



Paravertebral Blocks for Rescue Analgesia after Intraoperative Intercostal Nerve Ablation in a Double Lung Transplant Patient

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INTRODUCTION

- Optimal pain management strategy post lung transplantation is unknown^[1].
- Cryoablation is increasingly utilized as part of multimodal analgesia (MMA) following lung transplant despite limited data^[2].
- Paravertebral block (PVB), an established technique first described in 1905, is an effective analgesic option for lung transplant patients.

CASE DESCRIPTION

- 62-year-old female with end stage pulmonary emphysema and Composite Allocation Score (CAS) of 32.9 undergoing elective double lung transplant.
- History of:
 - Advanced chronic obstructive pulmonary disorder
 - Coronary artery disease
 - Subclavian steal syndrome
 - Prediabetes
 - Depression
- Additional history of conservatively managed duodenal diverticulum perforation favored opioid-sparing multimodal analgesia.
- Intraoperative cryoablation for intercostal nerve block performed bilaterally.
- Patient expressed significant pain (7/10) and incentive spirometry of 800ml on POD3.

CASE DESCRIPTION (CONTINUED)

Initial pain management

- Opioid sparing MMA consisted of scheduled acetaminophen 650mg QID, gabapentin 200mg TID and a ketamine infusion at 10mg/hour.
- PRN Opioids: Oxycodone 2.5 and 5mg Q4H for moderate and severe pain, Hydromorphone 0.2mg Q4H for breakthrough pain.
- Intraoperative cryoablation.

Rescue analgesia

- Given the pain scores, opioid use and low volumes on spirometry, acute pain team was consulted for rescue postoperative analgesia.
- Bilateral T5 paravertebral catheters inserted under ultrasound guidance.
- Continuous lidocaine infusion 0.25% at 7ml/hour.
- PVB catheters removed following a 48h treatment course.

Opioid Use

- No opioid requirements for 36 hours after paravertebral catheter insertion.
- Patient denied thoracic pain, but opioid use resumed due to progressively worsening abdominal distension and pain secondary to new small bowel ileus formation.

POD	Total Morphine Milligram Equivalents (MME)	Average numerical pain scores	Incentive Spirometry
POD 2	26.3mg	5.7	700ml
POD 3	38.5mg	7.8	800ml
POD 4	0mg	2.5	1300ml
POD 5	22.5mg	5.2	1500ml

Table 1: Postoperative progression in average numerical pain scores, opioid consumption (in total morphine milligram equivalents), and incentive spirometry. Insertion of paravertebral catheters on POD3.

DISCUSSION

- Opioid-sparing multimodal analgesia is essential in lung transplant patients to minimize side effects, reduce postoperative complications, and support enhanced recovery.
- Cryoanalgesia is emerging as a promising analgesic modality; however, further studies are needed to determine analgesic efficacy and outcomes in patients undergoing double lung transplants.
- Previously underutilized, paravertebral blocks are regaining popularity and provide safe and effective analgesia following lung transplant surgery.
- Although there is growing interest, the use of paravertebral blocks remains limited by practitioner experience, subsequently hindering frequent use for broader clinical adoption^[3].

CONCLUSION

- Effective management of post-operative pain in lung transplant recipients can be challenging.
- Paravertebral blocks offer an adequate and feasible option for postoperative pain control post lung transplant.
- Further studies are needed to compare analgesic efficacy in different regional modalities such as cryoanalgesia, paravertebral blocks, and thoracic epidurals.

REFERENCES

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