

Superior Trunk Block for Lipoma Excision Surgery in the Posterior Shoulder Region

Posterior Omuz Bölgesi Lipom Eksizyon Cerrahisinde Superior Trunk Bloğu

¹ Korgün ÖKMEN^a, ¹ Gökberk Kürşat ÜLKER^a, ¹ Aycan KURTARANGİL DOĞAN^a,
¹ Durdu KAHRAMAN YILDIZ^a

^aUniversity of Health Sciences Bursa Yüksek İhtisas Training and Research Hospital, Department of Anesthesiology and Reanimation, Bursa, Türkiye

ABSTRACT The superior trunk is a part of the brachial plexus formed by the merging of the C5 and C6 spinal nerve roots. The superior trunk block has been described as an alternative to the interscalene block in shoulder surgery and has been presented as an effective alternative for pain management. A 60-year-old male patient presented for excision of a lipoma located on the acromion of the left shoulder. Anesthesia protocols were discussed, and regional anesthesia with a superior trunk block was chosen. During the procedure, sensory block and motor function were evaluated, and the procedure was successfully completed without complications. The superior trunk block was effectively applied in posterior shoulder lipoma excision surgery, and patient satisfaction was achieved. The literature suggests its potential to provide effective analgesia in shoulder surgery and its possibility to replace the interscalene block. Future studies may further explore its efficacy and safety in different surgical procedures.

Keywords: Brachial plexus; anesthesia; superior trunk; shoulder surgery; regional

ÖZET Superior trunk, C5 ve C6 spinal sinir köklerinin birleşmesiyle oluşan brakial pleksusun bir parçasıdır. Superior trunk bloğu, omuz cerrahisinde interskalen bloğa alternatif olarak tanımlanmış ve ağrının yönetiminde etkili bir alternatif olarak sunulmuştur. Altmış yaşında erkek bir hasta, sol omuzun akromiyonu üzerinde bulunan bir lipomun cerrahi eksizyonu için başvurdu. Anestezi protokolleri tartışıldı ve superior trunk bloğu ile bölgesel anestezi seçildi. Prosedür sırasında duyuşsal blokaj ve motor fonksiyon değerlendirildi ve işlem komplikasyonsuz bir şekilde başarıyla tamamlandı. Superior trunk bloğu, posterior omuz lipomu eksizyon cerrahisi için etkili bir şekilde uygulandı ve hasta memnuniyeti sağlandı. Literatür, omuz cerrahisinde etkili analjezi sağlama potansiyelini ve interskalen bloğun yerini alma olasılığını önermektedir. Gelecekteki çalışmalar, farklı cerrahi prosedürlerde etkinliğini ve güvenliğini daha fazla araştırabilir.

Anahtar Kelimeler: Brakial pleksus; anestezi; superior trunk; omuz cerrahisi; rejyonel

The superior trunk is a part of the brachial plexus formed by the merging of the C5 and C6 spinal nerve roots. It constitutes a major branch of the brachial plexus, contributing to the sensory and motor innervation of the shoulder.¹ Superior trunk block has been described as an alternative to interscalene block in shoulder surgery. It has been utilized for both surgical procedures and postoperative analgesia.

Unlike interscalene block, this technique preserves the phrenic nerve and does not affect respiratory functions. While offered as an effective alternative for managing pain in shoulder surgery, it also aims to preserve diaphragmatic function.¹⁻³

Here in, we present our experience of applying superior trunk block for lipoma excision surgery in the posterior shoulder region.

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Correspondence: Korgün ÖKMEN

University of Health Sciences Bursa Yüksek İhtisas Training and Research Hospital, Department of Anesthesiology and Reanimation, Bursa, Türkiye

E-mail: korgunokmen@gmail.com



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CASE REPORT

A 60-year-old male patient presented with a lipoma located over the acromion of the left shoulder for surgical excision. The patient had a medical history of hypertension and diabetes mellitus. Anesthesia protocols were discussed with the patient for the surgery. Regional anesthesia was chosen, and the decision was made to perform a superior trunk block. After obtaining written and verbal consent, the patient was transferred to the operating room. Following appropriate monitoring, sedation was induced with 2 mg of midazolam and 50 mcg of fentanyl. With the patient in a suitable position, linear ultrasound (10-18 MHz) was used to visualize the C6 level and the 5th and 6th nerve roots along with the

superior trunk. A 20G ultrasound-visible peripheral nerve block needle was used to perform an in-plane superior trunk block at a distance of 100 mm proximal to the point where the suprascapular nerve separates from the brachial plexus. A volume of 10 cc of 0.25% bupivacaine was injected into the plane (Figure 1).

Sensory blockade and motor function were assessed 15 minutes after the block. Sensory blockade was confirmed in the surgical field and C5-C6 nerve dermatomes, while no motor blockade or impairment of diaphragmatic function was observed in the distal upper extremity (Figure 2).

During the 40-minute surgery, the patient received oxygen supplementation at a rate of 3 L/min

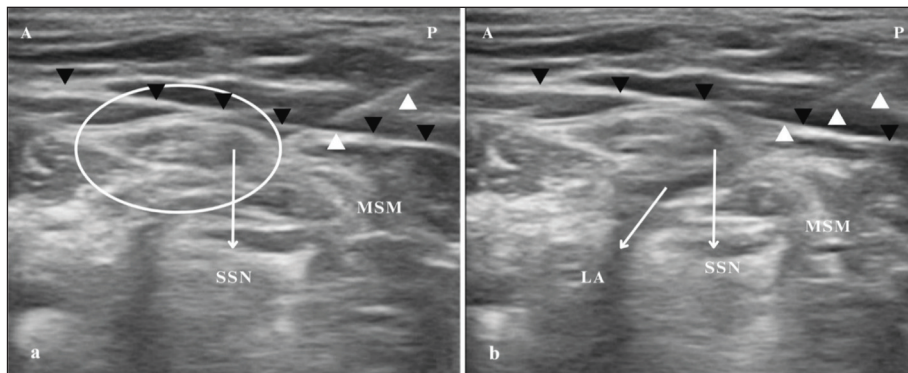


FIGURE 1: Superior trunk blok.

A: SSN: Suprascapular nerve; MSM: Middle scalene muscle; White circle: Superior trunk.

B: LA: Local anesthetic; Black arrowhead: Prevertebral fascia; White arrowhead: Block needle; A: Anterior; P: Posterior.



FIGURE 2: Dermatomal spread.

via a mask, and no additional analgesic was required. Upon reassessment in the post-anesthesia care unit, there were no signs of diaphragmatic dysfunction based on ultrasound findings. Intravenous nonsteroidal anti-inflammatory drugs (NSAID) were administered at 4 and 15 hours postoperatively due to a visual analogue scale score of 5. When the patient reported pain during ward follow-up, 1 gram of paracetamol was administered. Patient satisfaction was not assessed using a scale during the surgery or the postoperative period. The patient had no complaints related to anesthesia or surgery from the preoperative to the postoperative period. Surgeon satisfaction was not evaluated.

In the consent form, the patient has consented to the publication of their image and other clinical information in the journal.

DISCUSSION

Interscalene Brachial Plexus Block (ISB) is commonly used for anesthesia and analgesia in shoulder surgery due to its blockade of nerves innervating the bony and muscular components of the shoulder. However, ISB is associated with nearly 100% blockade of the phrenic nerve when local anesthetic (LA) is administered.⁴ As an alternative to ISB, ultrasound-guided superior trunk block has been described for anesthesia and analgesia in shoulder and clavicle surgeries.^{2,5} Studies have shown that superior trunk block provides similar analgesic effects to ISB for shoulder surgeries, thereby potentially replacing ISB to prevent phrenic nerve blockade.² For instance, Mistry et al. demonstrated the efficacy of a single-dose superior trunk block with low-volume (5 mL) LA for surgical anesthesia in humeral shaft fracture open reduction and internal fixation.⁶ Similarly, Gurumoorthi et al. reported a case of clavicle fracture surgery using superior trunk block with 8 mL of LA, achieving a similar level of dermatomal spread as in our case presentation.⁷ Frederico et al. conducted a prospective interventional study showing that the phrenic nerve was not affected by a 5 mL superior trunk block in both cadavers and living patients.⁸ Kim et al., in a randomized controlled trial comparing

superior trunk block to ISB, found less subjective dyspnea, restriction of hand movement, and hoarseness in the superior trunk block group, indicating potentially limited spread of LA to the phrenic nerve, inferior trunk, and recurrent laryngeal nerve in the STB group, along with higher patient satisfaction.⁹ Conversely, Lee et al. noted that the level of application of superior trunk block or the extent of LA spread might not provide adequate analgesia.¹⁰

In our case, we achieved adequate sensory blockade and patient satisfaction following a superior trunk block with 10 cc of 0.25% bupivacaine for posterior shoulder lipoma excision surgery. No complications were observed during or after the block procedure. Literature suggests that superior trunk block may offer effective analgesia for shoulder surgery and could potentially replace ISB. Future studies could further investigate the efficacy and safety of superior trunk block in various surgical procedures. The patient's analgesic needs being met with NSAIDs and the absence of postoperative opioid requirements are similar to other studies where regional anesthesia was applied.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Korgün Ökmen; **Design:** Korgün Ökmen; **Control/Supervision:** Korgün Ökmen; **Data Collection and/or Processing:** Korgün Ökmen, Gökberk Kürşat Ülker, Aycan Kurtarangil Doğan, Durdu Kahraman Yıldız; **Analysis and/or Interpretation:** Korgün Ökmen, Gökberk Kürşat Ülker, Aycan Kurtarangil Doğan, Durdu Kahraman Yıldız; **Literature Review:** Gökberk Kürşat Ülker, Aycan Kurtarangil Doğa; **Writing the**

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