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Cervical epidural anaesthesia an alternative for combined neck and thorax surgery

Sir,

Cervical epidural analgesia (CEA) is an analgesic technique useful for surgeries involving the upper body. Access to cervical epidural space (CES) is possible through cervical interspace (C6–C7) or alternatively, from an upper thoracic interspace (C7-T1) with a catheter directed cephalad [1]. The distribution of sensory blockade in CEA extends from C2 to T10, with a lower median of T3 [2]. Several newer blocks are used for surgeries on neck and thorax such as cervical plexus block and cervical paravertebral block for neck surgery, PECS 1 & 2, serratus plain block, erector spinae block, intercostal nerve block, rhomboid intercostal plain block and thoracic paravertebral block for thoracic surgeries. None of the above blocks including thoracic paravertebral block (TPVB) provide a wide range of analgesia to cover surgery on both neck and thorax [3].

Here we report a case of 46 year old female posted for combined thyroidectomy with neck dissection and modified radical mastectomy in a single sitting. Written and informed consent for procedure was taken from the patient. Complete postoperative analgesia requires blockade of a wide range of dermatome (C2-T6), for which we inserted the epidural catheter in CES through C7-T1 intervertebral space. Once the patient was shifted to the operating room, standard ASA monitors were applied. Patient was placed in sitting position with slight flexion of her head. The seventh cervical vertebra was marked as an orientation landmark and the area was thoroughly cleaned and draped. The skin and subcutaneous tissue were infiltrated with 2% of 2 ml lignocaine solution. The epidural space was reached at C7/T1 vertebrae level with a standard 18-gaugeTuohy needle (B. Braun, Melsungen, Germany) using midline approach with a loss of resistance to air technique. An epidural catheter 20-gauge was then inserted via the Tuohy needle and advanced cephalad in the epidural space for 3 cm. Correct placement of the epidural catheter was verified by negative aspiration for blood and cerebrospinal fluid (CSF), followed by administration of test dose containing 3ml of 2% lignocaine with 15μg of adrenaline (1:200000) and position of catheter tip was confirmed by fluoroscope. Then a bolus of 10ml ropivacaine (0.1%) was administered to provide intraoperative analgesia. The patient was induced with injection fentanyl 2 μg/kg, propofol 2mg/kg and vecuronium 0.08mg/kg and the airway was secured with a 7mm (ID) endotracheal tube. The anaesthesia was maintained with oxygen, air and isoflurane. Intraoperative period was uneventful and patient trachea was extubated at the end of surgery. Postoperatively infusion mixture of ropivacaine (0.1%) and fentanyl 2 μg/ml was started at a rate of 5ml/hr for 48hrs. No other analgesic was required during the postoperative period and the patient was pain-free with Numerical Rating Scale (NRS) of <2.

Cervical epidural analgesia is preferred for extensive procedures such as carotid crossover surgeries, carotid-subclavian reconstructions, thyroid, breast, airway, upper limb, and other head and neck surgeries [2]. In our case we used CEA for combined neck and thorax surgery. For breast cancer surgeries, CEA was found to be equally effective as the paravertebral block (PVB) with an advantage of providing full surgical anaesthesia [4].

During CEA bilateral sensory and motor blockade of the upper extremities may occur. The intensity and duration of motor weakness are dependent on the concentration of LA used and at most times observed to be shorter than the duration of analgesia. Jain G et al. [5] compared three different formulations of local anaesthestics (lignocaine 1%, ropivacaine 0.5% and bupivacaine 0.25%) for cervical epidural anaesthesia during thyroid surgery. They found greater motor blockade with ropivacaine because of its relatively lesser dilution (i.e., 2/3 or 0.5% concentration) as compared with the other two local anaesthestics (lignocaine 1%, ropivacaine 0.5% and bupivacaine 0.25%). In our case, we use 0.1% ropivacaine and we have not found diaphragm or intercostals muscles weakness as patient was extubated by end of surgery without prolonging ventilation. It is most likely that CEA causes an incomplete cardiac sympathetic block which results in clinically treatable hypotension and bradycardia. However, the effect of atropine on heart rate (HR) and cardiovascular changes to swallowing, valsalva, and coughing are preserved [6]. We have not noted any complication during intraoperative and postoperative period. Very few comparative studies assessed the effect of CEA, in terms of pain relief (immediate or long-term), decreasing postoperative complications, and improvement in patient satisfaction [7].

The clinical use of CEA must have a strong rationale-mostly supported by unique patient demands and surgical requirement. Based on the present evidence clinical use of CEA can only be considered in extensive carotid artery surgeries, combined neck and thorax surgery and possible oral-hypopharyngeal cancer surgeries. In our case CEA was planned on the basis of unique patient demand to provide prolonged postoperative regional analgesia for 72 hours, and extensive surgical requirement on combined neck and thorax.

As there is no reasonable clinical ground to favour the choice of CEA in routine clinical practices, it would be challenging to defend a technical mishap, or a poor anaesthetic outcome. At all times, CEA must be attempted by an experienced anesthesiologists, who is aware of the technical challenges, and comfortable with the appropriate and safe use LA within CEA [8]. CEA provides stable vital parameters, excellent control of pain throughout post-operative

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period and early recovery with reduction in stress response, blood loss and post-operative morbidity.

According to the American Society of Regional Anaesthesia and Pain Medicine's evidence-based guidelines, in the patient receiving antithrombotic or thrombolytic therapy, the exact same precautions should be taken when placing thoracic paravertebral blockade as when placing an epidural. Considering the potential procedural risks, and its effects on cardio-respiratory systems, the practice of CEA should be individualized for unique patient demands and surgical requirement (extensive carotid artery surgeries, oral-hypopharyngeal cancer surgeries and combined neck and thorax surgery) to prevent an unnecessary patient exposure, which could be easily avoided by better anaesthetic and analgesic choices.

Conflict of interest

Nil.

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Nil.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.tacc.2019.08.002.

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