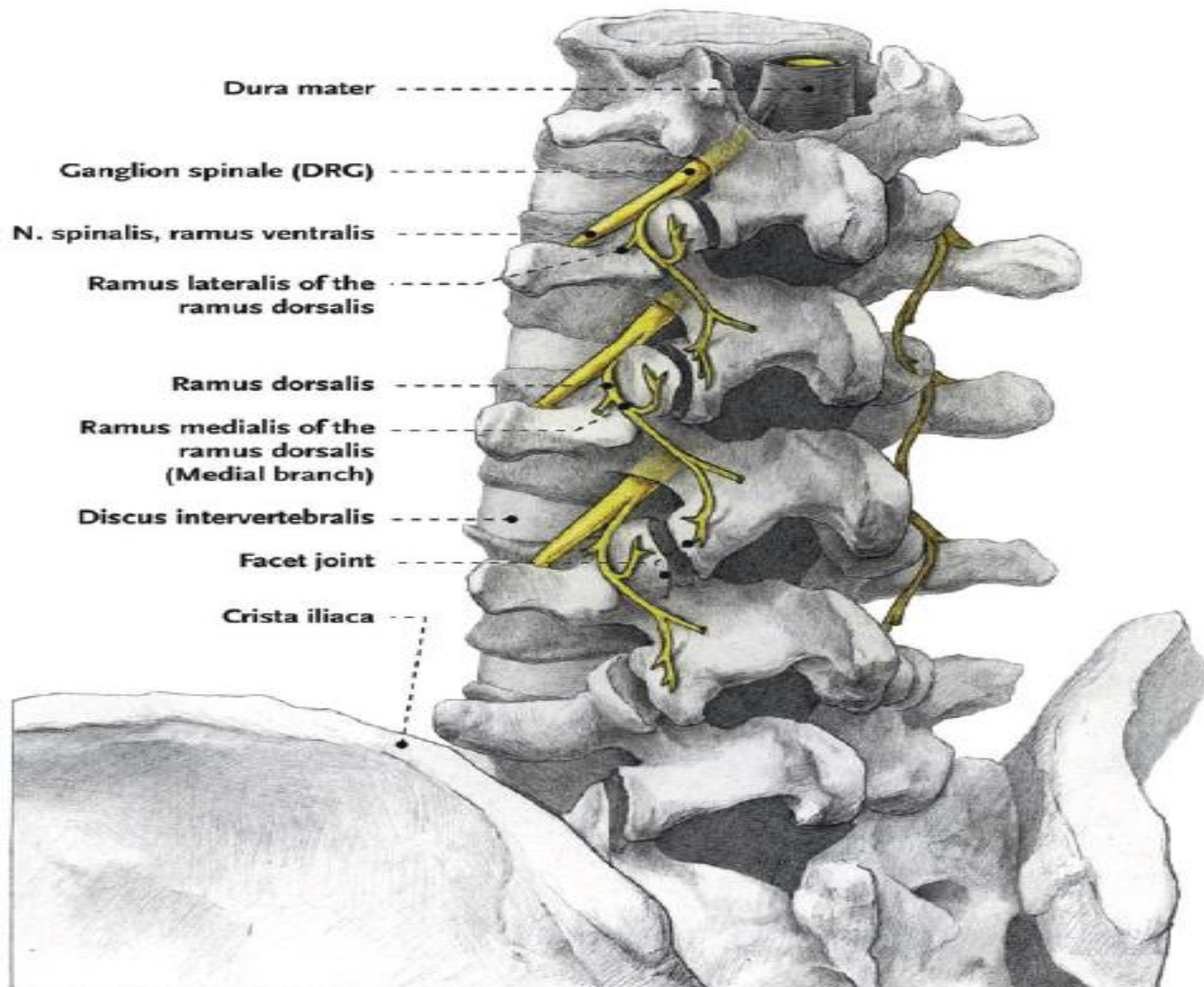


Fig. 10. The L4 medial branch runs over the junction of the L5 superior articular and transverse processes.



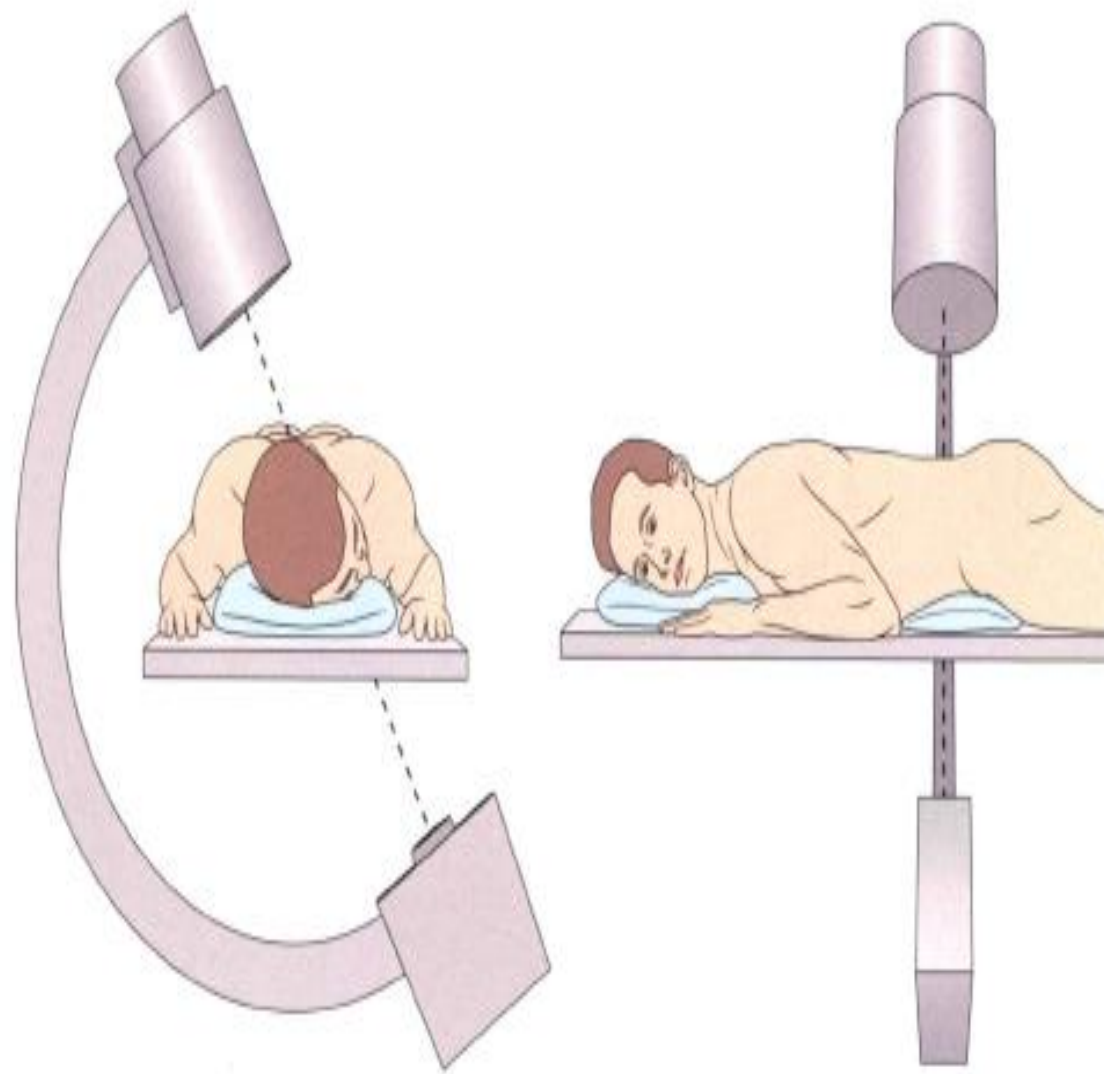


Figure 7-16.

Position for intra-articular lumbar facet joint injection. The patient is placed prone with the head turned to one side. The C-arm is angled 25 to 35 degrees from the sagittal plane parallel to the axial plane.

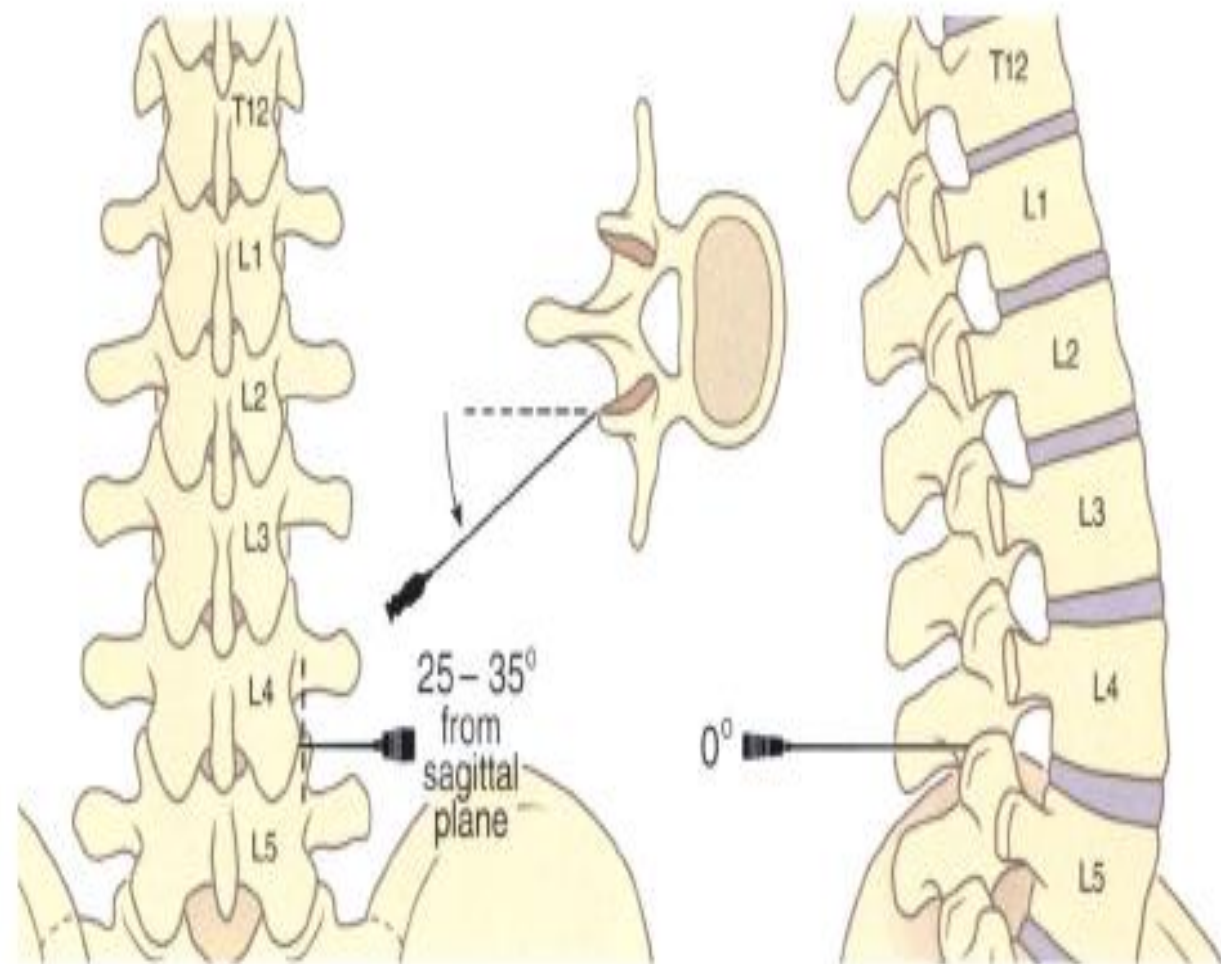
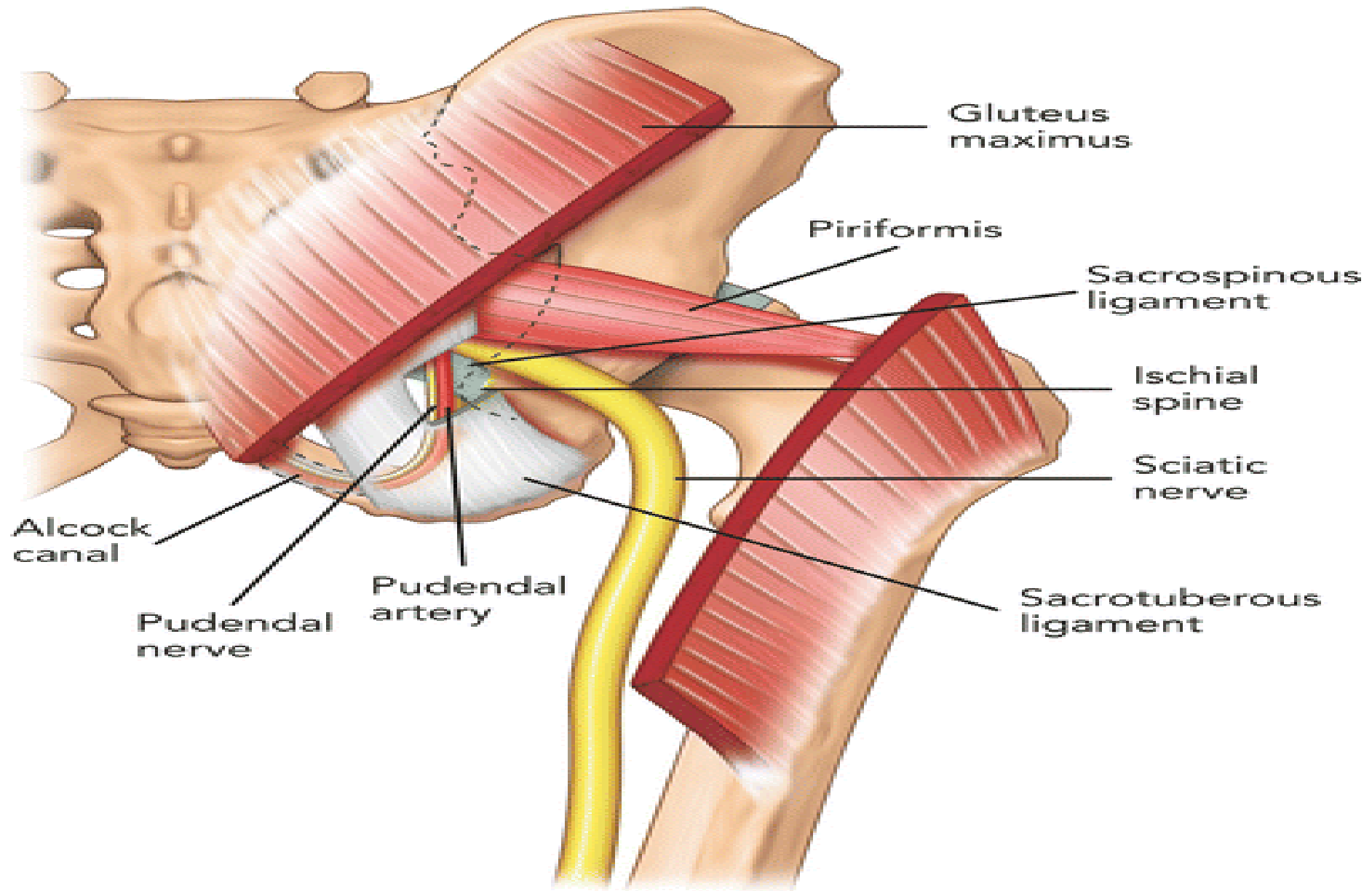


Figure 7-18.

Position and angle of needle entry for intra-articular lumbar facet injection. A 22-gauge spinal needle is advanced in the axial plane overlying the facet joint with 25 to 35 degrees of oblique angulation from the sagittal plane.



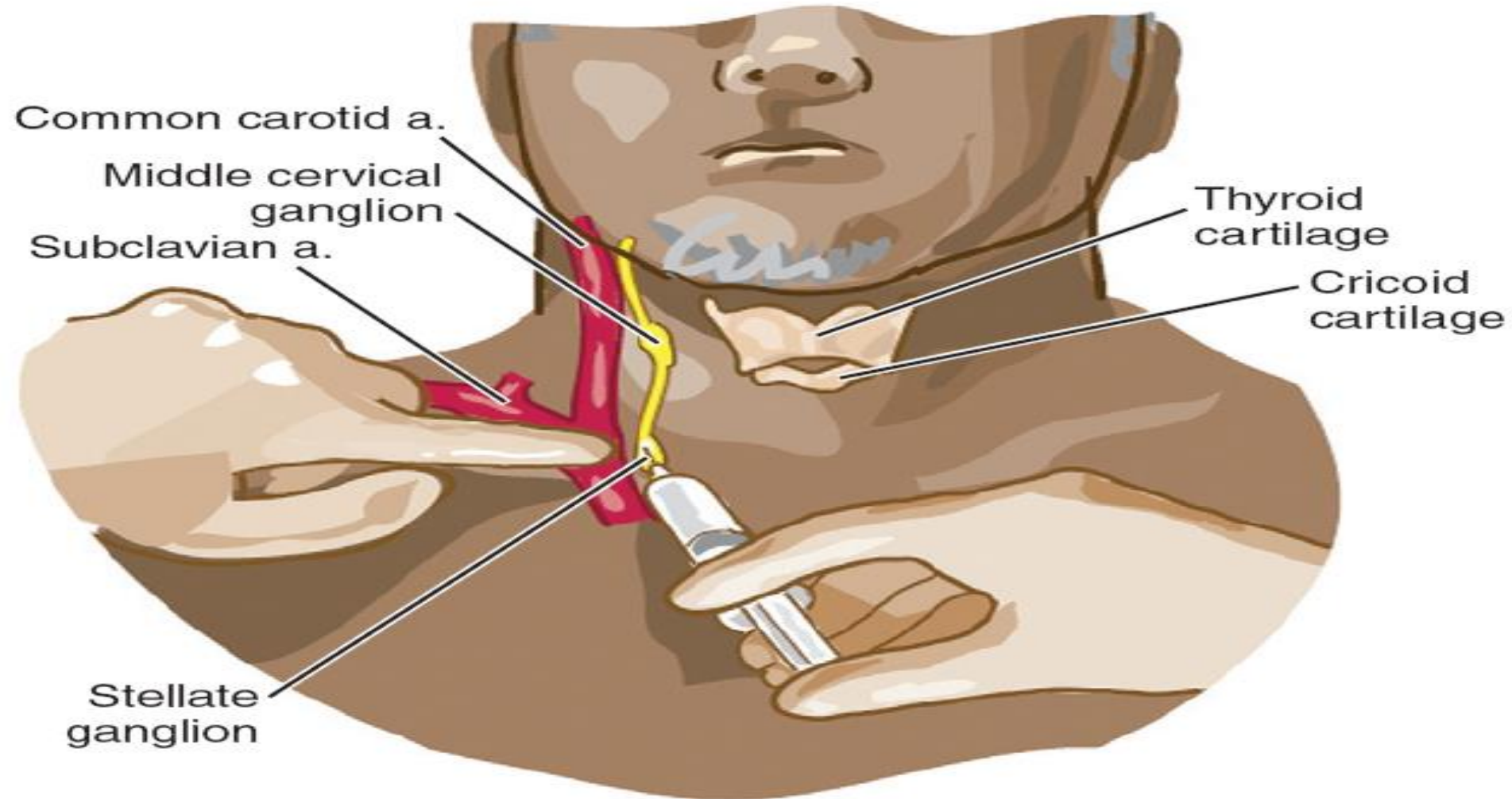
Rash

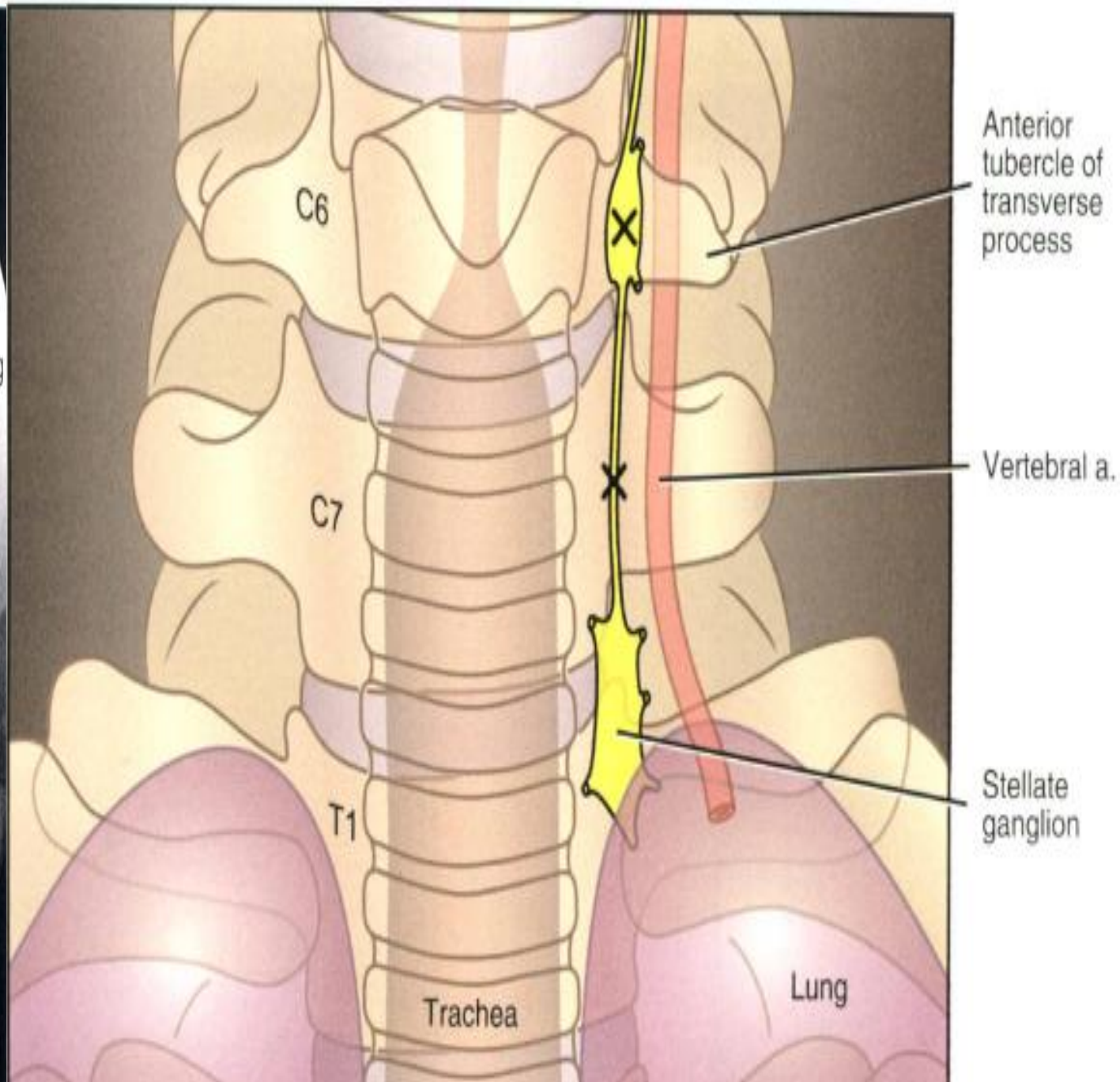
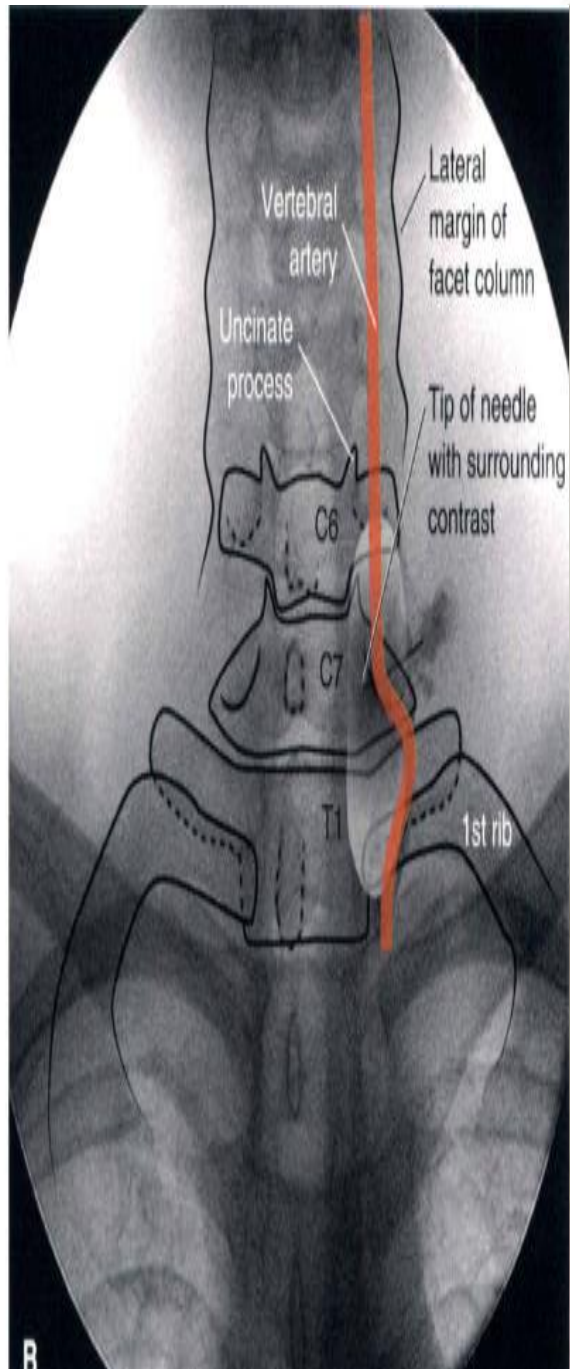


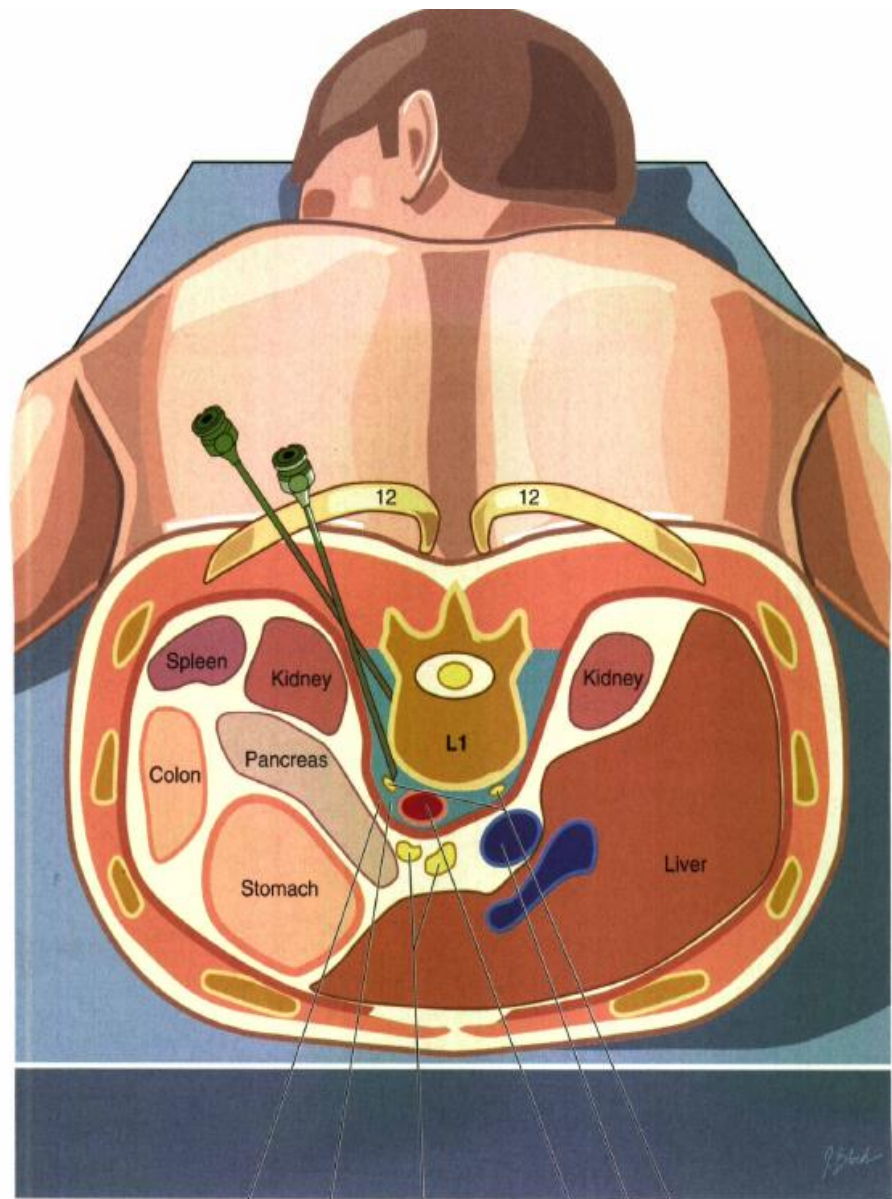
Rash from Herpes Zoster



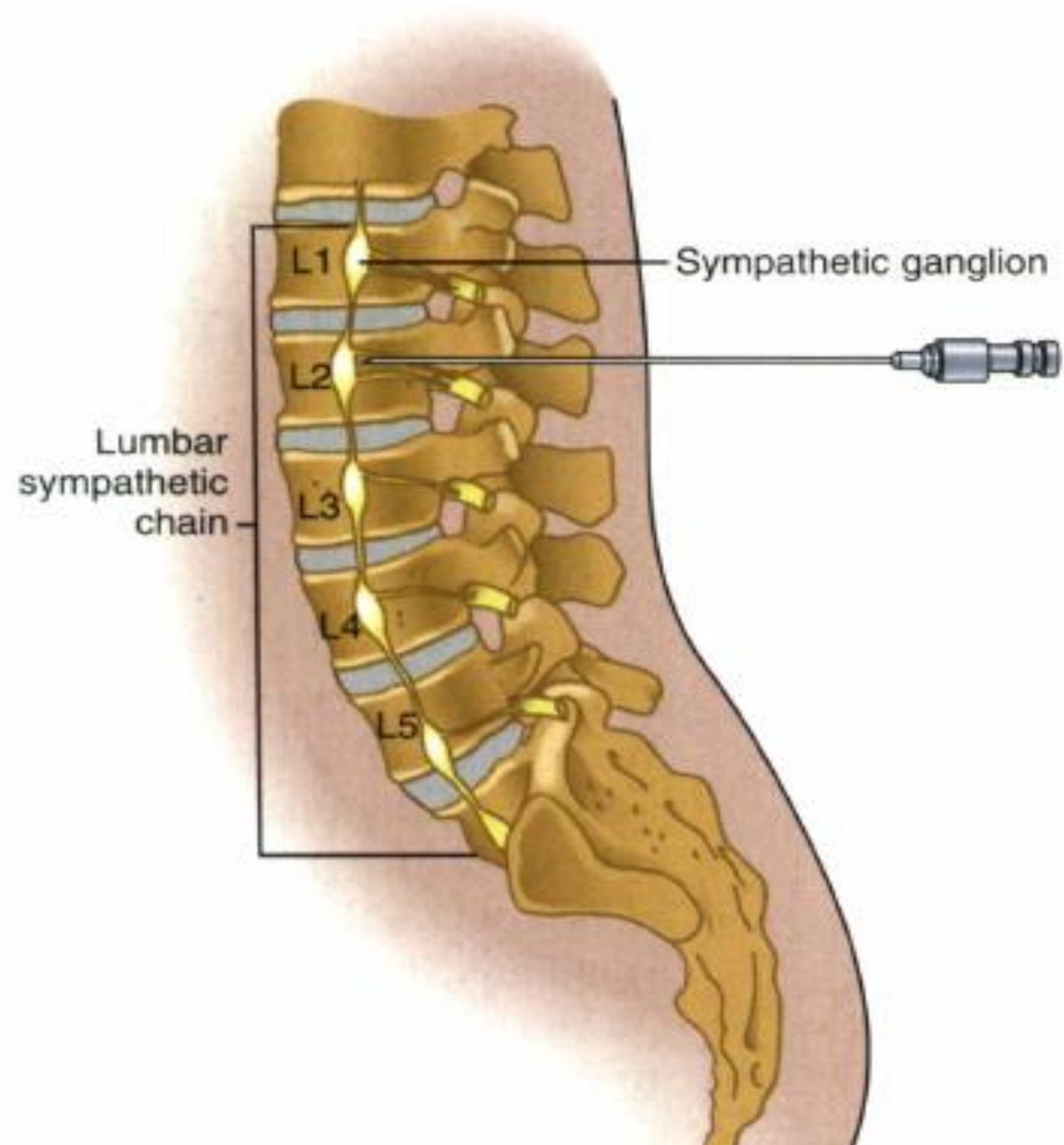
Sympathetic Blocks

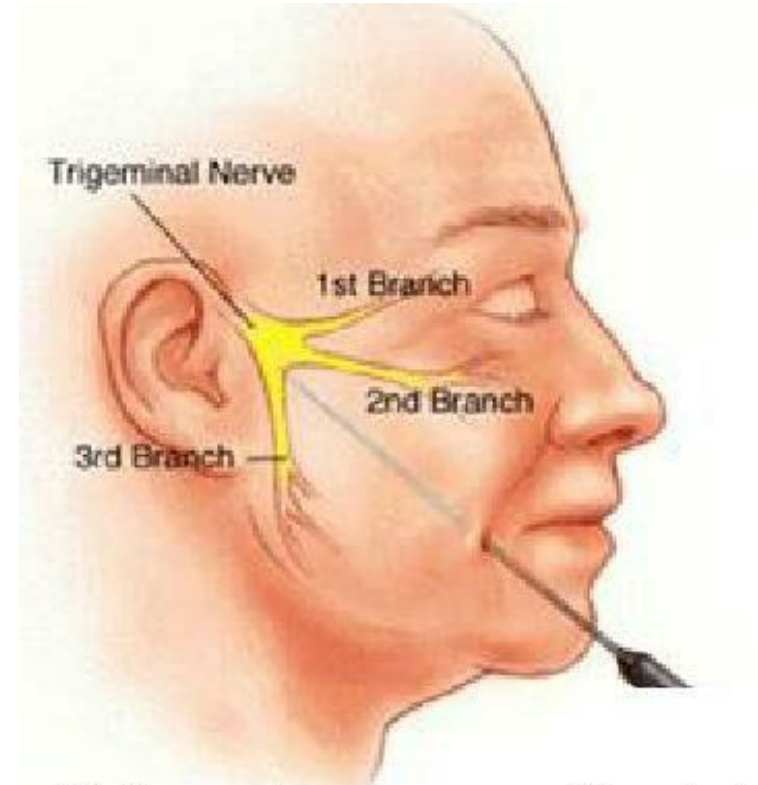
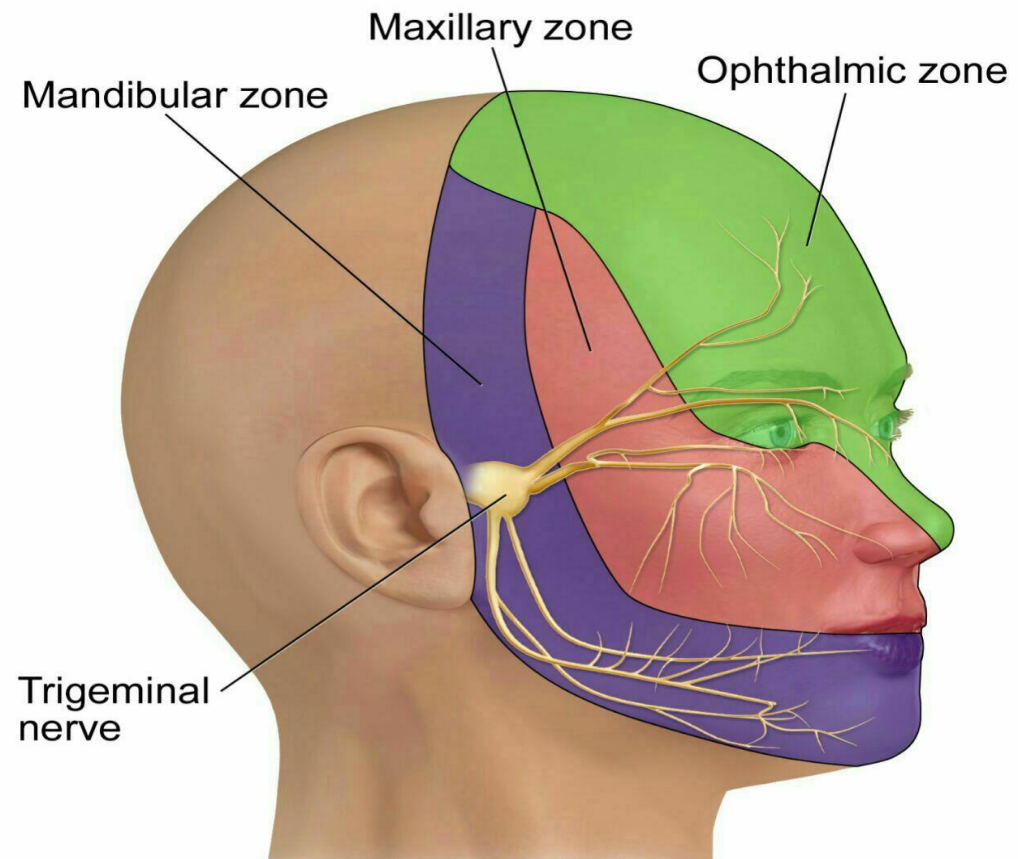




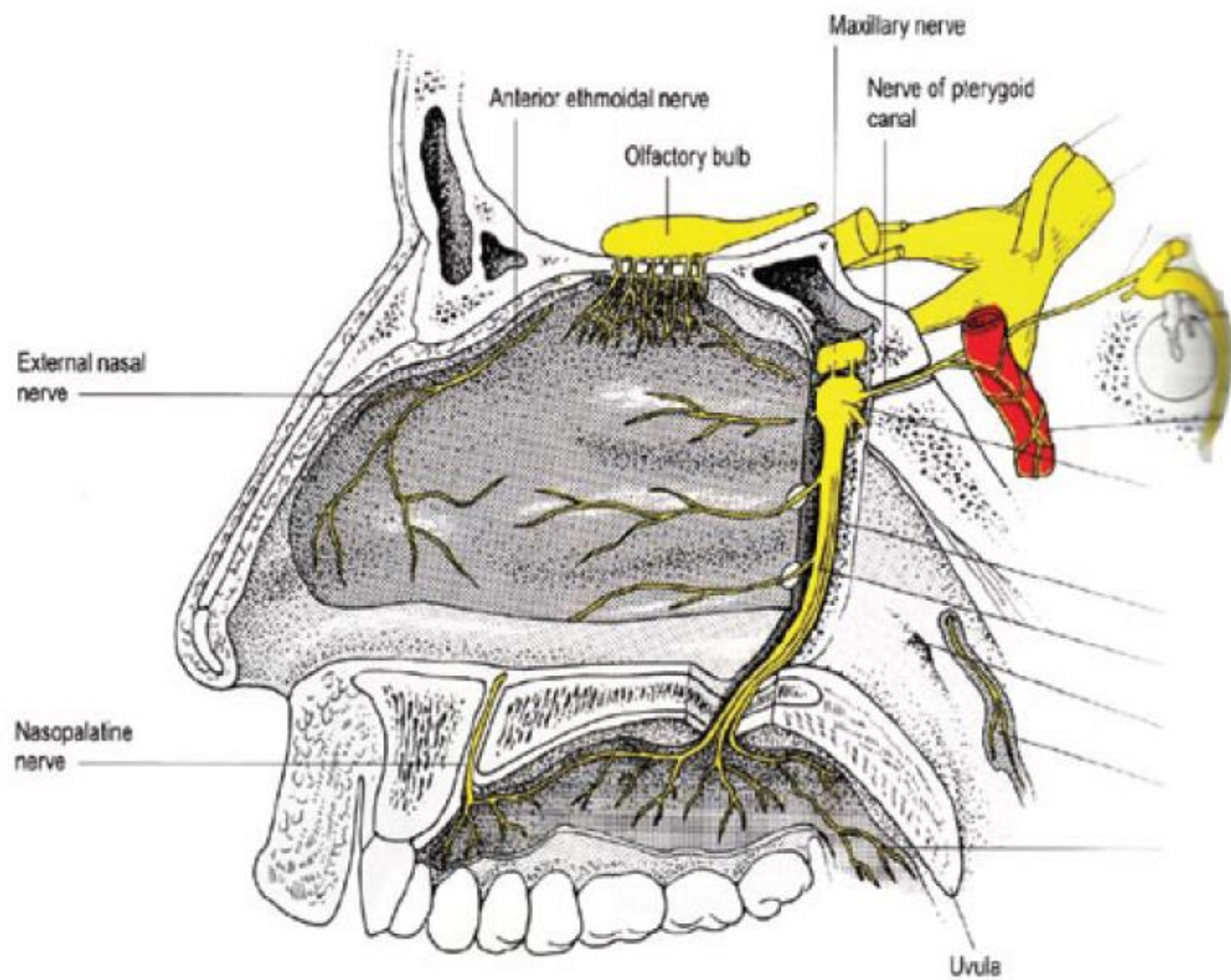


Diaphragm
Retrocrural space
Celiac ganglia
Abdominal aorta
Greater splanchnic nn.
Inf. vena cava





http://www.spinesurgeon.com.au/Neurological_Conditions/brain_disorders/trigeminal_Neuralgia-MIS-Surgery.htm



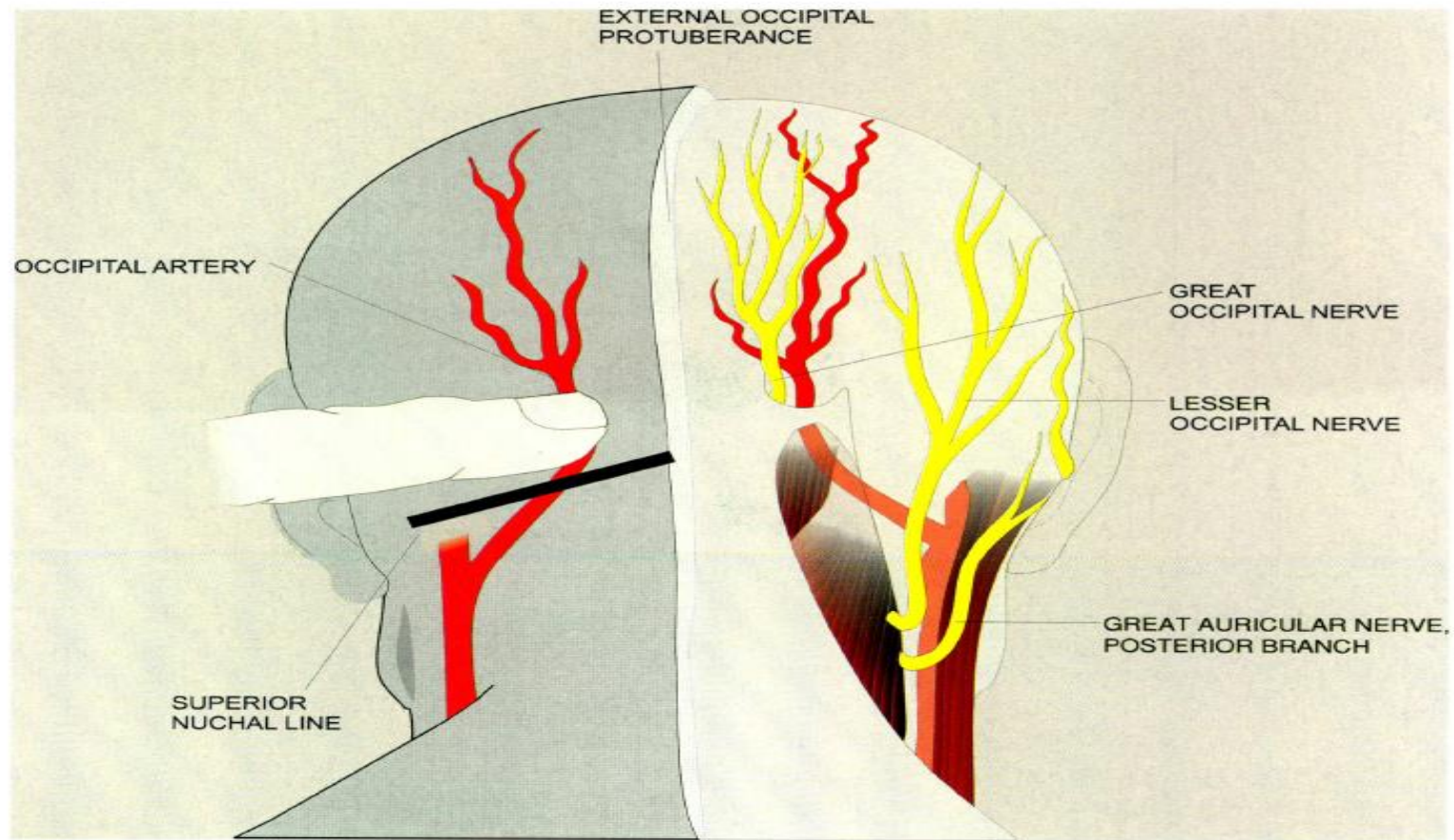


Figure 18-8. Localization of the occipital nerve. The greater occipital nerve is positioned medial to the pulse of the occipital artery; approximately one third of the distance from the occipital protuberance to the mastoid, whereas the lesser occipital nerve is more lateral, approximately two thirds of this distance.

Regenerative Pain Medicine

- Injection therapies
- Prolotherapy
- Platelet Rich Plasma

Platelet Rich Plasma

Theorized to work because of the growth factors and tissue adhesion molecules and activation of the healing cascade

- Alpha granules release growth factors upon activation
- What Is In Platelets?
 - Multiple Growth Factors: (aa, bb, ab),
 - TGF β 1, TGF β 2, IGF-1, VEGF, EGF
 - Three native tissue adhesion molecules are in the plasma: Fibrin, Fibronectin, Vitronectin

Shoulder Blocks

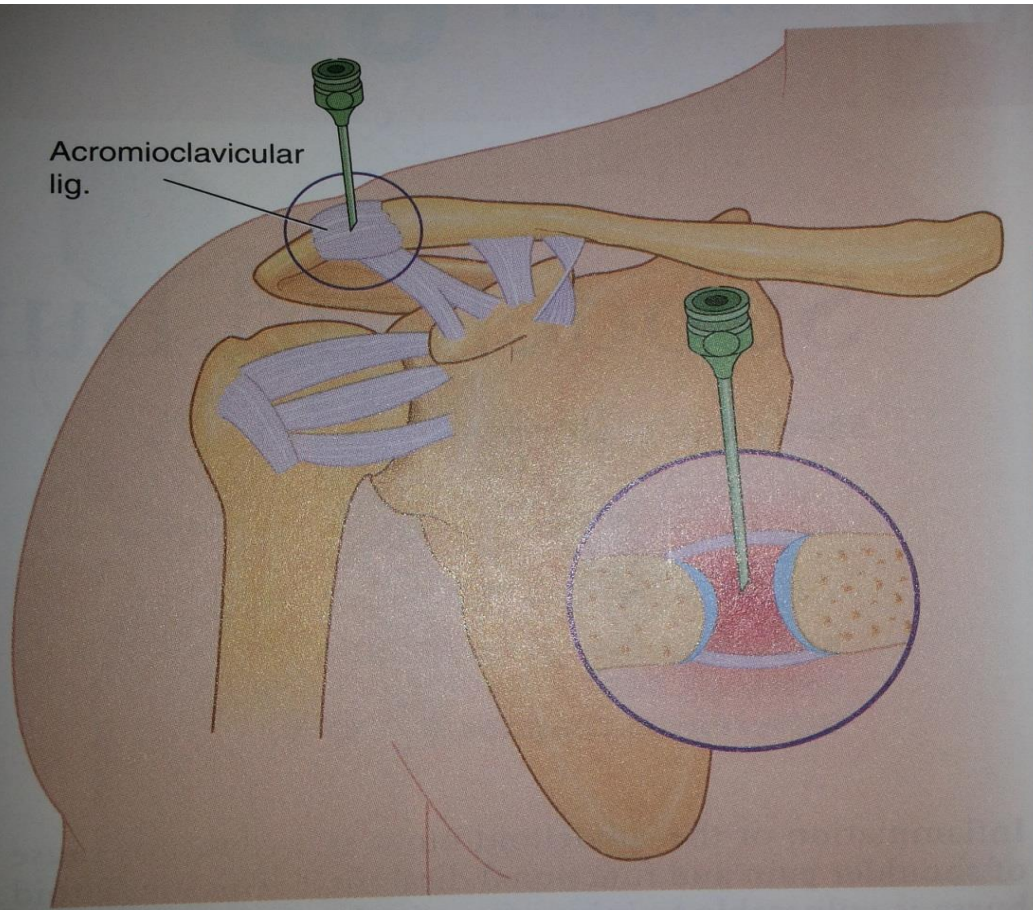
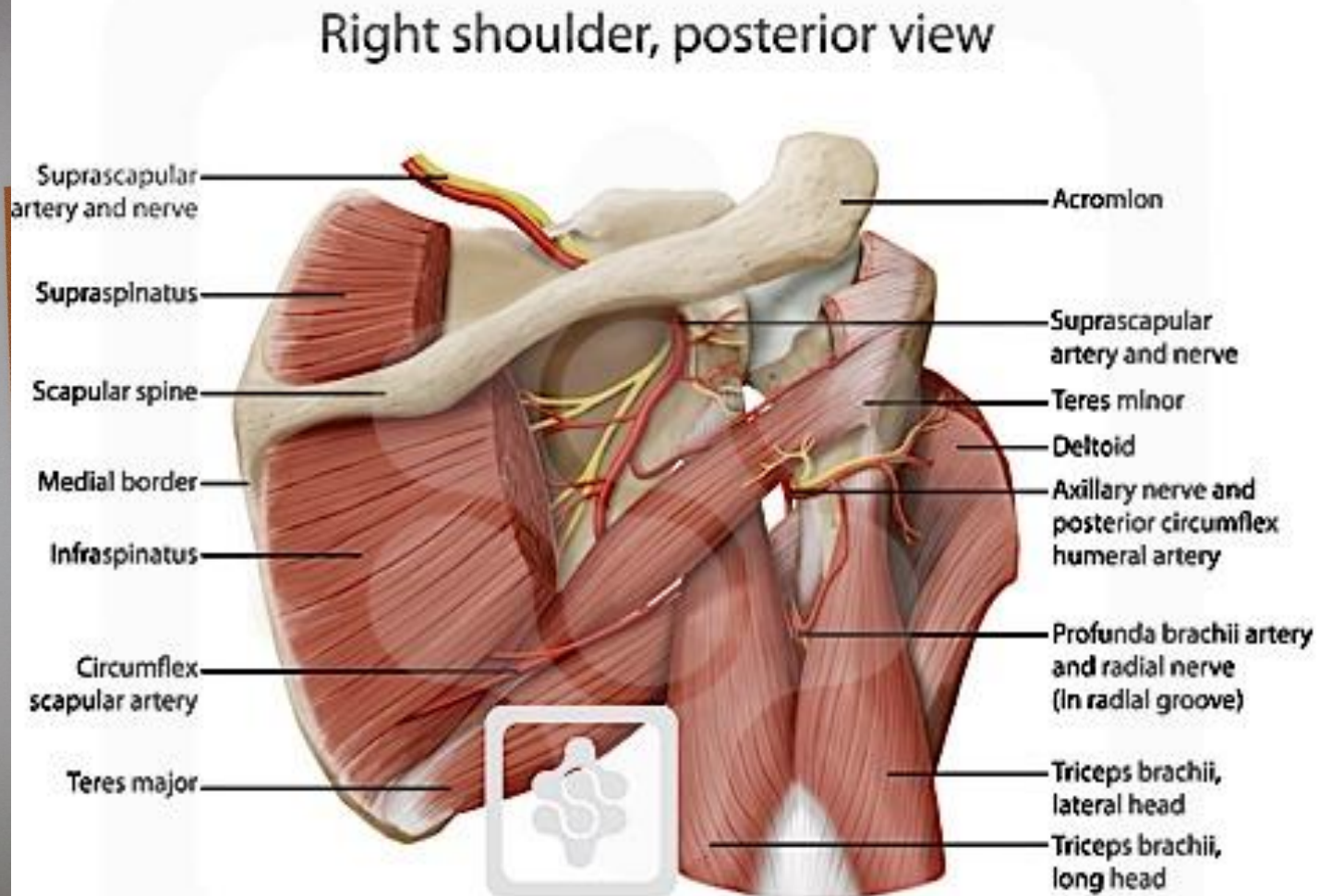
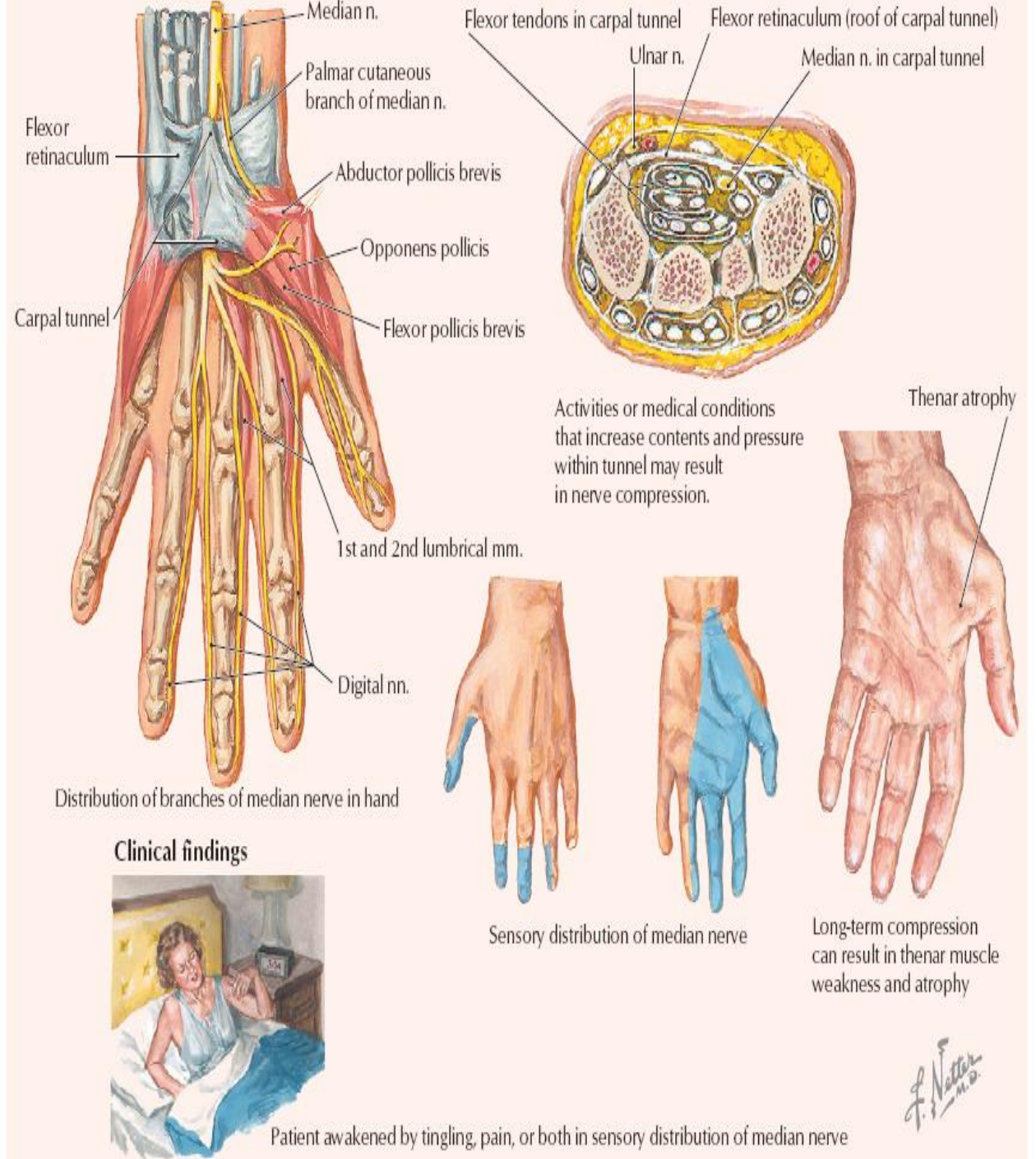
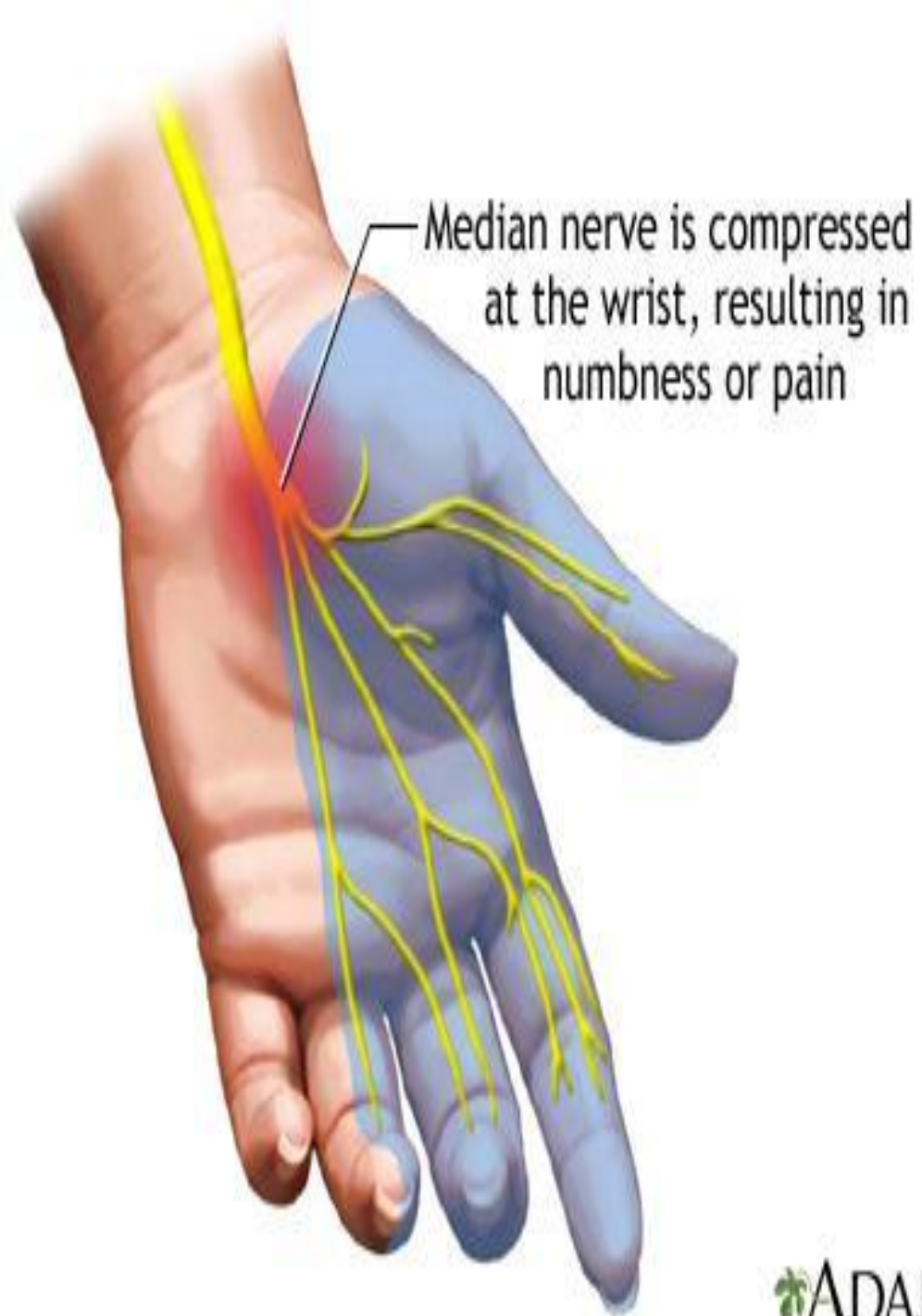


Fig. 64.4 Injection technique for acromioclavicular joint pain. (From Waldman SD: *Acromioclavicular joint pain*. In *Atlas of pain management injection techniques*, ed 2, Philadelphia, 2007, Saunders, p 63.)







A



B



C



D

Figure 8–14

The RF Generator (A), along with its hand controller (B), self-grounded NiTRODE cannula and probe (C), and connecting cables (D), manufactured by Stryker Instruments, (Kalamazoo, MI). Product images from Stryker website, www.stryker.com.

High Tech Interventions

Kyphoplasty, Vertebroplasty
Dorsal root entry zone lesions

Intrathecal opioid pumps

Spinal cord stimulation
Deep brain stimulation

Kyphoplasty

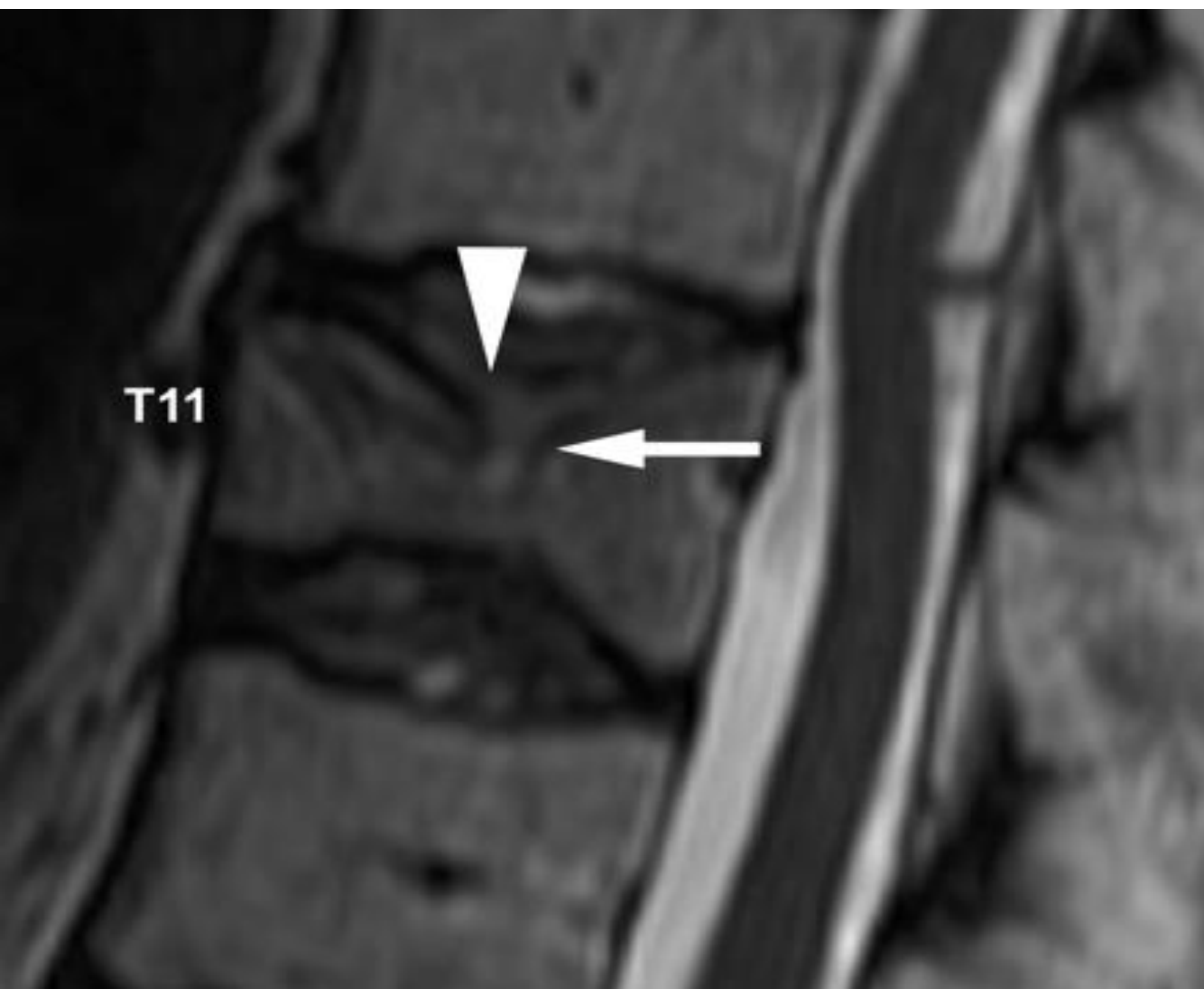




Figure 19-2

Preparation for percutaneous vertebroplasty. 1, Scale; 2, marking pencil; 3, 26-gauge needle for skin infiltration; 4, No. 15 scalpel; 5, 5-mL syringe; 6, injector for cement; 7, Kirschner wire; 8, Kelly clamp to hold the vertebral needle to prevent its passing over the anterior cortex; 9, spatula; 10, 11-gauge, single-bevel

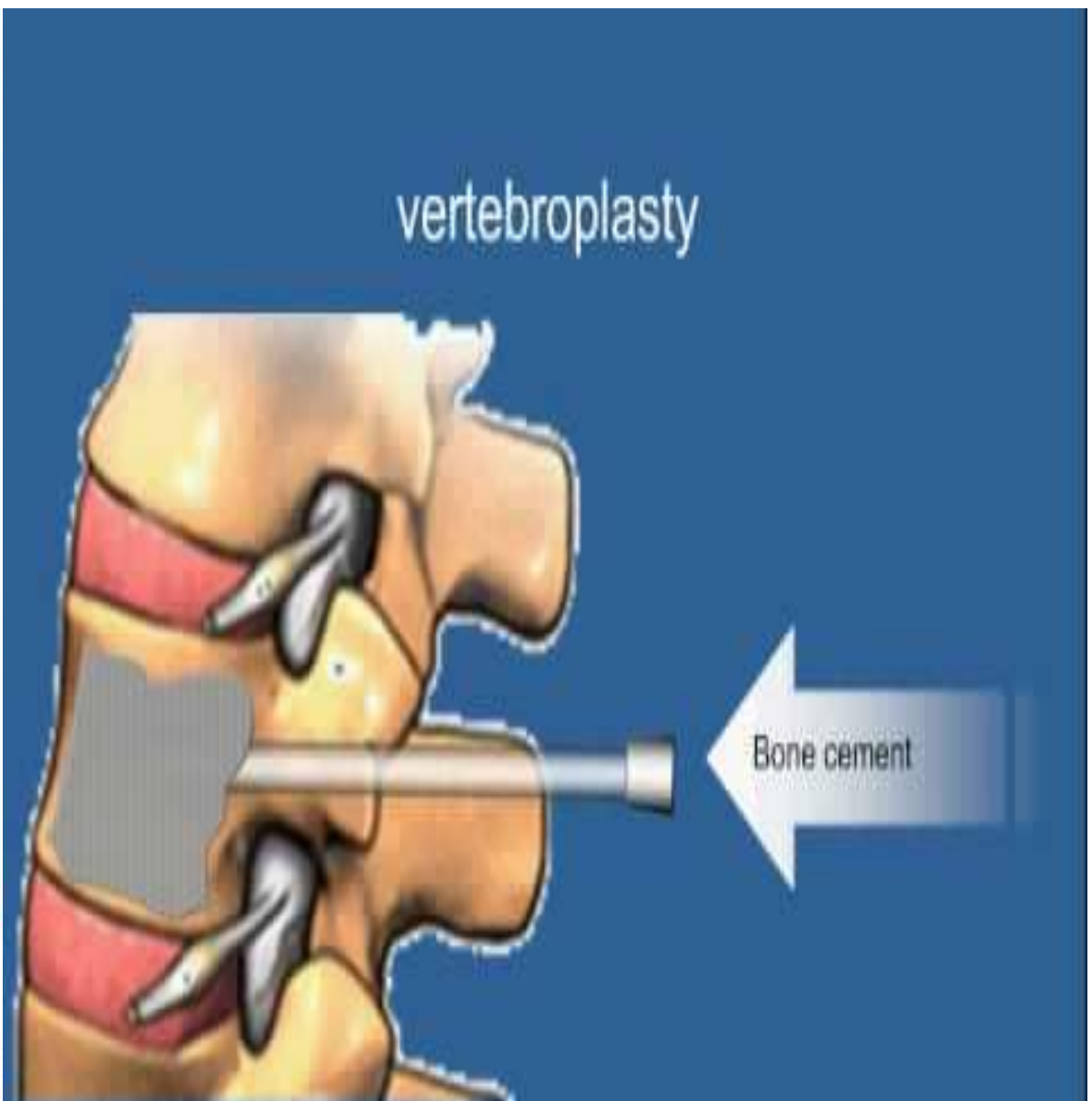
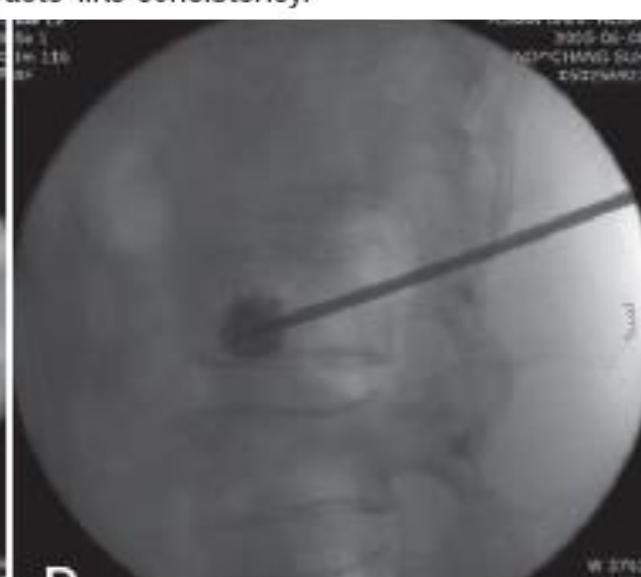




Figure 19–9

Mixing of bone cement and barium powder with solvent to form a mixture of toothpaste-like consistency.



Spinal Cord Stimulation



Spinal Stimulation Devices

Battery
charger

Transmitter

Leads

Pulse
generator

©MMG 2006

Implantation of Spinal Cord Stimulator and Pulse Generator



Cut-Away View of Implantation Site

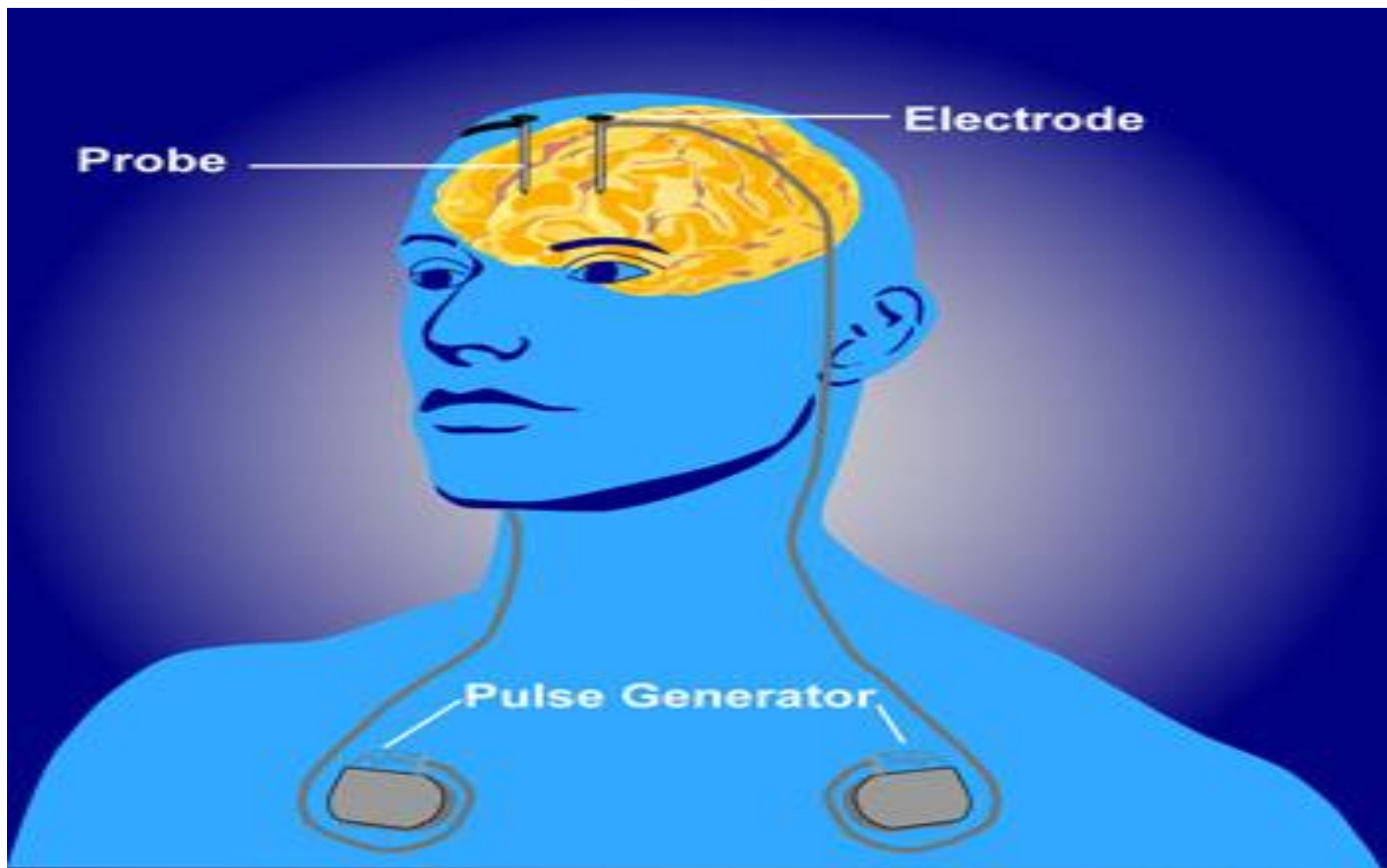


Posterior Thoracic Incision Site



Posterior Pulse Generator Incision Site







Thanks for your attention

