

Case Report

HIGH DIVISION OF SCIATIC NERVE WITH AN ASSOCIATED VARIATION IN THE ORIGIN OF SUPERIOR AND INFERIOR GLUTEAL NERVES

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ABSTRACT

High division of sciatic nerve into two components with an associated variation in the origin of superior and inferior gluteal nerves was observed in 70 yrs old male cadaver on right side. The components of sciatic nerve rejoined in the middle 2/3rd of thigh, and they redivided at the superior angle of popliteal fossa. It is a rare variation. Such variation is important for surgeons and nurses too.

KEY WORDS: Sciatic nerve (SN), Superior and Inferior Gluteal nerves (SGN and IGN), Common Peroneal nerve (CPN).

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INTRODUCTION

Sciatic nerve is thickest nerve in the body. It arises from sacral plexus and emerges out through greater sciatic foramen, leaves the pelvis and enters into gluteal region by passing below piriformis as a single nerve enclosed by a single epineural sheath. It then passes posteriorly to the obturator internus, gemelli and quadratus femoris muscle. It divides into two terminal nerves i.e tibial and common peroneal, at the lower part of posterior compartment of thigh [1]. (fig. 1 & 2)

A number of variations were reported on the high division of sciatic nerve [2]. We report a rare case of high division of sciatic nerve at greater sciatic notch, piercing the piriformis muscle with an associated variation in the origin of superior and inferior gluteal nerves.

CASE REPORT

During the routine dissection for MBBS students, we found a unilateral right sided high division of the sciatic nerve. And the nerve divided at greater sciatic foramen into tibial and common peroneal nerves. The gluteus maximus muscle is supplied by separate branch (IGN) and the branch is arising from common peroneal nerve (CPN). Superior gluteal nerve is also arising from CPN and supplied gluteus maximus and gluteus minimus.

The tibial and CPN united in middle 2/3rd of thigh and again redivided at superior angle of the popliteal fossa.

On the left side division of sciatic nerve is normal and gluteus maximus is innervated by inferior gluteal nerve normally.

Fig. 1: Showing rejoining of two components of Sciatic nerve in the middle 1/3rd of thigh.



Fig. 2: Showing arising of sciatic nerve from greater sciatic foramen and arising of inferior gluteal nerve IGN.

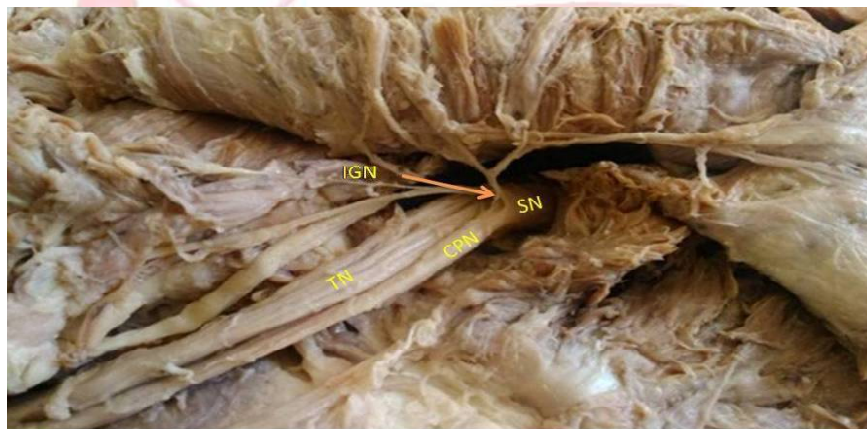
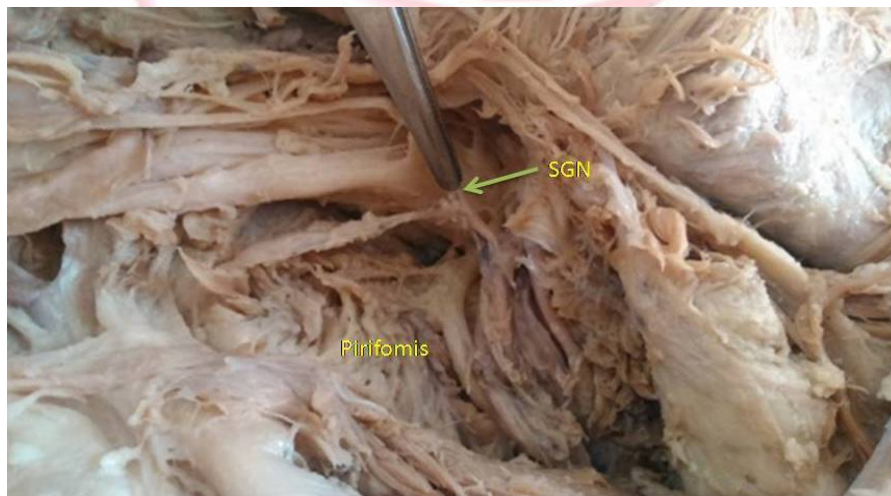


Fig. 3: Showing arising of superior gluteal nerve (SGN) arising CPN .



DISCUSSION

Embryologically, the lower limb bud is innervated by two plexus (lumbar and sacral). Later on the elements of these plexus grow into the limb and they are subdivided into dorsal and ventral components for ventral and dorsal musculature [3-5]. Sciatic nerve is formed when the dorsal and ventral component of sacral plexus become more close to each other. Hence, based on their

previously mentioned developmental formation, it is possible that the common peroneal and the tibial divisions of the sciatic nerve separate from each other at different levels from their origins. So, it is possible for tibial and common peroneal nerves to divide from each other at different levels. High division of sciatic nerve before entering into gluteal region was reported in 20.9% cases [6] and in 9.8% of cases [7].

In the present case, the two divisions of sciatic nerve reunited in the middle 2/3rd of the thigh. Similar observation was made by Sushma et al. 2014 [8].

In present case, on the right side of gluteal region, inferior gluteal nerve arising from common peroneal nerve supplied gluteus maximus. Vanitha et al. 2014 reported a case in which a branch from sciatic nerve supplied the gluteus maximus muscle [2]. Sumalatha et al, reported that the gluteus maximus muscle was innervated by a branch arising from common peroneal nerve in the gluteal region with absence of inferior gluteal nerve [9,10].

CONCLUSION

The sciatic nerve may be injured by penetrating wounds, fractures of pelvis or dislocations of hip joint or by intra muscular injections in the gluteal region.

The common peroneal nerve is more commonly affected because its nerve fibers are more superficial.

Sciatic nerve injury leads to paralysis of hamstring muscles and also leads to foot drop.

Failed on incomplete anesthetic block of sciatic nerve during popliteal block anesthesia may lead to nerve injury, hematoma and abscess formation and have a clinical importance in etiology and pathogenesis of sciatica.

Hence the knowledge of anatomical variations of sciatic nerve is very important for surgeons.

Conflicts of Interests: None

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