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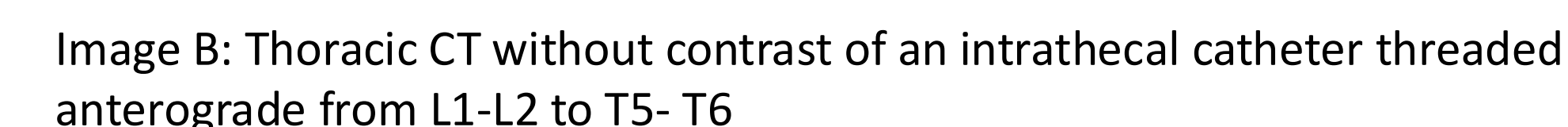
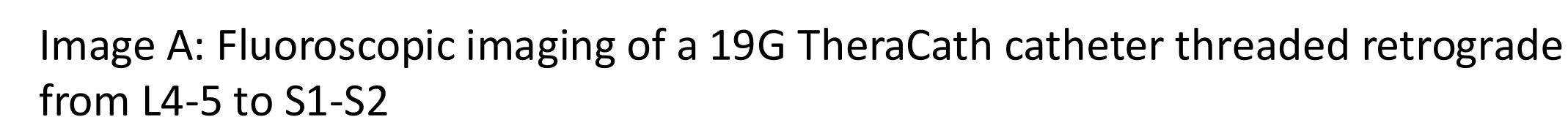


Intrathecal drug delivery is a major advance for refractory cancer pain, allowing targeted relief with lower doses of opioids/local anesthetics than oral/IV administration. Proper catheter placement is essential to maximize pain relief and reduce potential complications, emphasizing the importance of accurate positioning in intrathecal drug delivery systems.

Patient informed consent. As the case is devoid of protected health information, no IRB approval is required per institutional guidelines.

59-year-old female with past medical history of **metastatic colon cancer with metastasis to sacrum**, lung, and pelvis status-post low anterior resection, chemotherapy/radiation therapy and bilateral sacroplasty complicated-by radiation plexopathy with chronic left-sided footdrop and **refractory left hip/sacrum bony pain**, referred to **chronic pain for opioid intrathecal pump (ITP)**. She underwent a continuous catheter ITP trial inpatient.

- 17G Tuohy needle was used to enter the intrathecal space at L4-L5. A 19G Theracath® catheter was **advanced retrogradely to S1-S2 (image A)**. This approach was used due to the primary location of pain and cancer burden at sacrum.
- An intrathecal solution containing 50 mcg/mL morphine with 0.0625% bupivacaine was infused initially at 0.1 mL/hr, and later increased to 0.2 mL/hr, providing significant pain relief (>80%) and **reported numbness in the pelvic/perianal region but without bladder/bowel incontinence or motor weakness**.
- The temporary catheter was removed, and the patient was discharged home with the plan for subsequent permanent ITP placement; which occurred later that month.



- Due to technical challenges, after entry into the intrathecal space, the permanent 139.7cm, 1.2mm (4-Fr) Medtronic Ascenda Intrathecal Catheter was threaded **anterogradely with the tip terminating at T5-T6 (image B)**.
- The ITP was initiated to deliver similar morphine and bupivacaine dosing as per the prior trial.
- The patient was discharged following permanent implantation on the same day uneventfully. She was subsequently readmitted on **POD4 for new onset right lower extremity weakness, hypotension and symptomatic bradycardia**.
- After further investigation including spine imaging, this was related to the ITP medication (specifically bupivacaine) at the higher spinal level.
- The patient's ITP infusion rate was gradually **decreased over the next 72 hours by nearly 40%** leading to the resolution of lower extremity weakness and autonomic symptoms.
- The patient noted **adequate relief of sacral pain although not to the degree provided during the trial period in which the catheter tip was at S1-S2**.

- Several medication factors including concentration, lipophilicity, and infusion rates may dictate efficacy of intrathecal drug delivery systems.
- Catheter placement correlating to anatomic site of pain is an important consideration.
- Targeted drug delivery via a retrograde approach to sacral levels is unique with few case reports describing this technique for pelvic pain. Most reported cases of lumbosacral pain treated with IT systems have been successfully managed with catheter tips placed in the thoracic space.
- This patient's maximal analgesic benefit during sacral catheter placement with sparing of adverse effects suggests a potential role for retrograde intrathecal catheter approaches for sacral dermatomal coverage.

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- Deer TR, Hayek SM, Pope JE, et al. The Polyanalgesic Consensus Conference (PACC): Recommendations for Trialing of Intrathecal Drug Delivery Infusion Therapy. Neuromodulation 2017; 20:133.
- Urits I, Petro J, Viswanath O, et al. Retrograde placement of an intrathecal catheter for chronic low pelvic cancer pain. Journal of Clinical Anesthesia 2019. Pages 43-44.