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AN UNUSUAL ORIGIN OF SCIATIC NERVE- A CASE REPORT

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ABSTRACT

An unusual unilateral variation was observed in emerging of sciatic nerve of right gluteal region in an adult male cadaver. The sciatic nerve on the other side of this cadaver followed the normal anatomical course. Such type of higher division of sciatic nerve inside the pelvis though rare is of great academic and clinical significance in neurology, general surgery, orthopaedics, sports medicine, anaesthesiology & Physiotherapy. The knowledge of this variation is also important for paramedics who frequently give intramuscular injections in to the gluteal region.

KEYWORDS: Tibial Nerve, Common peroneal nerve, sciatic nerve, piriformis muscle, Hamstring. muscles.

INTRODUCTION

The sciatic nerve (SN) is the widest nerve in the body, about 2 cm broad and consists of tibial and common peroneal components, both of which form initially a common trunk. Sciatic is a Greek word derived from “Ischiadichus” and hence it is called as ischiadic nerve. The tibial component is derived and is from the ventral branches of ventral rami of L4 to S3 spinal nerves. The common peroneal component is from the dorsal branches of ventral rami of L4 to S2 spinal nerves.[1]

The sciatic nerve emerges through the greater sciatic foramen below the piriformis and curving infero-laterally descends beaneath the gluteus maximus midway between the ischial

tuberosity and the greater tronchanter. In gluteal region it rests successively on the dorsal surface of the body of ischium separated by nerve to quadratus femoris, tricipital tendon of obturator internus with gemelli superior and inferior, quadratus femoris and adductor magnus.[1]

The Nerve divides subsequently in to two terminal branches – common peroneal nerve (CPN) laterally & tibial nerve (TN) medially, usually at the superior angle of popliteal fossa.[2] It is mixed nerve contains both motor and sensory fibres. The motor branches supply the posterior compartment of thigh muscles as well as hip & knee joint, however sensory branches supply the whole tibial and foot areas with the exception of the anteromedial tibial region and medial margin of the foot. Usually it divides in the middle of the back of the thigh, however the exact level of division in to two terminal branches varies. Occasionally the two nerve components are separate in origin.[3]

Piriformis is the key muscle of the gluteal region. It originates from the anterior border of the second to fourth sacral segment, from the upper margin of the greater sciatic notch, and from the sacrotuberous ligament.[4]

Knowledge of its course of higher level division is utmost important for clinicians, surgeons, physiotherapist and paramedical staff for clinical and surgical purposes. Paralysis to the muscles supplied by Sciatic nerve results in impaired hip extension and knee flexion.

Development

The two parts of the sciatic nerve develop separately in early embryonic stage and maintain their individual identity throughout their extent, even though joined together to form a single nerve trunk by a common connective tissue sheath.[10]

MATERIALS AND METHOD

Middle aged formalin fixed cadaver without any gross pathology is used for this study. The cadavers belong to the Department of Anatomy of our institution. Dissection of gluteal region is done exposing the gluteus maximus muscle by reflecting the skin and superficial fascia. Gluteus maximus is incised and reflected to visualise the structures under cover of it. Piriformis muscle and the relation of sciatic nerve and its branches to the muscle are well observed and recorded.

CASE REPORT

During routine dissection of UG students in dissection hall of CSMSS Ayurved Mahavidyalaya Aurangabad (Maharashtra) in right gluteal region of middle aged male cadaver, we report a case in which right sciatic nerve divided inside the pelvis in to its two terminal branches. The Common peroneal nerve (CPN) pierced the piriformis muscle and passes through it whereas the Tibial nerve (TN) passed below the piriformis muscle as shown in Fig no 1. The origin, course and division of the sciatic nerve on the left side of this cadaver was normal.

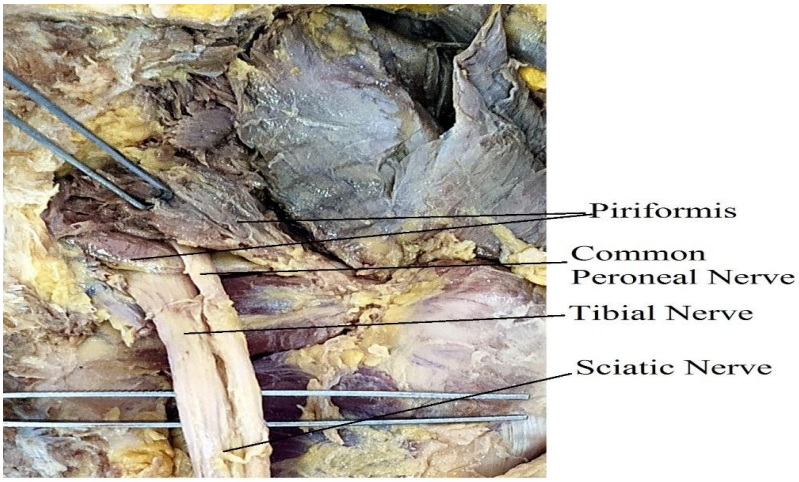

Fig no.1 Right Gluteal region showing variation of Sciatic nerve

DISCUSSION

Sciatic nerve (SN) presents significant variations concerning its topography & division. Higher level of division of sciatic nerve is relatively frequent phenomenon where it may divide in to its two terminal branches anywhere in the thigh but division in the pelvis & that too like a above mentioned case is a comparatively rare & contributes only in 12% of total cases.[5] Such type of higher division of Sciatic nerve (SN) may be unilateral and may lead to compression of the nerve resulting in piriformis syndrome.[6] Variant course of SN may lead to inadvertent injury during operative procedures in the gluteal region, coccygodynia etc.[7] Inadvertent injury or compression of SN causes paralysis or paresis of the thigh muscles & adequate sensory disturbances.[8]

CONCLUSION

A good knowledge about the anatomical variation in the formation, course and division of sciatic nerve is important for surgeons, orthopedicians, anaesthetist and other medical

professionals to avoid surgical complications to prevent failure of sciatic block, to prevent sciatic nerve injury during deep intramuscular injections etc. Variations of the sciatic nerve in relation to piriformis muscle may lead on to nerve compression. Piriformis syndrome may occur due to the variant relation of sciatic nerve to the piriformis muscle.

However, anatomical variations in the sciatic nerve and its relation to the piriformis muscle do not seem to be solely responsible for the piriformis syndrome.[9]

To conclude, accomplishment of this study article has contributed to the subject of sciatic nerve variations and also by confirming previous studies, thereby focusing the need for profound anatomical knowledge for good clinical and surgical outcomes.

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