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Case Report

Sural nerve entrapment in gastrocnemius muscle – a case report

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ABSTRACT

Although the sural nerve is the most extensively studied nerve in man, there is a dearth of data regarding the normal variations in the size and distribution of axons in normal subjects. The sural nerve is the most frequently used sensory nerve in nerve transplantation.

The knowledge of variations in its course and distribution play an important role in the surgical procedures. Here, we report an entrapment of the sural nerve in the gastrocnemius. ***Neuroanatomy; 2007; 6: 41–42.***

Key words [sural nerve] [tibial nerve] [gastrocnemius] [entrapment] [anatomical variation]

Introduction

Sural nerve arises from the tibial nerve in the popliteal fossa. It normally descends between the two heads of the gastrocnemius muscle and then descends down lateral to the tendocalcaneus to a region between calcaneus and lateral malleolus. The short saphenous vein accompanies it in most of its course. It supplies the skin of the posterolateral part of the lower third of the leg and the lateral border of the foot. The sural communicating nerve and lateral sural cutaneous nerve of the leg are two branches of common peroneal nerve in the popliteal fossa.

Case Report

During the routine dissections for the medical undergraduates, a variation in the course of the sural nerve was found. This variation was found in the left leg of a male cadaver aged approximately 55 years and was unilateral. The sural nerve was reduced in size and pierced the gastrocnemius muscle instead of passing superficial to it [Figs. 1 and 2]. The small saphenous vein accompanied the sural nerve in most of its course but it passed superficial to the gastrocnemius muscle instead of piercing the muscle with the sural nerve. The common peroneal nerve gave a common trunk which divided into lateral sural cutaneous nerve and sural communicating nerve [Figs. 1 and 2]. The sural communicating nerve was much thicker than the lateral sural cutaneous nerve of the leg and joined the sural nerve in the distal third of the leg after the sural nerve came out of the gastrocnemius muscle.

Discussion

This variation found here is of clinical and surgical importance since sural nerve is the most frequently used sensory nerve in nerve transplantations. It is either transplanted alone or together with the other elements of the neurovascular stalk within the superficial sural flap. Clinically, the sural nerve is widely used for both diagnostic (biopsy and nerve conduction velocity studies) and therapeutic purposes (nerve grafting). Thus, a detailed knowledge of the anatomy of the sural nerve and its contributing nerves are important in carrying out these and other procedures. Though the sural nerve is considered to be a sensory nerve, motor fibres have been found in 4.5% of nerves [1]. In the current case, since the nerve passed through the gastrocnemius muscle, it is likely that it gave motor branches to the muscle as it passed through it. Presence of motor fibres may play important role in sural nerve biopsy and pathological findings. This abnormal course of the sural nerve can produce pain up on the contraction of the gastocnemius or altered sensation over the area of its distribution. Pain associated with sural nerve entrapment in athletes [2] and in scar tissue after the injury of gastrocnemius [3] has been reported already. A case of sural nerve and short saphenous vein entrapment has also been reported [4]. In the current case, the small size of the sural nerve was compensated by the large size of sural communicating nerve.

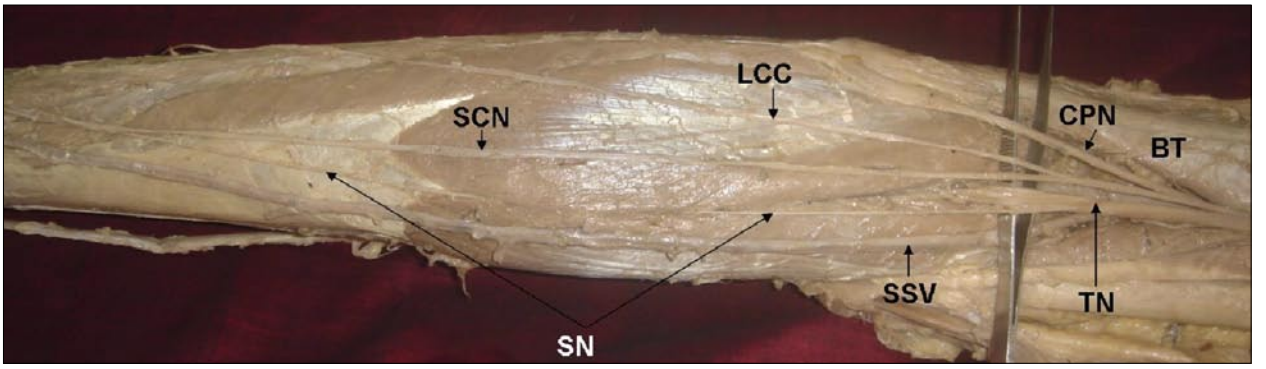
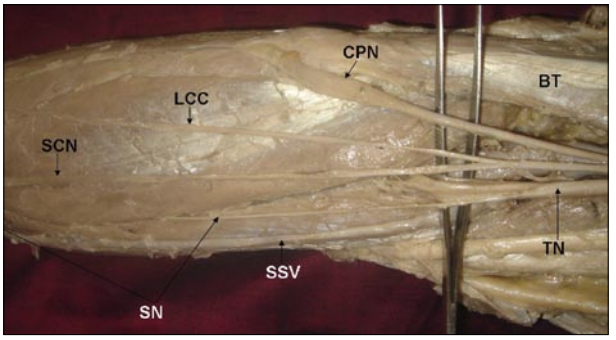


Figure 1. Dissection of the back of the leg showing the variations of the superficial nerves. Color version of figure is available online. *(**TN:** tibial nerve; **CPN:** common peroneal nerve; **SN:** sural nerve; **SSN:** small saphenous vein; **BT:** biceps tendon; **SCN:** sural communicating nerve; **LCC:** lateral sural cutaneous nerve of the leg)*



The knowledge of this kind of entrapment of sural nerve is very important for plastic surgeons, sport medicine, physiotherapy, clinical and surgical procedures.

Figure 2. Close view of the dissection of the back of the leg showing the variations of the superficial nerves. Color version of figure is available online. *(**TN:** tibial nerve; **CPN:** common peroneal nerve; **SN:** sural nerve; **SSN:** short saphenous vein; **BT:** biceps tendon; SCN: sural communicating nerve; **LCC:** lateral sural cutaneous nerve of the leg)*

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