



## Thoracic Spinal Anesthesia for Surgical Treatment of Bilateral Gynecomastia in Adolescent Patient. Case Report

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### Abstract

**Background:** Gynecomastia is defined as the benign proliferation of breast tissue in men. being physically uncomfortable, psychologically distressing and generating distress in teenagers. If clinical treatment does not resolve the best approach, it is surgical treatment that brings the best benefit in the medium and long term.

**Case Report:** Male patient, 15 years old, 70 kg and height of 165 cm, ASA I, Goldman I, without allergies, or other comorbidities, was indicated to undergo surgical correction of bilateral gynecomastia. Multimodal anesthesia with spinal thoracic anesthesia with local anesthetic and fentanyl, NSAID, dypirone, dextroketa mine and surgical wound infiltration with levobupivacaine was indicated. Segmental thoracic anesthesia (C4 to T9), grade 1 motor block, without cardiocirculatory changes and neurological complications were obtained. At the end of the procedure, the patient went from the operating table to the transport stretcher without assistance.

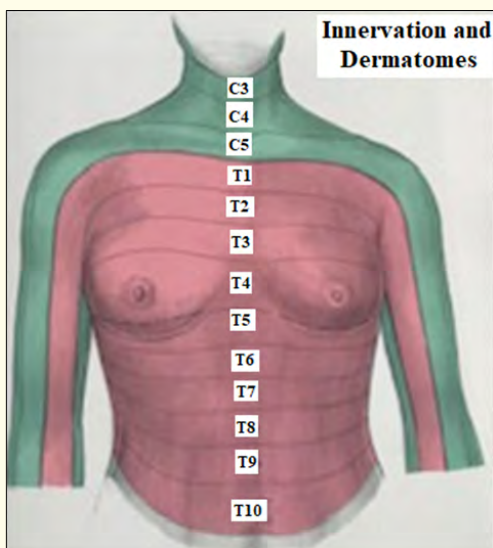
**Conclusion:** This multimodal anesthetic technique using hyperbaric local anesthetic is safe since it generates few adverse effects, predominance of sensitive roots, quick recovery and provides segmental anesthesia.

**Keywords:** Thoracic Spinal Anesthesia, Segmental Spinal Anesthesia, Multimodal Anesthesia, Gynecomastia, Surgical Treatment

### Introduction

Gynecomastia (GM) is defined as the benign proliferation of breast tissue in men. It can be physically uncomfortable, psychologically distressing and may have a negative impact on self-confidence and body image [1,2]. It can occur at all ages, and be unilateral or bilateral, generating anxiety, pain and discomfort, becoming a health problem [1-3]. The increase in anabolic use by men and environmental contamination with estrogen-like substances may stimulate glandular proliferation in male breast tissue [1]. The etio-

logy of GM can appear during puberty, using drugs, male hypogonadism, endocrine dysfunctions, non-endocrine diseases, and several other pathologies [1-3]. For cases of persistent GM, the best results are generally obtained through a surgical approach, combining liposuction and breast adenectomy. Anatomically, the male breast similar to the female breast, extends from the second through the seventh intercostal nerves and some terminal branches from the superficial cervical plexus [4] (Figure 1).



**Figure 1:** Innervation and Dermatomes of Breast.

With the assumption that there is a high possibility that the GM will spontaneously regress, the decision on when to treat surgically is often difficult [2]. GM typically has a relatively gentle recovery period. You may feel sore during the first three days of at-home rest, but pain is usually minimal. Most men who use medication to improve their overall comfort find that over-the-counter pain relievers are sufficient [5]. Surgery is usually indicated when medical treatment fails or is not tolerated or refused by patients. Traditionally, surgery has been the mainstay of therapy in such cases, as well as for men for whom medical therapy fails, is not tolerated or refused. Thus, tissue removal is preferable for aesthetic reasons [6]. This patient was an adolescent and opted in agreement with family members for surgical treatment. This case report demonstrates surgery for bilateral gynecomastia under thoracic spinal anesthesia, integrating a multimodal analgesia strategy.

### Case Report

We obtained informed consent and discussed throughout the anesthetic technique with the patient and family. Male patient, 15 years old, 70 kg and height of 165 cm. Physical status ASA I, Goldman I, without allergies, or other comorbidities, was indicated to undergo surgical correction of bilateral gynecomastia.

Laboratory exams, ECG and Chest X-Ray all within normal limits for age. Pre-anesthetic medication was not administered. Anesthetic technique with thoracic spinal anesthesia with local anesthetic, fentanyl, and infiltration of the surgical wound with local anesthetic and associated with venous sedation has been proposed. Before induction of thoracic spinal anesthesia, routine monitoring (electrocardiogram, pulse oximetry, and noninvasive blood pressure measurement) every 10 minutes. After monitoring the initial assessment of blood pressure 120x60 mmHg, heart rate 70 bpm and saturation 99% in room air.

After venoclysis in the hand of the left upper limb with 18G extracath, hydration was started with 500 mL of lactated Ringer. After sedation with midazolam (1 mg) and dexroketamine (10 mg) intravenously were administered [7]. After cleaning the skin with chlorhexidine the thoracic spinal puncture was performed with the patient in the sitting position, by the paramedian line in the T<sub>7</sub>-T<sub>8</sub> interspaces using 25 Quincke needle. After appearance of cerebrospinal fluid (CSF) 7.5 mg of 0.5% hyperbaric bupivacaine, and 20 µg fentanyl were injected in separate syringes, with fentanyl first and after bupivacaine.

Then, the patient was placed in the supine position in a 10° head-down position for 5 minutes. and the level of sensory block superior and inferior was tested with the needle mandrel every minute up to 5 minutes. At the same time motor block was assessed according to the modified Bromage scale (0: no motor block; 1: can flex the knee and move the foot but does not raise the leg; 2: does not flex the knee, moves the foot; 3: cannot move foot or knee).

Five minutes after injection of the anesthetic and fentanyl in CSF, the upper sensory level was in the C<sub>4</sub> dermatome and lower level was in the T<sub>9</sub>, and the motor block of the lower limbs grade 1, being then released for surgery. Before skin suture, local subcutaneous infiltration was performed with 10 mL of 0.5% levobupivacaine (S75:R25) without vasoconstrictor on each side. The medications administered intravenously in the OR were: ceftriaxone 1 g, dexamethasone 10 mg, dipyrone 2 g, tenoxican 40 mg and ondansetron 8 mg.

Analgesia and relaxation enabled the procedure, generating comfort for both patient and surgeon. The anesthetic-surgical procedure lasted 35 minutes. At the end, there was superior sen-

sory block in T<sub>1</sub> and inferior sensory block in T<sub>6</sub> and motor block Bromage 0. Only one more dose of midazolam (1 mg) was needed. There was no arterial hypotension, bradycardia, nausea, itching or breathing difficulties during the procedure. At the end of the surgery, the patient went from the operating table to the transport stretcher without assistance.

He was immediately released to the infirmary with a free liquid diet and prescription of dipyrone 1 g venous every 6 h and tenoxicam 40 mg venous every 12 h. Post-anesthetic visits were performed at 6 h and 12 h. Pain intensity was measured using the verbal numeric scale (VAS). After 6 h, the client had eaten early and had diuresis. He was free of pain (VAS=0), nausea, itching and headache. For logistical reasons, he remained in hospital bed. After 12 h, he was without venous catheter, without pain (VAS=0) and expressed a desire to go home. He was discharged with a 1 g dipyrone prescription by mouth, every 6 h. He was contacted by cell phone on the first, second and third postoperative days and he did not report pain, and nor any neurological complications. At the end of 30 days he was contacted again by phone without any neurological complaints

## Discussion

The concept of multimodal analgesia proposes the combination of analgesics with different mechanisms and sites of action, generating better analgesia, less opioid consumption and less adverse effects. In the present case, the patient underwent thoracic spinal anesthesia with association of local anesthetic and fentanyl, and surgical wound was infiltrated with levobupivacaine (S75: R25) and tenoxicam and dipyrone at the end of the surgery, with no pain assessed by VAS.

Adequate control of postoperative pain after surgery can be a challenging task, depending on the type of surgery and perioperative planning. GM surgery usually has a relatively short recovery period, ranging from 1 to 3 days. You may experience pain for the first three days but the pain is usually minimal. Most men control pain with simple analgesic drugs, a fact that occurred in this case with the use of dipyrone. In the three days of pain assessment by telephone, the patient did not reveal any value on the pain scale through the VAS.

For asymptomatic men with long-standing stable GM, no specific treatment is necessary. For clinical treatment, several drugs have been used, but without well-designed prospective studies

such as: tamoxifen, raloxifene, clomiphene, testolactone, anastrozole, and danazol [6]. Surgery may be the preferred treatment in these men and also in men who fail, do not tolerate, or decline medical therapy as well as in the patient who prefers surgical removal for cosmetic reasons. The main objectives of the surgical treatment of GM are to restore the normal contours of the chest, eliminate the inframammary fold, correct the position of the areola-nipple complex, remove redundant skin, create symmetry between the two halves of the chest and minimize scarring [8]. Since it causes anxiety, psychosocial discomfort of adolescents. In the evaluation 30 days after the adolescent was without anxiety and happy with the surgical procedure.

Segmental thoracic spinal anesthesia has recently been described and showing its benefits [9]. The thoracic spinal puncture showed a rapid onset of action, regardless of baricity, decrease in the incidence of hypotension with faster recovery of the blockade, with low incidence of paresthesia and no spinal cord injuries in 636 patients [10]. These facts happened in this case report. In 5 minutes after injection of the anesthetic site, the segmental level of anesthesia was between C<sub>4</sub> and T<sub>9</sub>, with grade 1 of the lower limb block, without cardiocirculatory changes and without neurological complications. The fact that we used hyperbaric bupivacaine that privileges the sensitive roots [9,10] associated with fentanyl provided long-lasting analgesia without motor block, which allowed the passage from the operating table to the transport stretcher to the room without assistance. Another strategy used in multimodal analgesia is infiltrative analgesia around the injured soft tissues with levobupivacaine (S75:R25). This technique adds greater pain control without the need for opioids in the postoperative period.

The safety of thoracic spinal anesthesia has been demonstrated through MRI because it demonstrates that the subarachnoid space is larger in the middle thoracic region compared to high and low regions [13-15]. Anesthesiologists are reluctant to perform it fearing direct trauma to the spinal cord. Thoracic spinal anesthesia is used in several surgical procedures, with isobaric and hyperbaric local anesthetic and both needles (Quincke and Whitacre) [10,14]. It makes it possible to titrate lower doses of local anesthetic with a consequent reduction in severity and incidence of arterial hypotension and faster reversal of motor block [10,14]. Dextroketa mine at a dose of 0.1 mg/kg provides sufficient sedation to place the patient in position for spinal puncture and puncture pain relief in 50% of patients, without hemodynamic changes [7].

Between the years 1980 and 2014, a total of 5,124 patients have been treated for gynecomastia with surgical excision, liposuction, or a combination of both [16]. A total of 3,130 specimens were collected with 5% of the cases being unilateral. In this case report, the patient had bilateral GM.

### Conclusion

Thoracic spinal anesthesia as part of the multimodal analgesia strategy is effective in controlling acute postoperative pain in patients undergoing surgical treatment for gynecomastia. This anesthetic technique is safe since it generates few adverse effects, quick recovery and provides segmental anesthesia.

### Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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