CLINICAL MEET

INTERVENTIONAL TECHNIQUES
IN
PAIN MANAGEMENT

DEPT OF ANAESTHESIA

Dr.D.Y.PATIL MEDICAL COLLEGE AND RESEARCH CENTRE,PIMPRI,PUNE

PAIN CONDITIONS TREATED

DPU

Dr. D. Y. Patil Hospital & Research Centre

Sant Tukaram Nagar, Pimpri, Pune - 18

Department of Anesthesia

Pain Clinic

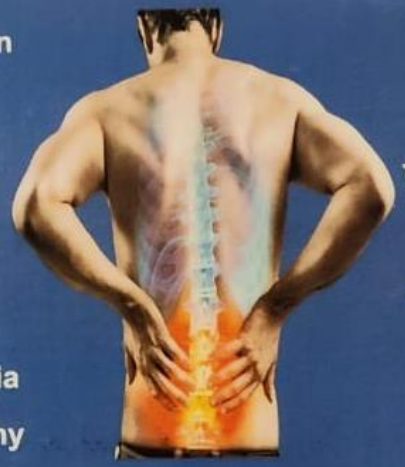
We Treat Pain Without Surgery !

बिना ऑपरेशन वेदनेपासून मुक्तता !

वेदना... एक अनुभव नको नकोसा !

वेदनामुक्ती... एक अनुभव हवा हवासा !!

Low Back Pain	पाठदुखी, सायटीका
Sciatica, Neck Pain	मानदुखी, डोकेदुखी
Headache	चेहऱ्याच्या वेदना
Shoulder Pain	ट्रायजिमिनल न्युराल्जीया
Knee Pain	कॅन्सरच्या वेदना
Facial Pain	मधुमेही रुग्णांच्या वेदना
Cancer Pain	नागीण
Herpetic Neauralgia	स्नायूंची वेदना
Diabetic Neuropathy	संपूर्ण शरीरातील वेदना
Trigeminal Neuralgia	



DPU

डॉ. डी. वाय. पाटील वैद्यकिय महाविद्यालय,
रुग्णालय व संशोधन केंद्र, पिंपरी, पुणे.

वेदना निवारण केंद्र

ह्या वेदना सहन करु नका

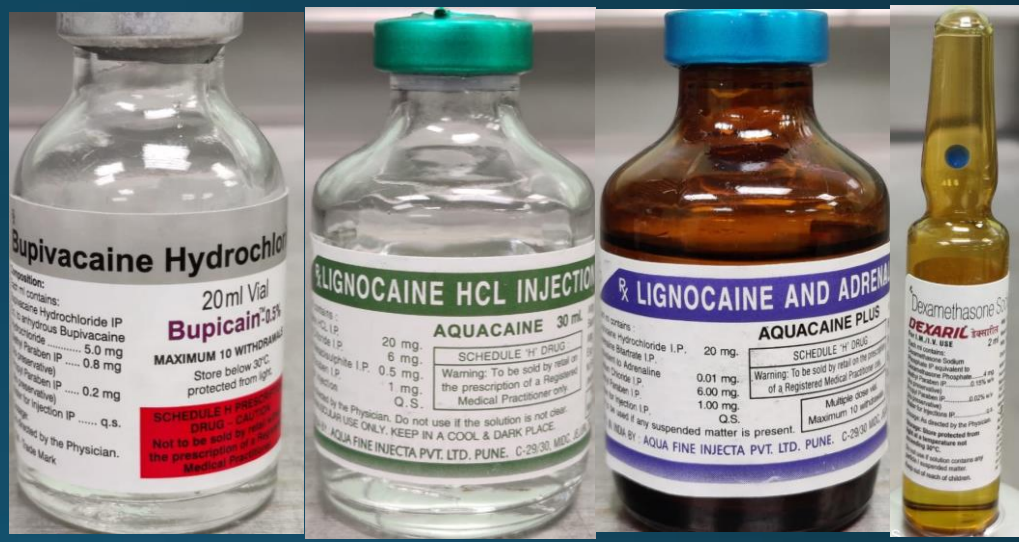
डोकेदुखी, मायग्रेन,
स्नायूंमुळे होणारी डोकेदुखी,
ट्रायजिमीनल न्यूराल्जिया,
मानदुखी,
स्पॉन्डिलोसिस,
खांदे दुखी,
पोट दुखी, पॅन्क्रीयाटायटीस
हातापायातील वेदना,
जुने फ्रॅक्चर,
जखम झालेल्या
ठिकाणी होणाऱ्या वेदना,
पाठ व कंबर दुखी,
स्लिप डिस्क,
सायटिका,
गुडघे दुखी, संधिवात,
नागीण, डायबेटिक न्यूरोपॅथी
कॅन्सरमुळे होणाऱ्या वेदना
फायब्रोमायाल्जिया,
गँग्रीन, फॅन्टम पेन, टाच दुखी
अधिक काळ राहिलेल्या
कोणत्याही वेदना

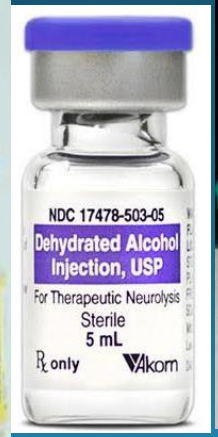
INTERVENTIONAL PAIN MANAGEMENT PROCEDURES PERFORMED IN OUR CLINIC

- Trigger point blocks
- ROOT blocks
- Plexus block-brachial plexus,lumbar plexus
- Peripheral nerve blocks
- Sympathetic blocks
- Joint block:facet joint,sacroiliac joint,knee ,hip joint
- Local anaesthetic steroids
- Neurolytics
- Radiofrequency lesioning,etc

DRUGS &TECHNIQUES USED

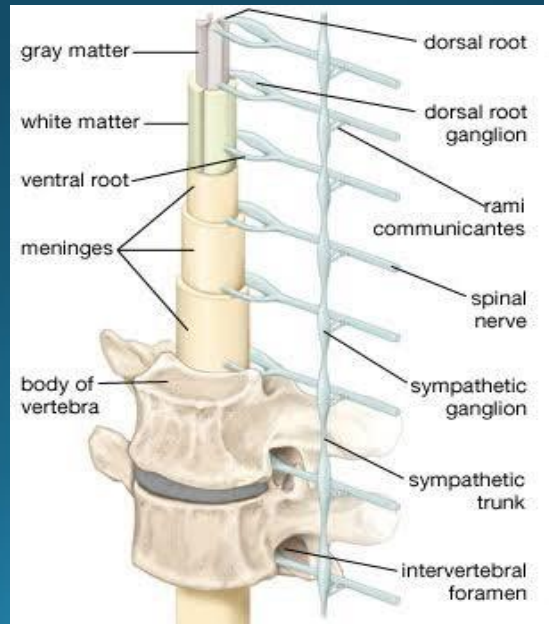
- Local anaesthetics
- Steroids
- Neurolytics –phenol,alcohol
- Radiofrequency lesioning

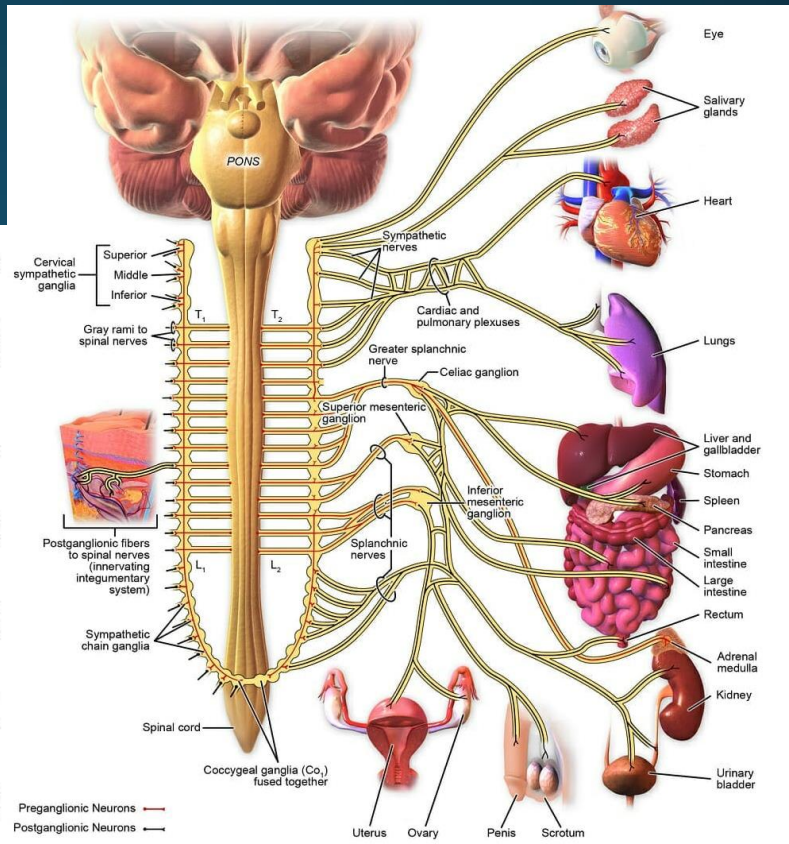




SYMPATHETIC BLOCKS

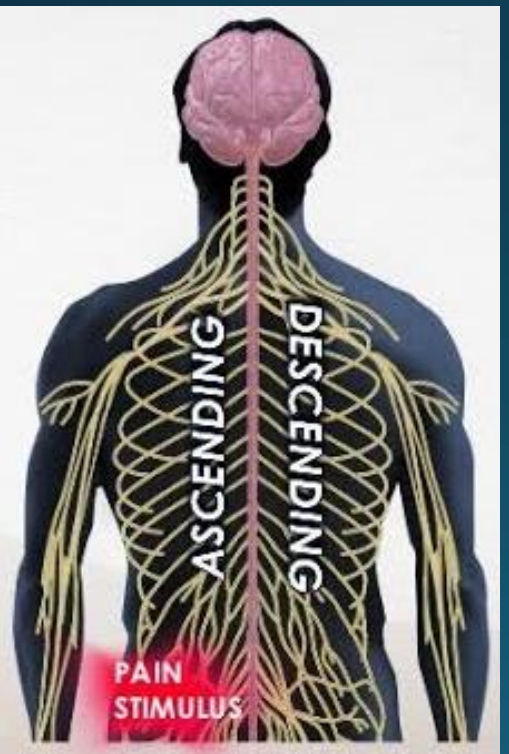
- Sympathetic system,implicated in numerous pain syndromes like neuropathic,vascular ,visceral pain, headaches and musculoskeletal pain
- L.A is used to diagnose and treat sympathetically mediated pain
- Chemical or thermal neurolysis : provide prolonged analgesia

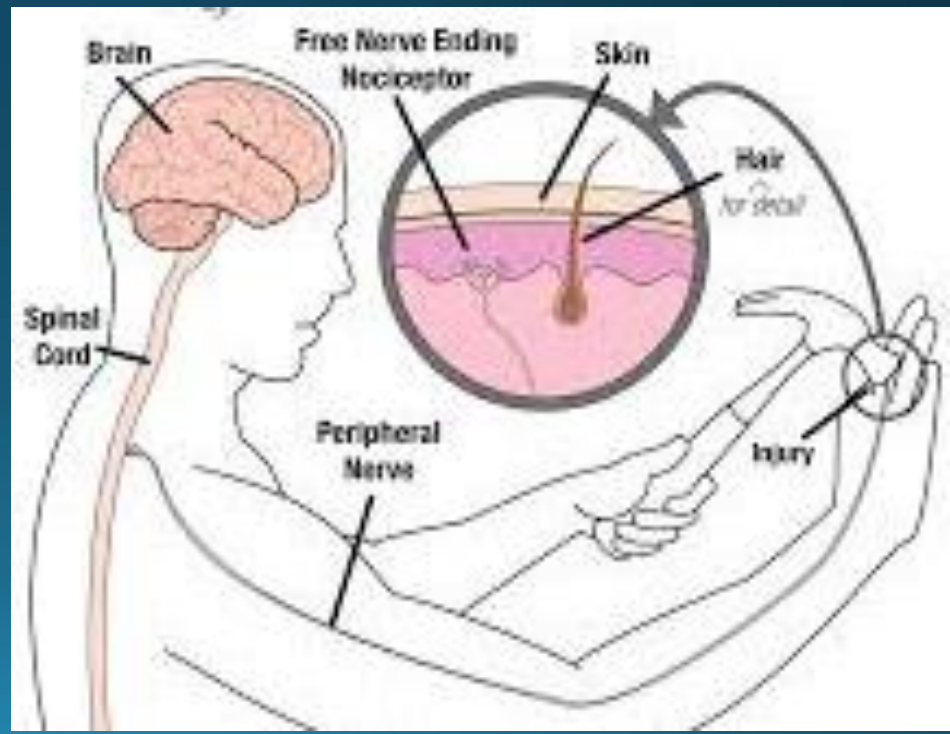




MECHANISM OF PAIN RELIEF

- Interrupts nociceptive signals from viscera to brain
- Ischemic pain-relief due vasodialation in vasospastic and vasoocclusive conditions

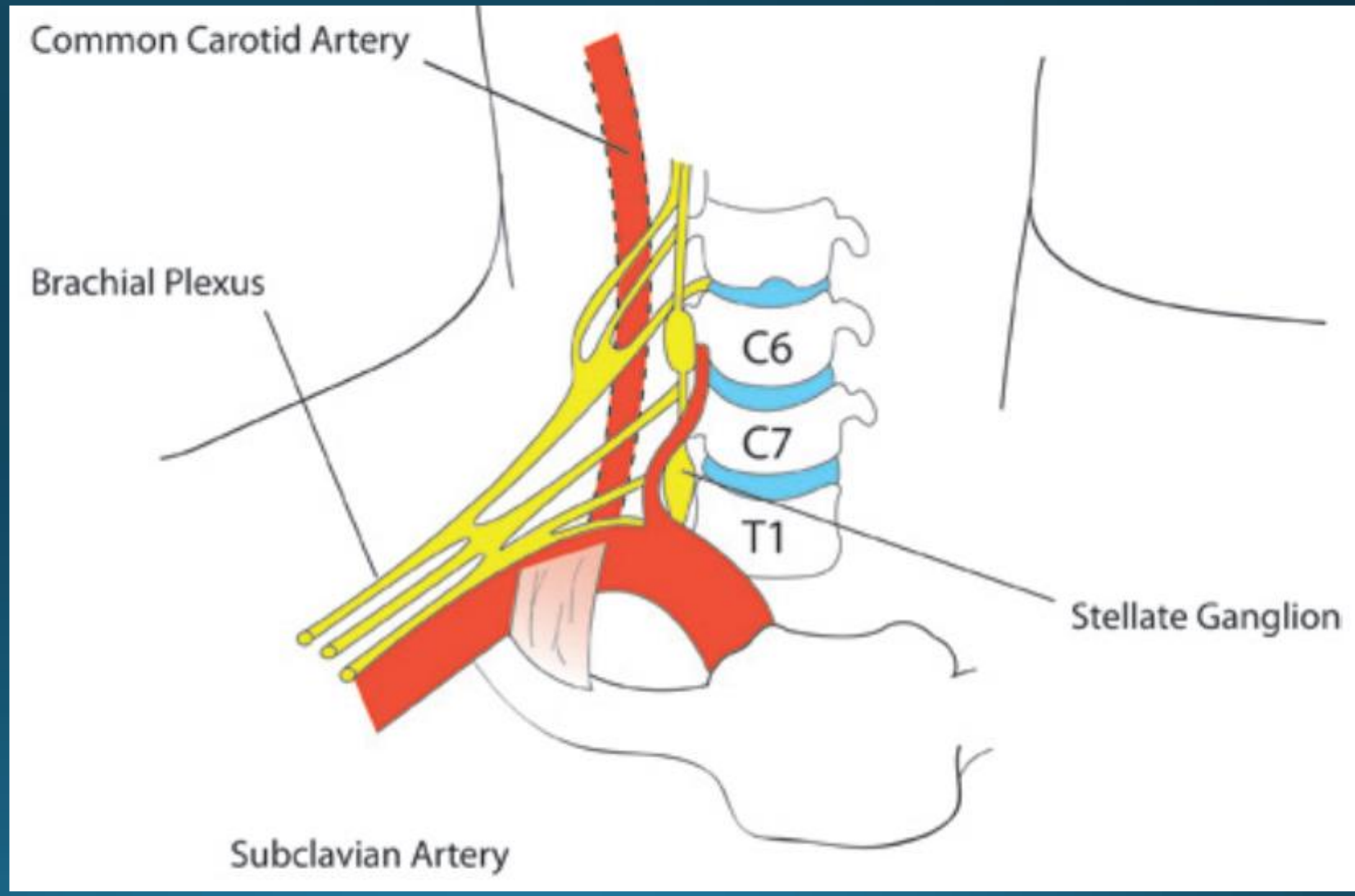




STELLATE GANGLION BLOCK

ANATOMY

- Stellate ganglion provides sympathetic supply to upper extremity and half of the face
- Situated on either side of the root of the neck at the level of c6,c7 cervical vertebrae



Stellate Ganglion Block Indications

Chronic Pain conditions

- CRPS 1 and 2(Complex Regional Pain Syndrome)
- Herpes zoster affecting the face and neck
- Refractory chest pain or Angina
- Phantom limb pain

Vascular Disorders of upper limb

- Raynaud's phenomenon
- Obliterative vascular disease
- Vasospasm
- Scleroderma
- Trauma
- Embolic phenomenon
- Frost bites

- Accidental intraarterial injection of thiopentone or other sclerosciing agent

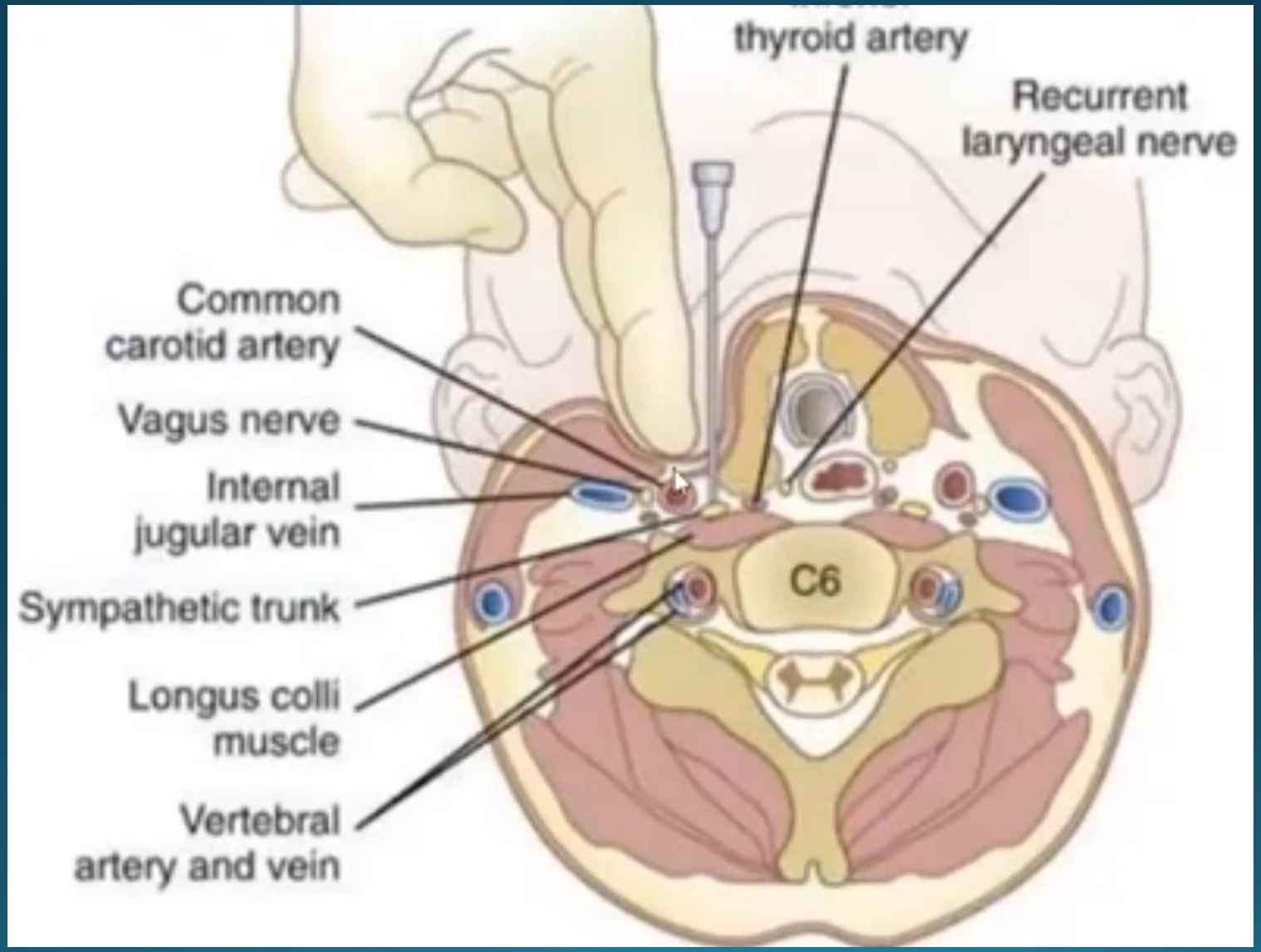
STELLATE GANGLION BLOCK CONTRAINDICATIONS

- Anti-coagulated patients or those with coagulopathy
- Recent myocardial infarction
- Glaucoma
- Pre-existing contralateral phrenic nerve palsy (may precipitate respiratory distress)

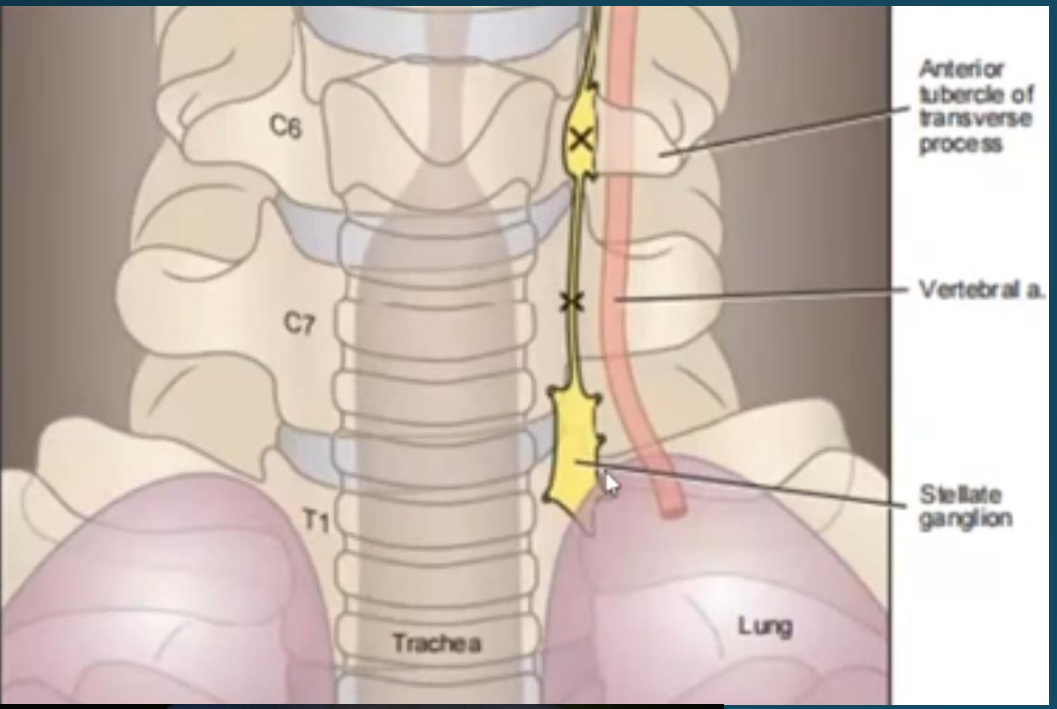
STELLATE GANGLION BLOCK TECHNIQUES

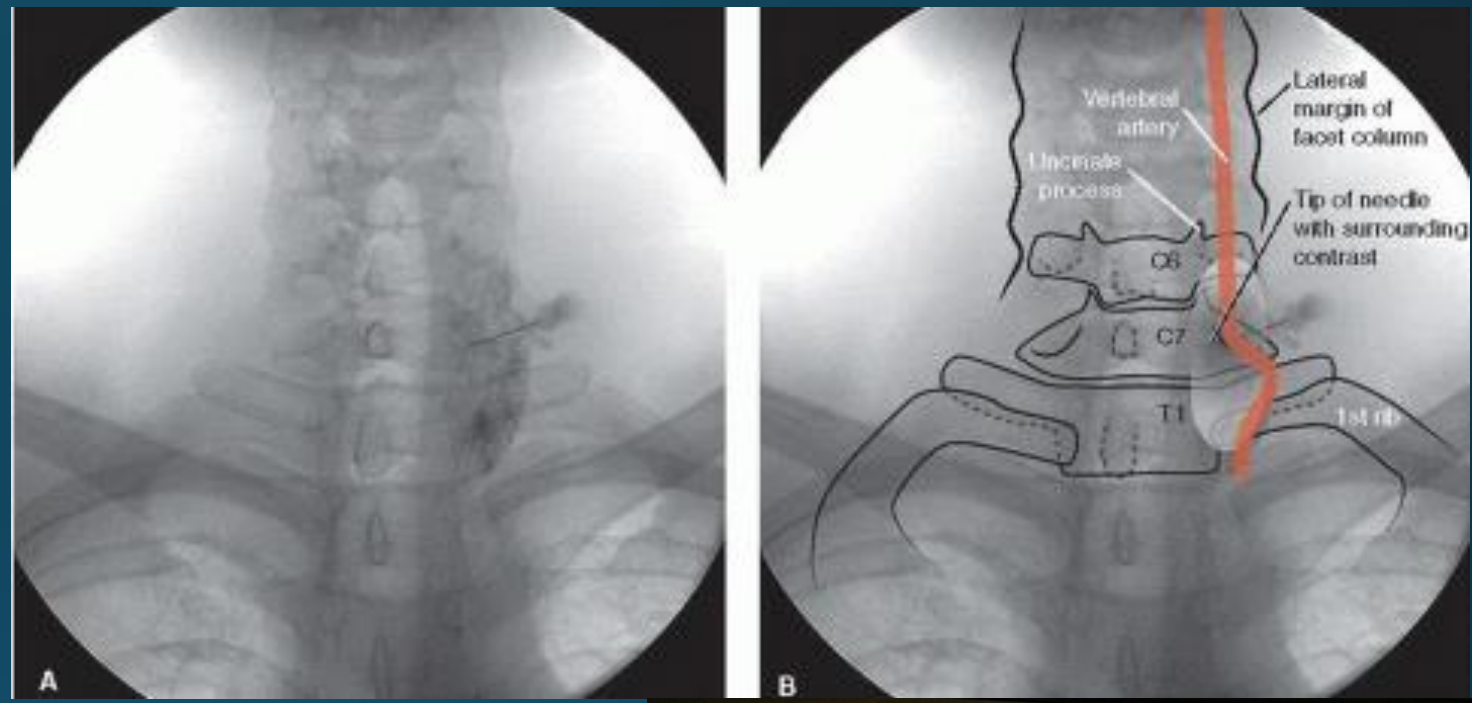
- Landmark guided
- C arm guided/fluoroscopic guided
- Ultrasound guided
- CT guided

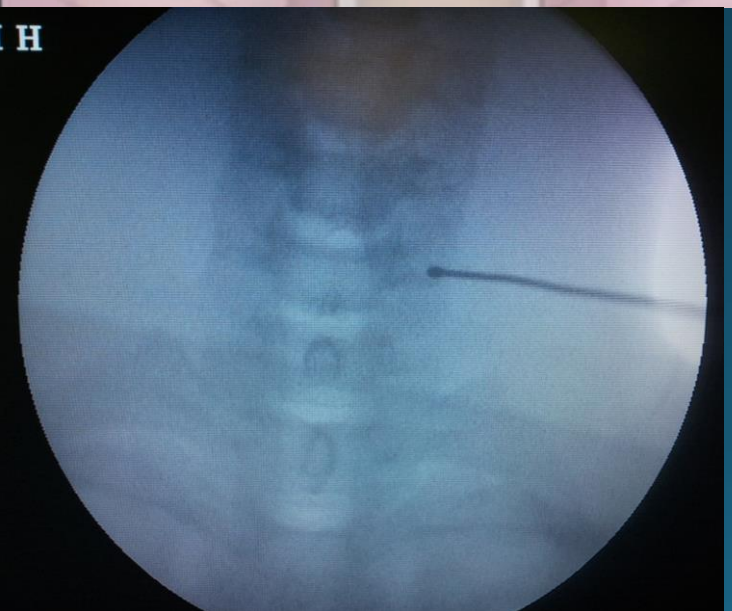
LANDMARK TECHNIQUE

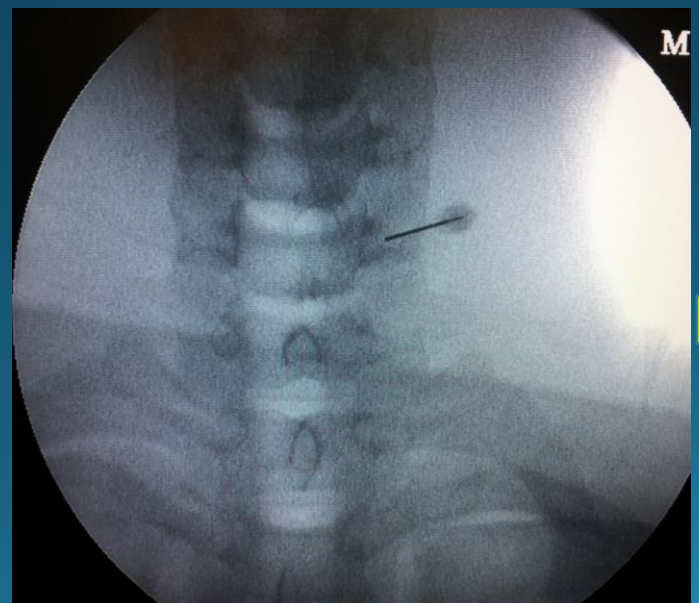


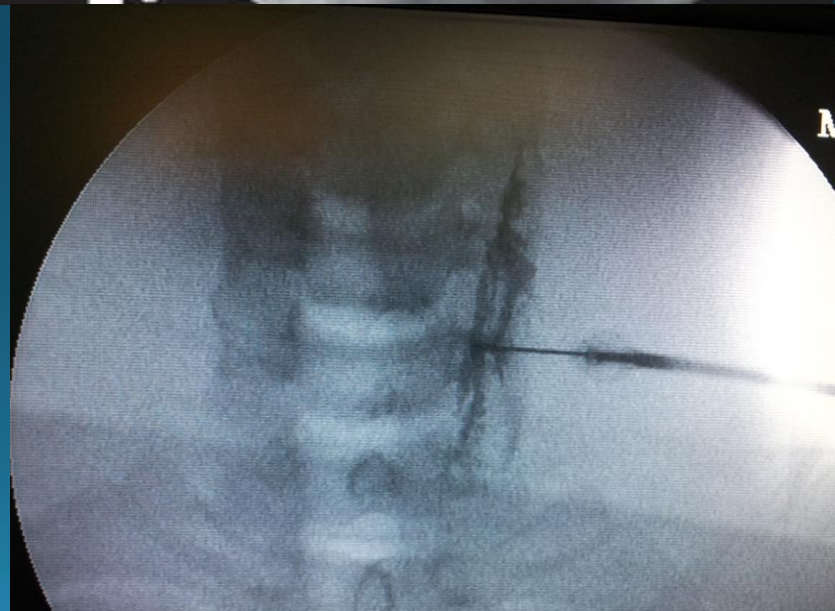
FLUOROSCOPY ASSISTED



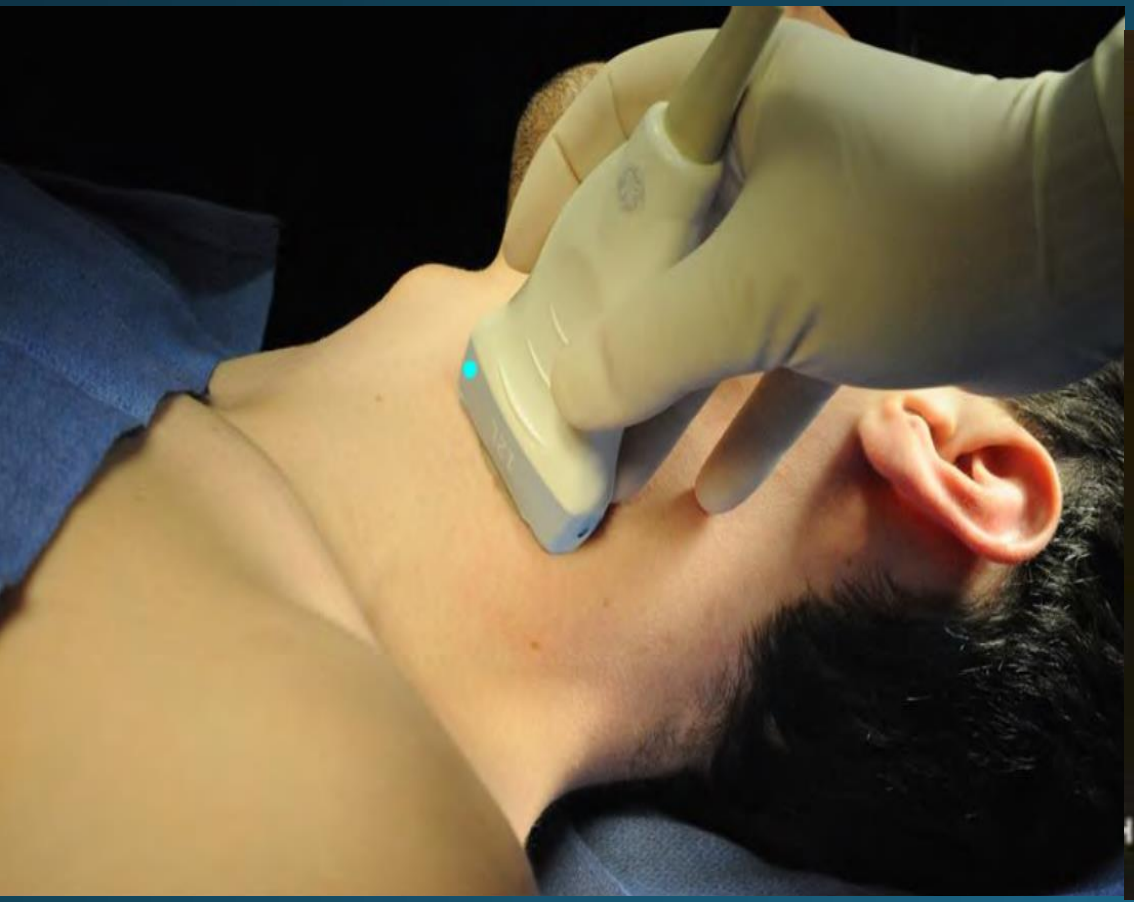


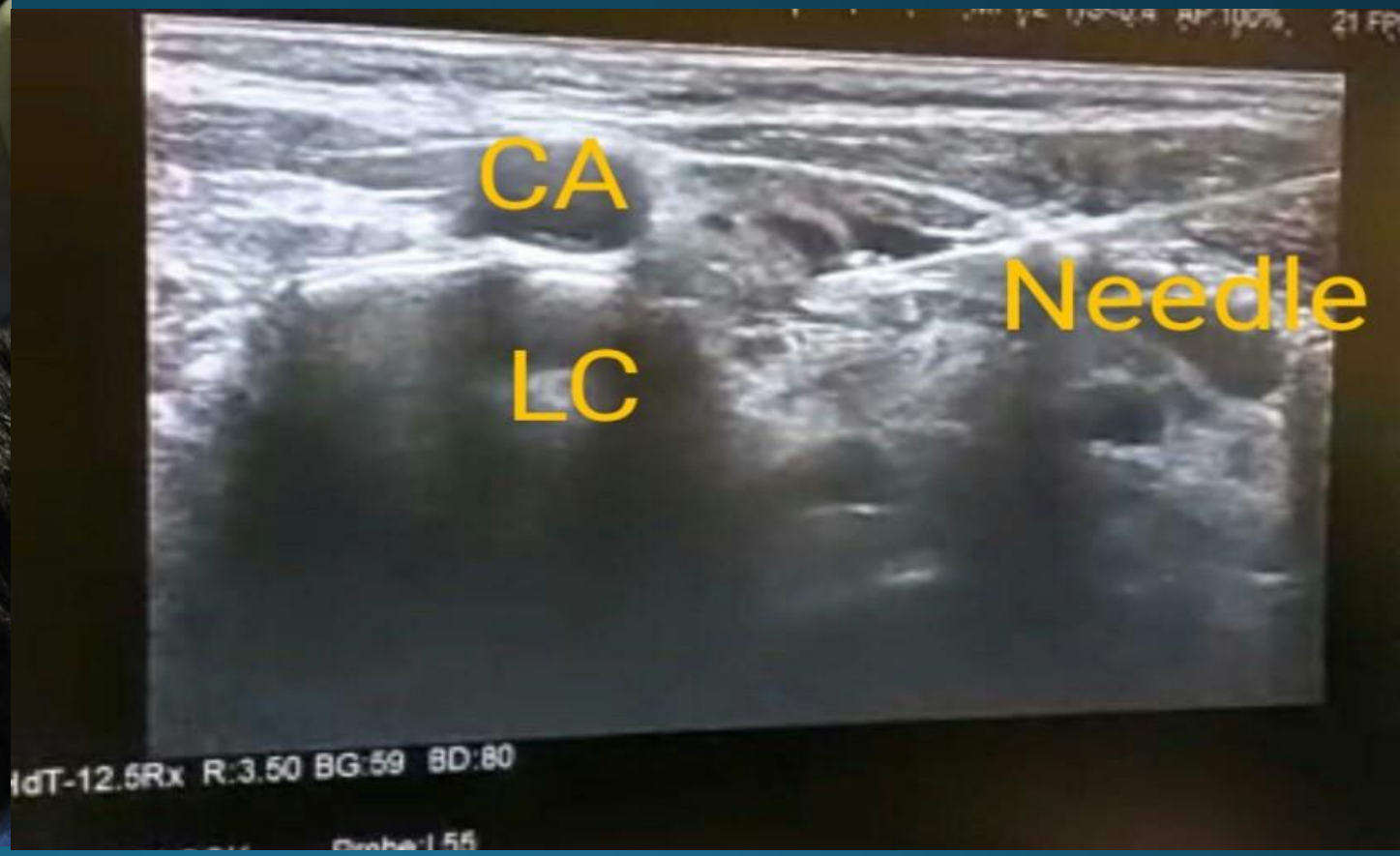






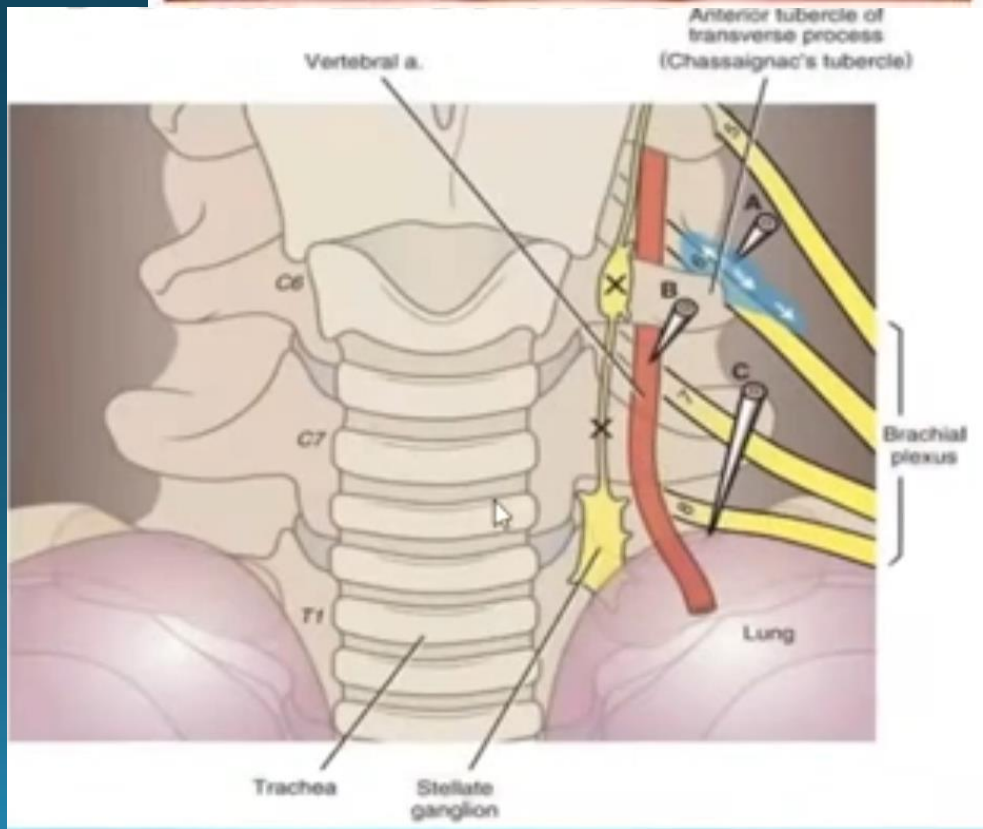
Stellate Ganglion Block
ULTRASOUND GUIDED



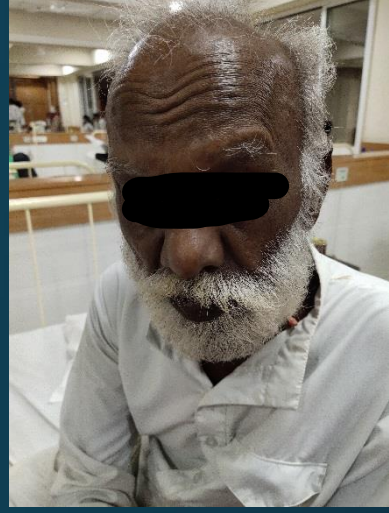


STELLATE GANGLION BLOCK POSSIBLE COMPLICATIONS

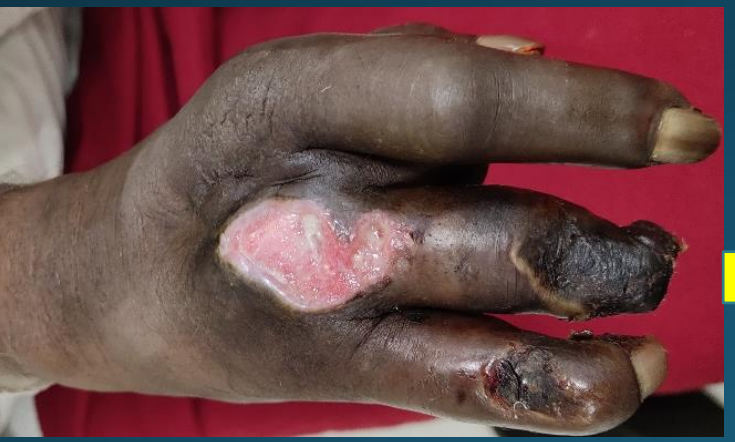
- Horner’s syndrome :Miosis,Partial ptosis,Anhidrosis:Confirmatory sign
- Injury to the surrounding vital structures like pleura , esophagus, carotid artery, nerves.
- Hematoma formation
- Hoarseness due recurrent laryngeal nerve injury
- Infection



CASE REPORT 1:PERIPHERAL VASCULAR DISEASE- HAND PAIN



- 75 yr, Male
- Known case of Peripheral Vascular Disease, Ex Smoker
- Persistent severe pain right hand and finger
- No relief with conventional analgesics



Drugs administered:

- 0.25% sensorcaine (1ml)
- Inj Dexamethasone 4mg
- Inj.Methylprednisolone 40mg

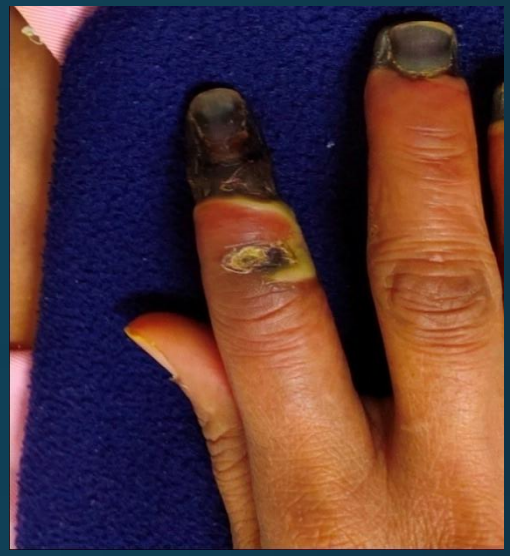
PRE BLOCK

POST BLOCK

CASE REPORT 2:
SYSTEMIC LUPUS ERYTHEMATOSUS (SLE) WITH VASCULITIS

- 35 yr, female
- C/o non healing wound and black spots on three fingers of right hand
- Persistent burning pain, no relief with conventional analgesics

Prior to block

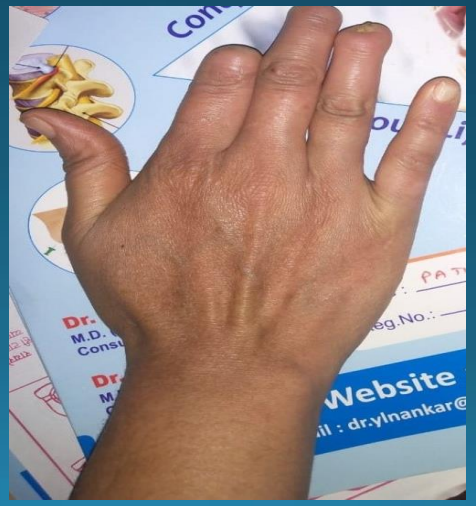


Drugs administered:

- 0.25% sensorcaine (1ml)
- Inj Dexamethasone 4mg
- Inj.Methylprednisolone 40mg

After 10 days

Dorsal view after 6 months of block

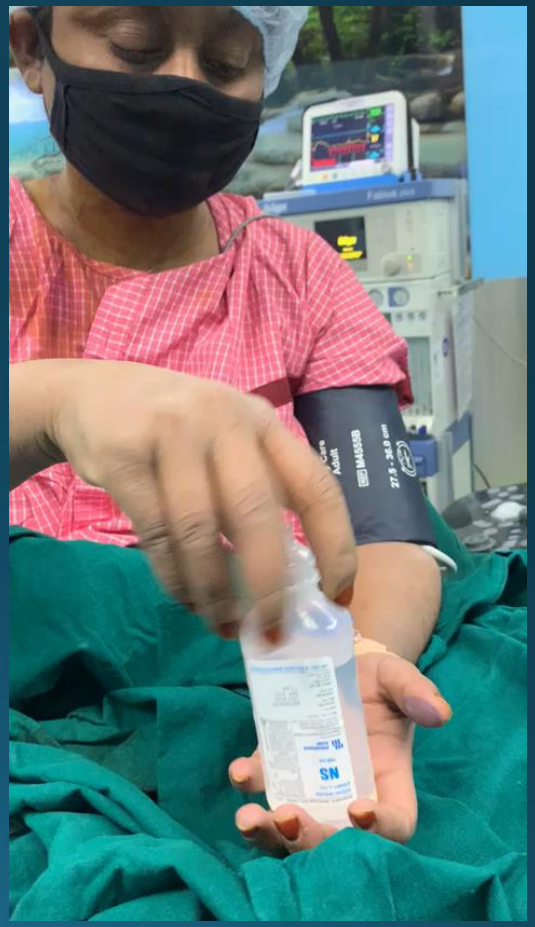


Palmar view after 6 months of block

CASE REPORT 3: RIGHT HAND CRPS

- 55 yrs,F
- Persistent pain on the right hand
- No relief with conventional analgesics
- Diagnosis:CRPS RIGHT HAND

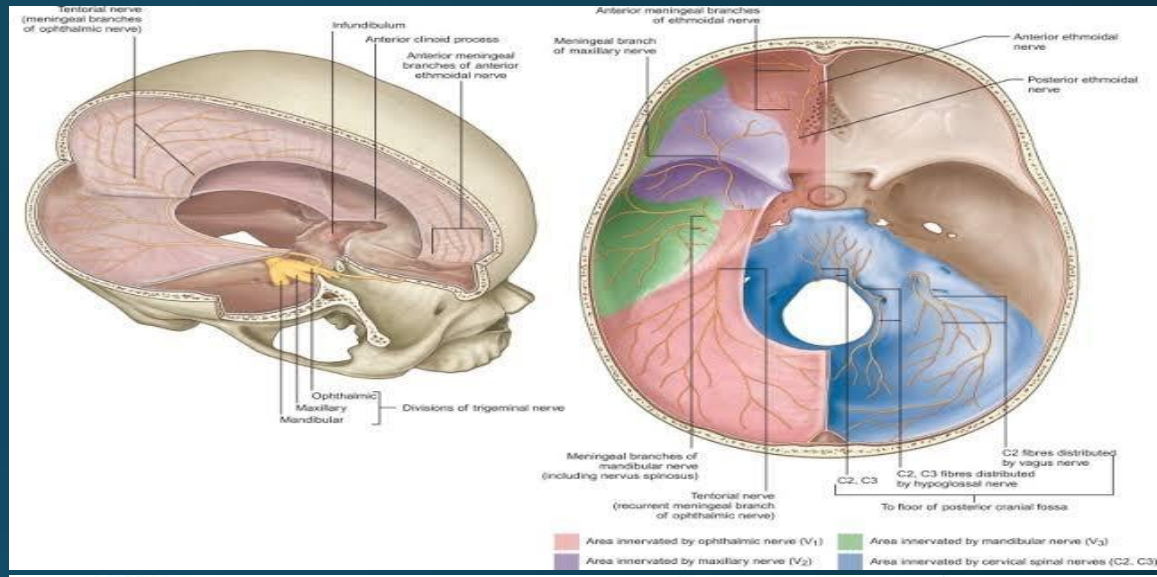
PATIENT IMPROVEMENT VIDEO

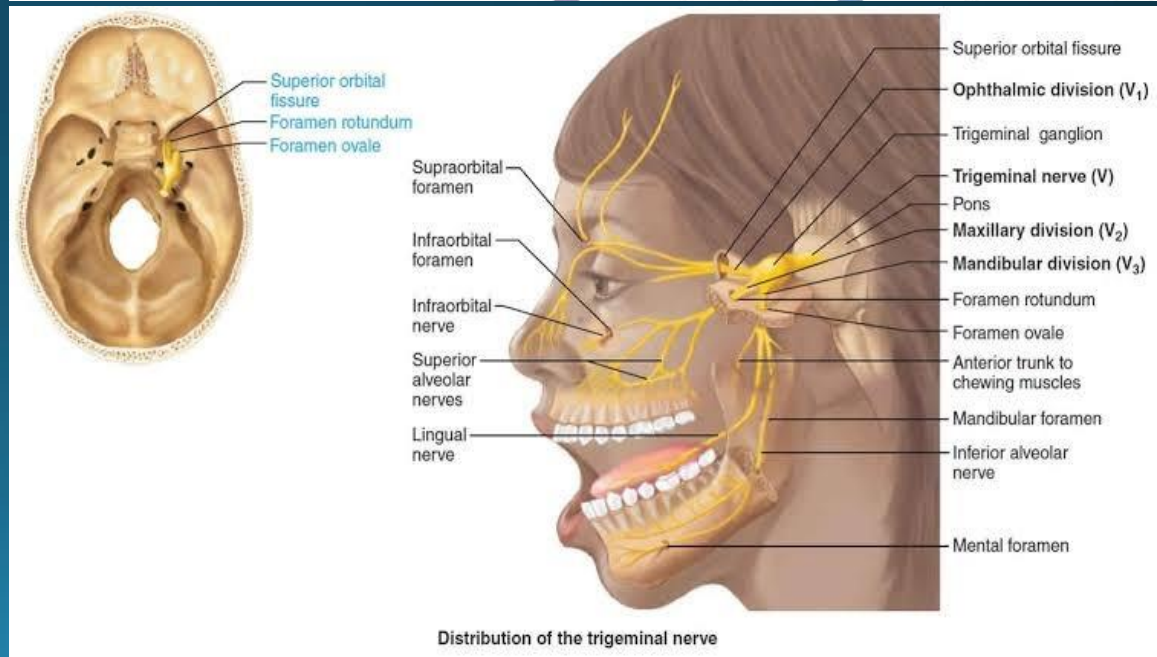


TRIGEMINAL/GASSERIAN GANGLION BLOCK

TRIGEMINAL NERVE :ANATOMY

- Largest and one of the most complex cranial nerves
- 3 divisions:
  - ➡ Ophthalmic,Maxillary,Mandibular
- Course :leaves anterior aspect of pons as a small motor root and large sensory root
- Exits:
  - ➡ Maxillary Nerve:foramen Rotandum,
  - ➡ Ophthalmic:superior Orbital Fissure,
  - ➡ Mandibular Nerve:foramen Ovale

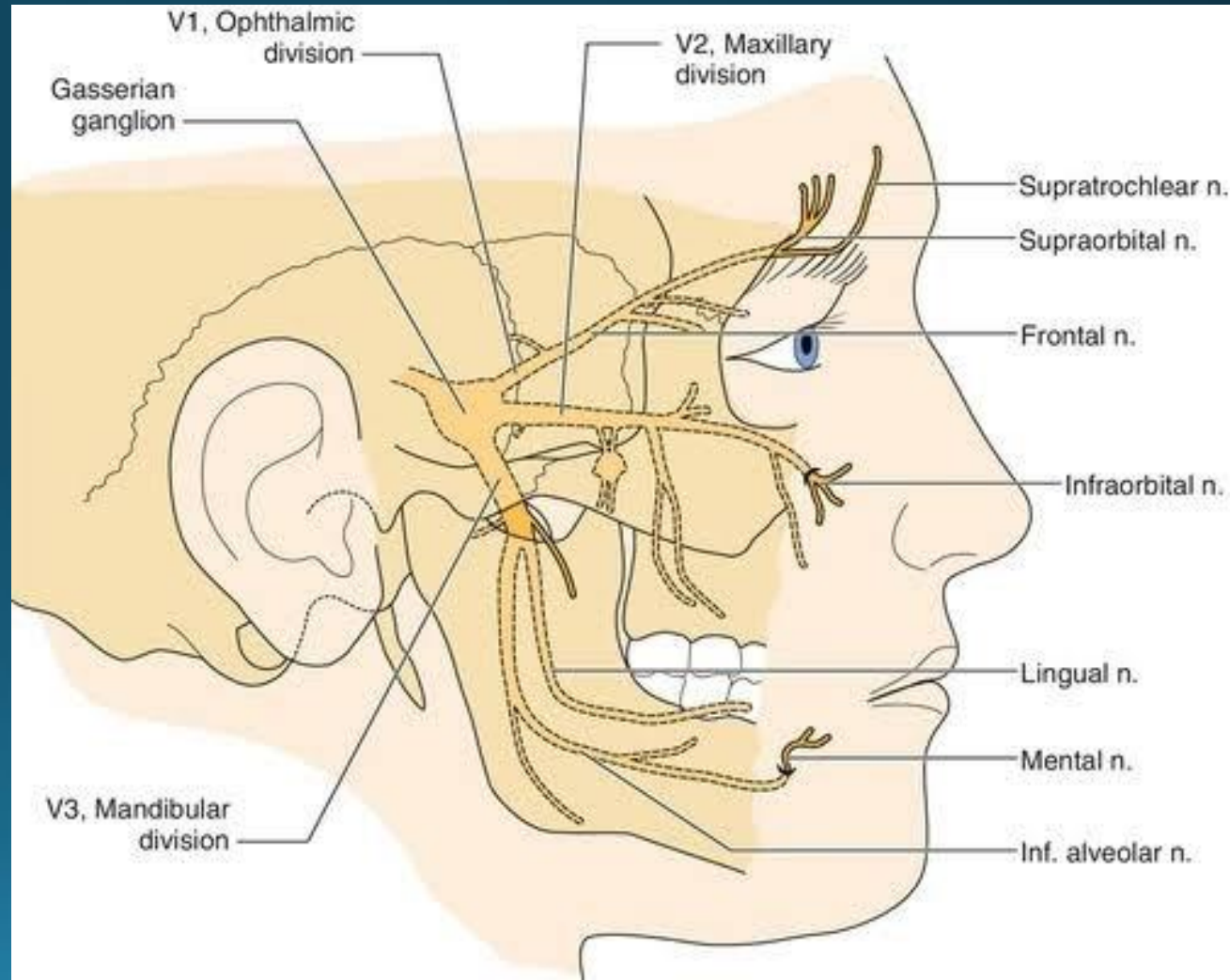




Distribution of the trigeminal nerve

TRIGEMINAL/GASSERIAN GANGLION

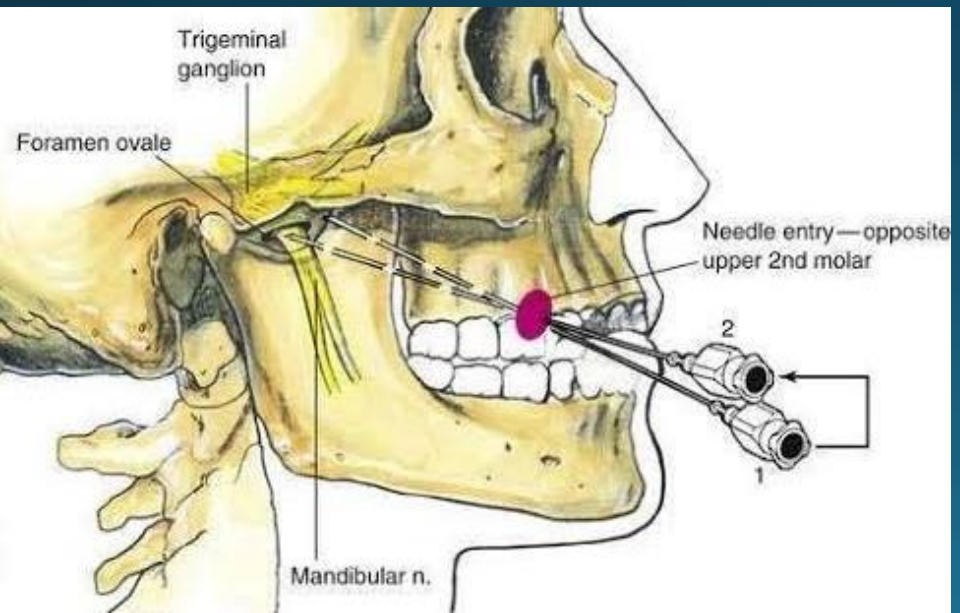
- Inside the skull on **each side of the head.**
- **Site:**depression in the middle cranial fossa

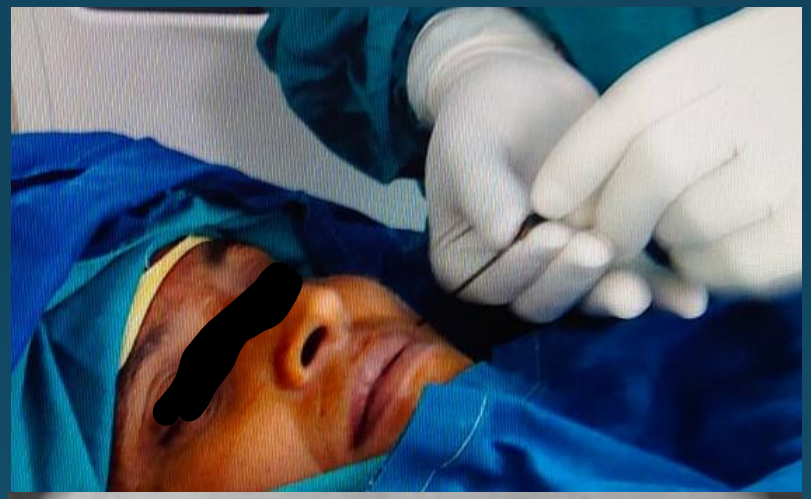


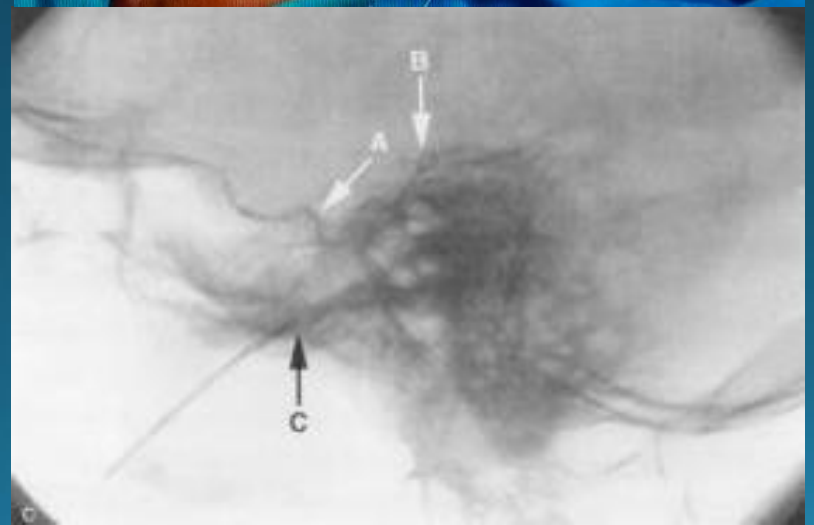
TRIGEMINAL GANGLION BLOCK :TECHNIQUE

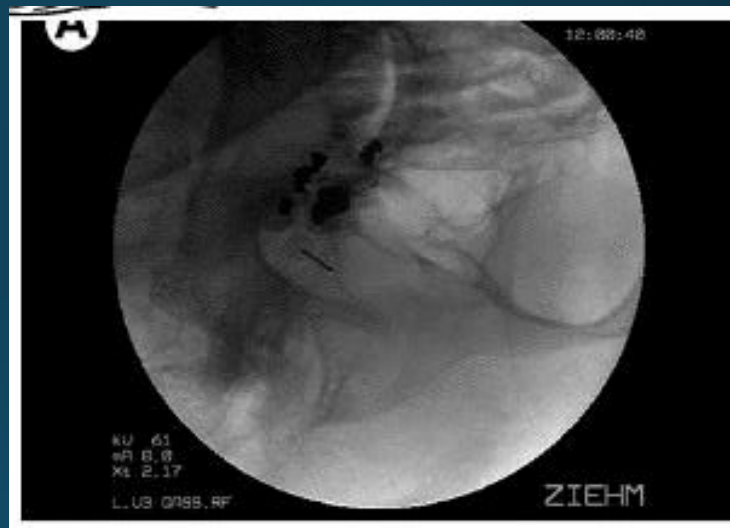
Drugs administered:

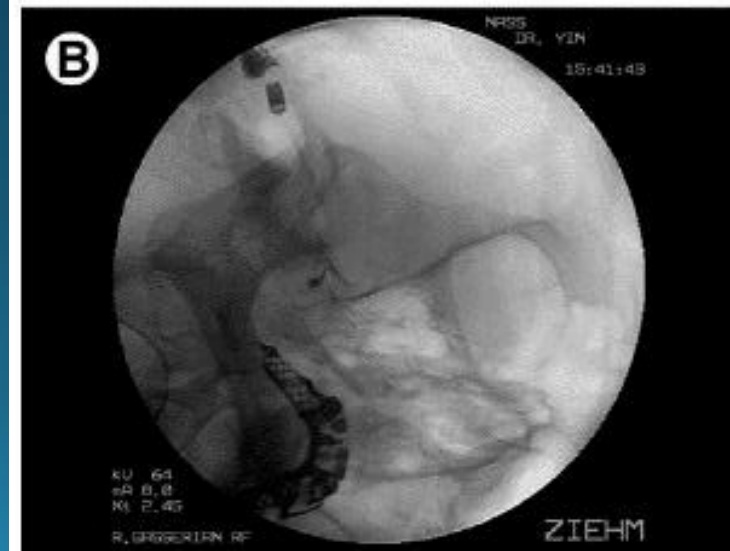
- 0.25% sensorcaine 1ml
- Inj dexamethasone 4mg
- Inj methylprednisolone 40mg









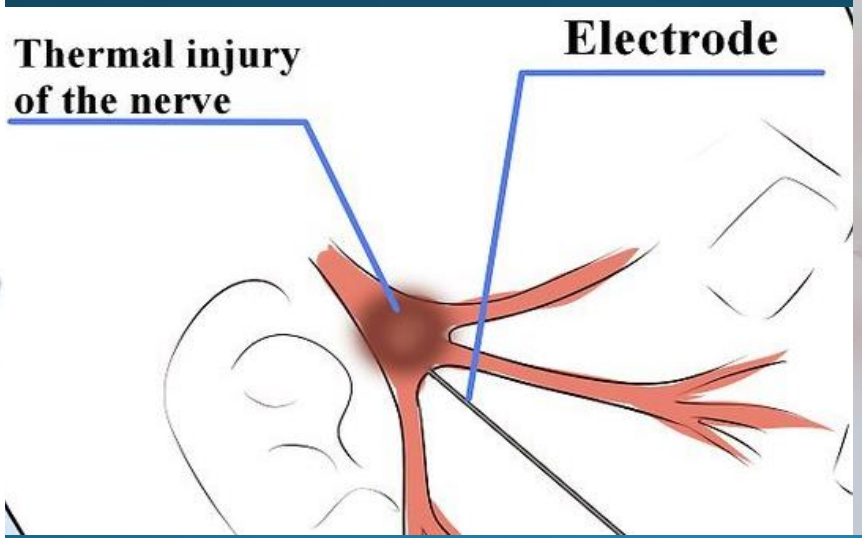


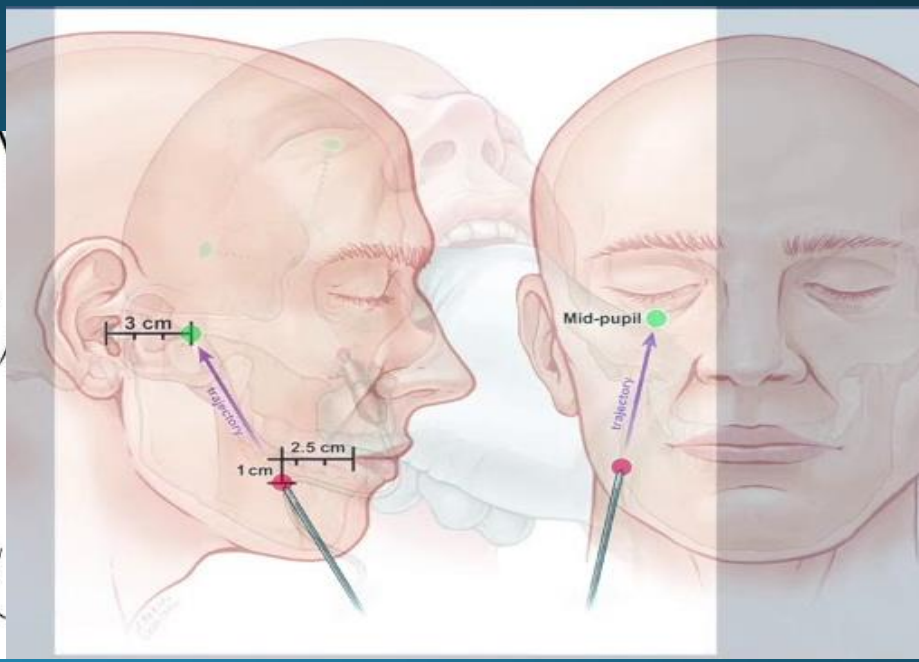
RADIOFREQUENCY

- Electrode inserted through the foramen ovale under fluoroscopy control, controlled temperatures are USED TO DESTROY SMALLER PAIN FIBERS SELECTIVELY
- Injection of glycerine into meckels cave,not very popular in view of inconsistent results
- possible complication:facial dysaesthesia,rare

Technique

- 2Hz and 0.3V,confirmed :contraction of masseter
- Parasthesia :50Hz for 90 seconds at 60,70,80 degrees



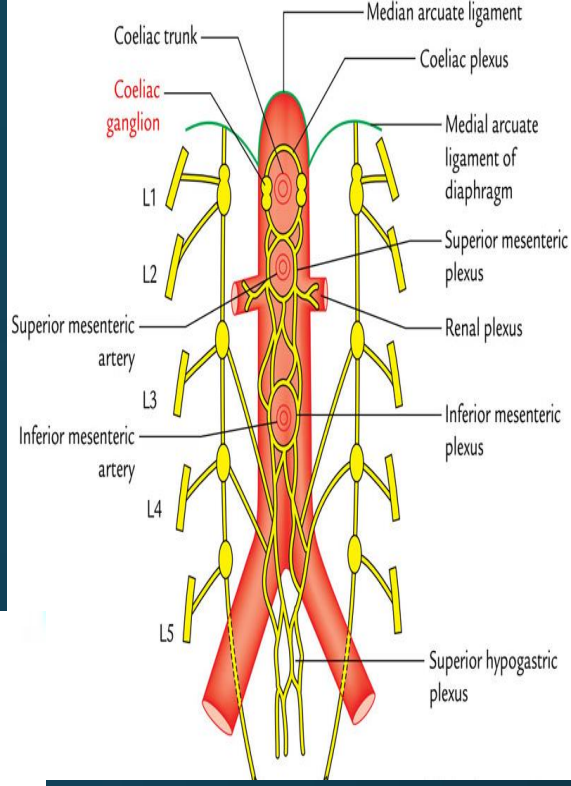


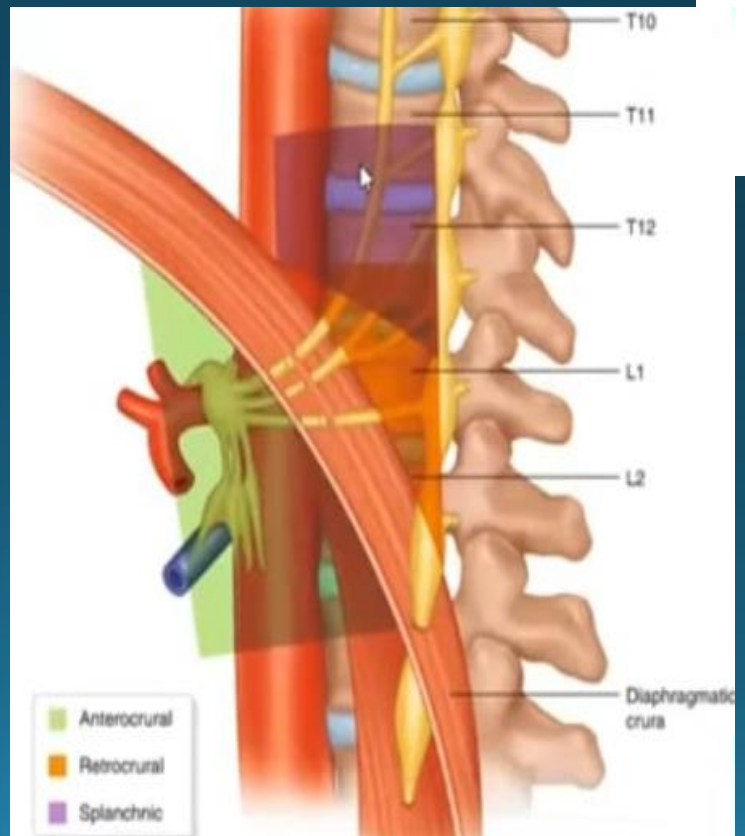
TRIGEMINAL GANGLION BLOCK BEFORE &AFTER

COELIAC PLEXUS BLOCK

COELIAC PLEXUS ANATOMY

- **Solar plexus**.
- Main junction for autonomic nerves supplying the upper abdominal organs (**liver, gall bladder, spleen, stomach, pancreas, kidneys, small bowel, and 2/3 of the large bowel)**.
- Ganglia lie on each side of Tl1 (aorta - posteriorly, pancreas- anteriorly, IVC- laterally).
- Sympathetic supply:
- Greater splanchnic nerve (T5/6 to T9/10)
- Lesser splanchnic nerve (T10/11)
- Least splanchnic nerve (T11/12)





TECHNIQUES

FLOUROSCOPY

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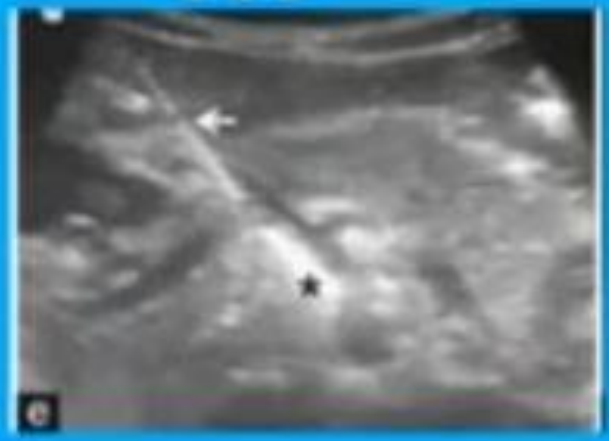

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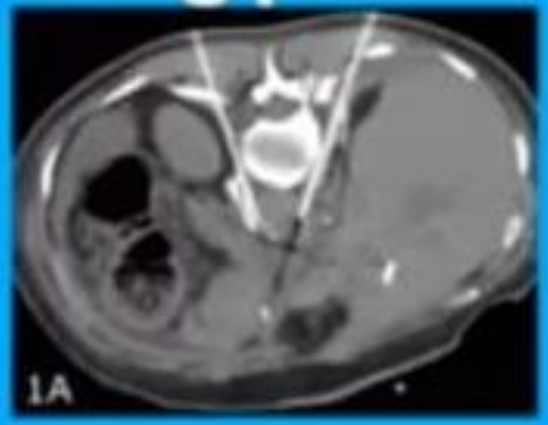

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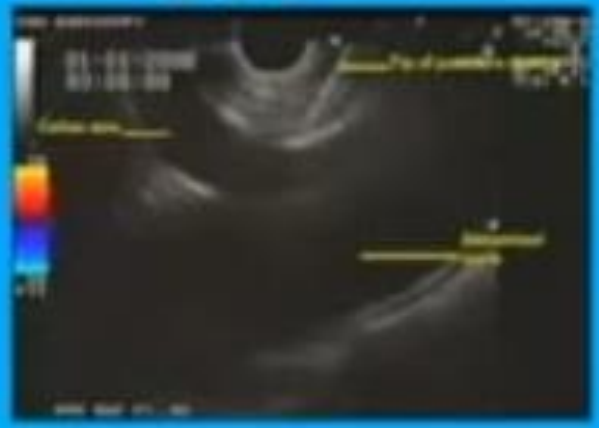
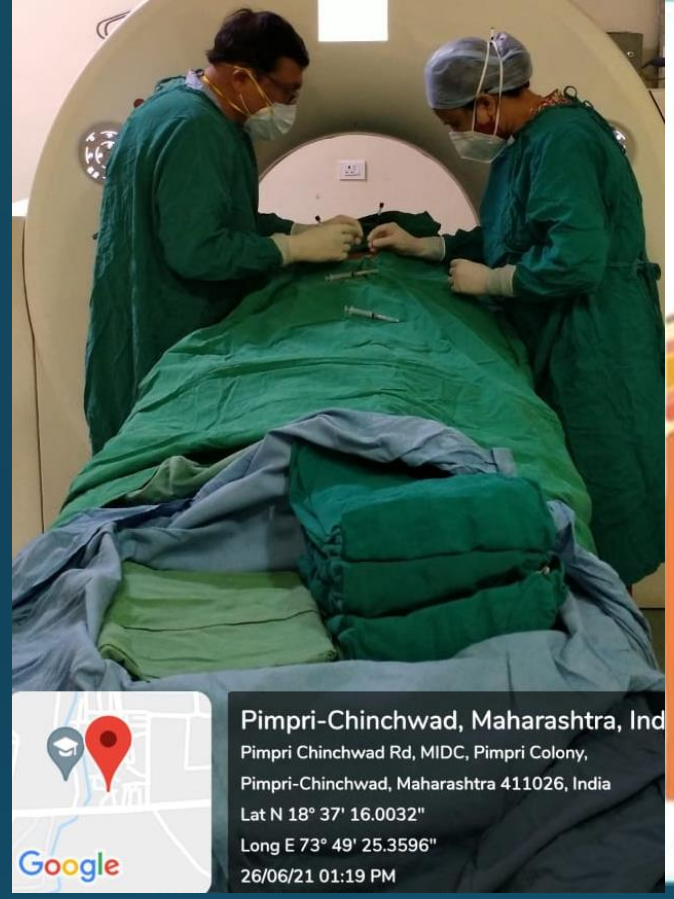


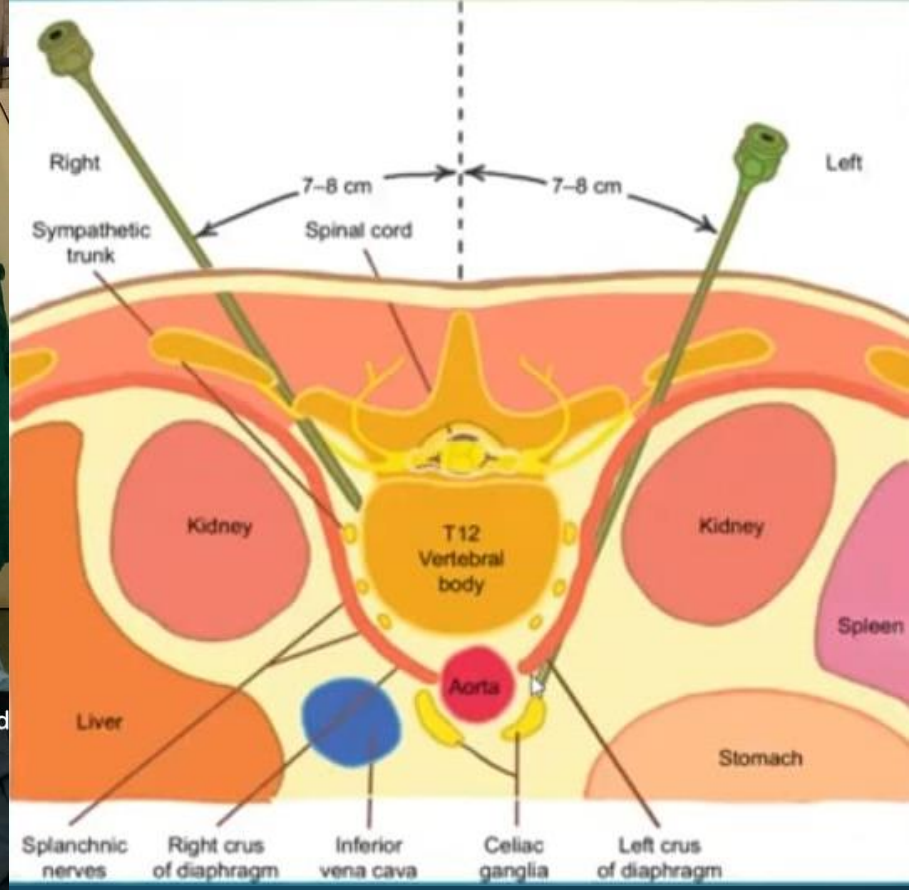
COELIAC PLEXUS BLOCK INDICATIONS

- For relief of pain from intra-abdominal organs.
- **CHRONIC PAIN** - e.g. chronic pancreatitis (LA blocks only).
- **ACUTE PAIN** - for postoperative pain relief.
- **CANCER PAIN – PALLIATIVE CARE,**for upper abdominal organ cancer pain, Ca pancreas - initial diagnostic LA block, followed by neurolytic block

TECHNIQUE

- Patient: prone position.
- X-ray screening, i.v sedation, L.A infiltration of the superficial layers.
- I.V fluids-required pre-block to reduce the risk of hypotension after the procedure.
- Two needle insertions: one on each side to block both of the coeliac ganglia.





needle entry point below the tip of the 12th rib, using X-ray screening in two planes, the needle is advanced until it hits the side of the L1 vertebra ➔

needle withdrawn slightly ,redirected forwards until it is in the area of the coeliac plexus, avoiding -aorta and inferior vena cava

➔Radio-opaque dye injected to confirm the correct placement of the needle, appropriate drug is injected.

COELIAC PLEXUS CONTRAINDICATION

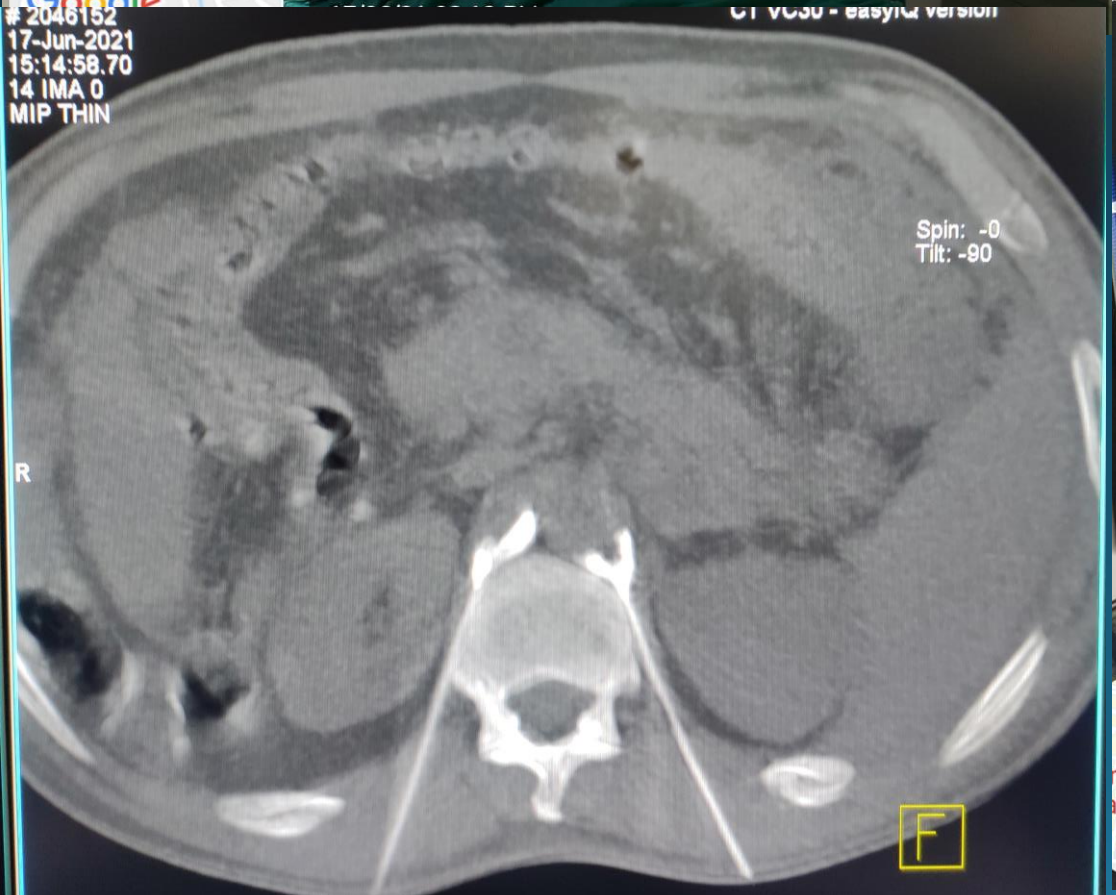
- Bleeding and infection
- Where the source of the pain is no longer being transmitted through the autonomic nerves.
- Large aortic aneurysm

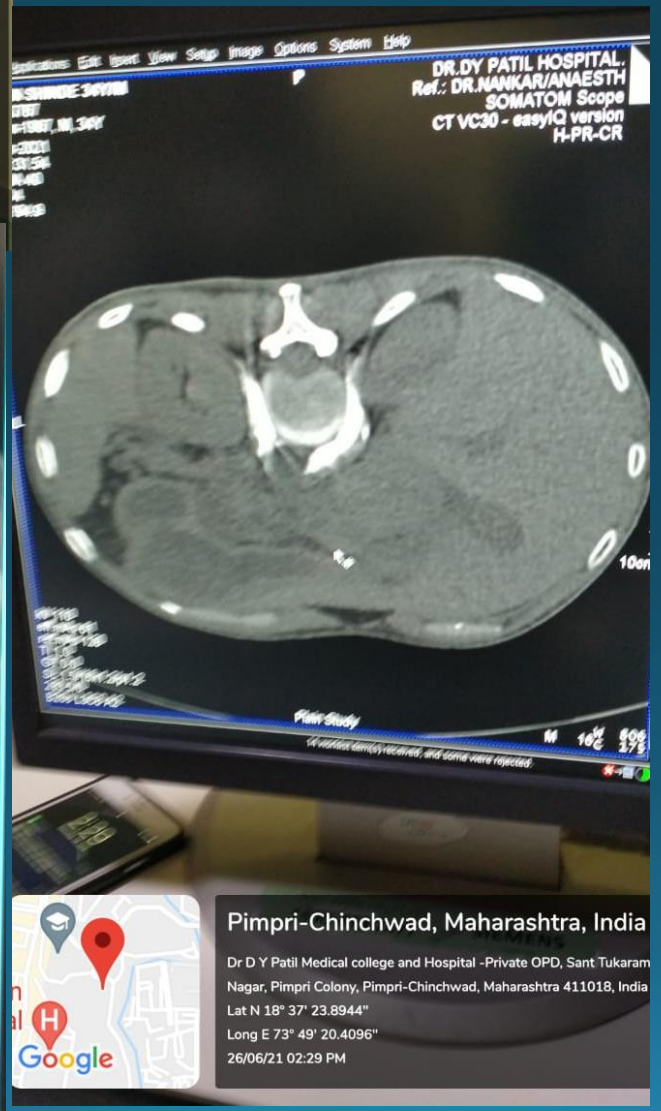
CASE:CA PANCREAS

- 45 yr, Male
- k/c/o Ca Pancreas
- Persistent abdominal pain
- 2 months
- No relief with conventional analgesics

Drugs administered

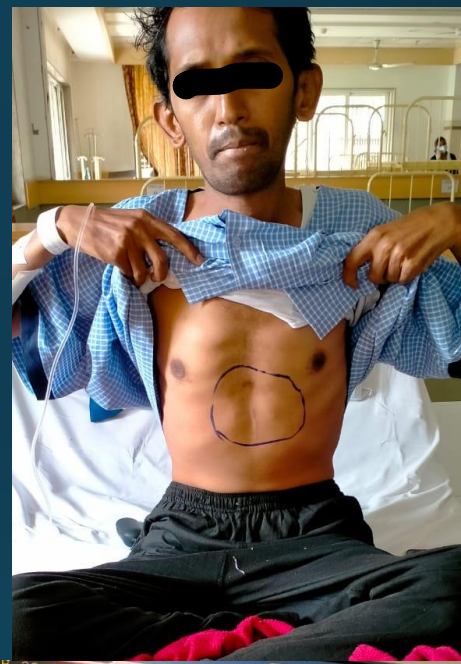
- 0.25% sensorcaine 10ml
- Inj alcohol 60%,20ml

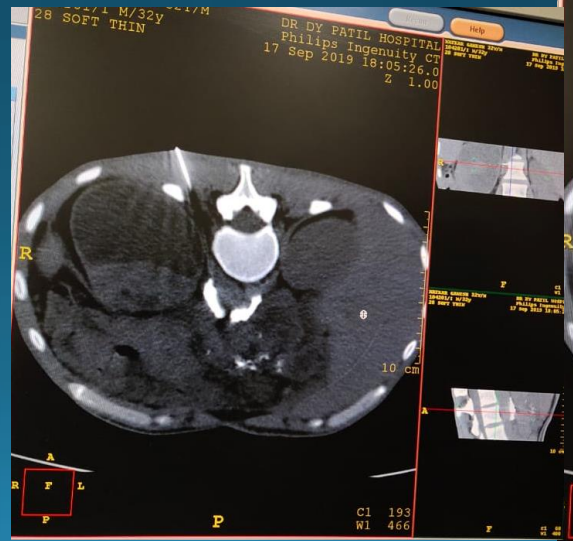


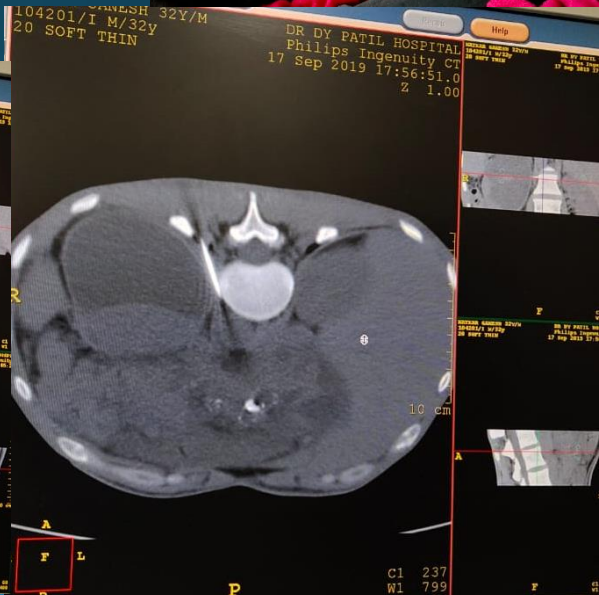


CASE- CHRONIC PANCREATITIS

- 32 yr, Male
- k/c/o Chronic Pancreatitis, Ex alcoholic
- Severe abdominal pain off and on, 1 yr
- No relief with conventional analgesics
- Treatment received- Coeliac Plexus block, CT Guided, Trans aortic, Alcohol
- Good Pain relief 2 weeks follow up







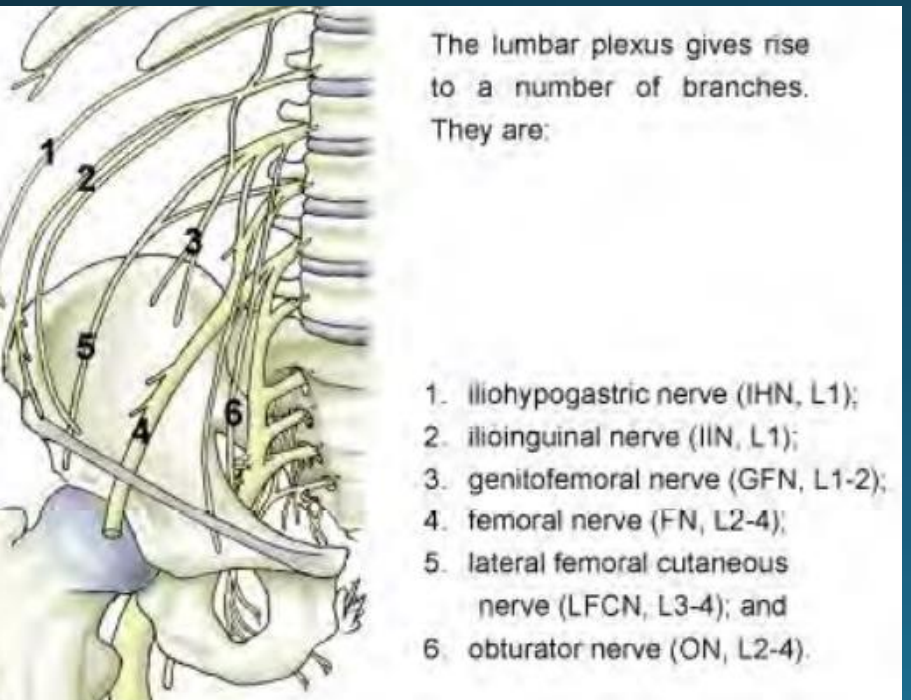
COMPLICATIONS

- Severe hypotension
- Bleeding
- Intravascular injection
- Upper abdominal organ puncture
- Paraplegia
- Sexual dysfunction
- Lumbar nerve root irritation

LUMBAR SYMPATHETIC BLOCK

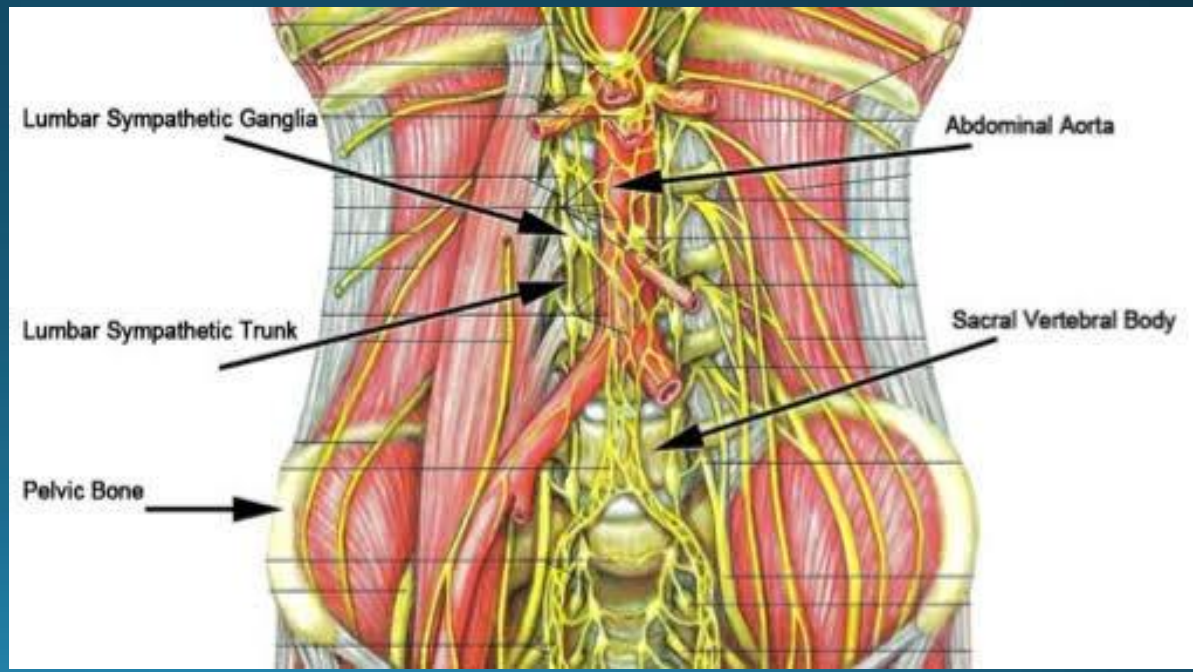
LUMBAR SYMPATHETIC ANATOMY

- Anterior divisions of L1, L2, L3 and the greater part of L4.
- The L1 root often receives a branch from T12.
- Situated most commonly in the posterior one third of the psoas major muscle, anterior to the transverse processes of the lumbar vertebrae.



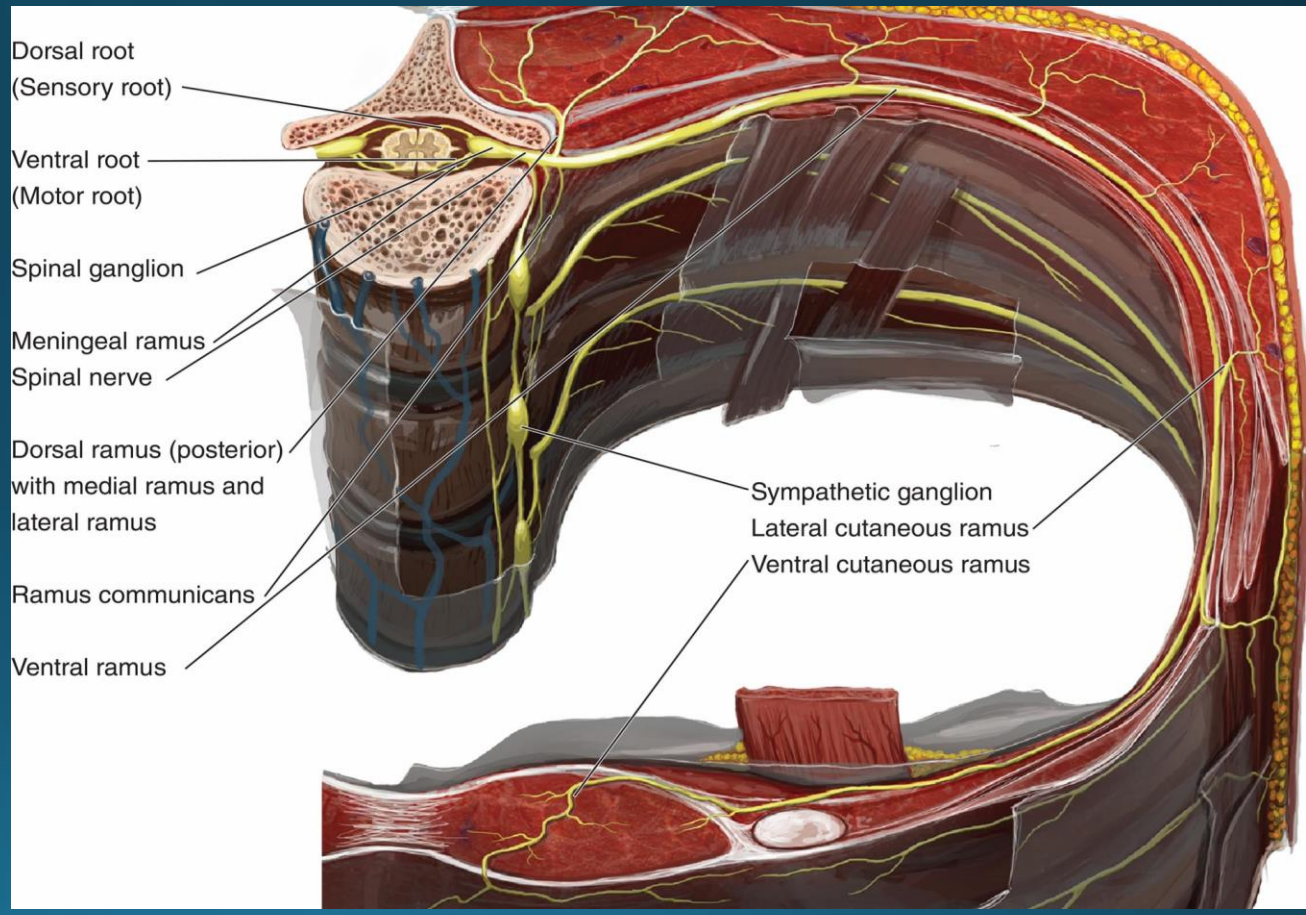
The lumbar plexus gives rise to a number of branches. They are:

1. iliohypogastric nerve (IHN, L1);
2. ilioinguinal nerve (IIN, L1);
3. genitofemoral nerve (GFN, L1-2);
4. femoral nerve (FN, L2-4);
5. lateral femoral cutaneous nerve (LFCN, L3-4); and
6. obturator nerve (ON, L2-4).



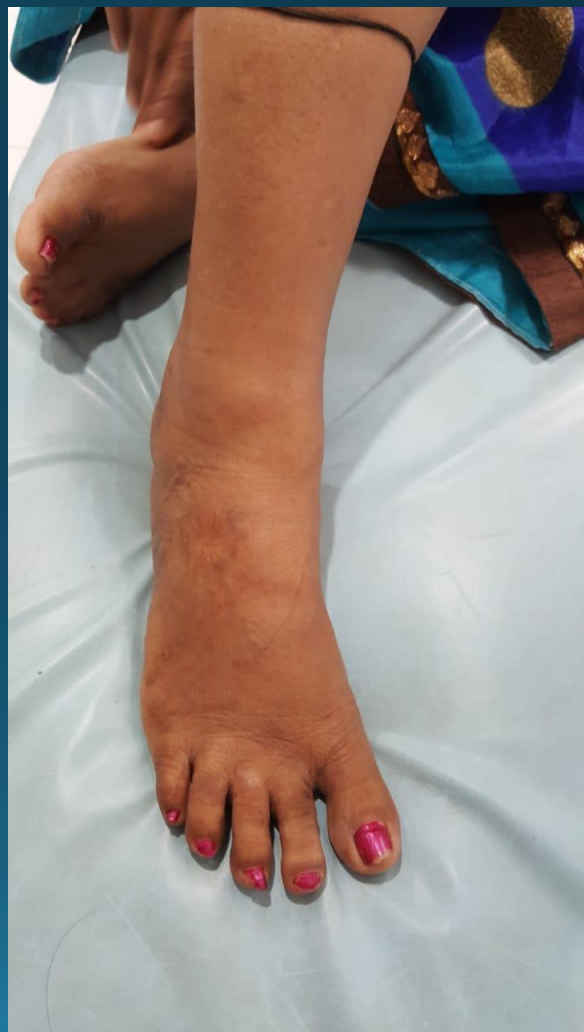
INDICATIONS

- Sciatica
- Reflex Sympathetic Dystrophy
- Complex Regional Pain Syndrome
- Herpes Zoster Infection (Shingles) Involving The Legs
- Vascular Insufficiency
- Peripheral Neuropathy
- Sympathetic Nerves Are Located On Both Sides Of Spine, Lower Back.
- A Steroid Medication And Local Anesthetic Injected Into Or Around Your Sympathetic Nerves Can Help Reduce Pain In That Area.



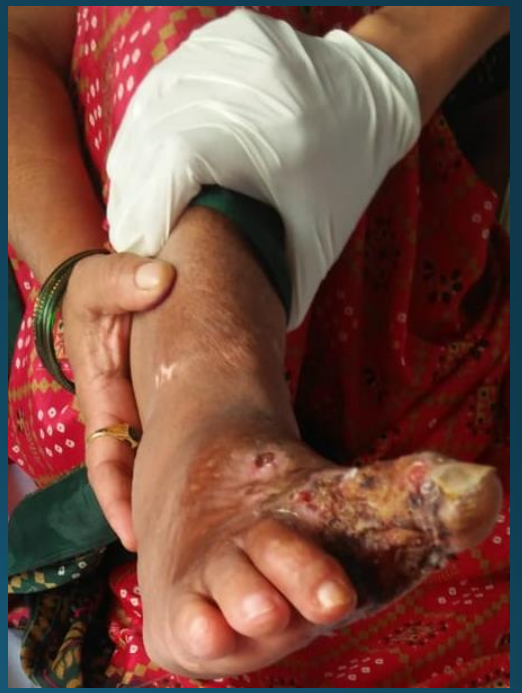
CASE REPORT 1: CRPS FOOT PAIN

- 54 yr, Female
- K/c/o Nephrotic Syndrome
- Persistent Rt foot pain
- H/o herpes 2 months
- No relief with conventional analgesics
- Diagnosis- CRPS
- Treatment received- Lumbar Sympathetic block
- Excellent Pain relief 2 months follow up



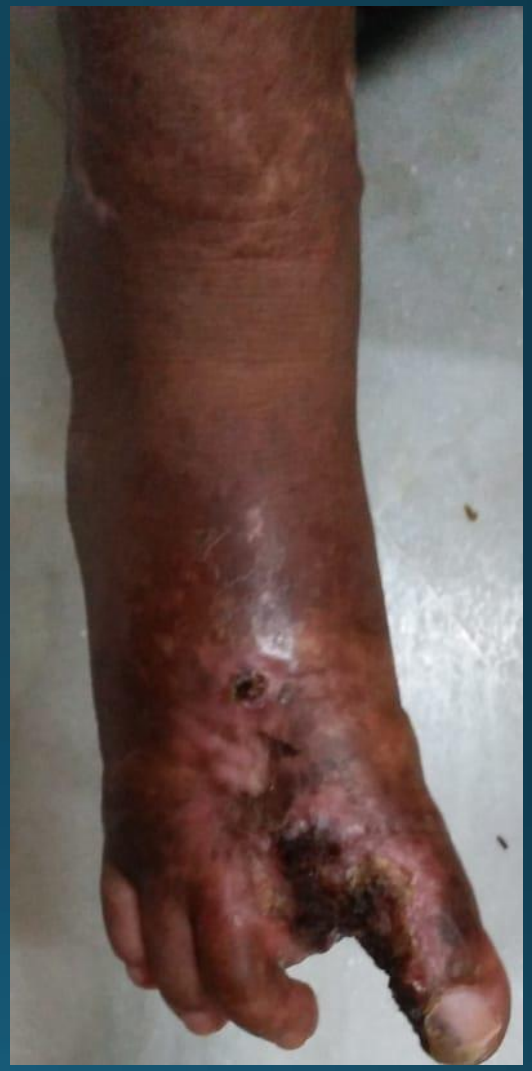
CASE REPORT 2: ANGIOLEIOMYOMA

- 60 yrs, F
- Non healing ulcer on right foot with severe pain,not controlled with conventional medicines
- Patient had suicidal attempts due to unbearable pain
- k/c/o Angioleiomyoma with impending gangrene and non healing ulcer with severe burning pain
- After lumbar sympathetic block pain relief upto 90-95%,healing started



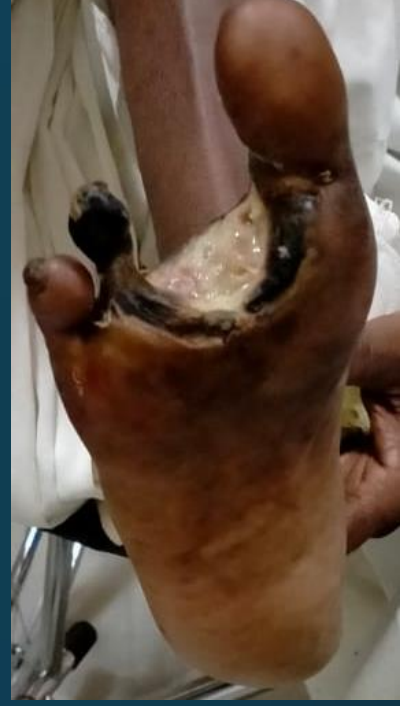
Drugs administered

- 0.25% bupivacaine,10ml
- 40 mcg clonidine
- 80 mg triamcinolone

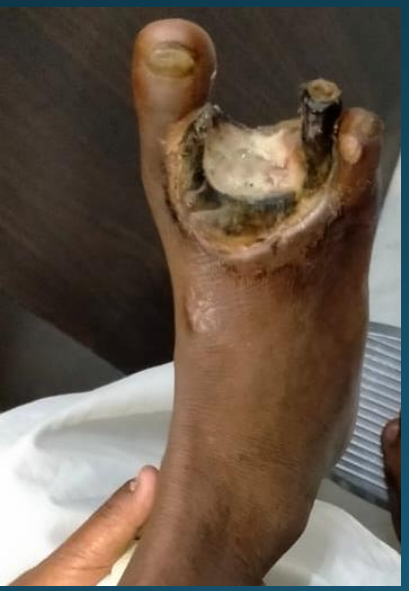


One week post block

CASE REPORT 3: PERIPHERAL VASCULAR DISEASE

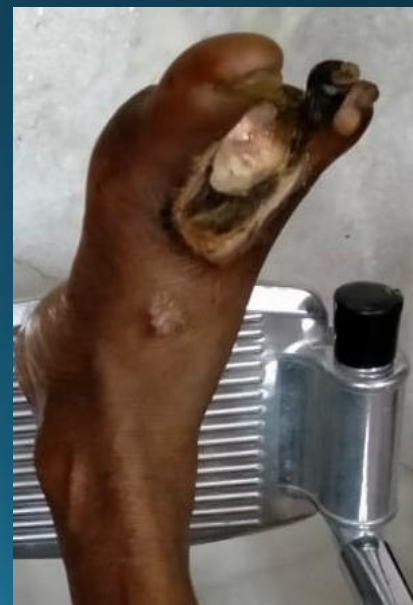


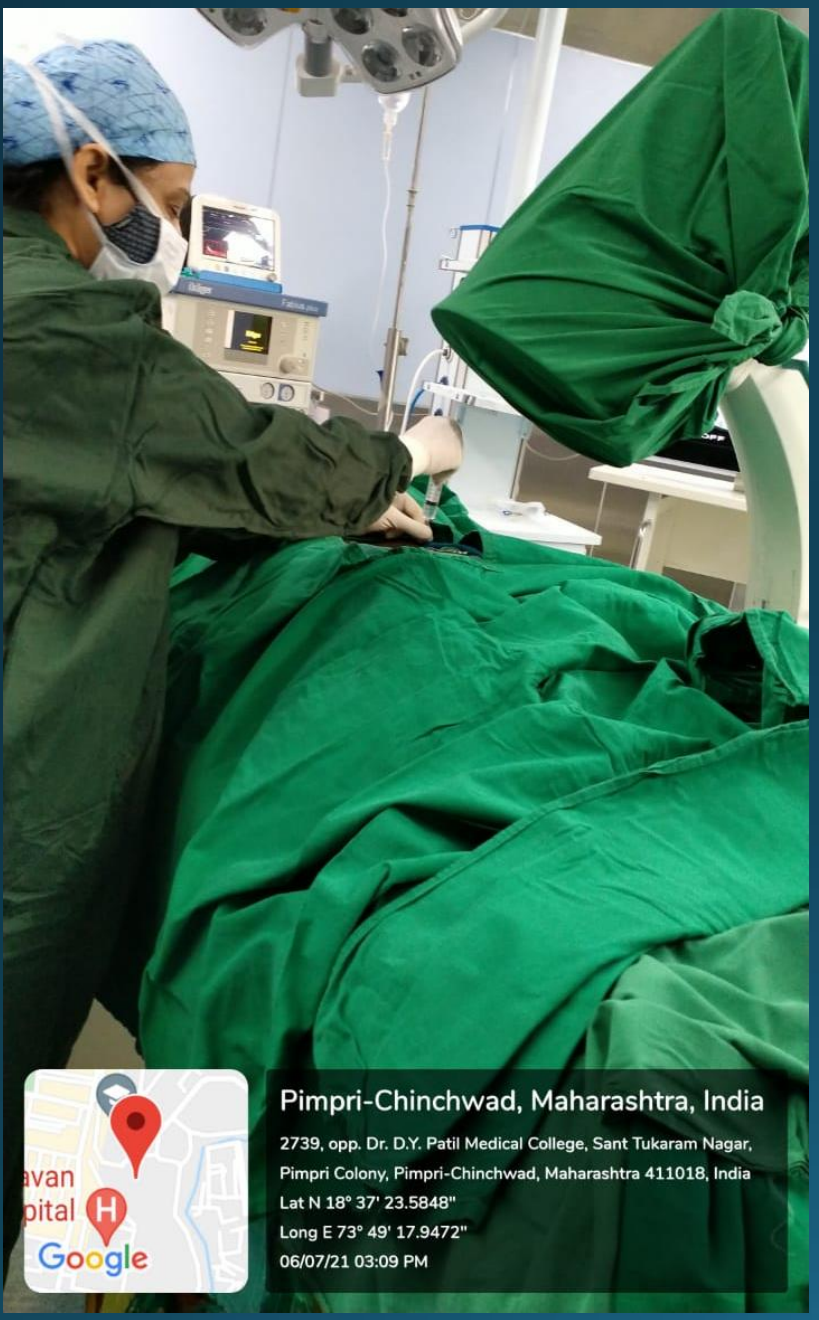
- 60 yrs ,M
- Chronic smoker
- No relief with conventional analgesics
- Diagnosis:Peripheral Vascular Disease
- Treatment received- Lumbar Sympathetic block



Drugs administered

- 0.25% bupivacaine,10ml
- 40 mcg clonidine
- 80 mg triamcinolone

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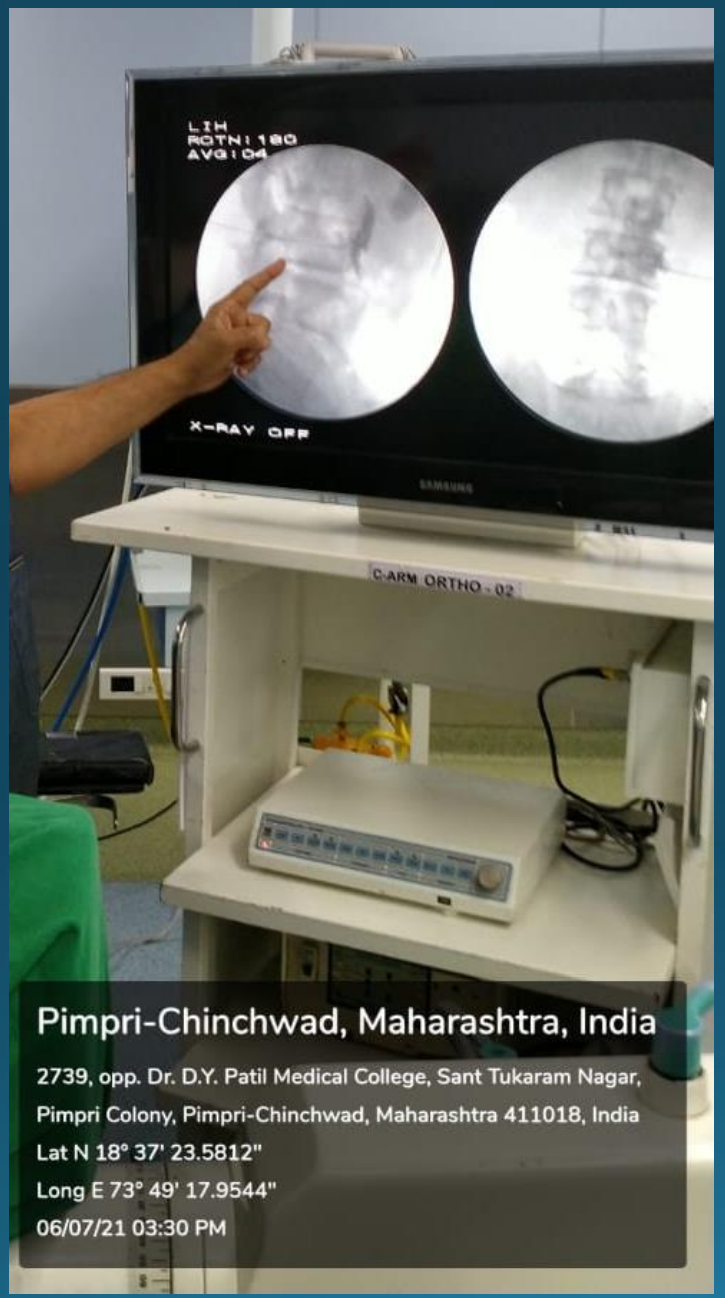
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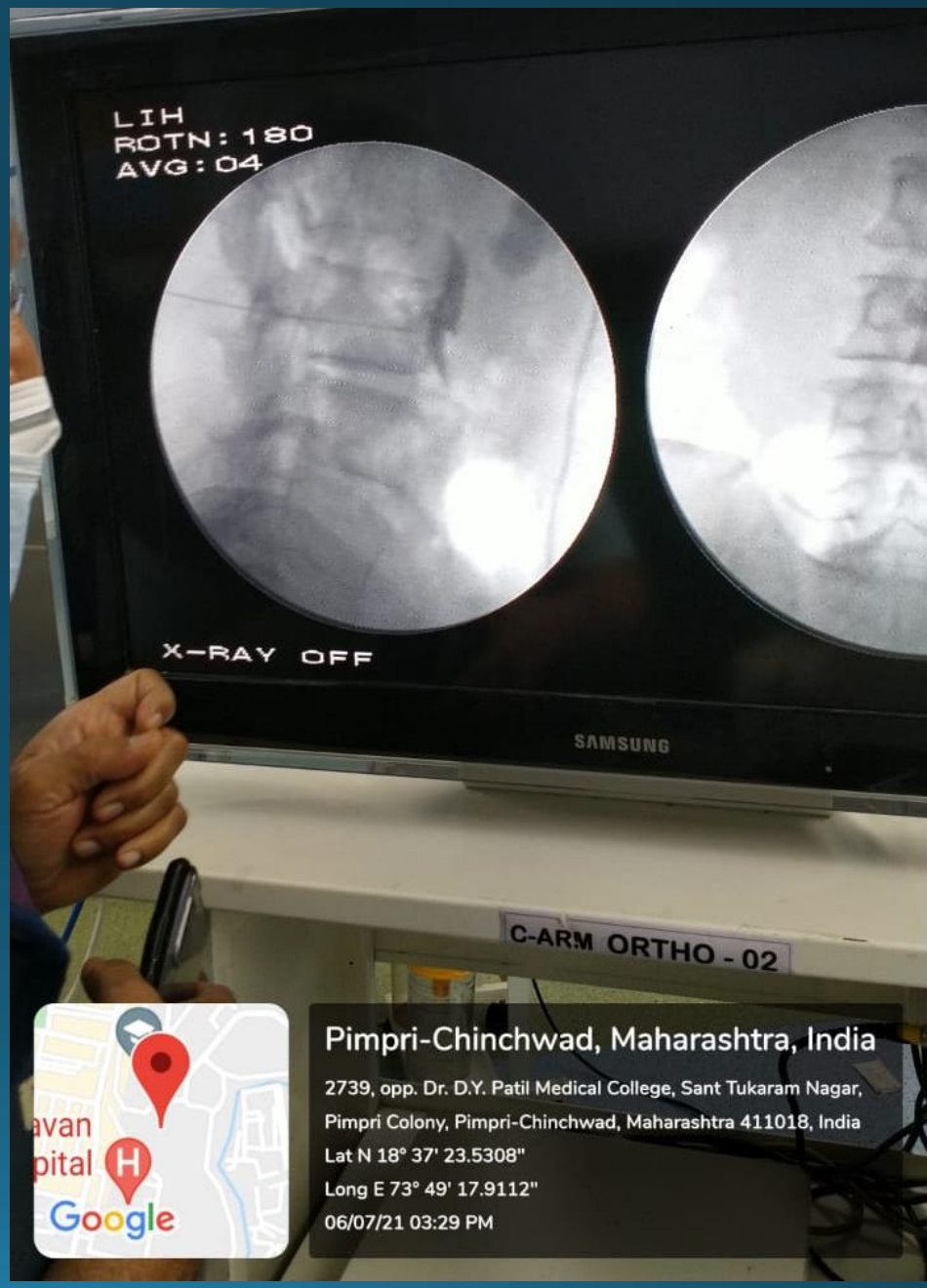
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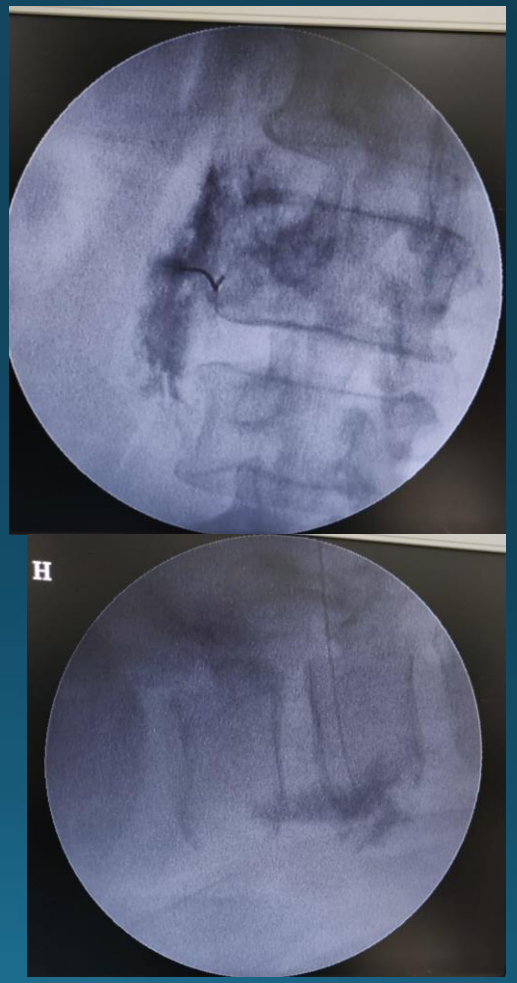
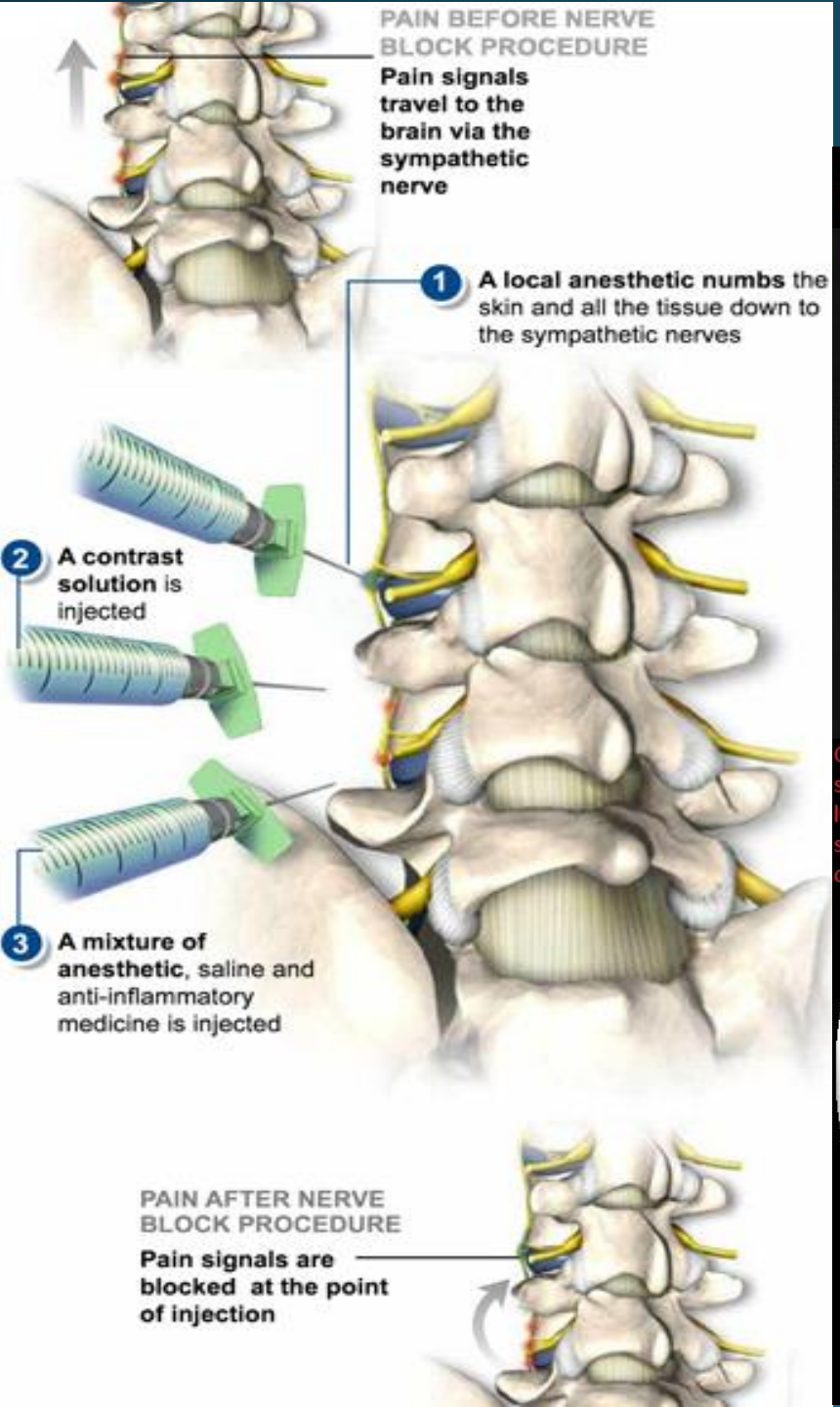
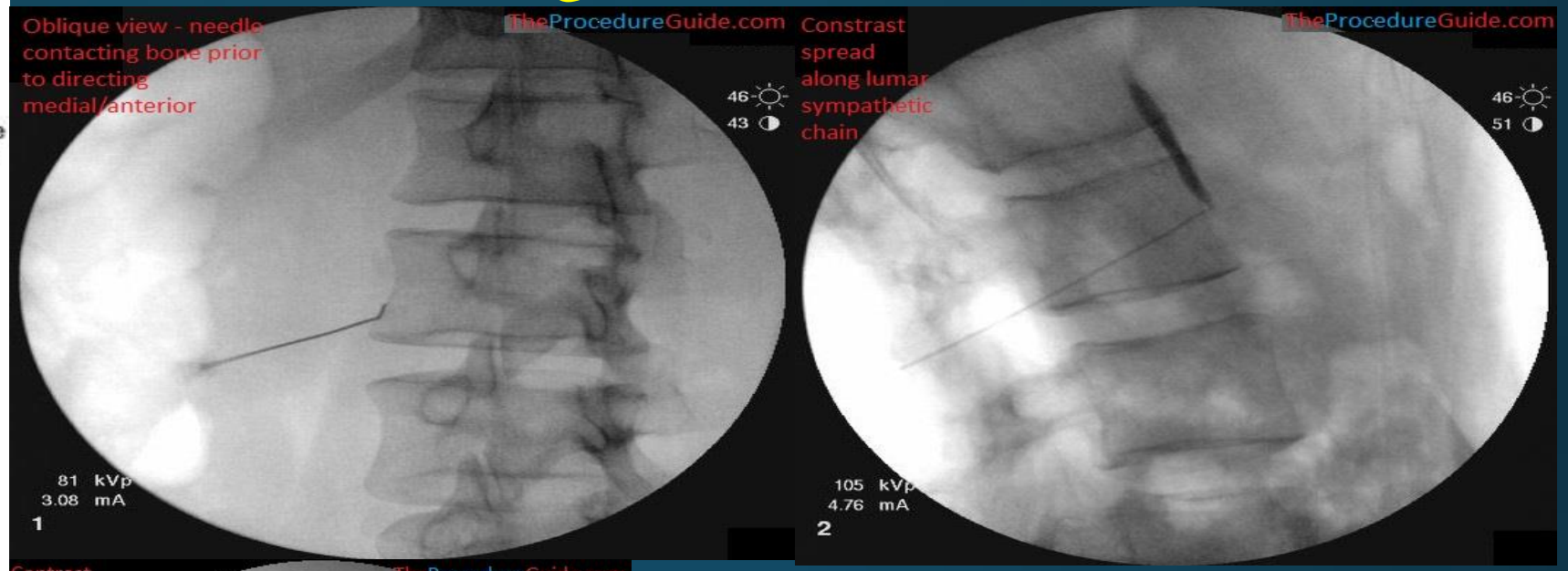
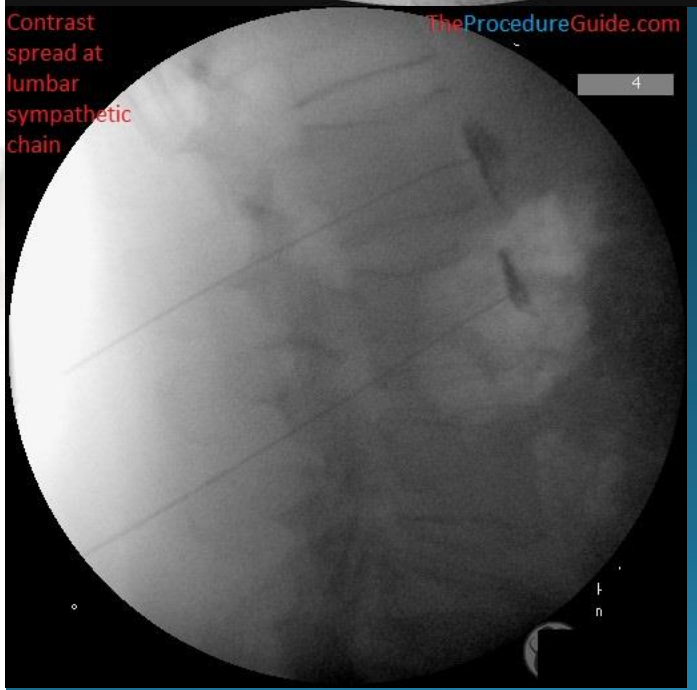
C-ARM GUIDED PROCEDURE



TECHNIQUE





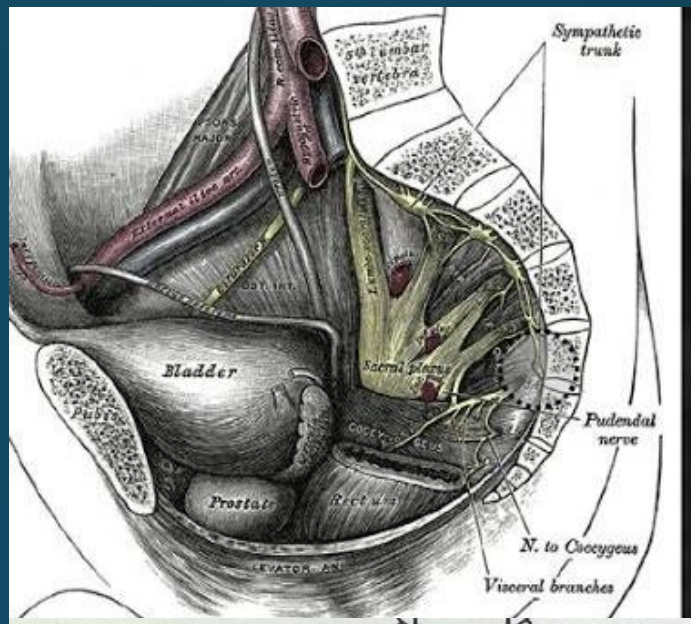


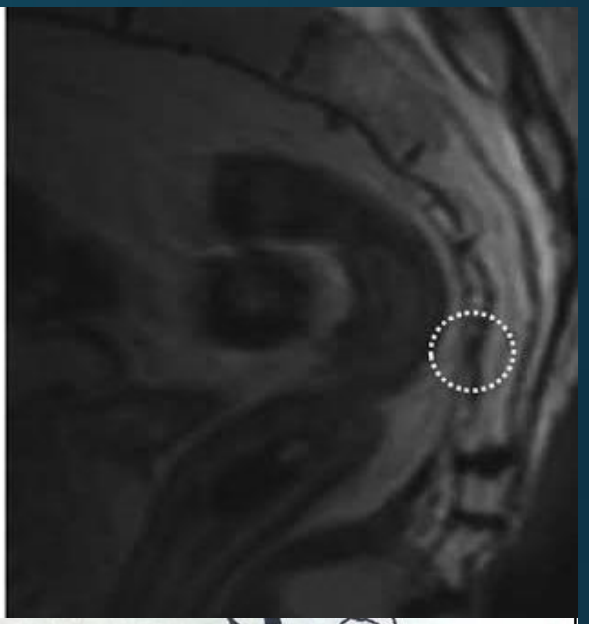
Evidence of sympatholysis

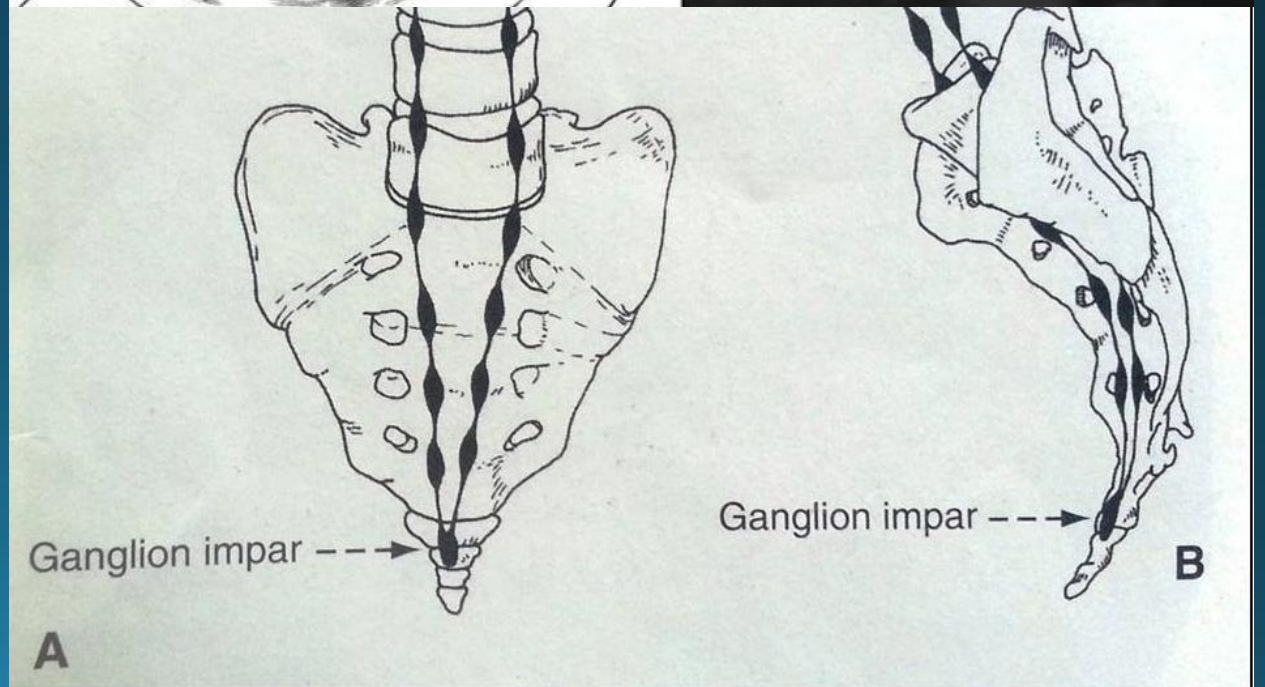
- Vasodilation in lower limbs
- Raised temperature in lower limbs
- Decreased edema

GANGLION IMPAR/ COCCYDYNIA

- Pain in the terminal segment of the spine caused by abnormal sitting and standing posture.
- Usually managed conservatively, nonresponsive patients, **ganglion impar block is used as a good alternate modality for pain relief.**
- **Anatomy**:situated in the retroperitoneal space behind the rectum around the sacrococcygeal joint or directly in front of the coccyx.
-

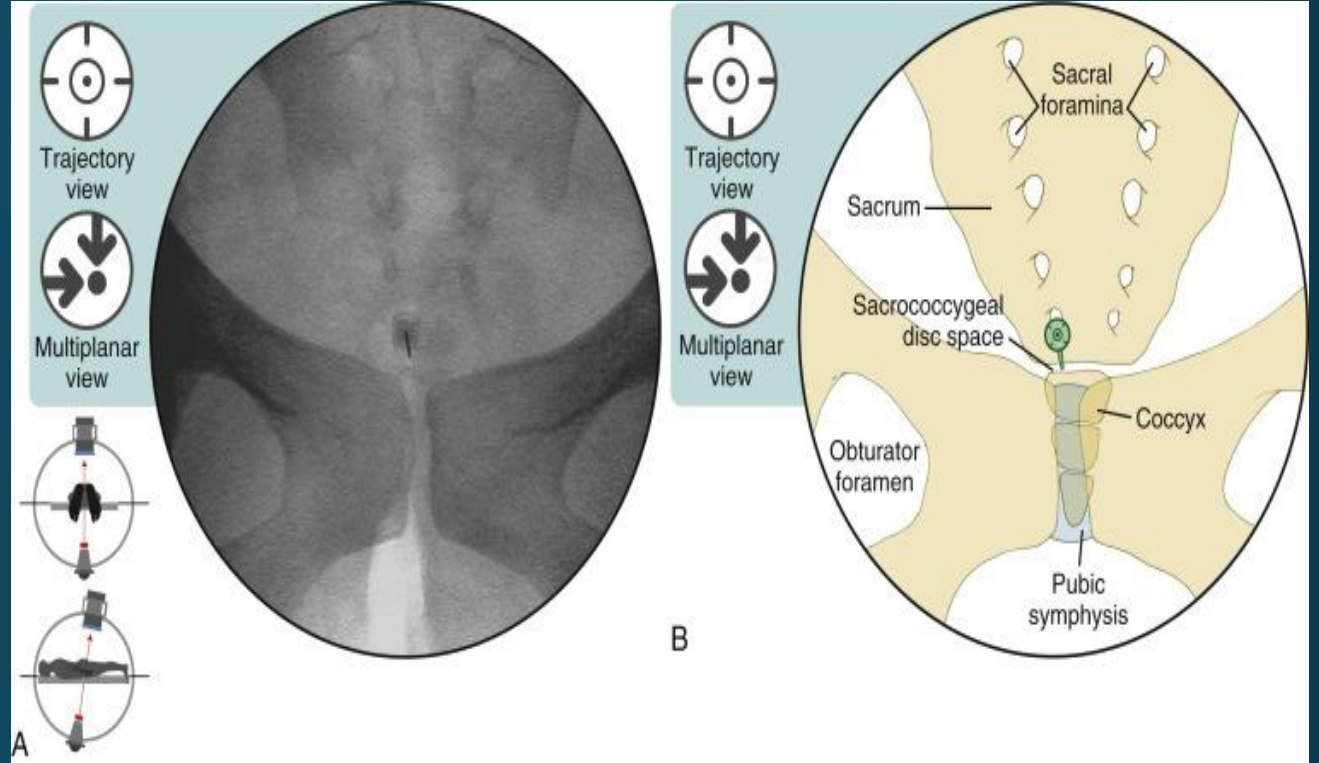


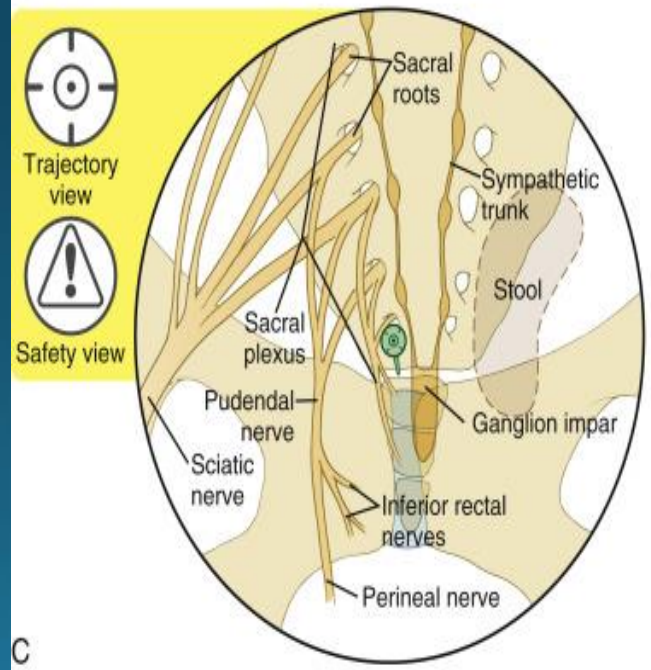


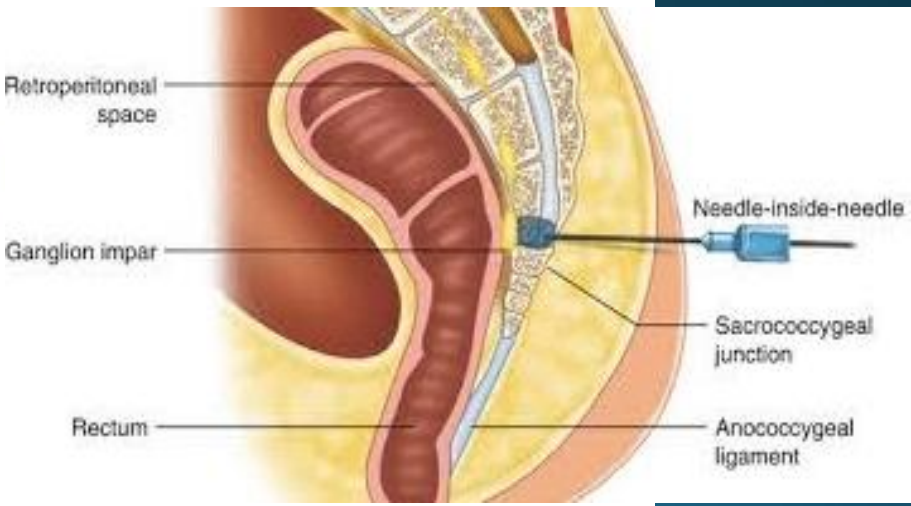


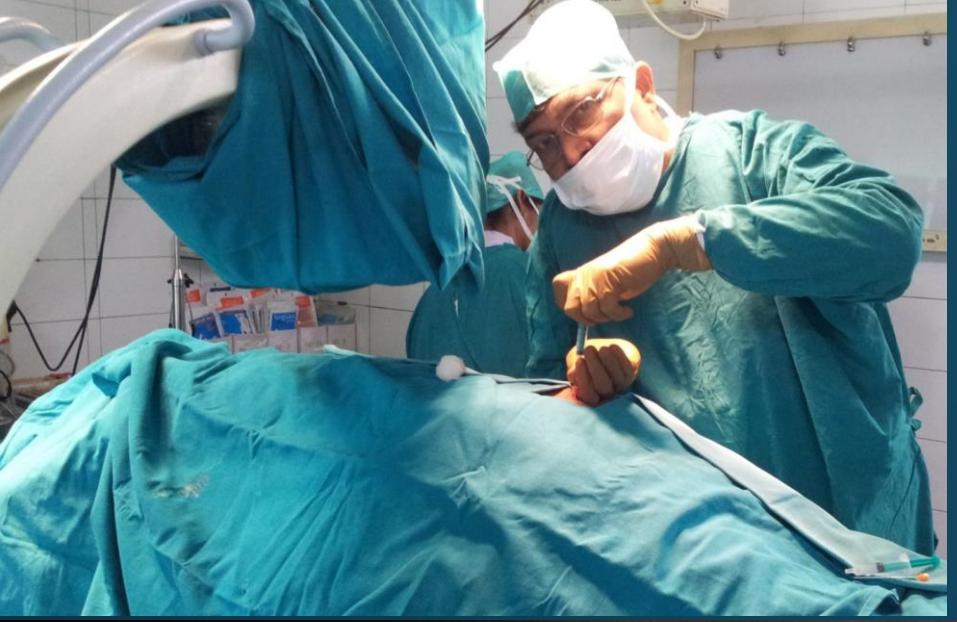
Technique

- Performed with fluoroscopy, computerized tomography, or ultrasound guidance.
- Radiographs of coccyx in anteroposterior (ap) and lateral view is done .
- Position: prone position with a pillow under the abdomen to overcome lumbar lordosis.
- Locate the sacrococcygeal space, lateral fluoroscopic projection taken, targeted area marked
- The needle placement was confirmed by the "**comma sign**" in the retroperitoneal space on lateral fluoroscopic projection



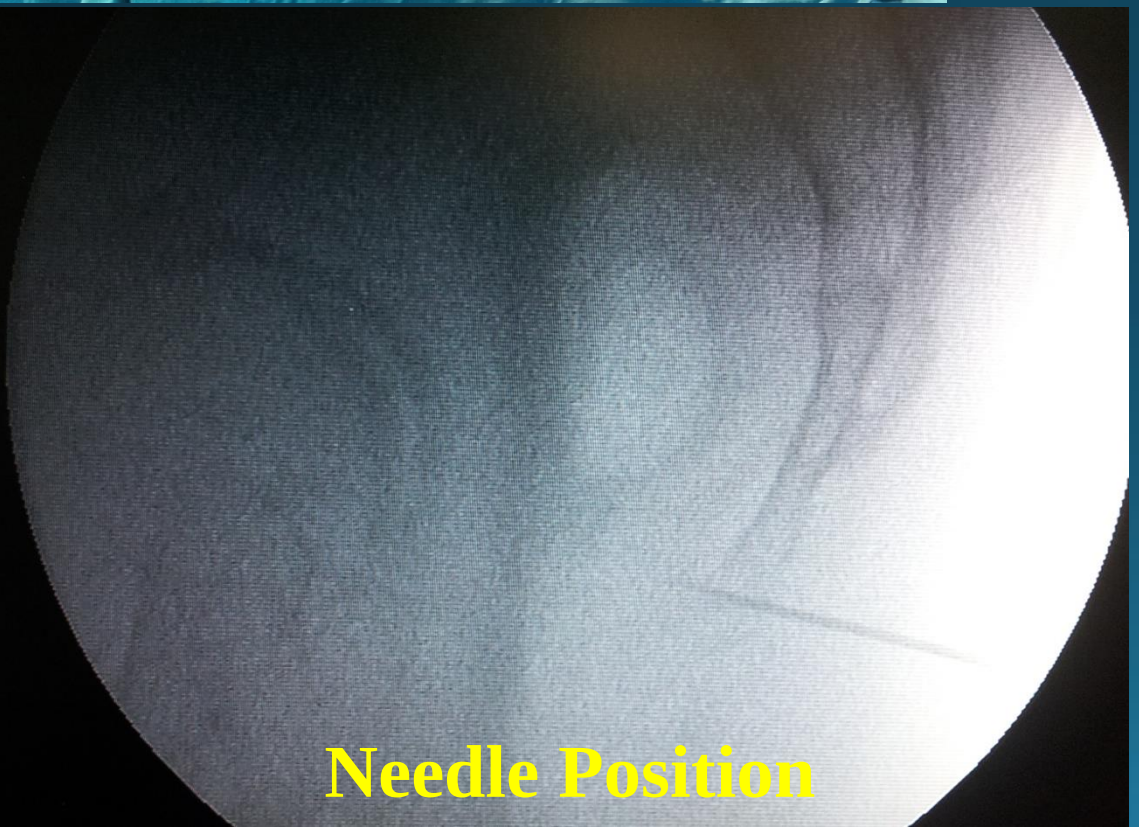




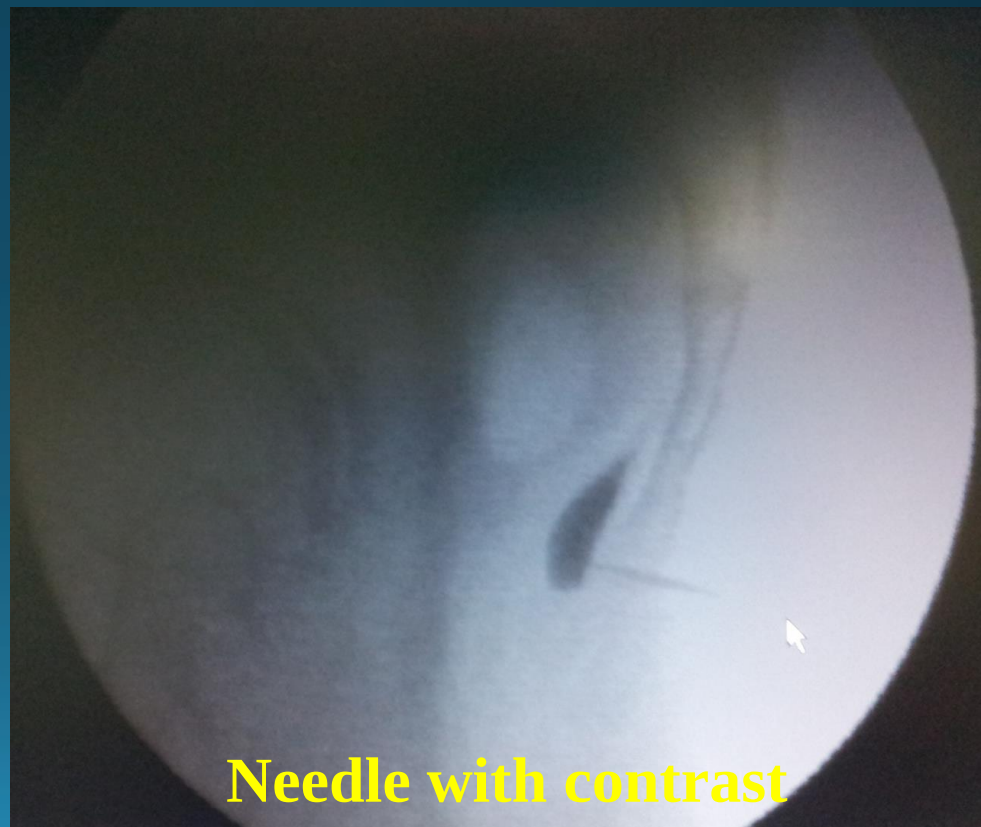


Drugs administered

- Inj xylocard 1%,4ml
- Inj kenocort,40mg



Needle Position



Needle with contrast

THANK YOU

- Eliminates nor-epinephrine mediated activation of nociceptors
- **Important anomaly**
- Anomalous pathways bypass the stellate ganglion :KUNTZ NERVES
- IMPORTANCE:Block limited to stellate ganglion donot produce complete sympathetic denervation