



# Ultrasound-guided infraclavicular and sciatic block for a patient who had surgery simultaneously for sindactili of the right hand and polydactilia of the right foot: Case report

## *Eş zamanlı olarak sağ elinden sindaktili ve sağ ayağından polidaktili için operasyon geçiren hastada ultrason rehberliğinde infraklavikular ve siyatik blok: Olgu sunumu*

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### Summary

A major advantage of ultrasound (US) has been reduction in the amount of local anaesthetic (LA) needed for successful blocks. Reduced LA requirement reduces the risk of LA toxicity when multiple blocks are to be done for surgery of more than one extremity in the same patient. The 38-year-old female was scheduled for elective surgery of polydactilia in her right foot and syndactili in her right hand. A sciatic nerve block and an infraclavicular block were applied to the patient, with ultrasound guidance. The sciatic block was performed at the popliteal level in figure of four position in prone position. The lateral sagittal technique was used for the infraclavicular block. Both blocks were successful, and the patient was ready for surgery 30 minutes after block performances. The patient didn't need any additional anaesthetic or analgesic during the operation. Surgery was performed uneventfully on both extremities. This is the first case report in the literature in which multiple blocks were applied to two different extremities, the leg and arm. In conclusion, our case report is a good example of multiple blocks in different extremities being performed successfully and safely according to US guidance and using low doses of local anaesthetics.

Key words: Infraclavicular block; multiple peripheral nerve blocks; sciatic block; ultrasound.

### Özet

Ultrasonun (US) büyük avantajlarından birisi başarılı blok için gereken lokal anestetik (LA) miktarındaki azalmadır. Azalmış LA gereksinimi, birden fazla ekstremitesinden ameliyat olacak hastaya çoklu blok yapılırken LA toksisitesi riskini azaltır. Otuz sekiz yaşında kadın hasta, sağ ayağında polidaktili, sağ elinde sindaktili için elektif ameliyatı planlanmış. Siyatik sinir bloğu ve infraklavikular blok, hastaya, US rehberliğinde yapıldı. Siyatik blok, pron, "figure of four" pozisyonunda, popliteal seviyede uygulandı. İnfraklavikular blok için lateral sagittal teknik kullanıldı. İki blok da başarılı oldu ve hasta blok uygulamalarından 30 dakika sonra operasyona hazır. Operasyon süresince hastanın herhangi bir ek anestetik ve analjezik ihtiyacı olmadı. Operasyon her iki ekstremitede sorunsuz olarak gerçekleştirildi. Bu, literatürdeki, kol ve bacak olarak, iki farklı ekstremitede çoklu blok uygulanan ilk olgu sunumudur. Sonuç olarak bizim olgu sunumumuz, farklı ekstremitelerde çoklu blokların, US rehberliğinde düşük doz LA kullanılarak, başarılı ve güvenli bir şekilde uygulanabildiğini gösteren güzel bir örnektir.

Anahtar Kelimeler: İnfraklavikular blok; çoklu periferik sinir bloğu; siyatik blok; ultrason.

### Introduction

Ultrasound (US) guidance during nerve blocks has provided a revolutionary improvement during re-

gional anesthesia practices due to improved block success rate and patient safety. One of the major advantages of US has been reduction in local anes-

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Submitted (Başvuru tarihi) 10.10.2011 Accepted after revision (Düzeltilme sonrası kabul tarihi) 26.12.2012

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thetic (LA) amount needed for successful blocks.<sup>[1-3]</sup> Reduced LA requirement reduces the risk of LA toxicity when multiple blocks are to be done for surgery of more than one extremity in the same patient.

## Case Report

We present a case of a 38-year-old female patient, 163 cm. tall and who weighs 60 kg, ASA physical status I, who had congenital polydactilia and syndactili. The patient was scheduled for elective surgery of polydactilia at her right foot and syndactili at her right hand. There was no contraindication for general anesthesia but we thought that these two surgical procedures could be done with the regional techniques so that prolonged postoperative analgesia could also be provided.

On arrival to the pre-anesthesia holding area where blocks were performed, standard monitoring was applied (electrocardiogram, pulse oximetry and noninvasive blood pressure) and an intravenous catheter was placed in the left forearm of the patient.<sup>[4]</sup> The patient had an infusion of 0.9% isotonic started IV before block performance. Sedation was provided with intravenous midazolam 2 mg. For the sciatic nerve block, the patient was positioned in "figure of four" in prone position.<sup>[5]</sup> After disinfection and sterile draping of the probe, sterile gel was applied to the procedure area. A linear 10-18 MHz US transducer (Esaote Mylab30, Florence, Italy) was placed transverse plane to popliteal fossa. At the popliteal crease the tibial nerve was seen as hyper-echoic structure. After the tibial and peroneal nerves were identified, transducer was moved proximally until the sciatic nerve was seen where the tibial and peroneal nerves were bifurcated. Then we have progressed proximally 2 cm more. A 22 gauge 80 mm needle (Pajunk, Melsungen, Germany) was inserted under the probe's long axis (in plane technique). LA mixture of 10 ml of levobupivacaine 0.5%, and 10 ml of lidocaine 2% (total volume 20 ml) was administered to achieve circumferential spread of LA around the sciatic nerve.

After the sciatic nerve block the patient turned to supine position for infraclavicular block. Lateral sagittal infraclavicular technique was used for infra-

clavicular block.<sup>[6]</sup> The arm to be blocked was adducted and the hand was on the abdomen. The head was rotated slightly to the opposite direction. The point where the clavicle meets the coracoid process was palpated. The puncture site was immediately adjacent to the most medial point of the coracoid process and the anterior surface of the clavicle. After antiseptic preparation of the area with povidone iodine the same linear 10-18 MHz US transducer was placed. The axillary artery was then imaged in the sagittal plane. 22G 80 mm needle (Pajunk Needle, Germany) was inserted using in-plane technique. LA mixture of 10 ml of levobupivacaine 0.5%, 10 ml of lidocaine 2% (total volume 20 ml) was administered. The LA was injected as to form 'U' like distribution around the axillary artery and the cords.

Throughout all needle insertions and re-directions, continuous aspiration of the syringe was performed by an assistant to detect any possible intravascular puncture.

Both blocks were successful and the patient was ready for surgery 30 minutes after block performanc-



**Figure 1.** Two surgical teams operated on both extremities simultaneously.

es. Two surgical teams operated on both extremities simultaneously (Figure 1). Operation lasted for 2.5 hours. The patient did not need any additional anesthetic or analgesic during the operation. Surgery was performed uneventfully on both extremities. 1st, 6th, 12th and 24th hour VAS scores were below 3. First additional analgesic was given 27 hours after the surgery. The patient has been discharged from the hospital on second day of the operation.

## Discussion

There are few reports on multiple nerve blocks in the literature.<sup>[7,8]</sup> Multiple blocks carry the risk for systemic LA toxicity. A large dose and volume of anesthetic has been one of the important determinants of successful block using conventional methods. 40 ml of local anesthetic mixture is needed for infraclavicular block whilst 25 ml of local anesthetic is needed for sciatic nerve block.<sup>[9]</sup> US guidance allowed reduced LA doses without compromising success rate of the blocks. Latzke et al.<sup>[2]</sup> reported that the ED99 value of LA volume for sciatic nerve block is 0.1 ml/mm<sup>2</sup> cross sectional nerve area. They further reported the mean value for sciatic nerve area as 57 mm<sup>2</sup>. Eichenberger et al.<sup>[3]</sup> reported that ED95 value of LA volume for ulnar nerve block is 0.11 ml/mm<sup>2</sup> cross sectional nerve area.<sup>[2]</sup> They reported that the mean cross-sectional area of the ulnar nerve was 6.2 mm<sup>2</sup>. O'Donnell et al.<sup>[10]</sup> reported successful axillary block using only one milliliter of 2% lidocaine per nerve. Although the volumes in these articles are lower than our experience they are a little bit far from practice. But findings of these research articles encourage multiple blocks to be performed without the risk of LA toxicity.

Sandhu et al.<sup>[7]</sup> using US guidance reported simultaneous bilateral infraclavicular brachial plexus block with total amount of 40 ml 2% lidocaine. In a similar way Tekin et al.<sup>[8]</sup> reported bilateral infraclavicular block with total amount of 40 ml LA mixture of 2% lidocaine and 7.5% levobupivacaine using US guidance while Maurer et al.<sup>[11]</sup> reported bilateral infraclavicular block with 70 ml of ropivacaine %0.5. Çiftçiöğlü et al. reported bilateral popliteal block with right femoral nerve block in a high risk patient.<sup>[12]</sup>

Until now all of the multiple block cases in literature

have been described for the upper extremities. This is the first case report in the literature that multiple blocks had been done in two different extremities, as the leg and the arm.

In conclusion, our case report is a good example that multiple blocks in different extremities can be performed successfully and safely by US guidance using low doses of local anesthetics.

**Conflict-of-interest issues regarding the authorship or article: None declared.**

**Peer-review: Externally peer-reviewed.**

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