

REPORT OF A CASE OF ULTRASOUND GUIDED CONTINUOUS THORACIC PARAVERTEBRAL BLOCK FOR POST THORACOTOMY ANALGESIA IN A CHILD

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Case Report

We report a case of ultrasound guided thoracic paravertebral block for post thoracotomy analgesia in a child.

A six year old female child, weighing 13 kg was posted for patent ductus arteriosus ligation by a left lateral thoracotomy approach. The planned anesthetic was general anesthesia and placement of a continuous paravertebral block at the end of surgery for post operative analgesia. The patient was induced with propofol 30 mg i.v, fentanyl citrate 25 µg i.v and atracurium 7 mg i.v to facilitate endotracheal intubation, and maintained with sevoflurane in oxygen and air. After skin closure, ultrasound scanning in the transverse plane was done with 25 mm 6-13 MHz broadband linear array probe on a Sonosite micromaxx (Sonosite Inc, Bothwell, MA, USA) at the level of the skin incision just lateral to the thoracic spine. The transverse process of the vertebra, internal intercostal membrane, pleura and the wedge shaped paravertebral space were clearly identified. A 5 cm, 19 G Tuohy epidural needle was inserted inplane from the lateral to the medial side. 1.25 mg.kg⁻¹ of 0.25% bupivacaine was injected in incremental aliquots and the thoracic paravertebral space was observed to distend with the pleura moving ventrally. A 0.63mm OD end hole catheter was inserted. After initial resistance, the catheter passed easily with slight rotation of the needle bevel. The catheter was tunneled and fixed with the tip 2 cm in the paravertebral space. The patient was extubated and shifted to the recovery room and an infusion of 0.125% bupivacaine was started at 0.25mg.kg⁻¹.hr⁻¹. Rescue analgesia consisted of pethidine 13 mg i.m and promethazine 6.5 mg i.m. The need for rescue analgesia was assessed by nursing staff not otherwise connected with the care of the patient. The patient was comfortable, slept well the night of surgery and did not receive any rescue analgesia during the 48 hr observation period.

The parents, ward nurses and surgeons were satisfied with the analgesic regimen. The most efficacious methods of post operative analgesia following thoracotomy are continuous thoracic epidural and continuous thoracic paravertebral blocks. Continuous thoracic epidural under sonographic guidance has been described¹. This technique requires extensive experience

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for safe conduct. Continuous paravertebral blocks using landmarks and loss of resistance to saline as end point^{2,3} and surgical placement of catheters during thoracotomy have previously been described^{4,5,6}. Real time ultrasound guided thoracic paravertebral blocks have been described in adults for analgesia following thoracotomy and breast surgery^{7,8,9}. To date there have been no published report of thoracic paravertebral block in children with ultrasound guidance. Our technique is based on the technique described by Shibata et al⁷. In children, the visualization of the space is better and tracking the needle is easier because of the shorter skin to paravertebral space distance. Real time needle guidance has the potential to decrease the risk of pleural puncture and vascular injection¹⁰. This technique merits further evaluation in children for post operative analgesia following thoracotomy.



- 1 Thoracic paravertebral space
- 2 Pleura
- 3 Internal intercostal membrane
- 4 External intercostal muscle
- 5 Edge of transverse process

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