



## SUCCESSFUL COMBINED CERVICAL PLEXUS BLOCK AS A SOLE ANAESTHETIC TECHNIQUE: CASE REPORT

Ebru Tarıkçı Kılıç\* and Mehmet Salim Akdemir

Department of Anaesthesiology, Umraniye Training and Research Hospital,  
İstanbul 34470 Turkey

---

### ARTICLE INFO

**Article History:**

Received 10<sup>th</sup> April, 2017  
Received in revised form 23<sup>rd</sup>  
May, 2017  
Accepted 7<sup>th</sup> June, 2017  
Published online 28<sup>th</sup> July, 2017

---

**Key words:**

Cervicalspine,  
Superficialcervicalblock,  
Deepcervicalblock.

---

### ABSTRACT

Cervicalspinetrauma is a problem with a wide range of severity. Surgeries of spine are usually performed under general anaesthesia. The patients with high risk for general anaesthesia, regional blockade can be used safely. It provides fair surgical conditions with good postoperative pain relief. Cervicalplexus blockade supplemented with sedation has been rarely used but is being increasingly considerable. Superficial and deep cervical plexus block can be considered as a sole and adequate technique for neck surgeries. We present a case in whom anatomical alterations precluded routine airway management therefore we decided to perform combined cervical plexus block as a sole technique.

---

## INTRODUCTION

Cervicalplexus is formed by the anterior rami of the four upper cervical nerves and lies lateral to the tips of the transverse processes in the plane behind the sternocleidomastoid muscle, giving off cutaneous and muscular branches. Cutaneous innervation of the deep and superficial cervical plexus blocks includes the skin of the antero lateral neck, the ante-and retroauricular areas. Deep cervical block anesthetizes three of four strap muscles of the neck, geniohyoid, prevertebral muscles, sternocleidomastoid, levatorscapulae, the scalenes, trapezius. Deep plexus provides the muscular branches while the superficial plexus provides the innervation of the skin of head and neck. Superficial cervical plexus block is adequate to produce anesthesia in the anterior and anterolateral aspects of neck. Deep plexus block is described in various forms, from extension of brachial plexus block, injection around the carotid and finally classical deep cervicalplexus block (1).

Surgeries of spine is most commonly performed under general anaesthesia, with or without regional blockade. However in patients with a high risk for general anaesthesia, isolated usage of regional block is challenging. After patient's written consent we report a case where combined cervicalplexus block is performed for C6-7 dislocation. We admit combined cervicalplexus block provides safe and effective anaesthesia for neck surgeries.

---

### Case Report

A 56-year-old woman presented after an automobile accident. There was no loss of consciousness after the accident. The patient's neck was stabilized at the accident site and she was transferred to the hospital. She had pain in the cervical neck. She had no previous history concerning cervical spine injuries. Physical examination was significant for focal C6-7 tenderness. Lower extremities demonstrated paralysis, loss of sensation from the T4 dermatome down, urinary retention and norectal tone. Cervical spine computed tomography (CT) demonstrated dislocated facets C6 on C7. Perioperative hematological, biochemical investigations electrocardiogram, chestxkiagram were within normal limits. On examination mouth opening is one finger breath with the limited neck movement. Urgent surgery of anterior disk excision and fusion was planned. Superficial with deep cervicalplexus block was decided to be performed. Informed consent was obtained after explaining the risks to the patient. Intravenous access with 18G canula was obtained. The patient was treated within travenous methylprednisolone before admitting to the operating room. On table routine monitoring was commenced. Her heart rate was 100/min, blood pressure was 120/80 mmHg, oxygen saturation was 96%. Patient was premedicated within travenous midazolam 1 mg and 100 mcgfentanyl. The patient was put in supine position and oxygen supplementation was given with mask at a flow rate 4 L/min. Insupine position and

head turned away from the side to be blocked, a 22G stimuplex needle was inserted behind the posterior border of sternocleido mastoid muscle at the midpoint of mastoid process and clavicular head of the sternocleido mastoid muscle. As the needle entered the investing fascia of neck a loss of resistance was felt as a pop. At this point 15 mL of 0.25% bupivacaine was injected after aspiration.



For superficial cervical plexus block three injections of 5 mL of local anesthetic were injected behind the posterior border of the sternocleido mastoid muscle subcutaneously, perpendicularly, cephalad, and caudad. Checking the loss of sensation top in prick over corresponding dermatomes block was assessed after 15 min. The patient was sedated with dexmedetomidine infusion at a rate of 0.7 mcg/kg/h. The surgery lasted about 120 min. Then the patient was transferred to the intensive care unit, after undergoing C6-C7 anterior disk excision with subsequent posterior fusion. The whole intraoperative period was uneventful. Postoperative course in intensive care was unremarkable. At discharge she had motor deficits inferiorly from the intensive care unit.

## DISCUSSION

Combination of cervical plexus blocks with sedation offer good results. One important advantage is also; allowing us for continuous monitoring of patient's neurological status. With the use of imaging modalities success rates may be increased. Superficial and deep cervical plexus block can be used to provide anesthesia for a variety of surgical procedures including surgeries of neck; neck lymph node dissection, shoulder, thyroid surgeries.

Nerurkar and friends performed cervical plexus block for carotid endarterectomy with fluoroscopy aided under sedation.

The patient was right side hemiparesis with Broca's aphasia. They state that imaging facilities if available makes the technique safer and also practical to perform (2).

Pandit performed a study by using cervical plexus blockade with local anesthetic with the surgeon during surgery. They compared 2 groups totaling 40 patients. Group 1 undergoing carotid endarterectomy received superficial plexus block with local anaesthetic, group 2 received combined cervical plexus block. They found no anaesthetic difference between groups (3).

In another study Kanthan performed for maxilla facial surgical practice, compared cervical block as an alternative to general anaesthesia in selective cases. In conclusion they summed with low risk and complications this technique is a good alternative to general anaesthesia for sensitive blockage of cervical regions (4).

Roy and his colleagues used superficial and intermediate block for three cases because of the high risks of anaesthesia then they concluded that cervical block was an excellent option where anaesthesia has great risks (5).

Regional anaesthetic techniques are relatively low risk procedures, usually used as an adjunct to regional anaesthesia (6). They provide prolonged post-operative analgesia and reduce the need of opioid consumption. Here we used Heidenhain technique for block. Newer techniques if available ultrasound guided block can also be done easily. However the latest outcome data from neurosurgery shows that regional block may provide sufficient surgical condition with good postoperative pain relief (7).

We conclude that combined cervical plexus block can be considered as a sole anaesthesia technique in high risk patients undergoing neck surgeries with prolonged postoperative analgesia.

## References

1. JA Gosling, PF Harris, I Whitmore. "Posterior triangle of the neck" in Human Anatomy: Color Atlas and Text, p. 288-89, Elsevier Science, 4th edition, 2002.
2. Apama A Nerurkar, Vandana V Laheri, Hemangi S Kamik. Fluoroscopy Guided Cervical Plexus Block for Carotid Endarterectomy- A Case Report. *Indian J Anaesth.* 2009 Jun; 53(3):352-354.
3. Pandit JJ, Bree S, Dillon P. A comparison of superficial versus combined (superficial and deep) cervical plexus block for carotid endarterectomy: a prospective, randomized study. *Anesth Analg* 2000 Oct; 91(4):781-6.
4. R Kamal Kanthan. The use of superficial cervical plexus block in oral and maxilla facial surgical practice as an alternative to general anesthesia in selective cases. *Ann Maxillofac Surg* 2016 Jan-Jun; 6(1):4-8.
5. Ritesh Roy, Saurajit Patnaik, Rajesh Padhy. Superficial and Intermediate Cervical Plexus Block for Neck Dissection in Patients with High Risk of General Anaesthesia. *J Anesth Crit Care Open Access* 3(2):00093. DOI: 10.15406/jacccoa.2015.03.00093.

6. Ducic Y, Young L, McIntyre J. Neck dissection past and present. *Minerva Chirurgica* 2010; 65(1): 45-58.
7. Mukhopadhyay S, Niyogi M, Dutta M, Ray R. Bilateral superficial cervical plexus block with or without low-dose intravenous ketamine analgesia: effective, simple, safe, and cheap alternative to conventional general anesthesia for selected neck surgeries. *Local Reg Anest* 2012; 5:1-7.

\*\*\*\*\*