Dual Thoracic and Caudal Epidural Catheters for Abdominoperineal Resection: A Case Report on a Novel Approach for Postoperative Analgesia

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**Background**
- Abdominoperineal resection (APR): surgical excision of the sigmoid colon, rectum, and anus, and the construction of a permanent end colostomy\(^1\)
  - Performed for patients with a distal rectal cancer
- Recent years: Epidural analgesia recommended for open colorectal surgery
- APR surgical sites—Non-contiguous dermatomes (sacral and thoracic)
- Double catheter method shown effective in large abdominal exploratory laparotomies\(^2\)
  - This is the first time this therapy has been reported for APR

**Case Description**
- Patients: A= 55 yo M, 61 kg ; B= 34yoF, 73kg
- Pre-surgical diagnoses: Rectal Cancer (Both)
- At PACU: Infusion programmed to 2mg/ml of ropivacaine– basal rate of 4ml/hour caudally and 6ml/hour thoracically
  - PCA dose- 2ml, lockout time- 30min
- PACU multimodal Protocol
  - Preoperative/postoperative gabapentin, preop celecoxib, intraop/postop low dose ketamine infusion
  - A’s 6-day post-op: Total 3,000 mg PO tramadol
    - 1/2 after no caths on Post-Op Day 5
  - B’s 6-day post-op: Total 105mg PO oxycodone
    - More after no caths on Post-Op Day 4
    - Neither pt breakthrough pain post-op Day 1
    - Neither pt need more beyond PO analgesics
    - Neither need morphine (atypical)

**Photos Right to Left**
1. Out-of-Plane needling position
2. Touhy needle slightly withdrawn over the catheter, but left in the subcutaneous space to protect the catheter during tunneling
3. Tunneling Technique
4. Final Step Tunneling

**Methods**
- Patients positioned in the left lateral decubitus
- T10 epidural placed via right paramedian approach
  - Used loss of resistance to air and saline
  - 17g Touhy needle, 19g epidural catheter
  - Caudal catheter placed using ultrasound (US)
    - 40mm footprint high freq linear probe
    - Sacral cornu via transverse plane thru hiatus
    - 17g Touhy needle, 19g epidural catheter
- US visualization of satisfactory spread of injectate
  - Touhy withdrawn but left in subq space
  - Technique to protect in tunneling
    - 2nd 17g Touhy inserted near right PSIS
    - Directed subq to needle- place caudal cath
    - 1st needle completely withdrawn
    - Cath passed retrograde thru 2nd tunnelled Touhy
    - 2nd needle w/drawn
    - Skin nick closed w/ 2-Octyl Cyanoacrylate

**Conclusions**
- Advanced regional anesthetic technique for non-contiguous surgical site dermatomes
- Req’s experience for placement
- Req’s extra time prep
- Other Techniques considered:
  - Thoracic epidural w/ IV PCA
    - Likely increased opioid usage, comparatively\(^3\)
  - Thoracic epidural hydrophobic opioid
    - Increased opioid side effects from systemic absorption\(^4\)
  - Epidural anesthesia administration w/ add’l local anesthesia at perineal site
  - Long post-op recovery for APR

**References**
1. Morson, JRT, Fleming P, Abdominal perineal resection (APR): Open technique, In: UptoDate, Weiser, M (Ed), UptoDate, Waltham, MA 2020