International Journal of Research in Medical Sciences
*Torun MT et al. Int J Res Med Sci. 2015 Nov;3(11):3399-3401*
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20151199

## Case Report

# Excision of a giant lipoma in the neck region under ultrasound-guided cervical plexus block: a case report

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**Received:** 01 September 2015
**Accepted:** 06 October 2015

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## ABSTRACT

Lipomas are slow-growing benign soft-tissue tumors which are typically asymptomatic. The ultrasound-guided cervical plexus block (UGCPB) is a feasible, effective and safe method for ear, neck (especially thyroid operations and carotid endarterectomy) and clavicular region surgery. It can be used in cases with a high risk for general anesthesia. A case of a giant neck lipoma excised using UGCPB is reviewed in this paper. A 56-year-old male patient presented to our clinic with a giant mass 11x10 cm in size in the right neck region. A mobile, smooth surfaced and painless lump was detected. The mass was preoperatively reported as a lipoma. The patient had a high cardiovascular risk for general anesthesia. The mass was too large for excision with infiltration anesthesia, so we decided to perform UGCPB. UGCPB can be used with patients with a high general anesthesia risk. The type of CPB can be selected depending on the region to be operated in order to avoid complications. We operated using intermediate UGCPB. This technique is feasible, effective and comfortable. It is also more reliable than general anesthesia.

**Keywords:** Ultrasound-guided cervical plexus block, General anesthesia, Lipoma, Neck surgery

## INTRODUCTION

Lipomas are slow-growing benign soft-tissue tumors which are typically asymptomatic. Cervical giant lipomas are rare. A lipoma is considered to be of excessive size when it exceeds 10 cm in length (in any dimension) or weighs over 1000 g.[1]

The cervical plexus originates from the anterior rami of the C1-C4 spinal nerves and lies on the scalenus medius and levator anguli scapulae muscles and deep to the sternocleidomastoid muscle (SCM). It gives rise to four terminal branches (the greater auricular, lesser occipital, transverse cervical and suprascapular nerves).[2] 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 (phrenic nerve).[3] In recent years, novel ultrasound-guided superficial, intermediate and deep cervical plexus block (CPB) techniques have emerged, promising increased efficacy and safety in several disciplines.[3] In superficial CPB, the local anesthetic is administered subcutaneously along the posterior border of the SCM. In intermediate CPB, however, it is injected deep to the investing cervical fascia and superficial to the pre-vertebral fascia. In deep CPB, after previous identification of the transverse processes of the C2–C4 cervical vertebrae, the local anesthetic is administered directly into the cervical paravertebral space, in the form of either one single or three separate injections.[3] The anatomy of the cervical plexus is shown in Figure 1. As in Figure 1, needle insertion point is along the posterior border of the SCM in the midpoint between the lines joining the mastoid tip with the transverse process of the C6 vertebrae. The

needle shows the method of local anesthetic deposition in a "fan"-shaped manner.

The ultrasound-guided cervical plexus block technique: The CPB is located by placing a high-frequency linear transducer at the posterior border of the SCM at the level of the superior pole of the thyroid cartilage. The greater auricular nerve is a useful landmark reliably identified as a small hypoechoic round structure just superficial to the SCM. The levator scapulae muscle and carotid artery should be identified. Color Doppler ultrasound can be used to identify the other vessels. Under ultrasound guidance, a needle is inserted into the fascial band between the SCM and the levator scapula muscles, and local anesthetic is then injected. Dexmedetomidine, ropivacaine or bupivacaine can be used as a local anesthetic.

This case report describes a novel ultrasound-guided method of CPB in a patient undergoing neck surgery in order to provide evidence of the implementation, efficacy and safety of this nerve block procedure.

## CASE REPORT

A 56-year-old male patient presented with a mobile, smooth-surfaced and painless giant mass 11x10 cm in size on the right neck region. This had been present for four years. The size of the mass had increased recently. It had started to restrict the patient's neck movements, and he was distressed by the resulting cosmetic deformity. A 11x10 cm, well-circumscribed ovoid homogeneous mass was detected at contrast enhanced computerized tomography. There was no infiltration in the surrounding tissues. A fine needle aspiration biopsy was performed. Fibrofatty tissue was observed histopathologically. Elective surgery was planned. The patient had a high cardiovascular risk for general anesthesia due to decompensated congestive heart failure. His ejection fraction was 35%, and his American Society of Anesthesiologists (ASA) status was ASA IV. The mass was too large for excision using infiltration anesthesia. Electrocardiography and right radial artery monitoring were instituted before anesthesia, and monitoring continued throughout the procedure. Intravenous 2 mg midazolam (dormicum®) was given before starting the procedure. One hundred percent $O_2$ was given intranasally at 4 liters /minute during surgery. An intermediate (as described above) UGCPB with 20 ml of 0.25% bupivacaine without epinephrine was performed by the anesthetist (Figure 2). After 20 minutes, anesthesia was provided and the excision was performed without any infiltration anesthetic. This neck procedure constituted major surgery, and the patient was pain-free in the first 24 hours postoperatively and no oral analgesic was given during the recovery period. There were no complications following surgery or anesthesia (neural complication, bleeding or drug toxicity). Histopathological examination reported the mass as a lipoma.

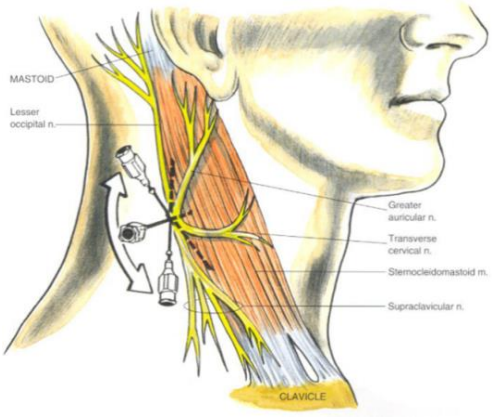


**Figure 1: Anatomy of cervical plexus.**


**Figure 2: Ultrasonographic image of cervical plexus.**

MSM: Medial scalen muscle, SCM: Sternocleidomastoideus muscle, CP: Cervical plexus.

## DISSCUSION

Giant lipomas in the occipital and cervical prevertebral muscle tissue are rare. Surgical excision of giant occipitocervical lipomas is necessary for esthetic concerns, and due to pain and restriction of neck movements, especially in the recumbent position.[4] Ali et al. reported the dangers of a giant lipoma in the setting of airway management.[5] We anticipated no difficulty in airway management in our case. The patient's neck movements were limited, but there were no airway pressure symptoms or pain.

Regional anesthesia techniques require greater surgical experience, and patient compliance is poor, especially with neck procedures. General anesthesia is therefore usually preferred to regional anesthesia. Local infiltration anesthesia can be performed for minor surgical procedures in the neck. In our case, the mass was too large for infiltration anesthesia, and the patient had a high cardiovascular risk for general anesthesia, and we therefore decided on UGSPB.

Musa et al. described the CPB as an alternative form of anesthesia when general anesthesia (endotracheal intubation) is not advisable in surgical/anesthetic risk patients.[6] If this injection is performed without ultrasound guidance, neural complications or hematoma may occur.

In recent years, the role of ultrasound in the head and neck region has expanded considerably. It is also used to guide fine-needle aspiration cytology of neck lymph nodes in patients with suspected malignancy, thereby reducing the need for surgical diagnostic biopsy. Ultrasound imaging has also become an invaluable aid for regional anesthesia in terms of direct observation of anatomical structures, monitoring of needle positioning, better and longer nerve block quality and lower nerve block-related complications in recent years.[7] Novel UGCPBs have recently been introduced into carotid and thyroid surgeries, emergency care and the oral and maxillofacial fields.[3] The use of UGCPB in other neck surgeries is rare, however. Saranteas et al. recently reported that only a few studies have examined the role of ultrasound imaging in the selective blocking of the cervical nerve plexus. They achieved successful deep CPB in patients undergoing thyroid gland surgery using ultrasound landmarks.[8] Herring et al. reported the successful application of an ultrasound-guided superficial CPB in an emergency care unit to treat pain related to clavicle fracture and lateral neck injuries.[2] Perisanidis et al. reported that ultrasound-guided intermediate and deep CPB is a safe method of providing regional anesthesia for oral and maxillofacial surgical procedures.[3] Markovic et al. reported that the type of anesthesia does not affect the outcome of surgical treatment of carotid disease.[9] We performed an intermediate CPB in our case.

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.[2] These complications are easily avoided by injecting the local anesthetic when the needle tip is directly visualized under ultrasound guidance. No complications were observed following the technique in our case.

The type of CPB (superficial, intermediate or deep) can be selected depending on the region to be operated in order to avoid complications. The procedure is more reliable when performed together with ultrasound. The advantages of the procedure are minimal hospitalization time and no general anesthesia risks. On the other hand, the procedure may not provide adequate anesthesia. General anesthesia may therefore be required. Furthermore, there is still a clear need for randomized trials to compare effectiveness and complication rates between superficial, intermediate and deep CPBs in ear nose and throat surgery. The fact that the technique was performed in only one case is the major limitation of this report.

In conclusion, this study shows that ultrasound-guided intermediate CPB is a feasible, effective and safe method of providing regional anesthesia for neck region surgical procedures. Large-scale clinical studies are now needed in order to validate this technique.

*Funding: None*
*Conflict of interest: None declared*
*Ethical approval: Not required*

## REFERENCES

1. Copcu E, Sivrioglu N. Posterior cervical giant lipomas. Plastic and Reconstructive Surgery. 2005;115(7):2156–7.
2. Herring AA, Stone MB, Frenkel O, Chipman A, Nagdev AD. The ultrasound-guided superficial cervical plexus block for anesthesia and analgesia in emergency care settings. Am J Emerg Med. 2012;30(7):1263-7.
3. Perisanidis C, Saranteas T, Kostopanagiotou G. Ultrasound-guided combined intermediate and deep cervical plexus nerve block for regional anaesthesia in oral and maxillofacial surgery. Dentomaxillofac Radiol. 2013;42(2):29945724.
4. Basmaci M, Hasturk AE. Giant Occipitocervical Lipomas: Evaluation with Two Cases. J Cutan Aesthet Surg. 2012;5(3):207–9.
5. Ali QE, Siddiqui A, Amir SH, Azhar AZ, Ali K. Airtraq optical laryngoscope for tracheal intubation in a patient with giant lipoma at the nape: a case report. Rev Bras Anestesiol. 2012;62:736–740.
6. Musa AA, Adebayo SB, Banjo AA, Oyewole EA, Olateju SO. Emergency partial thyroidectomy under cervical block to relieve severe acute airway obstruction from thyroid cancer. Afr Health Sci. 2008;8(3):186-9.
7. Marhofer P, Harrop-Griffiths W, Kettner SC, Kirchmair L. Fifteen years of ultrasound guidance in regional anaesthesia: part 1. Br J Anaesth. 2010;104:538–46.
8. Saranteas T, Kostopanagiotou GG, Anagnostopoulou S, Mourouzis K, Sidiropoulou T. A simple method for blocking the deep cervical nerve plexus using an ultrasound-guided technique. Anaesth Intensive Care 2011;39:971–2.
9. Markovic D, Vlajkovic G, Sindjelic R, Markovic D, Ladjevic N, Kalezic N. Cervical plexus block versus general anesthesia in carotid surgery: single center experience. Arch Med Sci 2012;8(6):1035-40.

**Cite this article as:** Torun MT, Akyol F, Seçkin E. Excision of a giant lipoma in the neck region under ultrasound-guided cervical plexus block: a case report. Int J Res Med Sci 2015;3:3399-3401.