Bilateral erector spinae catheter placement for bilateral nephrectomy in a paediatric patient

Sir,

In recent literature, the use of erector spinae plane (ESP) block for various surgeries has been introduced and discussed.[1] More specifically, ESP is now being used as an analgesic technique in children.[2] We, therefore suggest the use of this block as a safer and efficacious alternative to traditional techniques such as paravertebral and epidural blocks in children.

A 22-month-old, 11.5 kg male infant presented for open, bilateral partial nephrectomy for removal of nephroblastoma. Prior to surgery, informed parental consent for a general anaesthetic along with the placement of bilateral erector spinae catheters was obtained. After induction of anaesthesia and placement of invasive arterial and central venous lines, the patient was then positioned in right lateral decubitus. A linear ultrasound probe (4–12 Hz) was used to identify the right transverse processes and erector spinae muscles at the level of T7/8. A 20-gauge Tuohy epidural needle was inserted in-plane from a cranial to caudad direction under aseptic conditions. Under ultrasound guidance, 10 mL of 0.1% plain bupivacaine (ropivacaine is unavailable in our institution) was injected into the erector spinae fascial plane at the level of T8. The epidural catheter was then inserted into the plane, at a depth of approximately 2.5 cm, without difficulty and secured with a transparent dressing. The same technique was used on the left side at the level of T7 (the change in level is due to a better image being obtained). Figure 1 shows ultrasound imaging of the transverse processes after the injection of the bolus dose

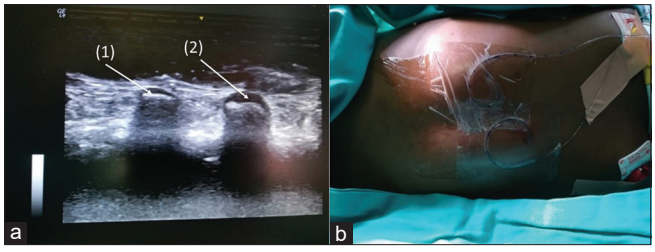

Figure 1: (a) Ultrasound imaging of transverse process (1) and erector spinae fascial plane with injectate of local anaesthetic (2), (b) Bilateral catheters secured at the level of T7 and T8

of local anaesthetic and the epidural catheter placement in the patient. Additional analgesia was provided using a dexmedetomidine infusion of 0.3 μg/kg/h and one dose of 1 mg of intravenous morphine. A second bolus dose of 10 mL of 0.1% bupivacaine was given through each catheter towards the end of the procedure.

An infusion of 3 mL/h of a 0.1% solution of bupivacaine was started in each catheter upon admission to the paediatric intensive care unit (PICU) and continued for 48 hours post-surgery. Analgesia was deemed to be satisfactory, using physiological parameters and the Face, Legs, Activity, Cry, Consolability (FLACC) score of less than three, with reduced requirements of morphine. The catheters were removed without complications on day 2 post-surgery.

The use of ESP blocks has been increasingly discussed and published in the literature, with indications of use including thoracic, abdominal, upper limb and lower limb surgery.[1] Different mechanisms of action of the ESP block have been suggested and include the spread of local anaesthetic into the paravertebral and epidural space as well as lateral spread to cover lateral cutaneous nerve branches.[1]

The ESP block is potentially a simpler and safer alternative to epidural analgesia or paravertebral block anaesthesia because of the relative ease of visualisation of the transverse processes of the vertebrae and the injection of local anaesthesia at a site distant from the spinal cord, the pleurae and any large vessels.[3,4] A systematic review by De Cassai *et al*.[3] reported reduced pain scores and opioid-sparing advantages with a very low complication rate.[3] There is limited data with respect to the use of ESP in children. A retrospective study including 141 paediatric patients on ESP blocks in children reports on the safety of this block and its efficacy in reducing opioid requirements.[2] Other case reports discuss the placement of an ESP catheter and report the benefit of this technique during the postoperative period.[5,6]

As stated, current evidence is reliant on published case reports and observational studies. Prospective randomised clinical trials are required to establish definitive efficacy and safety of ESP blocks and catheters in paediatric patients.

Declaration of parental consent

The authors certify that they have obtained all appropriate consent forms. In the form the Parent's

has/have given his/her/their consent for his/her/their child's images and other clinical information to be reported in the journal. The parents understand that their child's names and initials will not be published and due efforts will be made to conceal their child's identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Megan A Wellbeloved, Ellen Kemp

Department of Anaesthesiology, Chris Hani Baragwanath Academic Hospital, 26 Chris Hani Road, Diepkloof, Johannesburg 1864, South Africa

Address for correspondence:
Dr. Megan A Wellbeloved, Department of Anaesthesiology, Chris Hani Baragwanath Academic Hospital, 26 Chris Hani Road, Diepkloof, Johannesburg 1864, South Africa.
E-mail: nutmeg.m@gmail.com

Received: 19th August, 2019
Revision: 14th September, 2019
Accepted: 05th November, 2019
Publication: 07th January, 2020

REFERENCES

1. Chin KJ, Adhikary SD, Forero M. Erector spinae plane (ESP) block: A new paradigm in regional anesthesia and analgesia. Curr Anesthesiol Rep 2019;9:271-80.
2. Asku C, Gurkan Y. Defining the indications and levels of erector spinae plane block in pediatric patients: A retrospective study of our current experience. Cureus 2019;11:e5348.
3. De Cassai A, Bonvicini D, Correale C, Sandei L, Tulgar S, Tonetti T. Erector spinae plane block: A systematic qualitative review. Minerva Anestesiol 2019;85:308-19.
4. Fang B, Wang Z, Huang X. Erector spinae plane block versus paravertebral block. An Transl Med 2019;7:174.
5. Adler AC, Yim MM, Chandrakantan A. Erector spinae catheter for neonatal thoracotomy: A potentially safer alternative to a thoracic epidural. Can J Anesth 2019;66:607-8.
6. Kaplan I, Jiao Y, AuBuchon JD, Moore RP. Continuous erector spinae plane catheter for analgesia after infant thoracotomy: A case report. A A Pract 2018;11:250-2.

Access this article online	
Quick response code	Website: www.ijaweb.org
	DOI: 10.4103/ija.IJA_628_19

How to cite this article: Wellbeloved MA, Kemp E. Bilateral erector spinae catheter placement for bilateral nephrectomy in a paediatric patient. Indian J Anaesth 2020;64:81-2.