

Pain Management in Palliative Care



Host: Diana Vincze

Presenter: Dr. Carmen Johnson

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Territorial Honouring



The Palliative Care ECHO Project

The Palliative Care ECHO Project is a 5-year national initiative to cultivate communities of practice and establish continuous professional development among health care providers across Canada who care for patients with life-limiting illness and their families.

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Conflict of Interest

Pallium Canada

- Non-profit
- Partially funded through a contribution by Health Canada
- Generates funds to support operations and R&D from course registration fees and sales of the Pallium Pocketbook

Host

Diana Vincze: Nothing to disclose.

Presenter

Dr. Carmen Johnson: Nothing to disclose.

Introductions

Host

Diana Vincze – Palliative Care ECHO Project
Manager, Pallium Canada

Presenter

Carmen Johnson, MD CCFP FCFP

Medical director of Palliative Services in the RQHR

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Support Team

Aliya Mamdeen

Program Delivery Officer, Pallium Canada

Welcome and Reminders

- For comments, please use the chat function.
- For questions, please use the Q&A function, these questions will be addressed at the end of the session.
- Remember not to disclose any Personal Health Information (PHI) during the session.
- This session is being recorded—this recording and slide deck will be emailed to registrants within the next week.

Pain Management in Palliative Care



Session Learning Objectives

Upon completing the session, participants will be able to:

- Describe the role of opioids in the management of pain.
- Discuss management of complex pain including methadone and other third line adjuvants.
- List a brief overview of interventional procedures for pain (i.e. epidural, intrathecal, peripheral blocks/nerve plexus neurolysis).

Cancer Pain

- 85% of cancer patients experience pain
- 90% of cancer pain can be managed well (I think this % is much higher when delirium is properly identified)

Total Pain - “Whole of the person”

- Spiritual, physical symptoms
- Cultural, social, psychological
- Physical source of pain
- Patient’s personality, emotional status
- Family, patient family context

Medication Categories – Pain Management

Opioid Analgesics: further detail later

- Codeine
- Morphine (Statex)
- Hydromorphone (Dilaudid)
- Oxycodone (Supedol)
- Buprenorphine (Suboxone)
- Methadone (Metadol)
- Fentanyl (patches, injectable)
- Tapentadol (Nucynta)
- Tramadol (Taro)

Medication Categories – Pain Management

Non-opioid Analgesics:

- Acetaminophen, NSAIDS

Specific - bone pain:

- Bisphosphonates, calcitonin, radiopharmaceuticals

Bowel obstruction:

- Anticholinergics, somatostatin analogue

Medication Categories - Pain Management

Adjuvant Analgesics:

- **Glucocorticoids (steroids):** dexamethasone, prednisone
- **Antidepressants:** TCAs, SSRIs, SNRIs, Bupropion
- **Alpha-2 adrenergic agonists:** clonidine, tizanidine
- **Cannabinoids:** smoked, edible, topical, rectal suppository
- **Compounded topicals:** many options

Medication Categories - Pain Management

Adjuvant Analgesics:

- **Anticonvulsants:** gabapentinoids, carbamazepine, others
- **Sodium channel drugs:** mexiletine, iv lidocaine, bupivacaine (Marcaine)
- **GABA agonists:** Clonazepam, baclofen
- **N-methyl-D-aspartate inhibitors:** ketamine, memantine, others

Non-pharmacological Analgesic Approaches

Interventional Approaches:

- Large and varied groups of injections
- Neural blockade (block vs ablation/neurolysis)
- Spinal analgesics (epidural vs intrathecal)
- Neurosurgical neuroablation (surgical destruction)
- Implant therapies
- Trigger point and joint injections
- Local anaesthesia infiltration (painful scars)

Non-pharmacological Analgesic Approaches

Psychological:

Psychoeducational interventions

Cognitive-behavioral therapy

Relaxation therapy, guided imagery, other stress management

Hypnotherapy

Others

Rehabilitative:

Physical modalities (ultrasound)

Therapeutic exercise

Occupational therapy

Hydrotherapy

Heat/cold therapies

Lymphedema therapy

Non-pharmacological Analgesic Approaches

Neurostimulation:

- Transcutaneous
- Transcranial
- Implanted (spinal or peripheral nerve)

Complementary/Integrative:

- Acupuncture
- Massage
- Physical/movement
- Music Therapy
- Art Therapy

Opioids for Cancer Pain

Opioid Analgesics:

- Codeine - mu, kappa, delta
- Morphine (Statex) - mu, kappa, delta
- Hydromorphone (Dilaudid) - mu, kappa, delta
- Oxycodone (Supedol) - mu, kappa, delta
- Buprenorphine (Suboxone) - mu, kappa, delta
- Methadone (Metadol) - mu, kappa, delta
- Fentanyl (patches, injectable) - mu, kappa, delta
- Tapentadol (Nucynta) - mu agonist; NE reuptake inhibition
- Tramadol (Taro) - weak mu agonist, 5HT & NE reuptake inhibition

Methadone

Methadone myths/concerns:

1) Methadone doesn't work for 3 days!

Busted!

- Methadone provides analgesic onset at 30 min
- Methadone peak analgesic effect 2.5 – 4 hours
- Analgesia for 4-8 hours with first few doses
- Duration of analgesia increases with repeated doses

Methadone

Methadone myths/concerns:

2) You can't use methadone on opioid naïve patients!

Busted!

- Morphine equivalents of 10 mg/day or less available
- Dyspnea – methadone 0.5 mg po or buccal twice daily
- Pain – methadone 0.5 mg po or buccal q 8 h (morphine equivalent 15mg/day)

Methadone

Methadone myths/concerns:

3) Can't use it with liver failure because it is metabolized in the liver!

Busted!

- All drugs are metabolized in the liver!
- Use the usual mantra – start low and go slow!

Methadone

Methadone myths/concerns:

4) Methadone causes QTc prolongation

Facts:

- Many drugs used in medicine cause QTc prolongation. Methadone may cause QTc prolongation at “higher doses”.
(Harm reduction clinics in Regina do ECGs at methadone 60 - 80 mg daily)
- There are a lot of potential drug and Cytochrome P450 enzyme interactions with methadone.
(How many are clinically relevant?)
- There is no known incidence of QTc prolongation with methadone
Monitor closely - Get an ECG!

Methadone

Routes: PO, buccal, peg tube, rectal, topical
Commercially available tablets 1, 5, 10, 25 mg
Liquid 1mg/ml, 10 mg/ml
Higher concentrations (50 mg/ml, 100 mg/ml) through compounding pharmacy

Topical: Compounding Pharmacy
Lipoderm, other analgesics often added (gabapentin, amitriptyline, diclofenac, ketoprofen, etc.)
Stomahesive powder for wounds that cannot have cream base

Methadone

Metabolism and excretion:

No neurotoxic metabolites!

Metabolism - liver - inactive metabolites

Normal excretion

- urine (20-50%)
- feces (10-45%)

Methadone

No dose adjustment needed in renal failure!

Renal failure excretion

- Feces (100%)
- Useful of patients on dialysis
- Not dialysed

Buprenorphine

Butrans patch – buprenorphine

- 5mcg/hr, 7.5 mcg/hr, 10 mcg/hr, 15 mcg/hr, 20 mcg/hr
- Not on Saskatchewan Formulary

Suboxone - buprenorphine/naloxone

- 2 mg/0.5 mg, 8 mg/2 mg; On Saskatchewan Formulary
- Partial agonist and high binding affinity at mu-opioid receptor
- Antagonist at kappa-opioid receptor (anti-depressant effect)
- Ceiling effect on respiratory depression and constipation.
- There is no ceiling effect for analgesia

N-Methyl-D-Aspartate Inhibitors

Ketamine

- Neuropathic pain
- Pain crisis
- IV infusions – small loading bolus then infused at low sub-anaesthetic dose. Titrate as needed
- Intermittent boluses – chronic pain
- Oral – bioavailability 6 – 17%

N-Methyl-D-Aspartate Inhibitors

Ketamine

- Analgesic on its own
- Metabolite Nor-ketamine stronger analgesic than Ketamine
- Reset opioid receptor sensitivity
- Complete blockade of NMDA activity
- 5 - 7 days treatment
- Sometimes long-term use - bladder irritant

N-Methyl-D-Aspartate Inhibitors

Memantine

- Marketed for Alzheimer's Disease
- Partial antagonist at NMDA receptor
- Slows down firing of NMDA receptor
- Some studies – benefits in fibromyalgia/chronic pain
- Complex regional pain syndrome (CRPS) – reduces pain through NMDA inhibition
- Neuroplasticity of the brain
 - One study – curative of CRPS; Memantine 60 mg daily for 6 months

Sodium Channel Blockers

Lidocaine

Class IB Antiarrhythmic drug

- Administered by iv infusion
- Low risk procedure
- Infusions done at home in some jurisdictions
- In hospital
 - Anesthesiology
- Lasting pain relief – days to weeks
- In Saskatchewan – lack of resources

Sodium Channel Blockers

Mexiletine

Class 1B anti-arrhythmic drug

- Oral route – metabolized to molecule with similar structure to lidocaine
- Minimal reduction on QT interval
- Analgesic results at lower doses (100 mg po bid – tid)
- May titrate to 1200 mg daily (400 mg tid)
- GI intolerance – take with food, sit upright for ½ hour after administration

Neurolytic Blockade/Ablation Techniques

Plexus blocks/ablations:

- **Stellate Ganglion** – head, neck, upper arm, upper chest
- **Cervical Plexus** – surgical anaesthesia
- **Brachial Plexus** – arm, shoulder
- **Celiac Plexus** - liver, gallbladder, stomach, pancreas, spleen, omentum, kidneys, the entire small bowel, first two-thirds of the large bowel
 - **Pain, nausea**

Neurolytic Blockade/Ablation Techniques

Plexus blocks/ablations:

- **Superior Hypogastric Plexus** – pelvic pain
- **Inferior Hypogastric Plexus** – pelvic pain
- **Ganglion Impar** – perineal pain

Neurolytic Blockade/Ablation Techniques

Block

- Temporary
- Bupivacaine – long acting (72 hours)
- Sometimes test of efficacy before ablation

Ablation (Neurolysis)

- Longer lasting
- Radiofrequency – ultrasound (heat)
- Lysis of the nerve plexus:
 - Absolute alcohol, phenol
 - May be repeated every 2 – 3 months if needed

Neurolytic Blockade/Ablation Techniques

- **Stellate Ganglion Block**



Neurolytic Blockade/Ablation Techniques

Stellate Ganglion Block

- Nerve pain
 - Head
 - Neck
 - Upper arm
 - Upper chest
 - Fusion inferior cervical and superior thoracic sympathetic ganglia

Neurolytic Blockade/Ablation Techniques

- **Cervical Plexus Block**

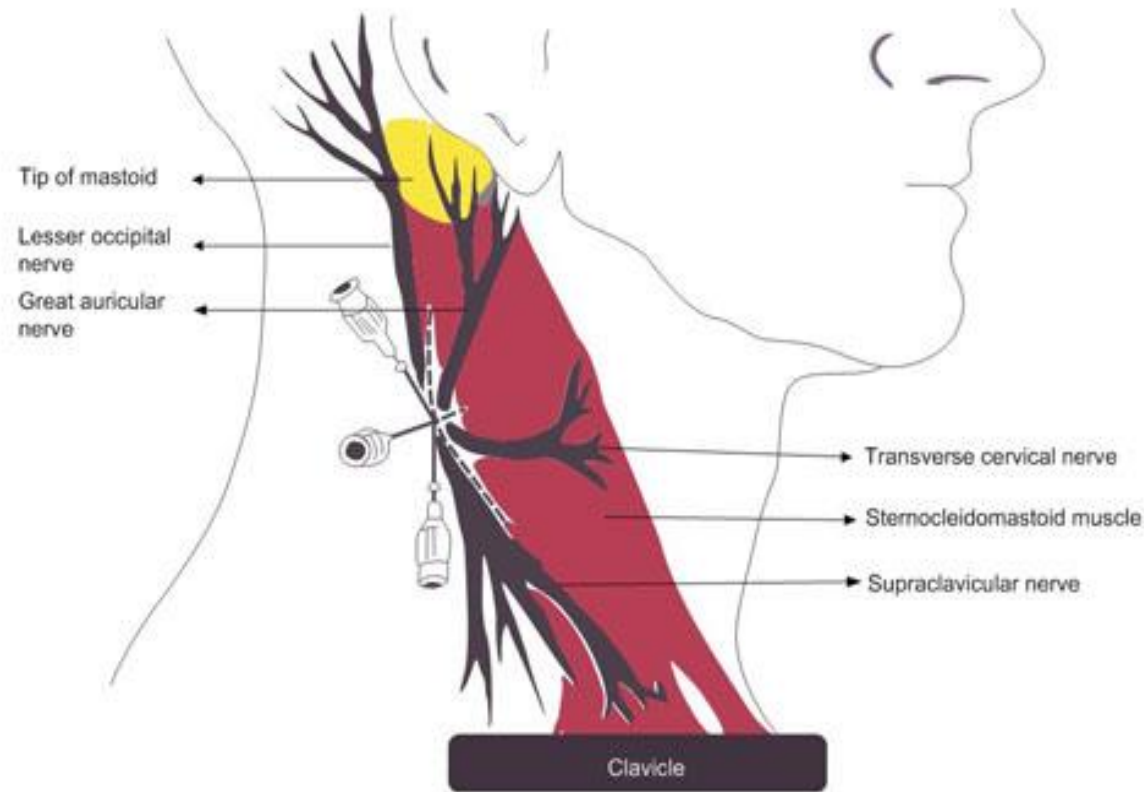


Figure 1 Anatomy of superficial cervical plexus of neck.

Notes: Needle insertion point is along the posterior border of the sternocleidomastoid muscle in the midpoint between the line joining the mastoid tip with the transverse process of the C6 vertebra. The needle shows the method of local anesthetic deposition in a "Yan"-shaped manner.

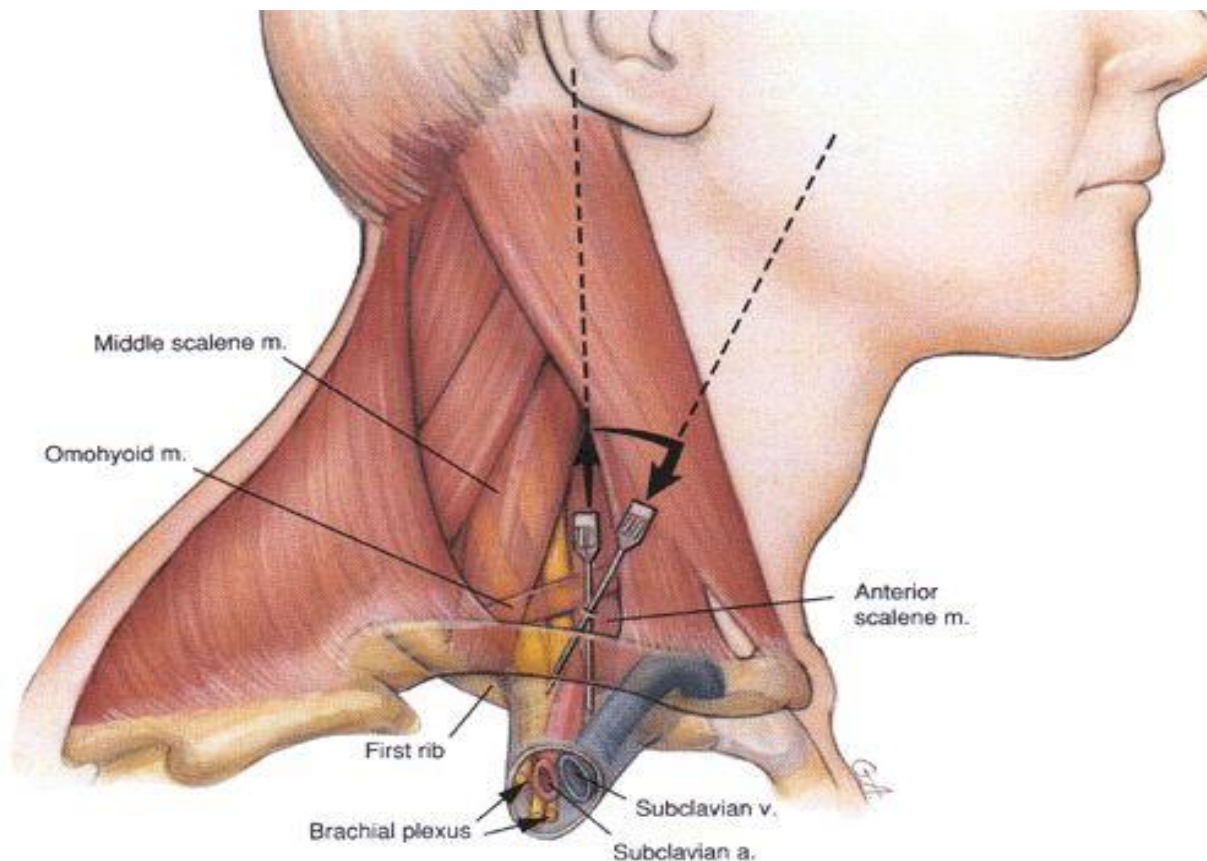
Neurolytic Blockade/Ablation Techniques

Cervical Plexus Block

- Nerve pain
 - Anterolateral neck
 - Superficial structures of ear
 - Clavicle
 - Acromioclavicular joint
 - Structures innervated by C2 – C4

Neurolytic Blockade/Ablation Techniques

- **Brachial Plexus Block**

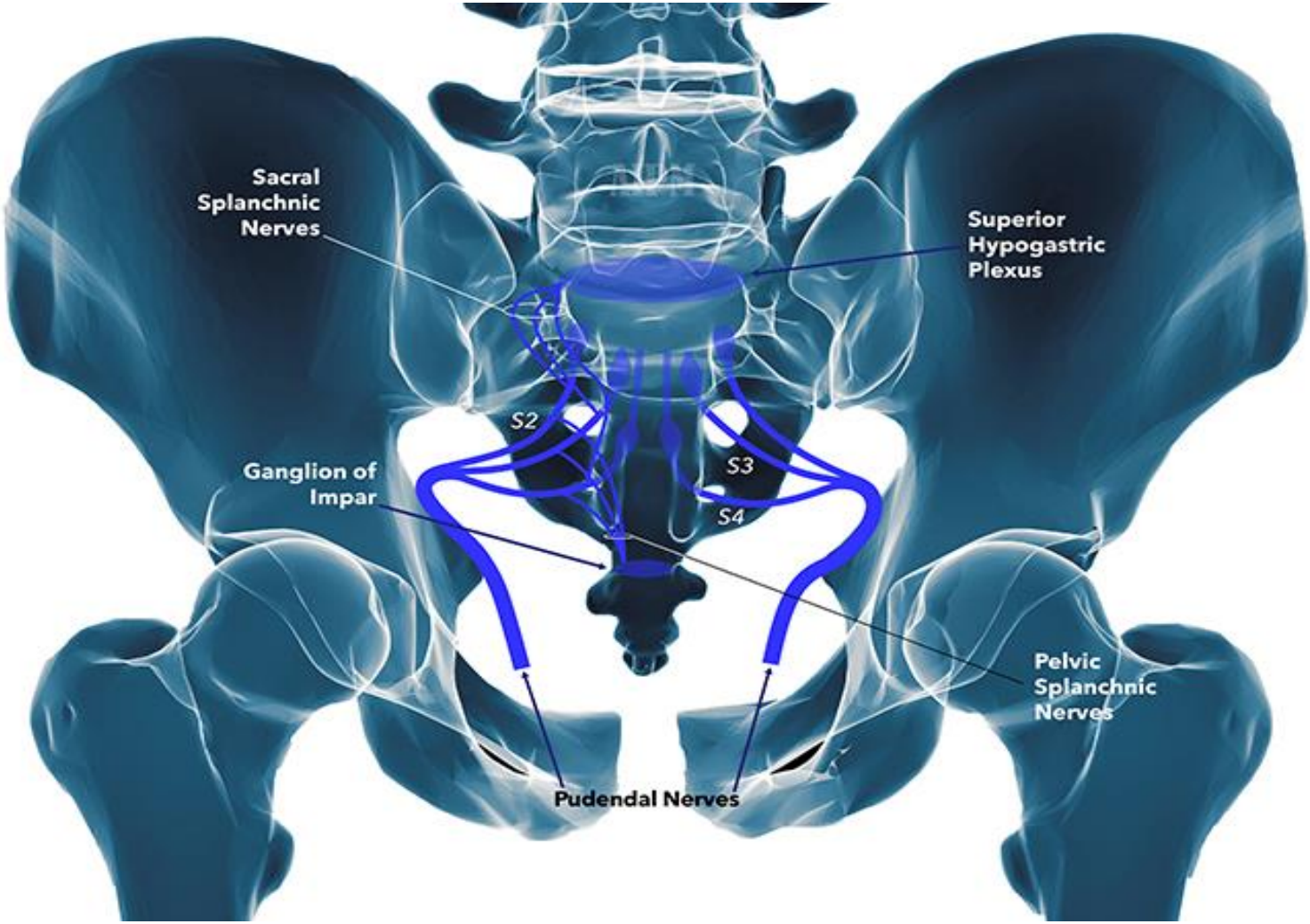


Neurolytic Blockade/Ablation Techniques

Brachial Plexus Block

- Anesthesia
 - Upper limb
 - From shoulders to fingertips
 - C5 – T1 innervation

Neurolytic Blockade/Ablation Techniques



Neurolytic Blockade/Ablation Techniques

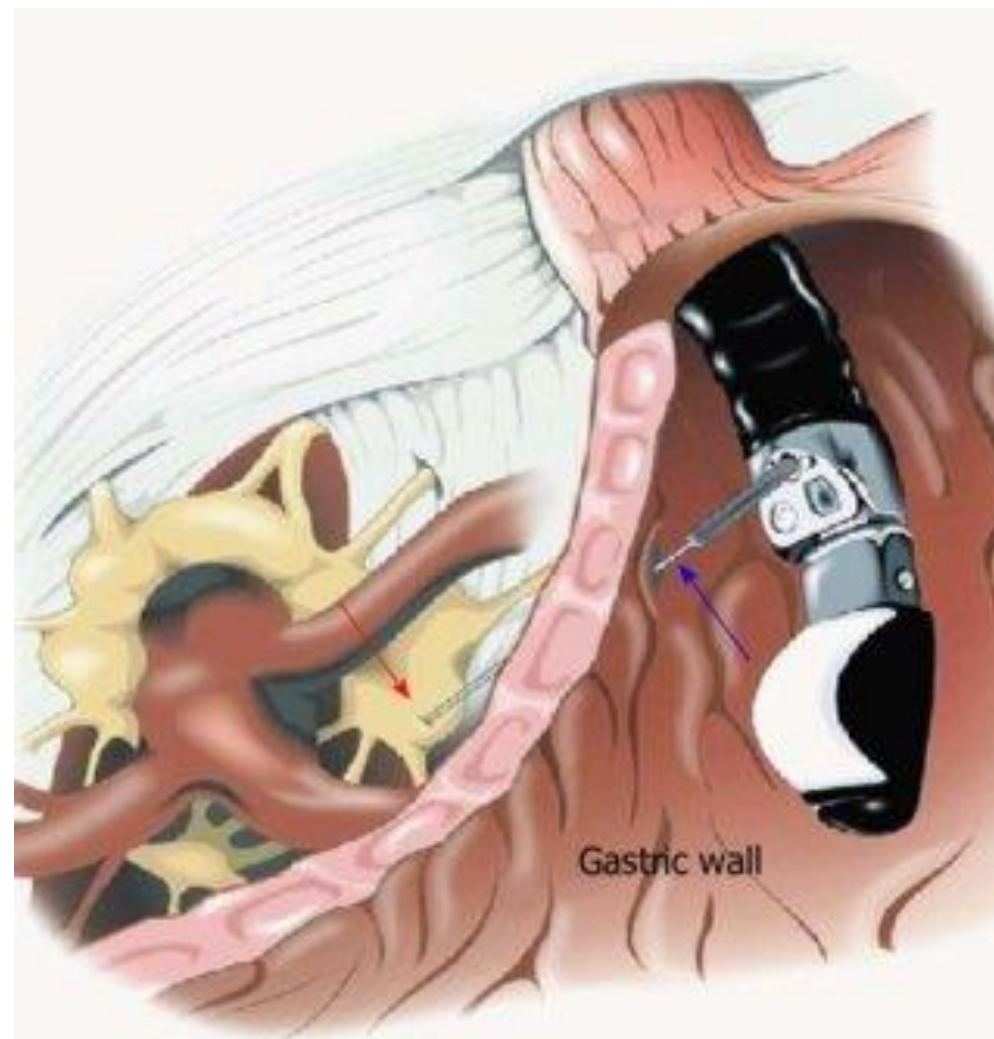
Hypogastric Plexus Block

- Nerve pain - Pelvic
 - Colon
 - Bladder
 - Lower intestines
 - Uterus
 - Ovaries
 - Prostate

Neurolytic Blockade/Ablation Techniques

Celiac Plexus

- Endoscopic approach
- Celiac plexus at red arrow



Neurolytic Blockade/Ablation Techniques

Celiac Plexus

- Posterior Approach

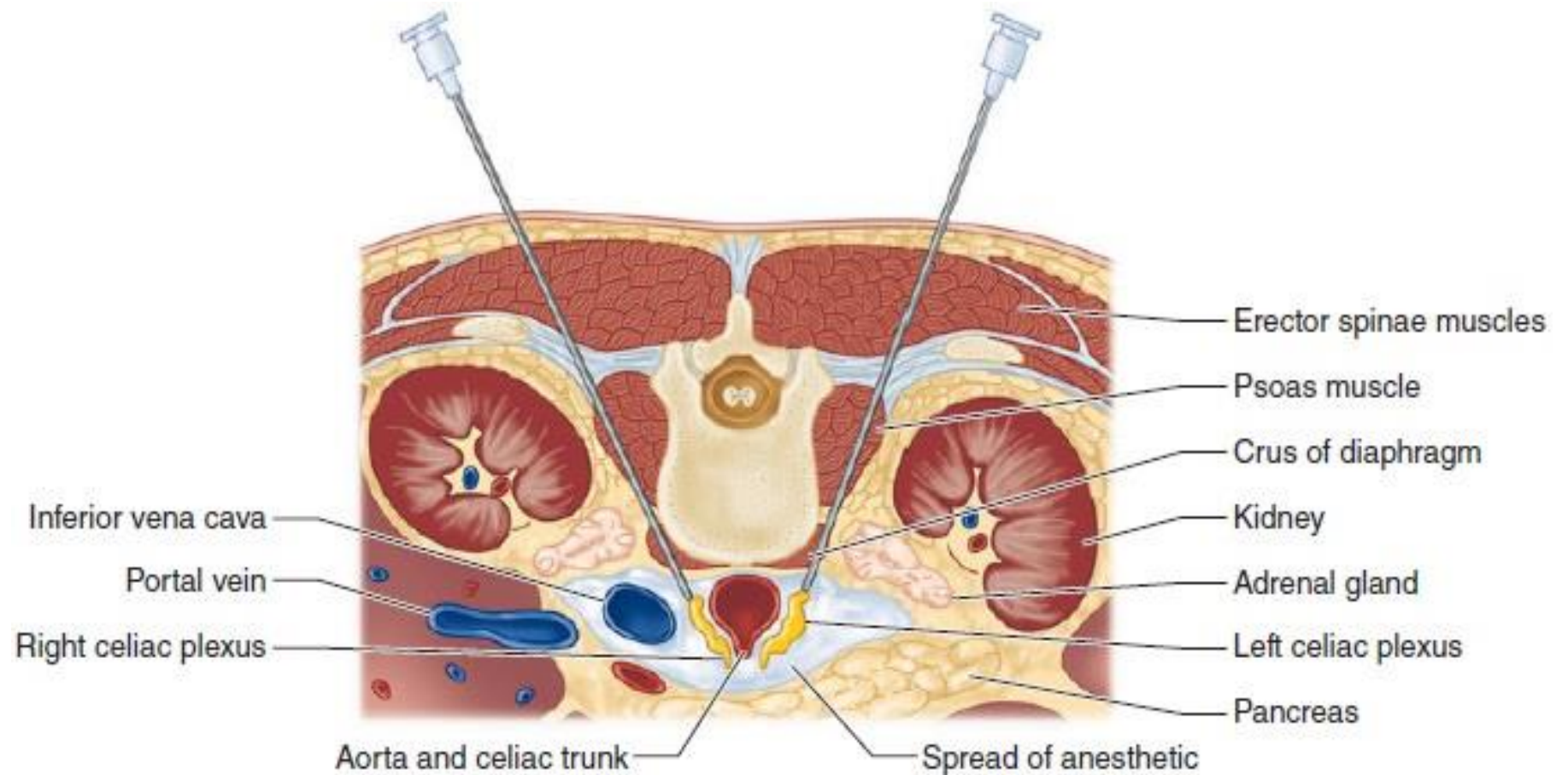
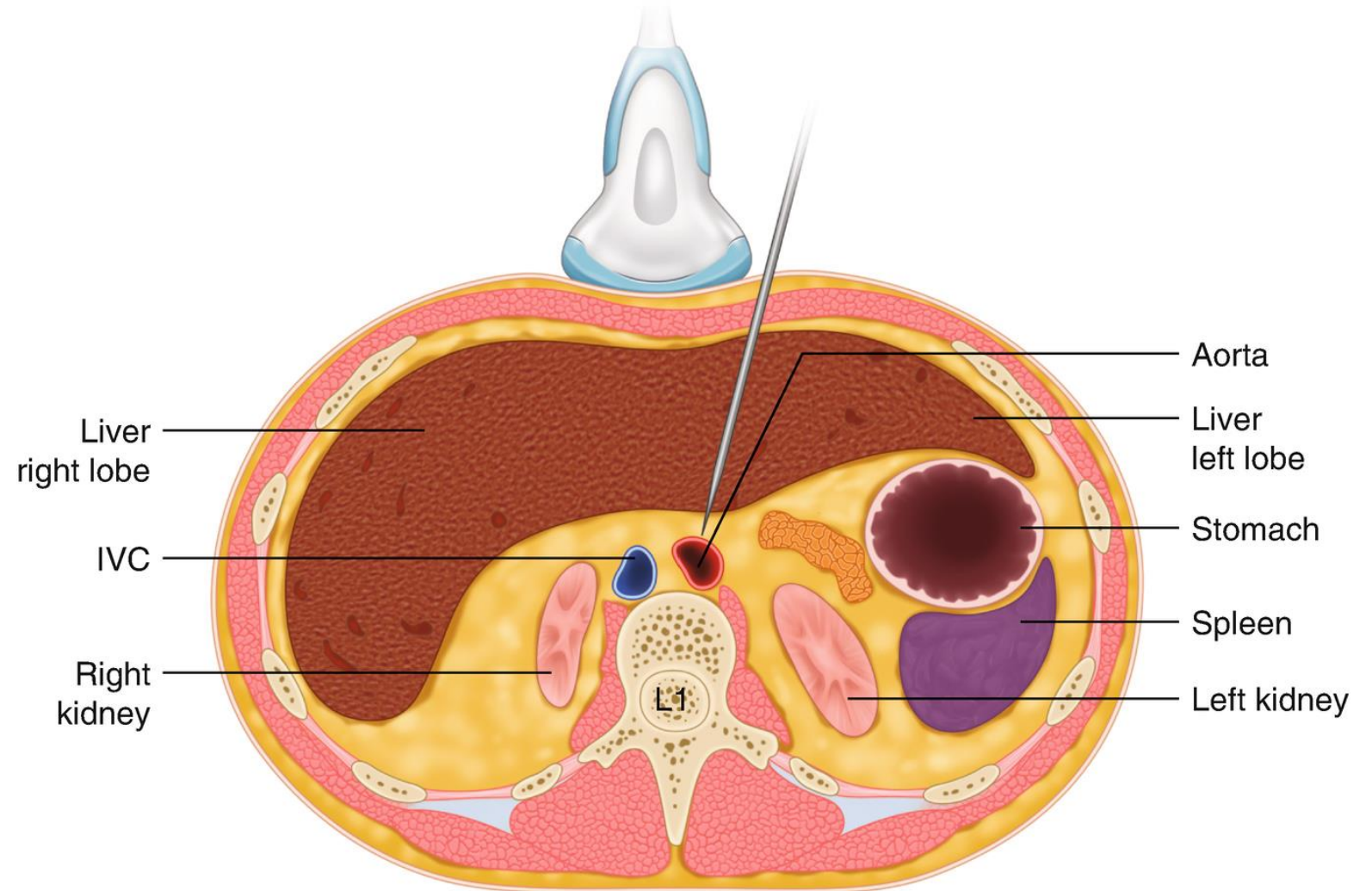


FIGURE 47-21 Celiac plexus block.

Neurolytic Blockade/Ablation Techniques

Celiac Plexus

- Anterior approach
- Ultrasound guidance



Neurolytic Blockade/Ablation Techniques

Celiac Plexus Block

- Nerve pain
- Liver, Gallbladder
- Stomach, Pancreas
- Spleen, Omentum
- Kidneys, Entire small bowel
- First two-thirds of the large bowel

Neurolytic Blockade/Ablation Techniques

Ganglion Impar

Positions for procedure:

- Prone – lithotomy position, needle introduced through perineum
- Lateral – needle introduced through buttock
- Supine – needle introduced just anterior to the coccyx

- Terminal ganglion of the sympathetic chain
- Sits at sacrococcygeal junction (tailbone)

Neurolytic Blockade/Ablation Techniques

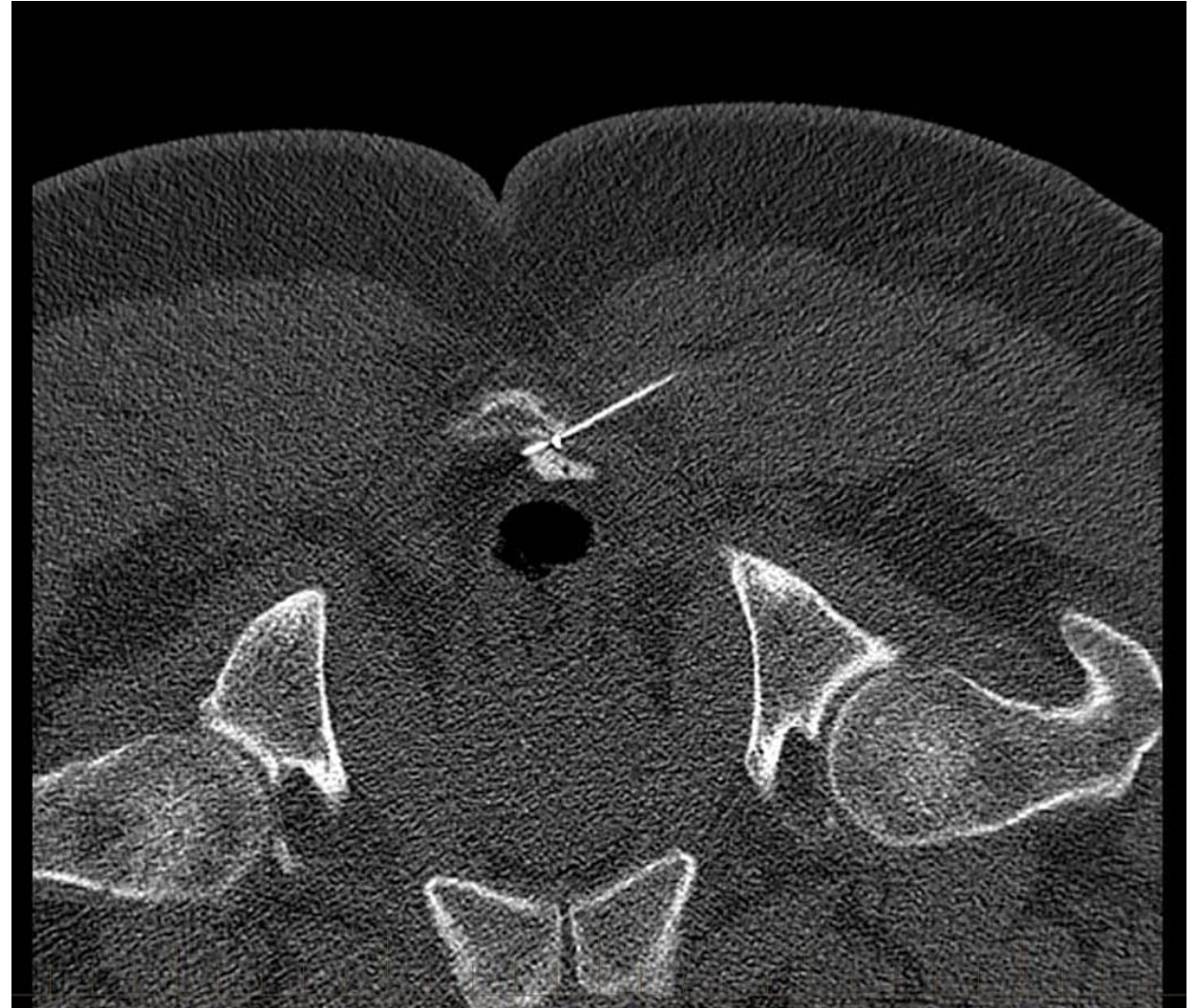
Ganglion Impar

- Nerve Pain
 - Vulva
 - Distal rectum
 - Anus
 - Distal urethra
 - Distal 1/3 of vagina

Neurolytic Blockade/Ablation Techniques

Ganglion Impar

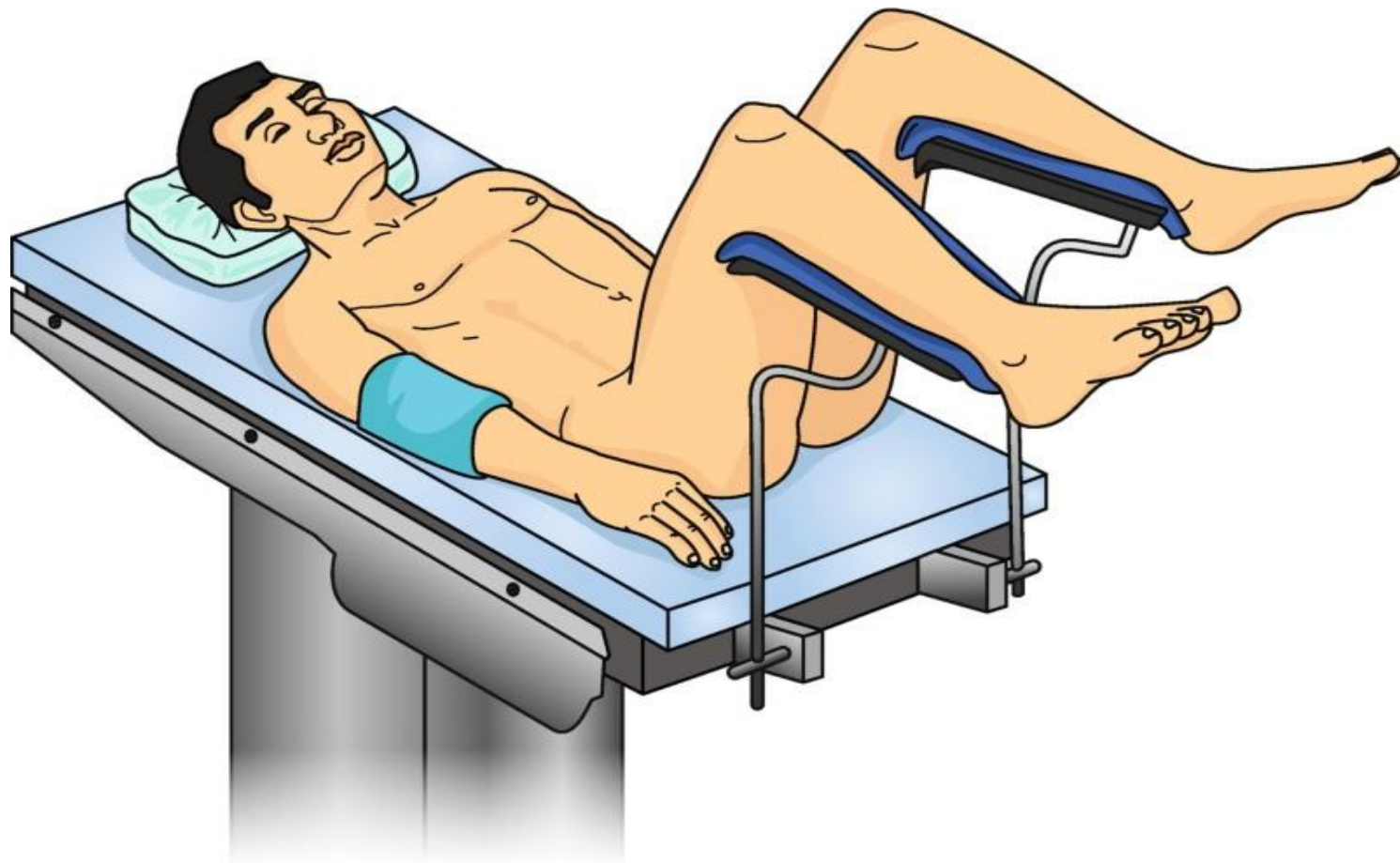
- Lateral approach
- CT guided



Neurolytic Blockade/Ablation Techniques

Ganglion Impar

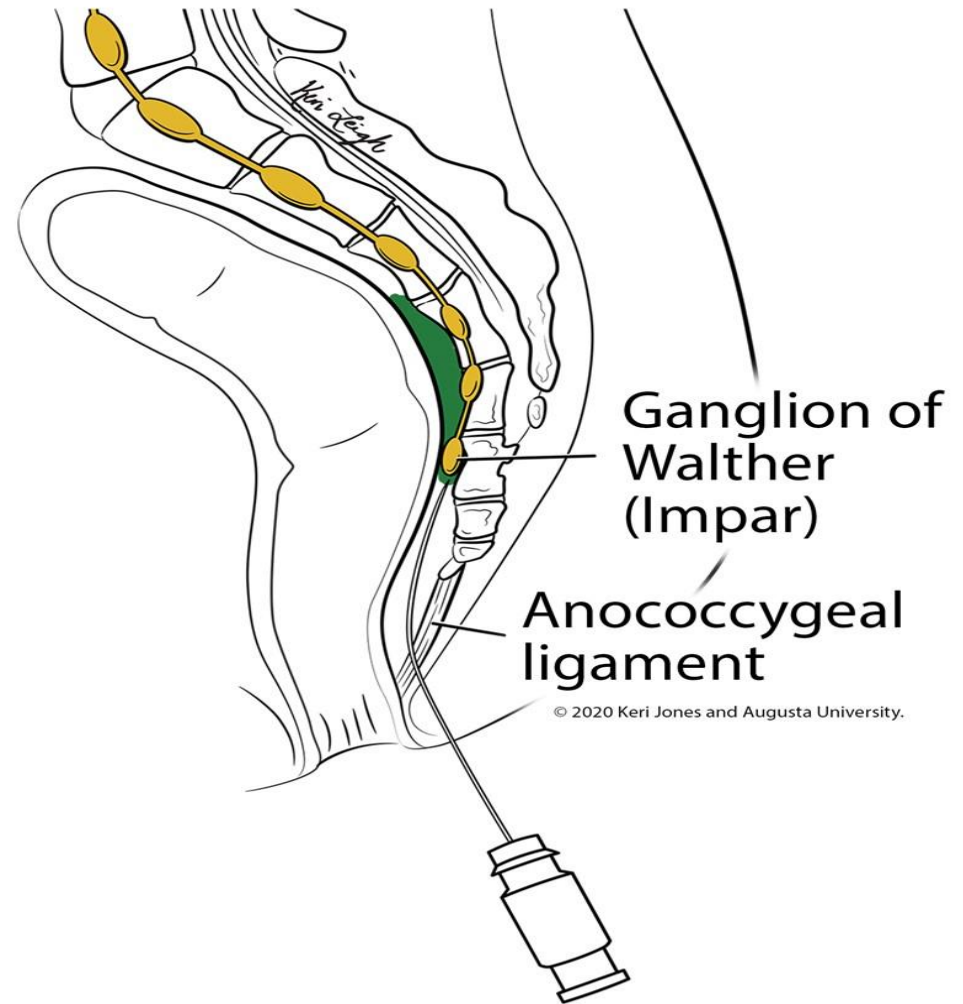
- Lithotomy position



Neurolytic Blockade/Ablation Techniques

Ganglion Impar

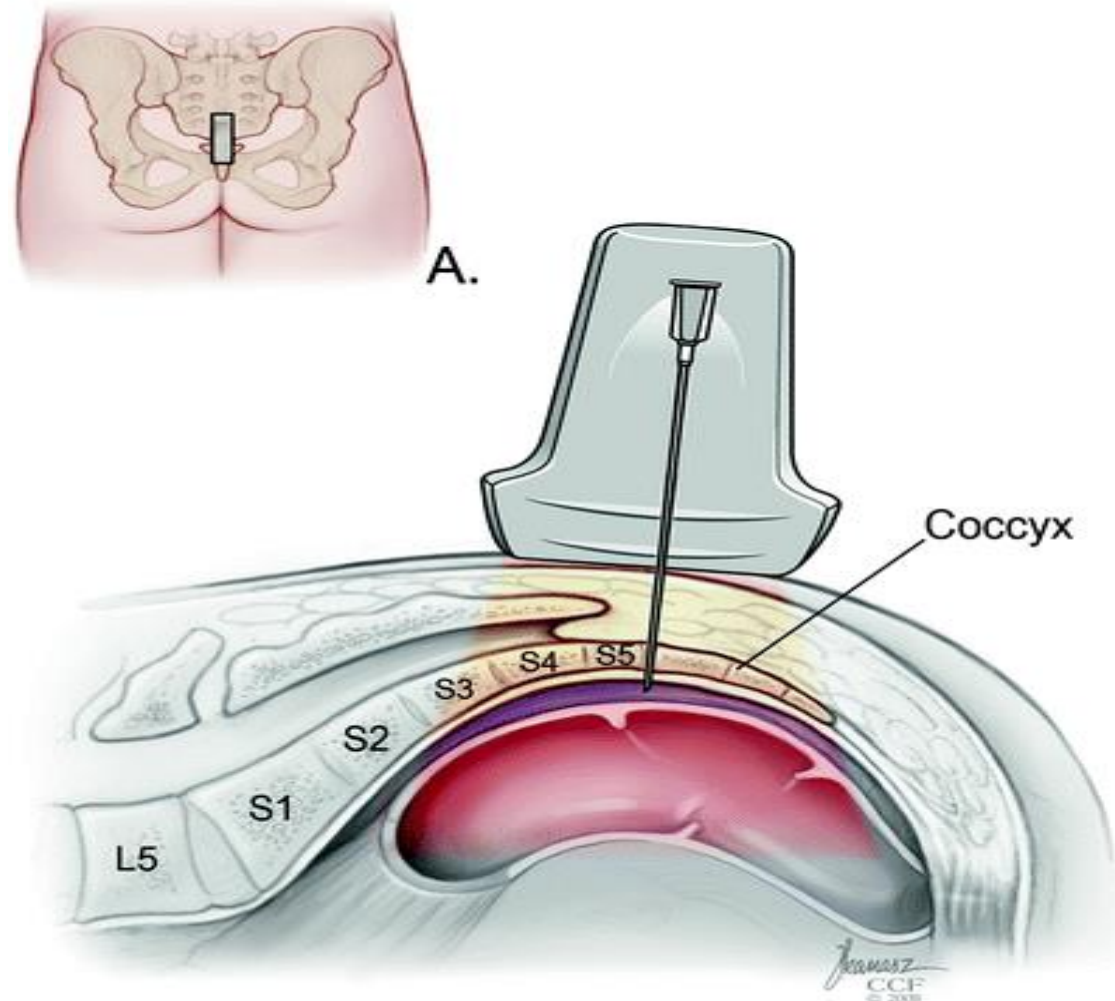
- Lithotomy position



Neurolytic Blockade/Ablation Techniques

Ganglion Impar

- Prone/Posterior approach
- Ultrasound guidance



Neuraxial Spinal Analgesia/Anaesthesia

Epidural analgesia:

- Opioids and/or local anesthetics into the epidural space
- Bolus injection, continuous infusion or patient-controlled
- Long or short term therapy, all age groups
- Catheter tip placement close to spinal nerves (dermatomes)
- Analgesia in the dermatomes supplied by specific spinal nerve

Epidural anaesthesia:

- Higher doses of same medications
- Loss of sensation and motor function

Neuraxial Spinal Analgesia/Anaesthesia

Spinal anaesthesia

Other names:

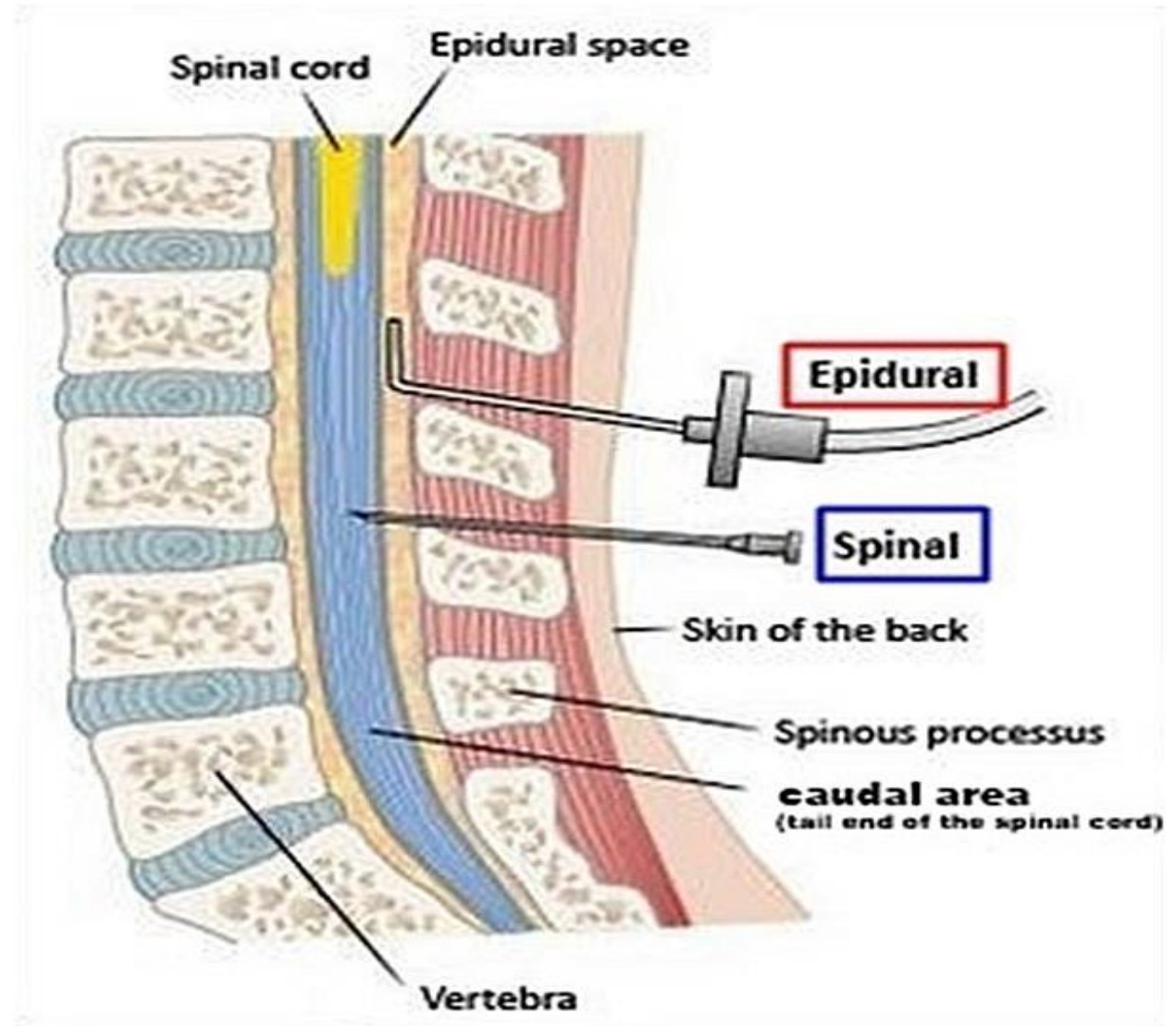
- Spinal block
- Subarachnoid block
- Intradural block
- Intrathecal block

- Local anaesthetic and/or opioid into the subarachnoid space

Neuraxial Spinal Analgesia/Anaesthesia

Epidural

Intrathecal Spaces
(Spinal)



Neuraxial Spinal Analgesia/Anaesthesia

Spinal vs. Epidural

	<u>Spinal</u>	<u>Epidural</u>
• Location:	lumbar only	anywhere
• Duration of Block:	brief	prolonged
• Procedure Time:	brief	longer
• Quality of Block:	high	not as good as spinal
• Disadvantages:	increased risk of hypotension, dural puncture headache	
• Advantages:	produces segmental block, greater control over analgesia, possibility of long term analgesia	
• Profound muscular blockade occurs with neuraxial anesthesia		

Resources

Essential Practices in Hospice and Palliative Medicine. Unipack 3. Pain Assessment and Management;. American Academy of Hospice & Palliative Medicine

Operative Neurosurgery. https://operativeneurosurgery.com/doku.php?id=neuroablative_procedure

Epidural analgesia: What nurses need to know:

- Sawhney, Mona PhD, RN, NP: [August 2012 - Volume 42 - Issue 8 - p 36-41.](#)
- doi: 10.1097/01.NURSE.0000415833.28619.a1

Neural blockade in chronic and cancer pain – PubMed

- <https://pubmed.ncbi.nlm.nih.gov/9246585>

Spinal Anesthesia - StatPearls - NCBI Bookshelf

- <https://www.ncbi.nlm.nih.gov/books/NBK537299>

Image Epidural and Spinal spaces.

- <https://anesthesiam.blogspot.com/2019/08/total-spinal.html>

Image Anterior Celiac Plexus Ablation

- https://link.springer.com/chapter/10.1007/978-1-4939-7754-3_16

Image Posterior Celiac Plexus Ablation

- http://www.brainkart.com/article/Celiac-Plexus-Block_27285

Image Endoscopic Celiac Plexus Neurolysis

- https://www.researchgate.net/figure/Endoscopic-ultrasound-guided-celiac-plexus-neurolysis-Red-arrow-celiac-ganglion-Blue_fig1_263514850

Image Ganglion Impar Supine

- http://www.medillsb.com/illustration_image_details.aspx?AID=14719&IID=309207

Image Ganglion Impar Lateral

- <https://www.melbournradiology.com.au/interventional-radiology/spine-back-injections-pain-management/>

Image Posterior Ganglion Impar

- https://link.springer.com/chapter/10.1007/978-1-4419-1681-5_13

Lithotomy position

- [Emergency-live.com](#)

Wall & Melzack's Textbook of Pain

Practical Management of Pain (PRACTICAL MANAGEMENT OF PAIN (RAJ))

Bonica's Management of Pain

Facts & Comparisons

- <https://www.wolterskluwer.com/en/solutions/lexicomp/facts-and-comparisons>

Cervical Plexus Block

- <https://www.researchgate.net/publication/230723373>

Brachial Plexus Block

- <https://specialty.medicaldialogues.in/supraclavicular-brachial-plexus-block-spinal-anaesthesia-of-upper-limb-can-be-performed-more-safely>

Hypogastric Plexus Block

- [Aimsworth Institute of Pain Management](#)

Pancreatic Cancer Network

- <https://pancan.org/facing-pancreatic-cancer/living-with-pancreatic-cancer/managing-side-effects-palliative-care/symptoms-pain/celiac-plexus-block>

Brachial Plexus

- <https://www.ncbi.nlm.nih.gov/books/NBK470213>

Session Wrap Up

- Thank you for joining us!
- Please fill out our feedback survey, a link has been added into the chat.
- A recording of this session will be emailed to registrants within the next week.

Thank You



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