

# Anaesthetic Management of a Patient with Compromised Cardio-Respiratory Status with Clavicle Fracture Posted For Surgery under Superficial Cervical Plexus Block and Interscalene Block using Landmark Technique

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## Abstract

clavicle fractures are one of the most sustained injuries during road traffic accidents .A complete systemic examination coupled with all the essential investigations are mandatory in such cases to plan the type of anaesthesia, intra operative management. Regional nerve blocks provide an effective and safe alternative method of anaesthesia in patients with compromised cardio respiratory status. We report a case of a 63 year old patient with compromised cardiorespiratory status posted for clavicle surgery and fixation was planned under combined interscalene and superficial cervical plexus block using landmark technique and the case was managed successfully.

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## I. Introduction

Clavicle fractures are one of the most sustained injuries during road traffic accidents. A complete systemic examination and all the essential investigations are mandatory in such cases to plan the type of anesthesia and intraoperative management. Regional nerve blocks provide an effective and safe alternative method of anesthesia in patients with compromised cardiorespiratory status.

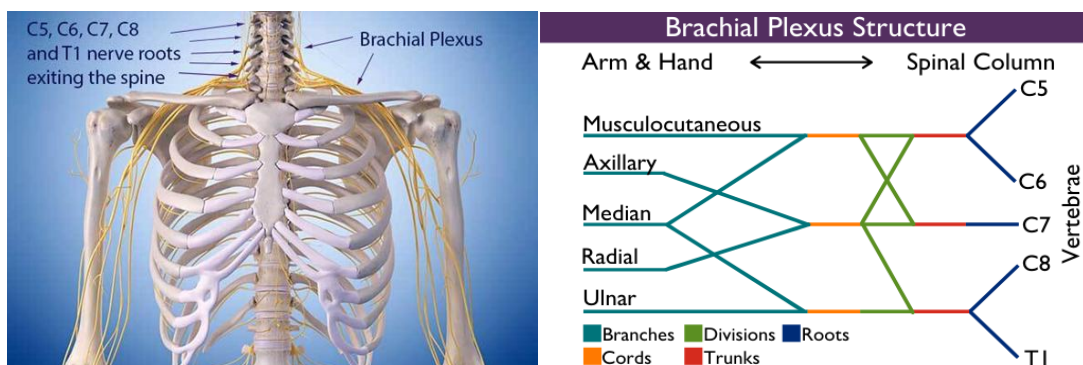
## II. Case Report

A 63-year-old patient diagnosed with a left middle one-third clavicle fracture was posted for open reduction and internal fixation with clavicle plating. The following findings were noted during the pre-anesthetic evaluation of the patient. On examination of the airway, Mallampatti grading was Grade IV, Mouth Opening – Restricted (less than three fingers), Thyromental distance- < 5cms, upper lip bite test- below the vermilion line short neck present, temporomandibular joint mobility restricted, Sub mucosal fibrosis present. History reveals a history of coronary heart disease five months back; at present not on any medication and has had a history of beetle nut chewing for ten years and was a known case of the chronic obstructive pulmonary disease for six years. On systemic examination, reduced air entry was present bilaterally. The pulmonary function test report shows evidence of severe obstruction with an FEV1/FVC ratio of 43%, FEV1 of 42%, and FVC of 75%; cardiovascular examination revealed an ejection fraction of 42%, moderate aortic stenosis, moderate mitral regurgitation, moderate pulmonary artery hypertension, and grade II diastolic dysfunction. Routine investigations are within normal limits. As there is a high risk of intraoperative mortality and morbidity due to intraoperative adverse events nerve block was planned for this case.

## III. Discussion:

With all the emergency equipment ready, the process of nerve blockade was started under available strict aseptic conditions.

The brachial plexus is a bundle of nerves that stems from nerve roots in the cervical (neck) and upper trunk (torso) sections of the spinal cord (C5-T1), creating a network that connects to the nerves in the arm. These nerves control the motions of your wrists, hands, and arms, allowing you to raise your arm, type on your keyboard, or throw a baseball. The brachial plexus nerves extend to the skin and are sensory, too. For instance, they let you know that the pan you just grabbed with your hand is too hot to hold.



The anatomy of the brachial plexus. Nerves rooted in the neck extend through the shoulders and down the arms. Brachial Plexus Anatomy

From the roots, the brachial plexus nerves branch and fuse through the shoulder and down the arm, classified into a few different sections: trunks, divisions, cords and branches. These sections are not functionally different, but help explain the complex anatomy of brachial plexus.

The brachial plexus ends in five major nerve branches that extend down the arm:

- Musculocutaneous nerve: Originates from nerve roots C5-C7 and flexes muscles in the upper arm, at both the shoulder and elbow.
- Axillary nerve: Stems from nerve roots C5 and C6; it helps the shoulder rotate and enables the arm to lift away from the body.
- Median nerve: Starts in nerve roots C6-T1 and enables movement in the forearm and parts of the hand.
- Radial nerve: Begins in nerve roots C5-T1 and controls various muscles in the upper arm, elbow, forearm and hand.
- Ulnar nerve: Rooted in C8-T1, it allows for fine motor control of the fingers.

**INTERSCALENE BLOCK** - Landmarks – clavicle, clavicular head of Sternocleidomastoid, External jugular vein. After palpating interscalene groove, needle is inserted posterior to EJV 3- 4cms above clavicle and patient is asked for paraesthesia in the ipsilateral arm and 10 ml of 2% lidocaine and 10 ml of 0.5% bupivacaine along with dexamethasone 4 mg is injected. No intra operative adverse events noted. **SUPERFICIAL CERVICAL PLEXUS BLOCK** -Line is drawn from C6 to mastoid and needle insertion is at the midpoint of this line. Skin is prepped and draped in the usual fashion. Using a “**NEEDLE FANNING**” technique with repeated needle redirections, local anesthetic is injected around 10ml of **2% lidocaine** alongside the posterior border of Sternocleidomastoid 2-3 cm below and above needle insertion site

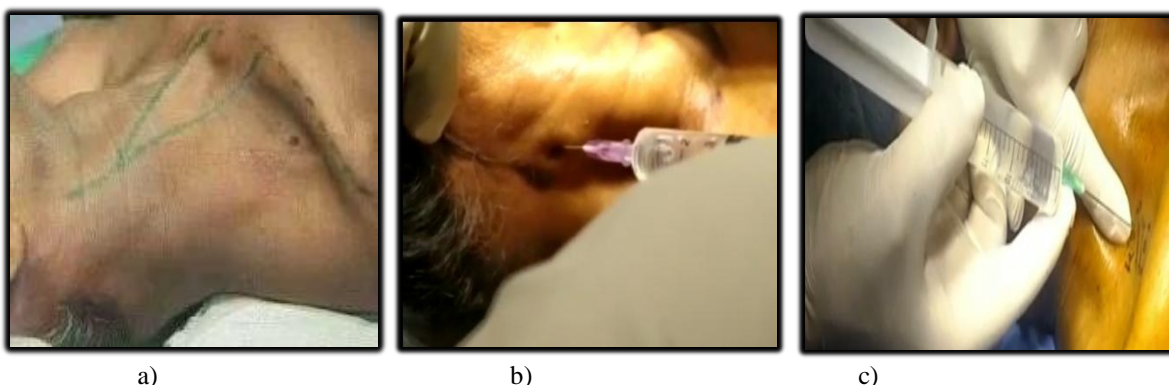


fig a) shows landmarks including sternocleidomastoid, clavicle, external jugular vein . Fig b) shows superficial cervical plexus block.Fig.c) shows interscalene block being performed with needle inserted at the interscalene groove.

Intraoperative vitals are stable and no intra operative adverse events noted and analgesia was observed for 9 hours post operatively. patient was monitored for 24 hrs and was discharged without any adverse events.

#### **IV. Conclusion :**

In patients with compromised cardio respiratory status and in patients who are at a high risk of experiencing intra and post operative adverse events regional nerve blockade provide an excellent and safest option of anesthesia with a minimal complications which can be avoided by careful administration of the drug.

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