



Original contribution

# Local anesthetic infiltration versus caudal epidural block for anorectal surgery: a randomized controlled trial<sup>☆</sup>

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## Abstract

**Study Objective:** To compare patient satisfaction with local anesthetic infiltration versus caudal epidural block for anorectal procedures.

**Design:** Randomized controlled trial.

**Setting:** Operating room and postanesthesia care unit (PACU).

**Patients:** 22 adult, ASA physical status I, II, and III patients scheduled for anorectal surgery.

**Interventions:** Patients were randomized to receive either local anesthetic infiltration (LAI) (n = 10) by the surgeon or caudal epidural block (CEB) (n = 12) by the anesthesiologist.

**Measurements:** The primary outcome was patient satisfaction with the anesthetic technique and pain relief 12 hours after the procedure on a 4-point Likert scale. Secondary outcomes included time to first analgesic request, time to reach a PACU discharge score (REACT score) of 10, time to ambulation, time to discharge home, and adverse events.

**Main Results:** More subjects in the CEB group (83.3%) were highly satisfied than in the LAI group (20%;  $P = 0.003$ ), assessed 12 hours postoperatively by telephone interview. Subjects in the CEB group requested analgesia 423 minutes later (95% confidence interval, 286–560 min) than subjects in the LAI group. Differences in time to reach a REACT score of 10, time to ambulation, and time to discharge home were not statistically significant.

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**Conclusions:** Caudal epidural block provides higher patient satisfaction and longer lasting analgesia than LAI without delaying discharge.  
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## 1. Introduction

Anorectal disorders occur in approximately 5% of adults in the United States [1,2]. Although most of these patients can be treated conservatively, many patients require anorectal surgery. Many of these procedures are now performed as same-day surgery [1,2].

Commonly used anesthetic techniques for anorectal surgery include local anesthetic infiltration (LAI) with or without sedation, central neuraxial block, and general anesthesia [3,4]. It is unclear whether any of these techniques is superior according to uniform outcomes assessment. An optimal anesthetic technique for outpatient surgery should provide excellent operating conditions, absence of adverse events, high patient acceptance, and rapid patient recovery and discharge [5-7].

The use of a caudal epidural block (CEB) for anorectal surgery may offer some of these benefits and provide prolonged postoperative analgesia, avoiding the need for early systemic analgesics and their potential side effects. However, CEB is an anesthetic technique not commonly used for ambulatory surgical procedures in adults. We therefore conducted a randomized controlled trial (RCT) to compare LAI with CEB for anorectal outpatient surgery.

## 2. Materials and methods

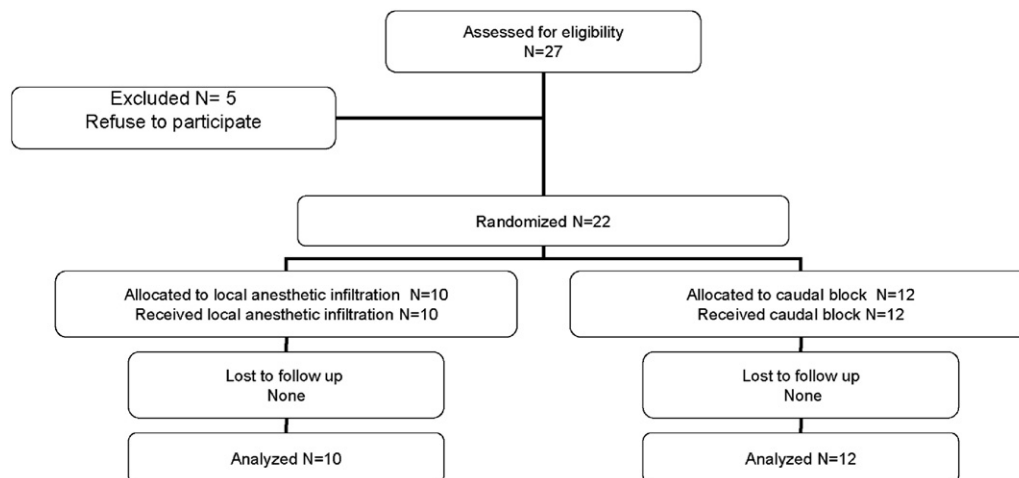
After receiving New England Medical Center's institutional review board approval for this randomized, controlled, open-label study, written, informed consent was obtained from all eligible study participants. Adult patients 18 to 80 years of age scheduled for outpatient anorectal

surgery, ASA physical status I, II, and III, were enrolled. Exclusion criteria included morbid obesity; neurological, neuromuscular, psychiatric, or bleeding disorders; or systemic anticoagulation.

A computer-generated randomization list was used to allocate subjects to receive either LAI or CEB. Sequentially numbered, opaque, sealed envelopes concealed group allocation.

Enrolled patients received midazolam intravenously (IV) for preoperative sedation. Perianal LAI using 20 to 30 mL of bupivacaine 0.25% was administered by a single surgeon (A. H.) in the operating room with patients placed in the prone position. The initial 10 mL was infiltrated as a dermal ring block at the intersphincteric groove, and the remainder was infiltrated deep through the ring block to anesthetize the perineal branch nerves to the sphincter. The anesthesiologist (Z. S.) performed CEB using 20 to 25 mL of bupivacaine 0.25% in the preoperative holding area with the patient in the lateral decubitus position. Noninvasive blood pressure and arterial oxygen saturation (SpO<sub>2</sub>) were monitored, and IV access was established. The sacral cornuae were then palpated, and adhering to sterile precautions, two to three mL of lidocaine 1% was given for cutaneous analgesia. The CEB was administered using a 22-gauge, pencil-point spinal needle inserted through the sacrococcygeal ligament at an angle 45° to the skin and advanced into the sacral canal for approximately two cm. After negative aspiration of blood and/or spinal fluid, bupivacaine was injected into the caudal epidural space in increments of 5 mL or less. Fluid loading before the CEB was not routinely provided.

Patients in the CEB group received IV midazolam, and patients assigned to LAI received IV midazolam, fentanyl, or propofol for sedation before local anesthetic administra-



**Fig. 1** Flow diagram of the phases of the study.

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