



Department of Anesthesia Techniques
Title of the lecture: - Regional Anesthesia
(spinal)



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Regional Anesthesia (spinal) (1)

(Practical Anesthesia)

3^{ed} stage

By:

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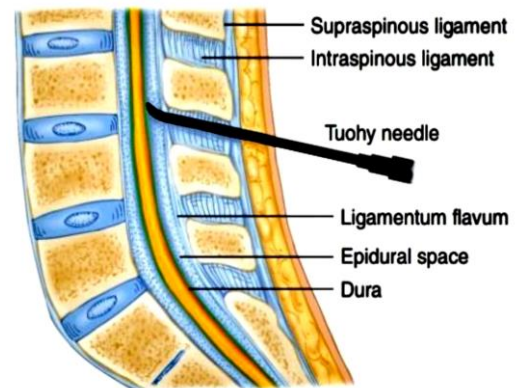
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Regional anesthesia

spinal anesthesia: - injection in subarachnoid space where CSF present to inhibit conduction in nerve roots.

Indications:

1. Lower abdominal.
2. Inguinal.
3. Urogenital.
4. Rectal surgery.
5. Lower extremity surgery.
6. Lumbar spinal surgery may also be performed under spinal anesthesia.

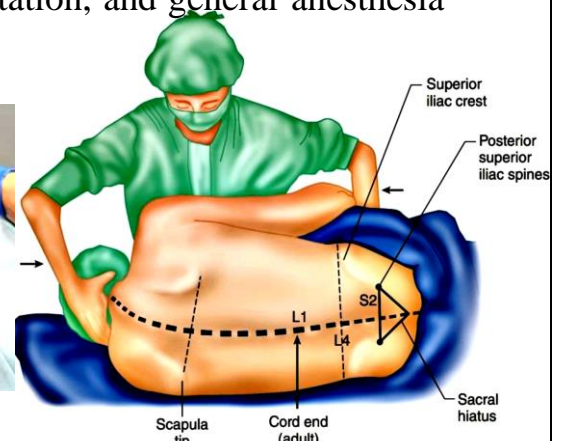
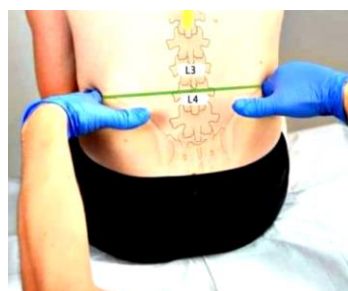


Contraindications:

1. Patients refusal and Uncooperative patient
 2. Bleeding diathesis.
 3. Severe hypovolemia.
 4. Elevated intracranial pressure (particularly with an intracranial mass).
 5. Infection at the site of injection.
 6. Severe aortic or mitral stenosis.
 7. Sepsis
 8. Prolong operation and major blood loss.
- Minimum monitoring requirements include BP and SpO₂ for labor analgesia.
 - Neuraxial blocks should be performed only in a facility in which all the equipment and drugs needed for intubation, resuscitation, and general anesthesia are immediately available.

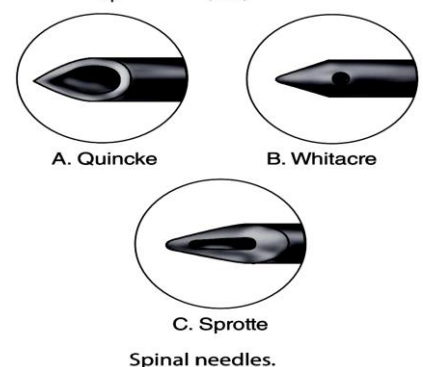
Patient Positioning:

- A. Sitting Position
- B. Lateral Decubitus
- C. Buies (Jackknife) Position



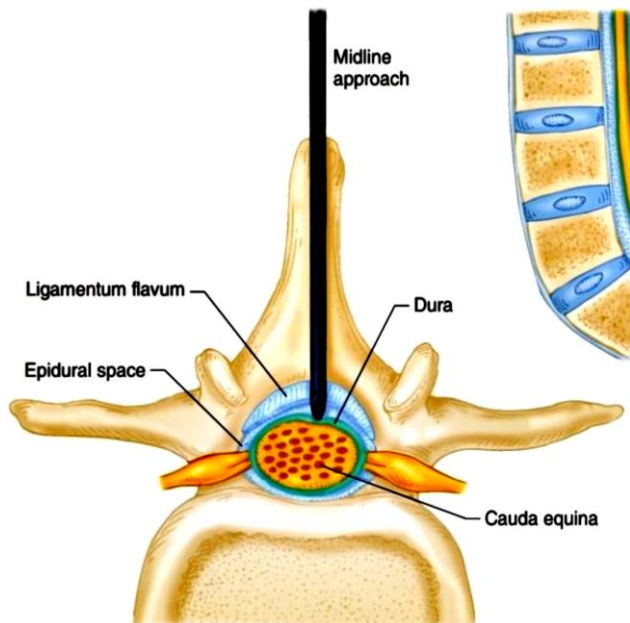
Spinal Needles:

1. Sharp (cutting) (Quincke)
2. Tipped or blunt-tipped needles (Whitacre)
3. Pencil-point needles (Sprotte)



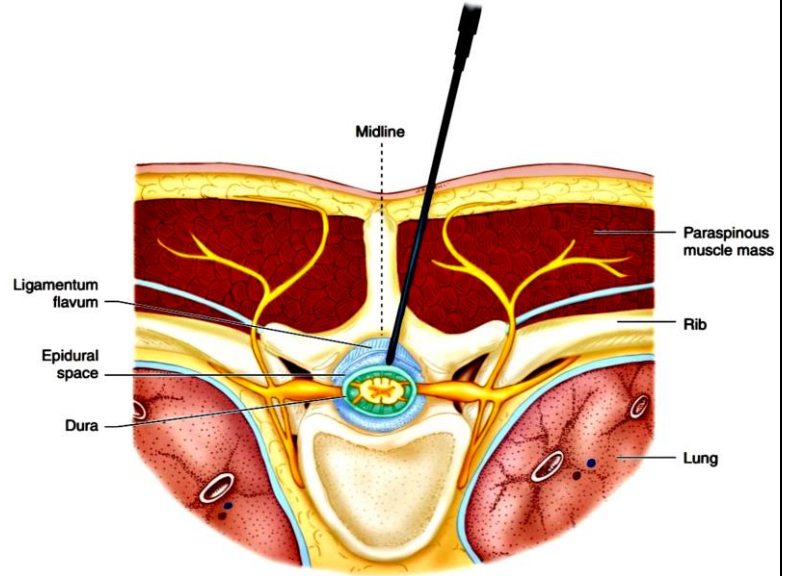
spinal anesthesia injection: -

1. Midline, approaches



Lumbar epidural anesthesia; midline approach.

2. Para-median, approaches



Paramedian approach.

Technique:

2. The patient positioned either lateral decubitus, sitting, or prone positions.
3. Sterilize the area of injection.
4. Identified the site of injection.
5. The needle is advanced from skin through the deeper structures until two “pops” are felt. The first is penetration of the ligamentum flavum, and the second is penetration of the dura–arachnoid membrane.
6. Inject the local anesthetic solution.

Spinal Anesthetic Agents

- ▶ Hyperbaric bupivacaine and tetracaine are two of the most commonly used agents for spinal anesthesia.
- ▶ Both Bupivacaine and tetracaine are relatively slow in onset (5–10 min) and have a prolonged duration (90–120 min).

Hypotension caused by spinal anesthesia

1. Primary Treatment: - Increase the cardiac preload, Large IV fluid bolus within 30 minutes prior to spinal placement, minimum 1 liter of crystalloids
2. Secondary Treatment: - Pharmacologic, Ephedrine is more effective than Phenylephrine

Baricity: - is a density of local anesthetic agent's relative to CSF (Baricity).

(CSF has a specific gravity of 1.003–1.008)

Agent	Specific Gravity
Bupivacaine 0.5% in 8.25% dextrose 0.5% plain	1.0227–1.0278 0.9990–1.0058
Lidocaine 2% plain 5% in 7.5% dextrose	1.0004–1.0066 1.0262–1.0333
Tetracaine 0.5% in water 0.5% in D ₅ W	0.9977–0.9997 1.0133–1.0203

▶ A hyperbaric solution of local anesthetic is denser (heavier) than CSF, whereas a hypobaric solution is less dense (lighter) than CSF.

▶ A hyperbaric solution of local anesthetic migrate caudally when inject to CSF whereas A hypobaric solution of local anesthetic migrate cephaled when inject to CSF. An isobaric solution tends to remain at the level of injection

(The local anesthetic solutions called hyperbaric by the addition of glucose)

(hypobaric by the addition of sterile water or fentanyl)

(Anesthetic agents are mixed with CSF (at least 1:1) to make it isobaric)

Hypotension caused by spinal anesthesia

Best way to treat is physiologic not pharmacologic

3. Primary Treatment: - Increase the cardiac preload, Large IV fluid bolus within 30 minutes prior to spinal placement, minimum 1 liter of crystalloids
4. Secondary Treatment: - Pharmacologic, Ephedrine is more effective than Phenylephrine

