

# Pain

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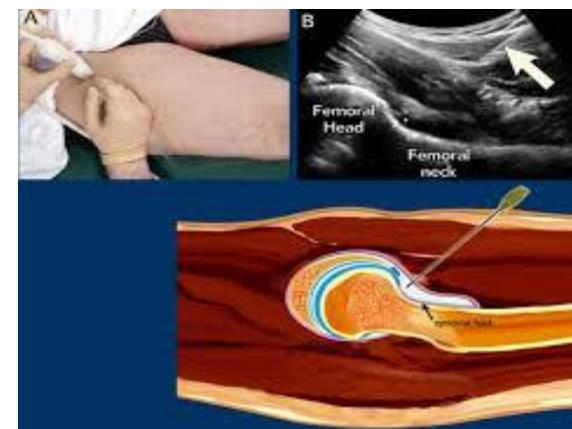
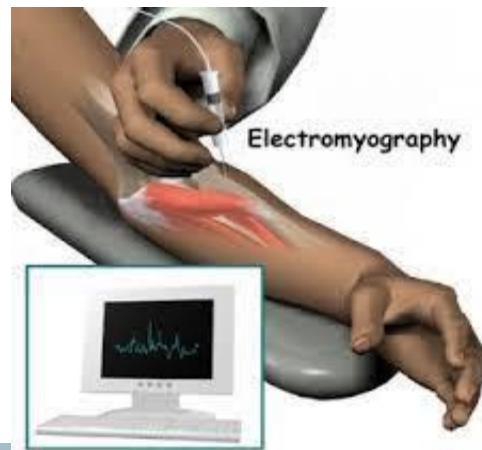
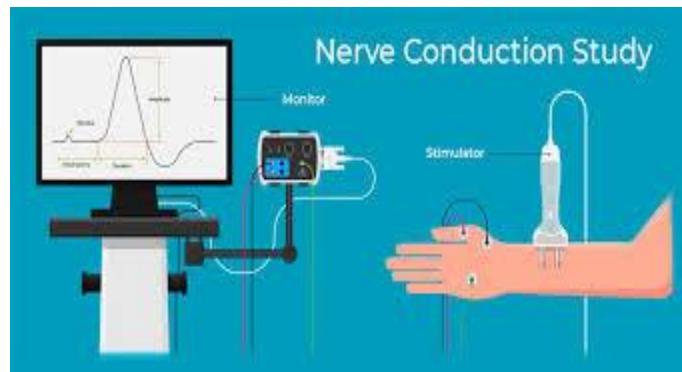
# 1. Pain clinic instruments

## A: Diagnostic instruments:

- NCS& EMG; to evaluate nerve& muscle function.
- US; to guide injection& identifies soft tissues abnormalities.
- Fluoroscopy (C- arm-X-ray); real- time imaging to guide spinal injection.
- CT&MRI; ordered externally . Used for diagnosis

# Pain clinic instruments( continue)

- Pain scales& questionnaire; subjective tools for pain assessment( 0-10)



## B. Interventional instruments

Used in procedures to block or modulate pain

- Spinal needles; for epidural , facet joint or nerve block.
- Radiofrequency ablation machine; uses heat to destroy nerve fibers transmitting pain.
- Cryoablation units: frizz nerve to stop pain signals.
- Intrathecal pump; deliver medication directly to spinal cord

# Interventional instrument( continue)

- Nerve stimulator( TENS units, SCS); electrically stimulate nerve to block pain signals.
- US or fluoroscopy guidance system.; ensure accurate needle placement.

## c. Medication delivery instruments

Used to administer drugs safely& effectively

- Syringes& needles; for local anesthesia, steroid,& botulinum toxin
- Infusion pumps; for continuous pain medication delivery e g; for cancer pain
- Epidural catheter system; long-term medication delivery near the spinal cord.



## D. Rehabilitation& maintaining device

Support long- term pain management.

- Transcutaneous electrical nerve stimulation(TENS)units; for at home pain control
- Biofeedback devices: help patients control physiological function to reduce pain
- Laser therapy devices; low- level lasers for musculoskeletal pain



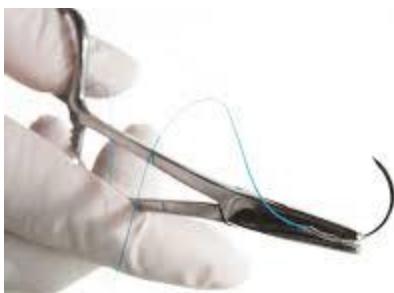
## E. Surgical instruments

- Endoscopy; used in endoscopic discectomy.
- Cannulas& trocar; for inserting devices into joints or spinal cord.
- Micro-discotomy tools; used in outpatients spinal surgeries.

### 3. Minor procedure instruments

- Scalpel: for minor incision.
- Scissors(straight& curved): for cutting& dressing.
- Sterile gloves: to maintain asepsis.
- Sutures material: for wound closure.
- Disinfectant& antiseptic solutions: for cleaning skin& instruments.

# Minor procedure instruments





# Anesthesia for pain procedures

1. Goal of anesthesia in pain procedures;
  - Provide comfort & immobility during the procedures.
  - Allow patient feedback when needed.
  - Minimize risk & recovery time.
  - Avoid excessive sedation that may mask pain response during testing.

## 2. Type of anesthesia used

### A. Local anesthesia:

- Most common for minor or diagnostic pain procedures.
- Involves infiltration or topical application of agents, such as; ( Lidocaine, Bapivacaine, Ropivacaine). They are used in :
  1. Trigger pint injection.
  2. Peripheral nerve block

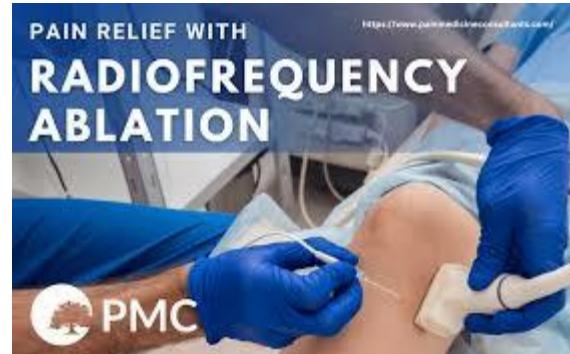
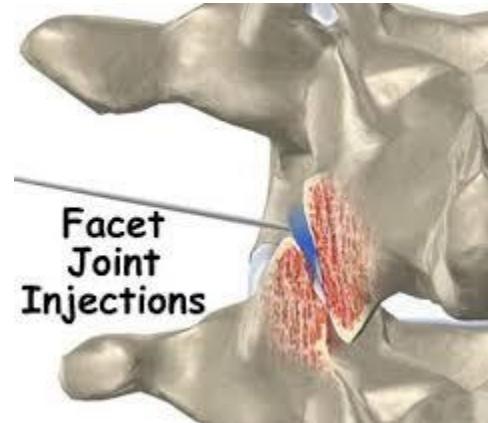
# Local anesthesia ( continue)

3. Epidural steroid injection.
4. Facet joint injection.
5. Radiofrequency ablation( with mild sedation)

Advantage; minimal systemic effect, the patient remain awake.

Disadvantage; discomfort with needle insertion, limited duration.

# Local anesthesia



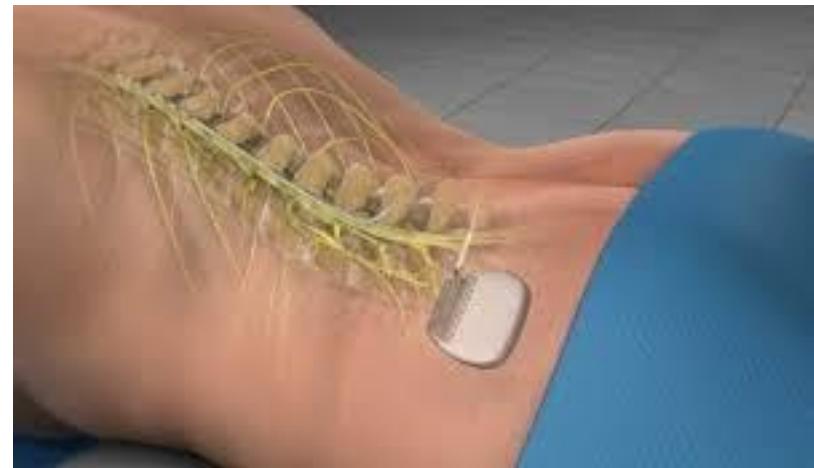
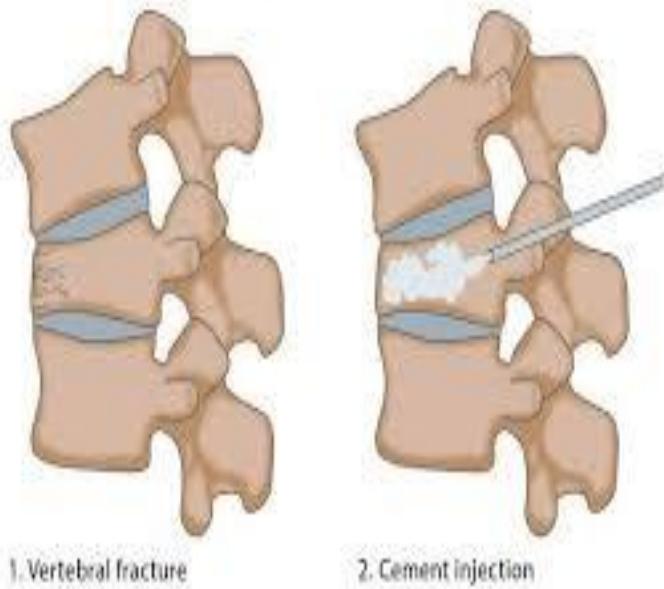
## B. Sedation( conscious or moderate sedation)

- Often combined with local anesthesia, for more painful procedures.
- Agents: midazolam, fentanyl, propofol( low dose).
- Used in; radiofrequency ablation, vertebroplasty- kyphoplasty , subcutenious stimulator trials& intrathecal pump placement

# Goal:

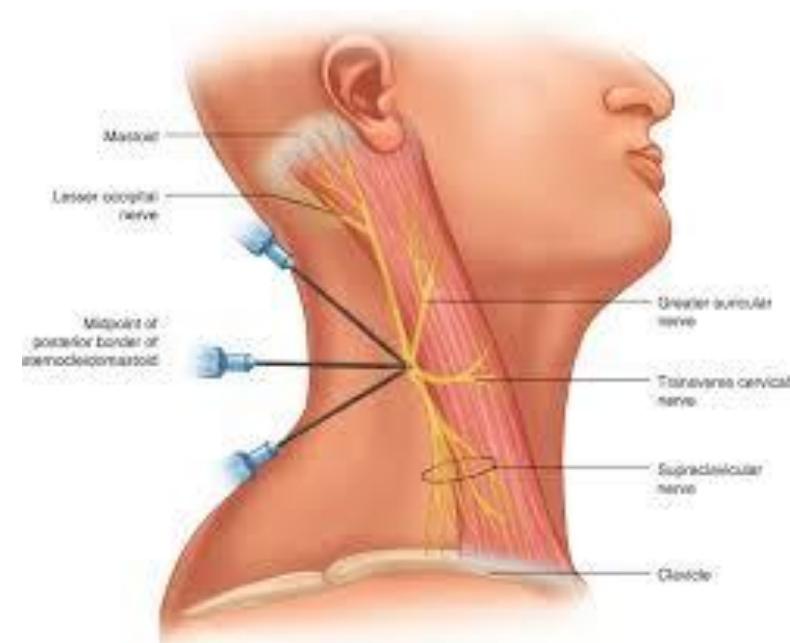
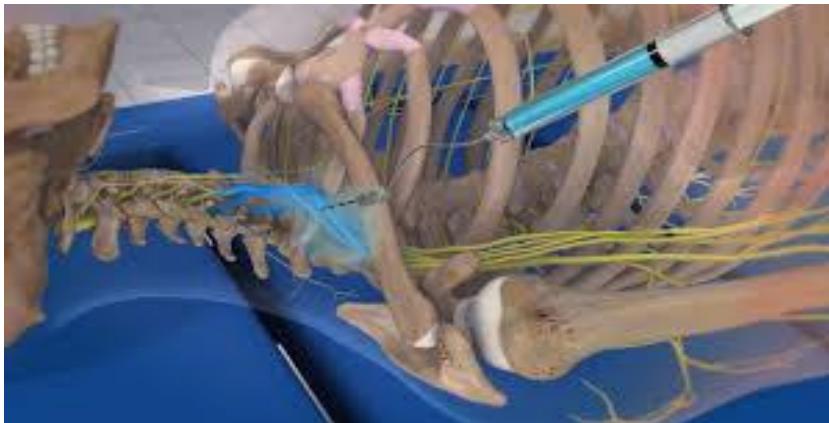
- Comfort without loss of protective reflexes, or ability to communicate.

Percutaneous vertebroplasty



## C. Regional anesthesia

- Used for specific nerve block, or plexus procedure when large areas need analgesia.
- Agent used; long acting local anesthesia( Bupivacaine)



## D. General anesthesia

- Indication:
- Complete surgical pain procedures e.g., spinal cord stimulator implantation
- Uncooperative or anxious patients.
- Pediatric & cognitively impaired patients.
- Disadvantage; mask pain feedback, & less suitable for diagnostic procedures.

- THANK YOU