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Excision of Giant Occipital-Lateral Neck Lipoma with Ultrasound Guided Superficial Cervical Plexus Block Combined with Greater Occipital Nerve Block

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Keywords

Neck surgery, Cervicale plexus block, Greater occipital nerve block.

Case Report

A 35-year-old male patient, ASA III, who has mild COPD and high BMI of 46 complicated with OSA on home CPAP using it during nighttime. He presented with huge lipoma 10x7 cm in size on right posterior-lateral neck region. The patient is keen to get it removed for fear of getting larger limiting his neck movement. Contrast enhanced CT indicated that the mass was not infiltrating the surrounding tissues. A fine needle aspiration biopsy showed fibrofatty tissue. As elective surgery was planned, the patient was identified at risk for general anaesthesia due to his high BMI, OSA and COPD. Meanwhile, the surgeon admitted that the mass was too large for excision using infiltration anaesthesia. The patient was informed about the potential risks with GA and was happy to proceed with regional anaesthesia. The patient received ultrasound guided superficial cervical plexus block (CPB) combined with greater occipital nerve (GON) block, after 20 minutes the block was satisfactory for surgery to proceed, and low dose of dexmedetomidine infusion was used during surgery for patient comfort and better experience.

The surgery was successful, the patient was satisfied and was discharged the same day.

Discussion

Surgical excision of giant occipital and cervical neck lipoma is necessary for esthetic concerns, and due to restriction of neck movements. We anticipated difficulty in airway management in our case as patient's neck movements were limited, on a background of OSA and high BMI. Regional anaesthesia is therefore the preferred choice in our case, especially as the mass was too large for infiltration anaesthesia.

The cervical plexus originates from the anterior rami of the C1-C4 spinal nerves and lies deep to the sternocleidomastoid (SCM) muscle. It gives rise to four terminal branches (greater auricular, lesser occipital, transverse cervical and suprascapular nerves). The superficial branches provide cutaneous innervation to the head and anterolateral neck, while the deep branches innervate the muscles of the anterior neck, the anterior and middle scalene muscles and the diaphragm. Ultrasound-guided block allows superficial and deep cervical plexus block techniques. In superficial CPB, the local anesthetic is administered along the posterior border of the SCM [1]. In deep CPB, the local anesthetic is administered directly into the cervical paravertebral space at transverse processes of the C2–C4 cervical vertebrae, either one single or three separate injections [2].

The major complication of CPB is inadvertent deep injection of local anesthetic, leading to blockage of the deeper neural structures, including the phrenic nerve, brachial plexus and the recurrent laryngeal nerve. Toxicity may also occur if the local anesthetic is inadvertently injected intravascularly. These complications are easily avoided by injecting the local anesthetic when the needle tip is directly visualized under ultrasound guidance and properly select the block depending on the region to be operated [3].

GON-block has been considered for headache treatment [4], and is overall safe procedure [5]. Three occipital nerves arise from C2 and C3 spinal nerves and innervate the posterior scalp, the greater occipital nerve is the largest of the three nerves, its sensory fibers arise from the dorsal primary ramus of the C2 spinal nerve and then ascend through the fascial plane between the obliquus capitis inferior and semispinalis capitis [6].

We followed the guidelines and local protocol for regional blocks. As IV access was secured, the patient received 100 mcg Fentanyl and 2 mg Midazolam through it. For the CPB, the patient was lying on his back at 45 degrees, his head turned opposite to the block site, a linear transducer (10–12 MHz) was placed overlying the SCM at the level of its midpoint, then moved posteriorly until the tapering posterior edge was positioned in the middle of the screen. At this point the cervical plexus was visible as a small collection of hypoechoic nodules immediately superficial to the prevertebral fascia that overlies the interscalene groove. The needle was passed through the skin, platysma, and investing layer of the deep cervical fascia, then the tip was placed adjacent to the plexus. We used in-plane approach from lateral side, following negative aspiration a total of 10 ml 0.25 % Levobupivacaine local anesthetic were injected.

For the GON, the patient was turned in left lateral decubitus position, with neck anteflexion, using same linear transducer, first the transducer was placed over the external occipital protuberance then was moved slowly caudad to capture a transverse view of the posterior arch of the atlas below the occiput and then was moved further caudad to the C2 level, where the axis spinous process was identified with its prominent bifid with tubercles over left and right sides. From there, the transducer was slightly rotated oblique with its lateral end pointing at the tip of mastoid process, then moved laterally to visualize the hypoechoic OCIM deep to the semispinalis capitis muscle (SsCM) and in between the GON appears as an oval-shaped, hypoechoic structure. Then, a 5-cm 25-G needle was inserted, in-plane and in from lateral-to-medial direction and 10 ml of 0.25% Levobupivacaine were injected slowly around the GON after a negative aspiration.

In conclusion, this case report shows that ultrasound-guided CPB combined with GON is a feasible, effective and safe method of providing regional anaesthesia for neck region surgical procedures.

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