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EPIDURAL ANESTHESIA FOR POSTOPERATIVE ANALGESIA FOLLOWING ANTERIOR VERTEBRAL BODY TETHERING

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To editor:

Idiopathic scoliosis is a condition characterized by an abnormal curvature of the spine that typically emerges during adolescence and lacks an identifiable cause. It is more frequently observed in adolescent girls between the ages of 10 and 18[1]. The treatment of juvenile scoliosis cases is determined based on factors such as the severity of the spinal curvature, the patient's age, gender, overall health, and other considerations. Anterior vertebral body tethering (VBT) has recently become a popular surgical technique in the treatment of idiopathic scoliosis. This technique involves providing a non-fusion treatment using flexible spinal implants, allowing the spine to continue growing (Figure 1). The curvature gradually improves as the patient continues to grow[2].

Video-assisted thoracic surgery (VATS) is a routinely and successfully applied minimally invasive method in many thoracic surgical procedures. The first publication related to VATS in spine surgeries was in 1993 by Mack et al.[3] In surgeries involving anterior VBT, VATS is a preferred minimal-invasive approach. Its advantages include smaller incisions, less blood loss, reduced risk of infection, and shorter hospital stays. Although the combination of VBT with VATS is minimally invasive, pain remains a commonly encountered issue. In scoliosis surgery and thoracoscopy, the best analgesia method involves the use of epidural anesthesia along with a multimodal approach[4]. We aimed to share our experience with epidural anesthesia used for postoperative analgesia in VBT surgery performed with VATS.

Anterior VBT with VATS was planned for a 14-year-old female patient weighing 53 kg, diagnosed with idiopathic scoliosis. The patient's scoliosis radiograph revealed a 37-degree right thoracic scoliosis at the level of thoracic vertebra T7-T8 and a 23-degree left thoracic scoliosis at the lumbar vertebra L3-L4 level (Figure 2). A thoracic epidural catheter was planned for postoperative pain management. A thoracic epidural was placed around the 6-7th thoracic vertebraL level, in the lateral decubitus position with intravenous sedation with fentanyl 25 mcg and midazolam 2 mg, using the loss of resistance to air technique. Appropriate epidural placement (B. Braun 22 g) was assessed by negative catheter aspiration for blood or cerebrospinal fluid. An epidural catheter was placed at the 6-7th thoracic vertebral level. A bolus dose of 8 mL of 0.25% bupivacaine was administered. Selective endobronchial intubation was performed, and the operation was performed under general anesthesia. 1 MAC

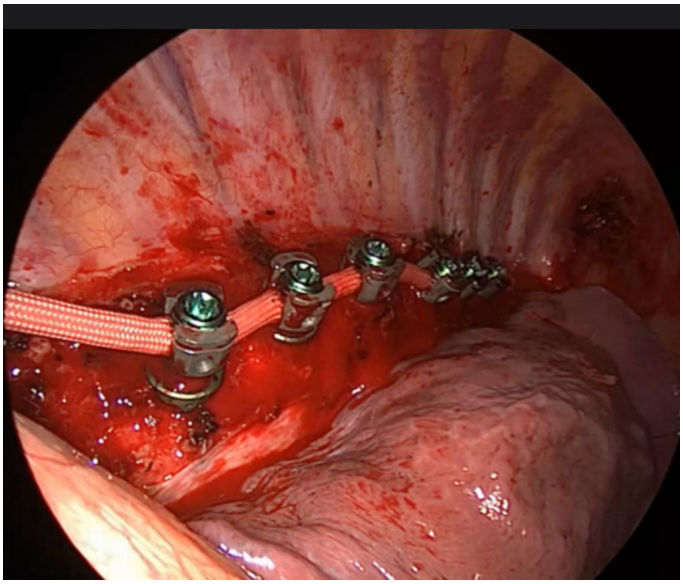

Figure 1. Technique of anterior vertebral body tethering

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Figure 2. Scoliosis levels
L: Left

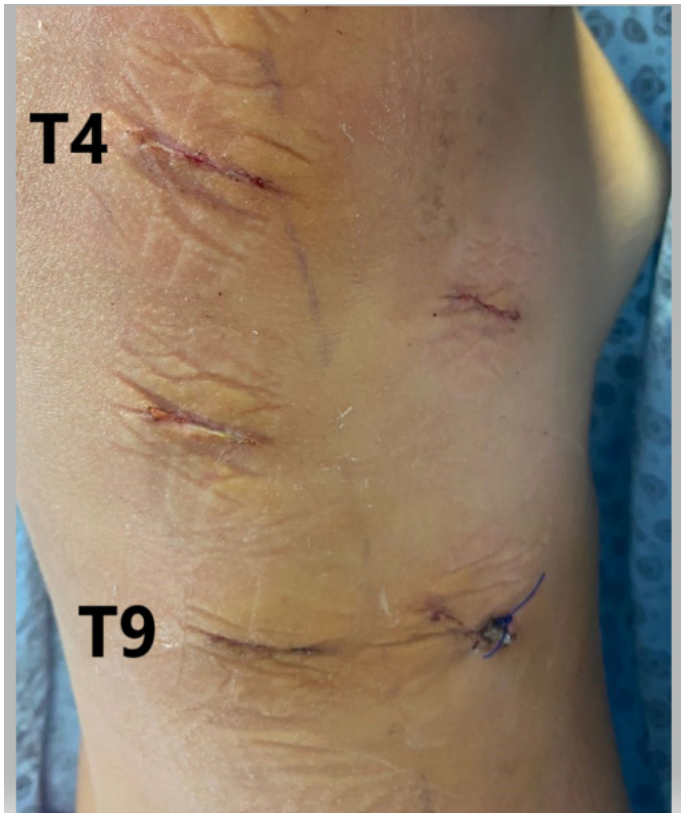

Figure 3. VATS trocar entry sites
VATS: Video-assisted thoracic surgery

of desflurane and remifentanil infusion at a rate of 0.5-2 µg/kg/min were used for anesthesia maintenance. VATS trocar entry sites are shown in Figure 3. Before extubation, 10 mg of meperidine hydrochloride iv and 500 mg of paracetamol iv were administered. For the postoperative analgesia, an epidural patient-controlled anesthesia was prepared with 0.125% Marcaine, 2 mL infusion, 8 mL bolus dose, and a 15-minute lockout period. After the 6-hour-long operation, the patient was extubated and the Visual Analog Scale (VAS) for pain was 0 in the recovery room. During the 24-hour follow-up in the intensive care unit, Paracetamol 500 mg every 6 hours and dexketoprofen 25 mg every 4 hours with maximum daily dose of 75 mg was ordered as a rescue analgesic, and the VAS score was seen at most 3. The epidural chatheter was removed on the third day after surgery. No additional opioid analgesics were needed in the postoperative period.

After scoliosis surgeries, the occurrence of severe pain is a commonly encountered condition and even if the procedure is minimally invasive and performed with VATS, the pain following the surgery requires treatment[5]. The reduction of postoperative pain intensity is crucial, particularly for the rapid improvement of respiratory functions. Epidural anesthesia is known to be effective in reducing pain in VATS procedures[6]. In our case involving anterior VBT performed with VATS, we observed that the use of an epidural catheter for pain control was a suitable solution. As this surgical procedure is increasingly performed, we believe that more comprehensive studies are needed to demonstrate the true effectiveness of the epidural catheter as part of multimodal anesthesia.

Ethics

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