

Xiphisternal plane block as a novel alternative to rectus sheath block for upper midline abdominal incision

Regional analgesia technique rectus sheath block (RSB) has been used for a midline upper abdominal incision. RSB provides somatic pain relief for abdominal wall structures superficial to the peritoneum and is commonly used for upper abdominal postoperative analgesia.^[1] The intercostal nerves perforate the RA sheath and RA muscle, and finally emerge as an anterior cutaneous branch of the RA nerve supplying the anterior abdominal wall.^[1] The local anesthetic is injected between the posterior rectus sheath and rectus muscle bilaterally to target these nerves.

Above the costal margin, the posterior wall of the rectus sheath is deficient and the rectus abdominis rests directly on the 5th, 6th, and 7th costal cartilages and anterior surface of the xiphoid process.^[2] The posterior sheath is deficient here because the transversus abdominis muscle passes internal to the costal cartilages and the internal oblique muscle is attached to the costal margin. The posterior surface of the xiphoid process serves as an attachment point for diaphragmatic muscular slips and transverse thoracis muscle, while the tip of the xiphoid process provides attachment for the linea alba.^[3,4] Keeping in mind this anatomical intricacy, we are going to describe a novel interfascial plane block, xiphisternal plane block as an alternative to RSB for upper abdominal midline incision.

The block was performed in a supine position following general anesthesia in a 35-year-old male patient scheduled for epigastric hernia repair through an upper midline incision. A high-frequency linear probe was kept longitudinally in the

midline epigastric region. The cranial end of the linear probe was kept over the xiphoid process and a sonoplex needle was inserted from the caudal to the cranial direction [Figure 1]. The needle tip was kept just posterior to the caudal end of the xiphoid process. Following negative blood aspiration, 20 ml 0.2% ropivacaine was injected. Written and informed consent for publication was taken from the patient. The patient was pain free in the postoperative period.

In this block, the local anesthetic (LA) injected underneath the xiphisternum and above the transversus abdominis resulted in the caudal spread of the drug between the rectus abdominis muscle and the posterior rectus sheath. In this plane block, the spread of injected LA was detected bilaterally to linea alba as the drug was injected posterior and cephalad to the attachment of linea alba with the xiphoid process.

Thus in the xiphisternal plane block, we achieved a bilateral sensory block like RSB in a single injection. Another merit

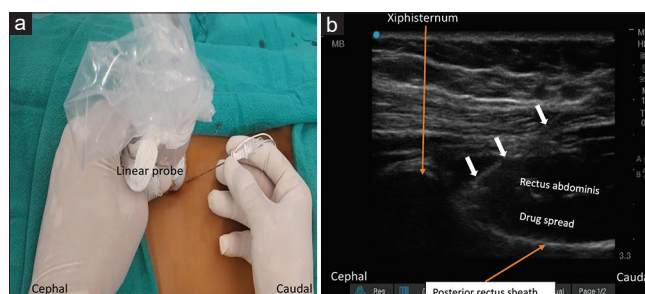


Figure 1: (a) Needle probe position, (b) sonoanatomy of xiphisternal plane block

of this block is bony support to linear probe provided by a xiphoid process which leads to enhanced stability. This midline block can be used to provide analgesia for upper midline abdominal incision, for pericardiocentesis via subxiphoid approach, for subxiphoid drainage, and for poststernotomy pain when given in combination with parasternal block. Further studies are required to validate our results.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and that due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

**AMARJEET KUMAR, CHANDNI SINHA, AJEET KUMAR,
KUNAL SINGH**

Department of Anaesthesiology, All India Institute of Medical Sciences, Patna, Bihar, India

Address for correspondence:


Dr. Amarjeet Kumar,
Room No 505, B-Block, OT Complex, All India Institute of Medical Sciences, Patna - 801 507, Bihar, India.
E-mail: amarjeetdmch@gmail.com

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