

Case Report: An Uncommon Anatomical Variation of the Sciatic Nerve

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ABSTRACT

The sciatic nerve is a largest single nerve of the lumbosacral nervous plexus. This nerve innervates all muscles of the leg and foot as well as the flexor muscles of the knee joint. Many variations in the direction and relations of sciatic nerve were described. The current case report presented a thick septum situated posterior to the sciatic nerve and its branches spread throughout the back of the thigh. The well identification of such variations is necessary for surgeons to consider them while scheduling clinical interventions.

1. Introduction

The sciatic nerve, also known as ischiatic nerve, is the largest nerve of the lumbosacral nervous plexus (L4-S3). This nerve enters the greater sciatic foramen and in order to arrive the gluteal area, passes through the inferior border of piriformis muscle [1]. Inferiorly, in a region between the greater trochanter and ischial tuberosity, the sciatic nerve is located deep to the gluteus maximus [2]. At the inferior margin of the quadratus femoris, sciatic nerve enters the back of the thigh. In this

compartment, it is situated posteriorly to the adductor magnus overlapping by means of biceps femoris [2, 3].

Usually, in the lower third of thigh and sometimes within the gluteal region, this nerve is divided into 2 branches: the tibial and the common peroneal nerves, and innervates all muscles of the leg and foot via these branches [4, 5]. Therefore, the sciatic nerve palsy leads to severe difficulty in walking [6]. Anatomical variations of ischiatic nerve are very important to many surgical procedures [7]. Identification of such variations is essential to inhibit nerve injury and postoperative complica-

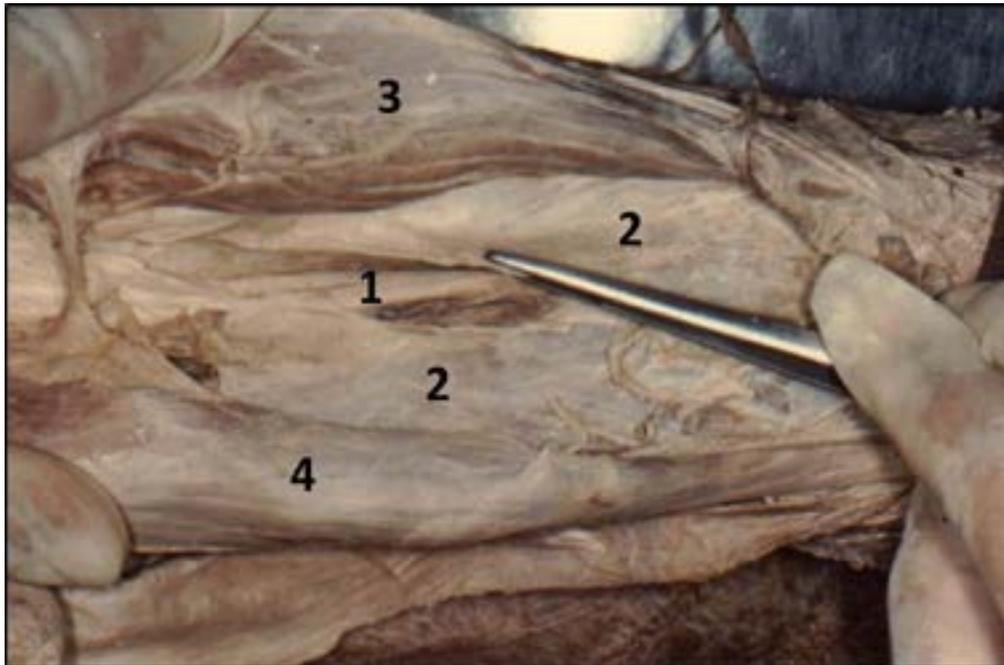
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Figure 1. Posterior view of the dissected thigh with sciatic nerve
1: Septum; 2: Long head of biceps femoris; 3: Semitendinosus; and 4: Muscles

tions [8, 9]. Thus, the current study aimed at describing a thick septum situated posterior to the sciatic nerve.

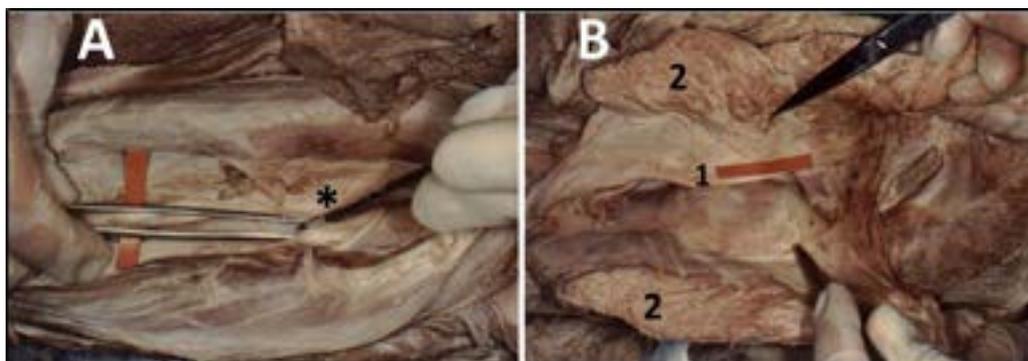
2. Case Report

The current study was conducted in Kerman University of Medical Sciences, Kerman, Iran. During a cadaver (male, 35 to 40 year of age) dissection in anatomy learning, a rare variation was detected in the posterior region of the thigh. In this case, a thick white septum situated posterior to the sciatic nerve widespread throughout the back of thigh. Also, this septum (Figure 1) lay just deep to muscles such as semitendinosus, semimembranosus, and biceps femoris. This septum was detected af-

ter cleaning the connective tissue of this region; sciatic nerve and its 2 major divisions were found as soon as cutting the septum (Figure 2).

3. Discussion

The identification of anatomical variations in muscles, vessels, and nerves are very important to clinical practices [10-12]. During the development of human embryo, the nerves enter to the lower limb to forms the 2 main nervous plexuses of these region including lumbar and sacral plexuses. The ischiatic nerve as soon as differentiation from plexuses enters the gluteal area through the greater sciatic foramen [13, 14].



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Figure 2. A*: Cutting the septum in the lower part of the thigh; B: Sciatic nerve: 1: In the back of the thigh after removing the septum; and 2: Gluteus maximus muscle

The first part of sciatic is about 2 centimeters wide. It is also the thickest as well as the greatest nerve in the human body [15]. Many variations in this nerve were reported so far [16, 17]. Nayak et al. described the trifurcation of this nerve including the common peroneal, lateral cutaneous, and tibial nerves [18]. Similar studies demonstrated that sciatic nerve at a varying level of the back of the thigh is divided into 2 branches. Usually, the site of the sciatic bifurcation is between the middle third and lower third of the femoral height, close the entrance of the popliteal fossa [1, 5, 19]. The sciatic nerve may pass through the piriformis muscle and lead to the sciatica [20, 21].

The common fibular nerve passing superficial to the superior gemellus and tibial nerve passing deep to this muscle were reported in the literature [22]. Ultrasound guidance is an advanced technique specified to nerve localization [23]. In the current study, a new anatomical variation of sciatic nerve was described for the first time. This variation is very important because it may produce interference at time of ultrasound guidance procedure for sciatic nerve. Thorough knowledge of this septum is essential to establish a diagnosis and perform surgery in the back region of the thigh. Anatomical variations in the origination, termination, and construction of the ischiatic nerve as well as its relationship with the muscles or septum are very important [24, 25]. The identification of such variations is necessary and vital for surgeons and clinicians while scheduling clinical interventions.

Acknowledgments

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Conflict of Interest

The authors declared no conflicts of interest.

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