

Case Report

UNILATERAL HIGH DIVISION OF SCIATIC NERVE AND ITS RELATION TO BIFID PIRIFORMIS

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ABSTRACT

Background: The sciatic Nerve can rarely be separated into tibial and common fibular Nerve within the Pelvis. In such cases the tibial nerve and common fibular nerve leave the pelvis through different routes.

Materials and Method: The variation found during routine dissection for MBBS students in a 30 yr old male cadaver in the department of Anatomy, JJM Medical college Davangere, Karnataka, India.

Results: The variation is High division of sciatic Nerve unilaterally on right side in 30yrs old male cadaver. Common peroneal Nerve is found passing between the two divisions of bifid piriformis while tibial Nerve passed below the inferior piriformis

Conclusion: Knowledge of this variation is important clinically in sciatic nerve entrapment resulting in non-discogenic sciatica and also requires reviewing of the piriformis syndrome

KEY WORDS: Tibial Nerve, Common Peroneal Nerve, Sciatica, Piriformis syndrome.

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BACKGROUND

The sciatic nerve is formed in the pelvis by joining anterior divisions of L₄-S₃, spinal nerve roots, It is almost 2 cm wide at its origin near the sacral plexus, two separate nerve trunks (the tibial nerve and the common peroneal nerve) enveloped by a common facial sheath can be distinguished from the onset these two trunks leave the pelvis through the greater sciatic foramen below the piriformis the nerve passes along the back of the thigh, and divides into the tibial nerve and common peroneal nerve proximal to the knee, there is a close relationship between the sciatic nerve and the intrapelvic muscle (especially piriformis) along its course. The piriformis, may compress the SN and

cause piriformis syndrome [1, 2], piriformis syndromes not only occurs due to muscle hypertrophy, inflammation or irritation, but also may be caused by congenital variations of the piriformis muscle and the sciatic nerve [2].

CASE REPORT

During routine dissection of the right gluteal region of 30 years old embalmed male cadaver in the Department of Anatomy, J.J.M. Medical College, Davangere, Karnataka, India, observed the variation in Sciatic Nerve and the piriformis muscle. The photographs of the same were taken from different angles. In the same Sciatic Nerve divided even before entering the pelvic Fossa

Fig. 1: Highly divided Sciatic Nerve with Bifid piriformis.

SN: Sciatic Nerve, TN: Tibial nerve, CPN: Common Peroneal Nerve, SGV: Superior gluteal vessels, IGV: Inferior gluteal vessels, GM: Gluteus maximus, GMed: Gluteus medius, PFS: Piriformis superior, PFI: Piriformis inferior, GT: Greater trochanter, GS: Gemellus superior, GI: Gemellus inferior, OI: Obturator internus.

into Tibial Nerve and common peroneal nerve (CPN) and it is pierced the piriformis muscle dividing the muscle into upper & lower slips of fibers. Tibial nerve reached the gluteal region by passing between the lower slip of piriformis muscle and the gemellus superior muscle. These two nerves remained separately in their entire course.

DISCUSSION

It has been observed that SN usually shows a lot of variations in its division, especially its high division. Small pooled results of 18 previous studies and 6,062 cadavers are found that prevalence of this variant in cadavers was 16.9% and in surgical case series was 16.2%. The high division results in SN injury during deep intramuscular injection in gluteal regions piriformis syndrome [2,3], failed SN block in anaesthesia and injury during posterior hip operation [1].

Many authors have attempted classification of high divisions of Sciatic Nerve. The best known classification is by Beaton and Anson's classification in 240 specimens in 1938 [1,2].

It is usually seen that when SN shows high branching pattern, that one of the branch pierces piriformis. But divided piriformis is not usually seen. Divided piriformis is said to be a very important cause of piriformis syndrome as CPN

passing between two divisions is usually compressed and irritated resulting in the symptoms [1,4].

Machado et al. studied 100 gluteal regions and Ugrenovic et al studied 200 gluteal regions but didn't find even a single divided piriformis. But Jawish et al., found only one case out of 26 cases selected from 3550 cases complaining of sciatica [1,2,3], YS khan K also mentioned a case bilaterally [1].

Diagnosis of unilateral division of piriformis is very important as this will solve dilemma of surgeons as to why symptoms and signs of piriformis syndrome leading to sciatica differ in different persons and effects of treatment differs and even outcome [1,4].

CONCLUSION

A thorough knowledge of different variations will not only help surgeons to be careful, but plan accordingly during various surgical interventions and management of this region. This also motivates radiologists, as there can be difference on two sides. It also helps nurses and junior doctors to prevent deep IM injection hazards in gluteal regions.

Conflicts of Interests: None

REFERENCES

- [1]. YS khan K, Tk khan, Al-Joul University, Sakaka, Kingdom of Saudi Arabia. A rare case of bilateral high division of SN with unilateral divided piriformis and unusual high origin of genicular branch of CPN. *Int j Anat varia* 2011;4:63-68.
- [2]. Guvencer, Lyem, Akyer, Naderi, Variations in the high division of the SN and relationship between the SN and the piriformis. *Turkish Neurosurgery* 2009;19(2);139-144.
- [3]. J. Paval, S. Nayak, A case of bilateral high division of SN with a variant inferior gluteal nerve. *Neuroanatomy* 2008;5;33-34.
- [4]. Zeliha Kurtoglu, M. Haluk Uluutku. A combined variation in the gluteal region. *J med Sci* 1999;29;579-581.
- [5]. Beaton LE, and Anson BJ. The relation of the SN and its subdivisions to the piriformis muscle. *Anat Rec*1938;70;1-5.

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