



Hoarseness of Voice Due to Ipsilateral Recurrent Laryngeal Nerve Palsy in Ultrasound Guided Right Sided Supraclavicular Brachial Plexus Block: A Case Report

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ABSTRACT

Supraclavicular brachial plexus block is well established regional anaesthesia technique for upper limb surgeries. USG guided supraclavicular brachial plexus block provides many advantages but is also associated with the rare complication of recurrent laryngeal nerve palsy, seen in 1.3% of cases. Recurrent laryngeal nerve palsy is mostly documented in right sided supraclavicular blocks than left sided supraclavicular blocks. Here, we report a case of 28 years old male undergoing right upper arm surgery under supraclavicular block who developed hoarseness of voice due to ipsilateral recurrent laryngeal nerve involvement which was followed up properly and managed successfully.

Supraclavicular brachial plexus block is widely used regional anaesthesia technique for upper limb surgeries. It provides surgical anaesthesia as well as early post-operative analgesia. The use of USG guidance for giving supraclavicular block offers significant advantages like greater accuracy and lesser requirement of local anaesthetic drug. It provides the reduced rate of complications; however complications cannot be obviated. Complications related to supraclavicular block are inadvertent intravascular injections, pneumothorax, hemi-diaphragmatic paresis and hoarseness of voice which is a rare complication [1]. In our case report we discuss an unusual complication of hoarseness of voice due to ipsilateral recurrent laryngeal nerve involvement in right sided supraclavicular block performed under USG guidance.

Case Report

28 years old, male of ASA class I with right middle finger proximal phalanx enchondroma posted for

curettage and iliac crest bone grafting. Plan of anaesthesia was supraclavicular block for right middle finger proximal phalanx enchondroma curettage and grafting and subarachnoid block for taking iliac crest bone graft.

NBM status of patient was confirmed and informed consent was taken. The patient was taken to operation theater. All standard monitors were attached and baseline parameters were noted (PR=74bpm, BP= 126/82 mmHg, SpO₂ = 99% on RA).

Under all aseptic precautions skin is anaesthetised with local infiltration of 2% lignocaine using 27 G needle. Under USG guidance, using 22G needle, 2ml of NS was injected for hydro dissection after confirming negative aspiration. Supraclavicular block was given with inj. Lignoadrenaline (1:200000) 2% 13mL with inj. Bupivacaine 0.5% 12 mL with inj. NS 5ml with injection Dexmedetomidine 15mcg as an adjuvant, after confirming repeated negative aspirations. Along with use of low volume of drug we also applied digital pressure for few minutes to limit the spread of drug. After five minutes of drug administration patient developed

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progressive hoarseness of voice. Patient was anxious without any other complaints. On auscultation air entry was bilaterally equal and clear. Counselling of the patient done. Intravenous Inj. Dexamethasone 8mg and injection midazolam 1mg given. O₂ supplementation with face mask at 4 lit/min was started. There after patient was comfortable and calm. For iliac crest bone graft subarachnoid block was given with inj. Ropivacaine 0.75% 1.8 ml with inj. dexmedetomidine 5mcg using 26 G quincke's spinal needle segmented block from T10 to L3 achieved. Patient was vitally stable throughout the procedure.

Follow up of the patient kept post operatively. Patient regained his motor activity after 12 hours and sensory action after 13 hours of block and also recovered from hoarseness of voice after 13 hours of giving block.

Discussion

Ultrasound guided regional anaesthesia is widely used now a days. Though USG guided supraclavicular block is safer and reduces the risk of complications it is associated with some rare complications like RLN palsy causing hoarseness of voice and Horner's syndrome due sympathetic chain involvement [2].

Ipsilateral RLN block is commonly associated with interscalene brachial plexus block and is rarely seen during SCB. Neat et al documented the incidence of RLN involvement during SCB in 1.3% of patients [3]. Gupta et al. also reported one case of RLN involvement during SCB [4]. RLN block during supraclavicular block is more commonly seen in the right sided blocks than left sided block because of the anatomical course of the RLN [5]. The right RLN is close to the right brachial plexus as it encircles right subclavian artery. While left RLN runs closure to the oesophagus and trachea and medial to subclavian artery. RLN block during SCB is also attributed to the large volume of local anaesthetic drug injected for block. This local anaesthetic drug travels along the subclavian artery and also infiltrates RLN [6]. Also it can be because of wrong needle placement which causes drug deposition outside the sheath covering the brachial plexus. This sheath is derived from the deep cervical fascia and merges with medial intermuscular septum of arm. This limits the circumferential spread of LA [7]. This sheath causes only longitudinal spread of LA along the nerve. But when large volume of drug is used for infiltration while giving SCB there are chances of proximal spread of drug causing RLN involvement [8-9]. In our case report we applied digital pressure to limit the proximal spread of the drug.

Recurrent laryngeal nerve palsy causing hoarseness of voice is a rare complication during supraclavicular block causing patient discomfort. It can lead to airway

problems and need for airway management if vocal cord also gets affected. Hence, to avoid this complication we would like to suggest small volume of local anaesthetic drug and proper visualization of needle tip during drug deposition under USG guidance.

Conclusion

From our case of hoarseness of voice after USG guided supraclavicular block it can be concluded that one should be well acquainted with unusual complications of this block so as to recognize it for timely management. It is imperative to keep follow up for such complications.

Abbreviations

USG: Ultrasonography, RLN: Recurrent laryngeal nerve, NS: Normal Saline, LA: Local Anaesthetic

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