Sciatic nerve

see Sciatica.

The sciatic nerve (/saɪˈætɪk/; also called ischiadic nerve, ischiatic nerve) is a large nerve in humans and other animals. It begins in the lower back and runs through the buttock and down the lower limb. It is the longest and widest single nerve in the human body, going from the top of the leg to the foot on the posterior aspect.

The sciatic nerve supplies nearly the whole of the skin of the leg, the muscles of the back of the thigh, and those of the leg and foot. It is derived from spinal nerves L4 through S3. It contains fibres from both the anterior and posterior divisions of the lumbosacral plexus.

The lateral trunk of the sciatic nerve becomes the common peroneal nerve when the sciatic divides into its tibial and peroneal components just above the knee. The common peroneal nerve passes laterally through the popliteal fossa and wraps around the head of the fibula. At this point, the nerve divides into its terminal branches. The deep peroneal “anterior tibial” nerve, is one of the terminal branches of the common peroneal nerve, and provides motor innervation to the tibialis anterior, the main dorsiflexor muscle of the foot. Therefore, an anatomy-based differential diagnosis of the foot-drop includes lesions or disorders affecting anterior horn cells, L4 or L5 roots, lumbosacral plexus, the sciatic nerve and peroneal nerve [1].

Variants

Cadaveric studies have often revealed significant variations in the structural features of the SN in relation to the piriformis muscle. Knowledge of such variations is not only useful for clinicians treating pathophysiologies such as piriformis syndrome and sciatica but is also essential for surgeons carrying out procedures involving the hip and sacroiliac joints to avoid iatrogenic injury to the SN. During routine cadaveric dissection, one such anatomical variant was identified with the SN passing over the superior border of the piriformis muscle [2]

Biopsy

Targeted fascicular biopsy of the sciatic nerve is a safe and efficient diagnostic procedure, and in highly selected cases can be offered as the initial procedure over distal cutaneous nerve biopsy. Diagnoses were very diverse and included entities considered very rare. Even for the more prevalent diagnoses, the biopsy technique allowed a more targeted approach with a higher diagnostic yield and justification for more aggressive treatment. In a series of cases, new radiological patterns of some entities were identified, which could be biopsied less frequently [3].

Sciatic nerve injury

see Sciatic nerve injury.

1)

Stewart JD: Foot drop: Where, why and what to do? Pract Neurol 8:158-169, 2008
2)

Annamalai A, Iwanaga J, Dumont AS, Loukas M, Tubbs RS. An Extremely Rare Case of a Sciatic Nerve Variant. Kurume Med J. 2023 Jun 12. doi: 10.2739/kurumemedj.MS6834001. Epub ahead of print. PMID: 37302850.
3)

Capek S, Amrami KK, Dyck PJ, Spinner RJ. Targeted fascicular biopsy of the sciatic nerve and its major branches: rationale and operative technique. Neurosurg Focus. 2015 Sep;39(3):E12. doi: 10.3171/2015.6.FOCUS15213. PubMed PMID: 26323814.