

A CONTRIBUTION TO THE ANOMALOUS PENETRATION OF THE SCIATIC NERVE THROUGH THE GREATER SCIATIC FORAMEN

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Here we describe an interesting course of the sciatic nerve. A part of the common peroneal nerve perforated the piriformis and the fibers from the ventral branch of the S₃, which were leaving the infrapiriform foramen joined to it.

INTRODUCTION

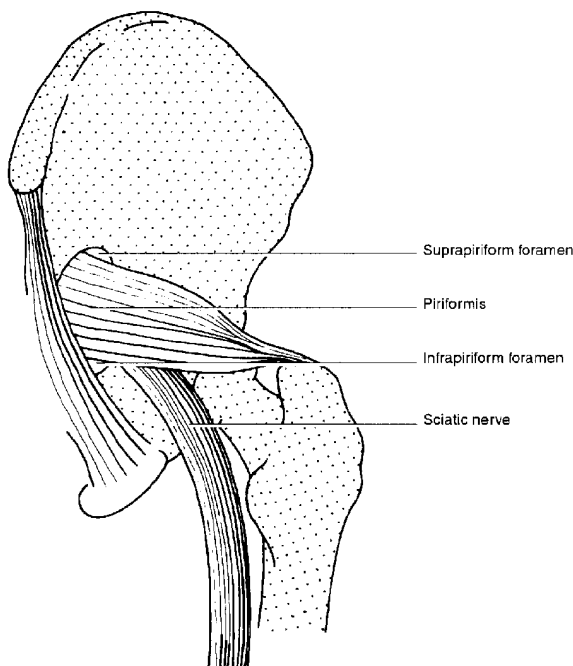
The sciatic nerve is the broadest nerve from the sacral plexus. Its ventral divisions are L₄ – S₃. We can see its clinical importance during ischialgia, a lesion due to pelvis fracture or the proximal end of the femur or other trauma. It can often be damaged by a wrongly placed intramuscular injection, especially if the sciatic nerve has an anomalous course. It normally leaves the pelvis via the greater sciatic foramen below the piriformis. Its atypical course over the piriformis can also be of importance for neuralgia. Before it enters the popliteal fossa the sciatic nerve divides into two main branches: the ventromedial

tibial nerve (L₄ – S₃) and dorsolateral common peroneal nerve (L₄ – S₂ according to Braus¹)

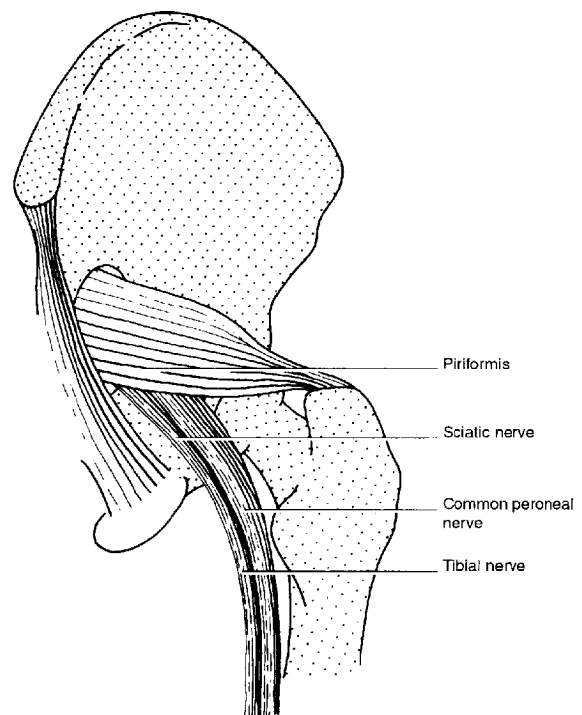
OBSERVATION AND DISCUSSION

We can find frequent anomalies described in medical literature. Grant Boileau² shows on a large set of 640 preparations that the sciatic nerve most frequently (in 87 % of cases) goes through the infrapiriform foramen (sch. A). This number also includes a quite frequent so-called high splitting of the sciatic nerve (sch. B). Grant Boileau² finds the course of the common peroneal nerve

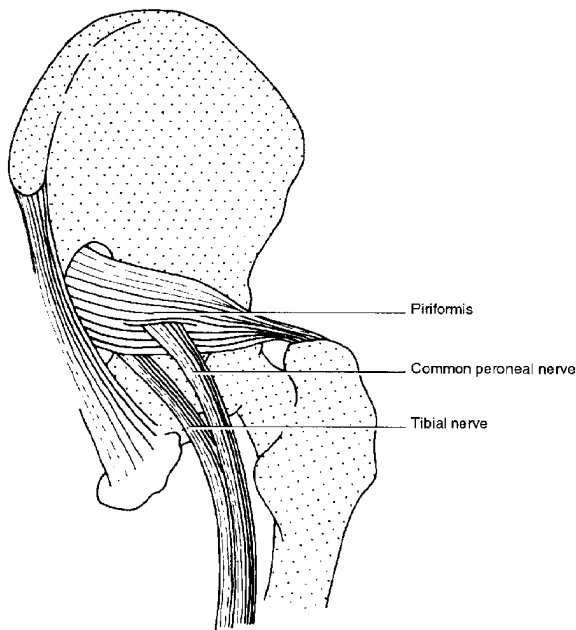
A. Typical course of the sciatic nerve



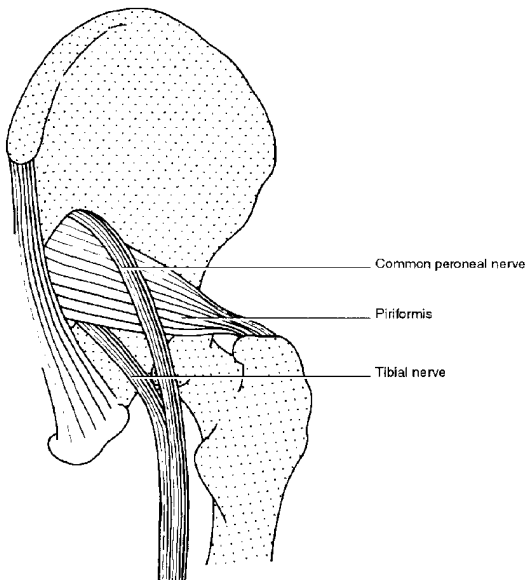
B. High splitting of the sciatic nerve



C. Course of the common peroneal nerve through the piriformis



D. Course of the common peroneal nerve through the suprapiriform foramen



through the piriformis in 12.2 % (sch. C), in 0.5 % through the suprapiriform foramen (sch. D). On the other hand Borovanský³ cites according to Beaton and Anson its course through the infrapiriform foramen only in 84 % of cases. The course of the common peroneal nerve corresponds with the above mentioned number (11.7 %). Weigner^{4,5} describes the high splitting of the sciatic nerve as the most frequent variety – in 15 % of cases immediately after it leaves the sacral plexus. This corresponds with our findings.

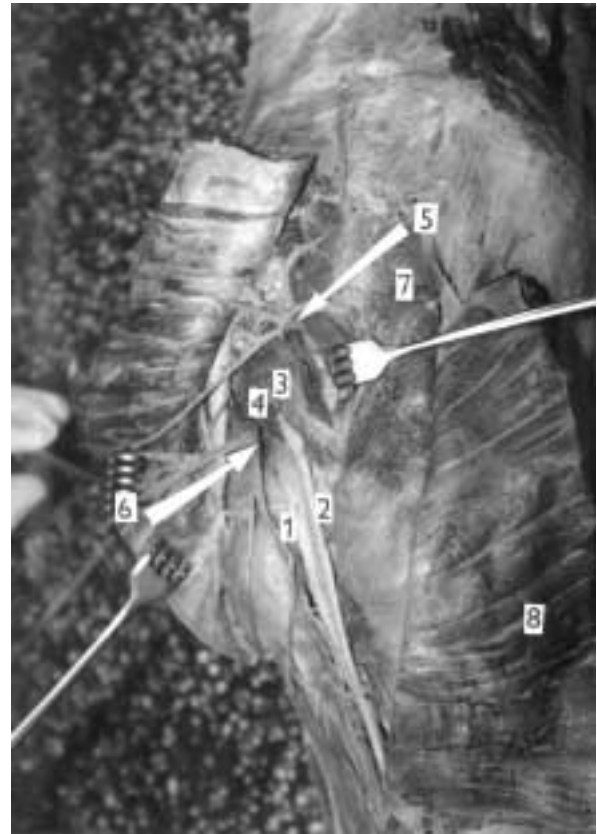


Fig. 1. 1 – Tibial nerve, 2 – common peroneal nerve, 3 – upper part of the piriformis, 4 – lower part of the piriformis, 5 – suprapiriform foramen, 6 – infrapiriform foramen, 7 – gluteus medius, 8 – gluteus maximus

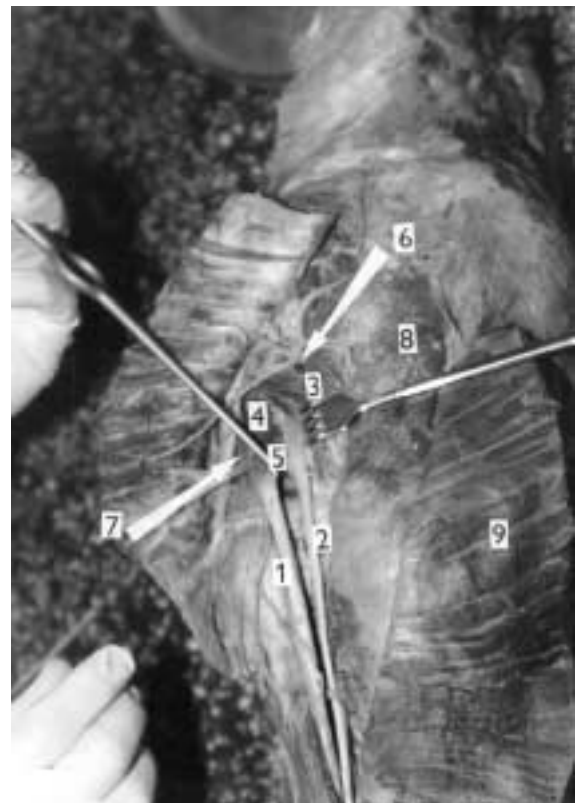


Fig. 2. 1 – Tibial nerve, 2 – common peroneal nerve, 3 – upper part of the piriformis, 4 – lower part of the piriformis, 5 – fibers from the ventral branch of the S₃, 6 – suprapiriform foramen, 7 – infrapiriform foramen, 8 – gluteus medius, 9 – gluteus maximus

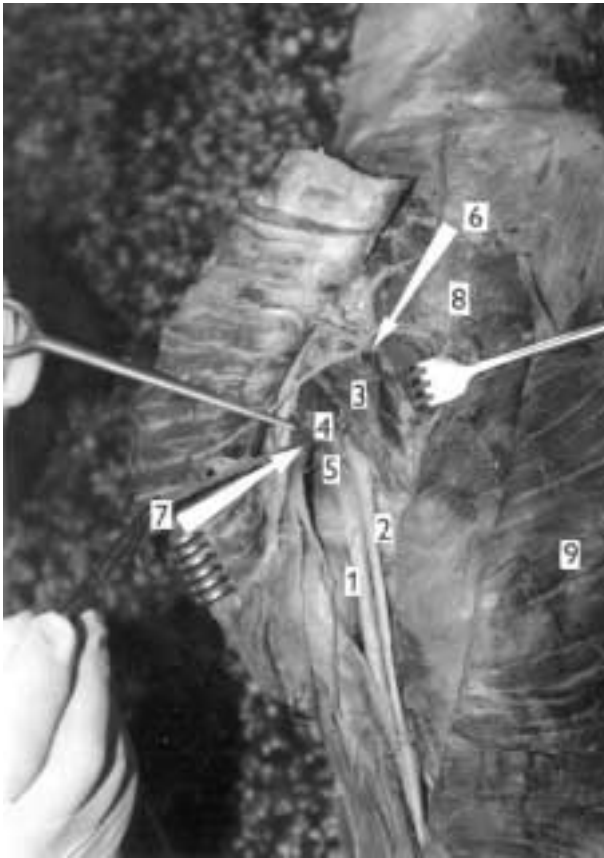


Fig. 3. 1 – Tibial nerve, 2 – common peroneal nerve, 3 – upper part of the piriformis, 4 – lower part of the piriformis, 5 – fibers from the ventral branch of the S₃, 6 – suprapiriform foramen, 7 – infrapiriform foramen, 8 – gluteus medius, 9 – gluteus maximus

We would like to enrich these observations with a study of an interesting bilateral anomaly, that we observed on our material.

The sciatic nerve divides into its branches already in the pelvis while the tibial nerve runs through the infrapiriform foramen and the common peroneal nerve perforates the piriformis. This divided the piriformis into two parts – the upper stronger part (about 2/3 of muscle) and the lower smaller part (about 1/3 of muscle). Both parts of the muscle were completely separated from each other and therefore formed the superior piriformis inserting to the greater trochanter and the inferior piriformis inserting in the upper part of the trochanteric fossa (fig. 1, 2, 3). A smaller branch from the infrapiriform foramen connection from the S₃ segment joined the common peroneal nerve after its exit from the piriformis (sch. E, fig. 2, 3).

The strengthened common peroneal nerve gave one branch to the short head of the biceps femoris on the thigh and another stronger and longer one to the distal part of the biceps.

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