

PD-47. PARAVERTEBRAL BLOCK WITH CATHETER FOR BREAST CARCINOMA SURGERY AND CONTINUOUS PARAVERTEBRAL INFUSION AT HOME.

Buckenmaier III, C.C.^{1,2}; Kamal, A.¹; Rubin, Y.¹; Klein, S.M.¹; Nielsen, K.C.¹; Steele, S.M.¹

1. Anesthesiology, Duke University Medical Center, Durham, North Carolina; 2. Anesthesiology, Walter Reed Army Medical Center, Washington, District of Columbia

Introduction: Paravertebral blocks (PVB) are an alternative to general anesthesia for breast surgery.¹ Important benefits of PVB include improved analgesia, decreased incidence of nausea and vomiting, reduced surgical stress response, and improved patient satisfaction. Paravertebral catheter technology and the recent development of disposable infusion pumps can potentially extend the advantages of PVB beyond 48 h, while preserving the benefits of early discharge. This case series describes the use of continuous PVB for outpatient breast surgery.

Methods: Twenty patients scheduled to undergo mastectomy or breast lumpectomy with axillary dissection agreed to have a continuous paravertebral block for their surgery. Using moderate sedation with IV midazolam 1-5 mg and fentanyl 50-250 mcg, the patients underwent single injection PVB at levels T1 and T6 with 5 ml of 1% ropivacaine using the technique described by Greengrass and Steele.² The T1 and T6 blocks are needed for surgical anesthesia of the breast since these segments are inconsistently blocked with a single injection block at T3. A single injection block with 20 mL of 0.5% ropivacaine and catheter placement was performed at T3. All local anesthetic solutions contained epinephrine 1:400,000. The paravertebral catheter apparatus (Fig. 1-A) consists of an 18G, 9 cm Tuohy needle attached to a hemostasis valve/sideport assembly with 50 cm tubing connecting (B. Braun Medical Inc., Bethlehem, PA) a 20 mL syringe with local anesthetic. The catheter was a standard 20 G open tipped epidural catheter.

A 25 G spinal needle was inserted to find the T4 transverse process. The Touhy needle apparatus was then introduced. When contact with the transverse process was made the Touhy needle was walked off cephalad and advanced 1 cm. A characteristic loss of resistance is appreciated as the needle passes through the superior costo-transverse ligament into the T3 paravertebral space. Following incremental injection with intermittent aspiration for blood, a catheter was advanced through the needle 2 cm into the paravertebral space. The needle was then removed and the catheter secured with skin adhesive, Steri-Strip™, and a transparent dressing. Fifteen minutes later, decreased temperature sensation in the T1-T6 dermatomes was sought as an indication of successful block. Patient's were then transferred to the operating room and sedated with IV propofol 50-150 mcg/kg/min. Inadequate analgesia was treated with conversion to general anesthesia. Paravertebral catheter infusions of 0.2% ropivacaine at 10 mL/h were begun while the patient was in the operating room. Infusions were maintained during the patient's recovery (all patients were discharged within 23 hours of their operation). Prior to catheter removal, the paravertebral catheter was injected with 20 mL of 0.5% ropivacaine and epinephrine 1:400,000.

Three patients elected to continue their paravertebral infusions for pain control at home with a disposable infusion pump pictured in Fig. 1-B (Accufuser™ 275 10 mL/h, McKinley Medical, Wheat Ridge, CO) for approximately 27 h. Patients were given detailed instructions on catheter care, catheter removal, and warning signs of local anesthetic toxicity. The home infusion patients were contacted daily during the infusion and again one week following catheter removal and queried on verbal analog pain scores (VAS) and narcotic use.

Results: All twenty patients underwent PVB with catheter placement without complication. One patient required conversion to general anesthesia. All patients were pleased with their pain control, all were discharged within 23 h, and there were no readmissions. There were no complications related to anesthesia.

Of the three patients maintained on the catheter infusion at home, none required opioid analgesia following their operation or during recovery at home. All three patients noted a VAS of zero prior to discharge, on postoperative day 1, and at 1 week.

Conclusion: This case series describes the successful use of a new technique and apparatus for surgical PVB with paravertebral catheter placement in patients undergoing breast cancer surgery. This technique achieves profound chest wall analgesia that can be extended beyond 24 hours while still preserving the ambulatory status of the patient. The technique is a useful alternative anesthetic for patients requiring major surgery of the chest, especially in an ambulatory surgery setting.

1. Klein SM, Bergh A, Steele SM, Georgiade GS, Greengrass RA. Thoracic paravertebral block for breast surgery. *Anesth. Analg.* 2000;90:1402-5.

2. Greengrass R, Steele S. Paravertebral blocks for breast surgery. *Tech. Reg. Anesth. Pain Man.* 1998;2:8-12.

