Use of Clavipectoral Fascial Plane Block for Clavicle

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We report cases of two patients who presented with rib fracture and received an ultrasound-guided clavipectoral fascial plane block. This block has the same analgesic effect as the brachial plexus block, but can avoid phrenic nerve paralysis and upper limb motor block.

The first case was a 37-year-old man who presented with clavicle fracture after falling on a snowboard. He wanted to undergo surgical repair; thus, an interscalene brachial nerve block was planned. However, the patient claimed that shoulder movement was not good. Thus, clavipectoral fascial plane and superficial cervical plexus blocks were performed after the induction of general anaesthesia. Ultrasonography had shown fracture of the clavicle. Therefore, 15 mL of 0.375% levobupivacaine was administered to the fascia on both the medial and lateral sides of the clavicle fracture (Fig. 1). The patient's heart rate and blood pressure were stable intraoperatively, and he did not present with pain [Visual Analogue Scale score (VAS) of 0/10] immediately postoperatively; no analgesic was used until the next day.

The second case was a 71-year-old woman with chronic obstructive pulmonary disease who presented with a clavicle fracture. Respiratory examination showed that the patient's forced expiratory volume in 1 s was <1 L. Thus, a clavipectoral fascial plane block, not interscalene brachial nerve block, was scheduled to prevent phrenic nerve paralysis. Next, 15 mL of 0.375% levobupivacaine was administered to the fascia on both

the medial and lateral sides of the clavicle fracture after the induction of general anaesthesia with superficial cervical plexus block. The patient's heart rate and blood pressure were stable. The ultrasonography represented normal diaphragm mobility. She presented with minimal pain (VAS score of 1–2/10) postoperatively, and no analgesic was used until 13 h postoperatively.

The sensory innervation of the skin that covers the shoulder clavicles and the upper thoracic region depends on the supraclavicle nerves of the superficial cervical plexus. It occupies the gap between the pectoralis minor and the subclavicle, enclosing both muscles within two layers at the top level. Both fascial layers are attached to the clavicle, forming the pectoral fascia. A circular structure surrounding the entire clavicle and the corresponding nerve endings reach the clavicle by penetrating the pectoral fascia. This type of block comprises injecting 10–50 mL of long-acting local anaesthetic into the fascia on both the medial and lateral sides of the clavicle fracture. This technique must be used along with the block of the supraclavicle branch of the superficial cervical plexus to anaesthetise the skin above the clavicle, and the ultrasonographic probe is placed on the anterior superior border of the clavicle on the medial and lateral sides of the fracture. The needle is inserted in a caudal to cephalic direction, and local anaesthetic is injected into the periosteum. This block was first described in the 2017 European Society of Regional Anaesthesia Congress. This is a simple and highly safe procedure that can provide anaesthesia and prolonged analgesia for clavicle fractures.

Figure1. Ultrasound image of clavipectoral fascial plane block.