

ORIGINAL ARTICLE

New Positioning Technique for Harvesting the Sural Nerve in Obese Patients

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Abstract. The author is describing a new simple technique in positioning the leg while harvesting the sural nerve in obese patients in the supine position. The positioning technique is simple, and all of the required pieces are readily available in most of the operating theaters. The author has used this technique in harvesting thirty nerves with ease and without complications. The main advantage of this technique is saving time and manpower while harvesting the sural nerve, as only one surgeon is required to harvest the nerve with no assistance needed.

Keywords: Sural nerve, Nerve graft.

Introduction

The sural nerve is the most common nerve harvested as a graft for the repair of nerve injuries. It is readily accessible and easy to harvest, with a length varying between 15 and 30 cm, and its harvest rarely leaves any long-lasting complaints^[1,2].

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Accepted for publication: 24 August 2014. Received: 20 July 2014.

In the prone position, the technique of harvesting the sural nerve is quite straightforward. However, in the supine position this is more cumbersome since the nerve is located in the postero-lateral aspect of the leg at the lower part of the leg, but becomes posterior at the midline of the leg toward the popliteal fossa, a location that poses some difficulty for the surgeon^[3,4]. In slim patients this is usually manageable with some assistance. However, in obese patients this can be difficult and frustrating, requiring more assistance to complete the harvest process.

Technique

The harvesting technique is simple and straightforward. In the supine position the ankle of the patient is placed slightly off the edge of the table. Both legs are prepped and draped from the mid-thigh level down to the foot. The ankle is wrapped with a green towel, secured by towel clip and anchored to a ceiling pole as depicted in Fig. 1. Such a ceiling pole is readily available in most surgical theaters as it is commonly used to hang the intravenous solutions. The incision starts midway between the lateral malleolus and the Achilles tendon, where the sural nerve is consistently present.



Fig. 1. Intra-operative photograph depicting the right leg hanging from the ceiling pole during sural nerve harvesting.

The sural nerve is encircled by a vessel loop where it is followed all the way to the popliteal fossa or according to the length required for the repair. Following the completion of the harvest the popliteal region is checked for the possibility of blood clots that may have collected given the dependent position and they are removed if present. The subcutaneous layer and the skin are closed in the same position, and the leg is wrapped with crepe bandage and kept elevated, or lowered and placed on a stack of green towels to maintain a slight elevation.

Discussion

Harvesting the sural nerve in a supine position can be tedious and often requires two surgeons, one surgeon to harvest and the other to hold the leg in a flexed position. The assisting surgeon may have to lift up or rotate the leg at times to allow better exposure as the dissection gets closer to the popliteal region. This puts considerable weight and stress on the assisting surgeon.

The advantages of this alternate approach include: 1. A single surgeon required for the harvest process. 2. Elevation of the leg ensures good hemostasis, where little or no coagulation is required. 3. Does not require tourniquet. 4. Exposure of the sural nerve and its branches is nicely laid out with both major branches of the sural nerve identified and harvested safely. 5. Ease and speed of the harvest, with mean time of harvesting an average 30 cm sural nerve graft was 7 ± 2 min.

In a single case of a very obese patient the anesthesiologist noticed a sudden, temporary increase in blood pressure that was attributed to a sudden increase in venous return from the heavy limb. For this reason it became this team's practice for all patients to use a gradual elevation of the limb and to check the changes in the patient's hemodynamics before anchoring it to the ceiling pole. The ease and practical nature of this technique prompted this team to use it in all of the cases for harvesting the sural nerve, in both obese and slim patients.

Nerve repair surgery, particularly brachial plexus repair, can take a long time and can be physically demanding. With this technique, harvesting the sural nerve can be accomplished with less time and using less manpower, allowing the other surgeon to work on exposure or simply take a short break.

References

- [1] **Coert JH, Dellon AL.** Clinical implications of the of the surgical anatomy of the sural nerve. *Plast Reconst Surg* 1994; **94**(6): 850-855.
- [2] **de Moura W, Gilbert A.** Surgical anatomy of the sural nerve. *J Reconst Microsurg* 1984; **1**(1): 31-39.
- [3] **Eid EM, Hegazy AM.** Anatomical variations of the human sural nerve and its role in clinical and surgical procedures. *Clin Anat* 2011; **24**(2): 237-245.
- [4] **Mahakkanukrauh P, Chomsung R.** Anatomical variations of the sural nerve. *Clin Anat* 2002; **15**(4): 263-266.

طريقة جديدة لوضعية الساق عند حصاد عصب بطن الساق عند المرضى زائدي الوزن

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المستخلص. في هذا التقرير أقدم طريقة جديدة ، وبسيطة لوضعية الساق عند حصاد عصب بطن الساق عند المرضى زائدي الوزن، ومن ثم استخدامه لترقيع الأعصاب المصابة بدون الحاجة الى مساعده أثناء عملية الحصاد. وقد استخدمت هذه الطريقة في حصاد ثلاثون عصبه بدون مضاعفات.