

## Supraclavicular Block: Challenging but Safer Option in Obese Patient During Covid-19 Pandemic

Kamakshi Garg<sup>1\*</sup>, Nitika Singla<sup>2</sup>, Pratibha Chauhan<sup>2</sup>, Richa Jindal<sup>2</sup>

<sup>1</sup>Associate Professor, Department of Anesthesiology, Dayanand Medical College and Hospital (DMCH), Ludhiana, Punjab, India

<sup>2</sup>Postgraduate in Department of Anesthesia, Dayanand Medical College and Hospital (DMCH), Ludhiana, Punjab, India

**Correspondence to:** Kamakshi Garg, Associate Professor, Department of Anesthesiology, Dayanand Medical College and Hospital (DMCH), Ludhiana, Punjab, India; Email: drkamakshigarg@gmail.com

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### ABSTRACT

**Introduction:** Brachial plexus block is a boon for an anesthesiologist in difficult airway especially in the COVID-19 pandemic. The provision of regional anesthesia in this pandemic reduces the need for general anesthesia and the associated risk from aerosol-generating procedures.

**Case Report:** A 35-year-old male weighing 130 kg with BMI 39.8 post-bariatric surgery 3 years back presented to casualty with the alleged roadside accident with fracture right midshaft humerus, right radius ulna, multiple facial injuries and suspected C3-C4 fracture. An USG guided supraclavicular block was given using 20 ml 2% lignocaine with adrenaline and 20 ml 0.75% ropivacaine. The patient shifted to COVID-19 post-anesthesia care unit for further management.

**Discussion:** During the COVID-19 pandemic, regional anesthesia though challenging but considered the first choice and safer mode of anesthesia in COVID19 suspected patients with a difficult airway. The advent of USG has made supraclavicular nerve block safe for obese patients and reduce the risk of local anesthetic systemic toxicity.

**Conclusion:** Supraclavicular brachial plexus block provides consistently effective anesthesia to the upper extremity. Also, recent advances in techniques of regional anesthesia have dropped the failure rates of the procedure

### Keywords:

Supraclavicular block, Obese patient, Difficult airway, COVID-19.

### Introduction

Supraclavicular brachial plexus block is a regional anesthetic technique used as an alternative or adjunct to general anesthesia providing better postoperative pain control for upper extremity surgeries. This block is performed at the level of C5-T1 nerve roots of the brachial plexus involving distal trunks to the proximal cords [1]. As the whole world is suffering from coronavirus disease (COVID-19), which had a great impact on the global healthcare system [2], anesthesiologists throughout are preferring regional techniques over general anesthesia. The threat that the disease poses to both patient and health care workers have changed our medical practices globally. In our case report, an ultrasound-guided supraclavicular block was given to an obese patient with a difficult airway posted for fixation of right humerus with both bone forearm fractures.

### Case report

A 35-year-old male weighing 130 kg with BMI 39.8, post-bariatric surgery 3 years back presented to casualty with an alleged roadside accident with fracture right mid-shaft humerus, right radius, and ulna along with multiple facial injuries and suspected C3-C4 fracture. The patient was posted for fixation of a fracture of the right mid-shaft humerus and both bone forearm. On pre-operative examination, he denied any history of hypertension, diabetes, COPD, asthma. He had a history of daytime sleepiness

and nighttime awakenings. Airway assessment showed mouth opening of 2 fingers breath with loose and broken teeth, mallampati classification was class 4 and there was restricted neck movement. The patient was tachypnoeic with a respiratory rate of 22/min and a heart rate of 120 beats/min. Oxygen saturation was 86% on room air and 93% on bi-nasal prongs with 6 lt/min of oxygen flow. On auscultation, bilateral normal vesicular breath sounds were decreased at bases. RT-PCR test for COVID-19 was done and the report was awaited.

After obtaining high-risk consent, the procedure of supraclavicular block and its probability of conversion to general anesthesia was explained to the patient. He was then wheeled into the operation theatre after taking all the standard precautions for COVID-19. He was placed in a head elevated Rapid Airway Management Position (RAMP). Standard monitors were applied and oxygenation was maintained with bi-nasal prongs at 6 lt/min. After cleaning and draping, an ultrasound-guided supraclavicular block was performed with a 50 mm 22 gauge stimuplex needle which was introduced using an in-plane technique with ultrasound beam via medial to lateral approach. A total of 40 ml drug comprising of 0.75% ropivacaine(20 ml) and 2% lignocaine with adrenaline (20 ml) was injected around the cords under ultrasound guidance and a good spread of local anesthetic was identified. On ensuring adequate motor & sensory block, surgery was initiated. Surgery got completed in 3 hours without any significant intraoperative event. According to our institutional guidelines, the patient was monitored

in the operating room until safe and then transferred to a COVID-19 designated area of the hospital for further care and management. It has been shown that the risk of transmission is highest during the doffing of Personal Protective Equipment (PPE), therefore we followed a strict protocol during doffing of PPE.

## Discussion

During this ongoing COVID-19 pandemic, preparation of anesthesia and surgery includes the screening of all patients and determining their COVID-19 status [3]. However, this may not be possible in emergent surgeries. All elective operations should be postponed till the COVID-19 report is negative, to reduce the risk of exposure of patients and healthcare workers for COVID-19 infection [4]. Healthcare workers are more vulnerable in contracting SARS CoV2 infection [2].

All emergency and urgent procedures should be considered to be COVID-19 suspected as these procedures are performed while awaiting the COVID-19 report. We aim to minimize the exposure by avoiding aerosol-generating procedures such as airway management. General anesthesia with airway intervention leads to aerosol generation, which exposes the healthcare team to the risk of transmission of COVID-19 both during tracheal intubation and extubation [5]. Level 3 Personal Protective Equipment (PPE) is needed to prevent such exposure. Patients should wear a surgical face mask at all times during surgery. In our case report, we preferred supraclavicular block since regional anesthesia procedures are not aerosol-generating, therefore the spread of infection is minimum. Regional anesthesia is the first choice of anesthesia management of patients with suspected and confirmed COVID-19 patients especially in obese.

Prevalence of obesity is rapidly increasing throughout the world. Regional Anesthesia (RA) offers several advantages when treating obese patients including minimal airway intervention, less cardiopulmonary depression, improved postoperative analgesia [6,7], decreased opioid consumption, decreased Post-operative Nausea And Vomiting (PONV)[6,8] and therefore reduced Post-Anesthesia Care Unit (PACU) [8] and hospital length of stay [9]. Reduced neck extension, lump on the back of neck, heavy jaw, difficult airway leads to difficult bag and mask ventilation, and difficult intubation in obese patients. With the assistance of ultrasound, regional anesthesia is preferred over general anesthesia in the obese patient. Ultrasound technique is more accurate and reliable as compared to conventional and landmark technique. Blocks should be performed with ultrasound guidance to reduce the risk of local anesthetic systemic toxicity [10].

Supraclavicular block is a commonly used regional anesthesia technique undergoing upper limb surgeries providing both anesthesia and analgesia in the post-operative period. While supraclavicular blocks have become increasingly important, they are not without risk [11]. Common side effects associated with this technique include phrenic nerve block with diaphragmatic paralysis, sympathetic nerve block with the development of horner's syndrome, and rarely bronchospasm [12]. Regional anesthetic procedures in obese patients are difficult to perform because of distorted anatomical landmarks. Obesity increases the difficulty and decreases the success rate of a supraclavicular

block. In summary, the present study shows that obesity represents a challenge for the anesthesiologist performing regional anesthesia, even if highly experienced. Nonetheless, evidence shows that regional anesthesia techniques are well accepted among patients with increased BMI with high success and satisfaction rates during this COVID-19 pandemic [9].

## Conclusion

Brachial plexus block though challenging in obese patients is a safer mode of anesthesia. Recent advances and techniques have dropped the failure rate of this procedure. Supraclavicular block can be considered the mainstay of choice during the COVID-19 pandemic era.

## Conflict of Interest:

No potential conflict of interest relevant to this article was reported.

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