

Variation in Bifurcation of Sciatic Nerve Found in Gluteal Region in Dissection

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Abstract

Sciatic nerve is the thickest nerve in the body. Sciatic is Greek word derived from “Ischiadicus”. The sciatic nerve is also known as the ischiadic nerve or ischiatic nerve. In its upper part, it forms a band about 2 cm wide. It is the largest branch of the sacral plexus. It is formed on the right and left hand side of the lower spine. It is derived from the spinal nerves L4-S3. It contains fibres from both the anterior and posterior divisions of the lumbosacral plexus. It begins in the pelvis and terminates at the superior angle of the popliteal fossa by dividing into the tibial and common peroneal (fibular) nerve but the bifurcation may vary. Occasionally the nerve separates as they leave the pelvis. The present case is a report of an unusual bifurcation of sciatic nerve in the gluteal region. The knowledge of the variation in the level of bifurcation of the sciatic nerve should be kept in consideration while performing surgical exploration of that region.

Keywords

Ischial, Peroneal, Sciatic



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INTRODUCTION

Sciatic is Greek word derived from “Ischiadicus”. The sciatic nerve is also known as the ischiadic nerve or ischiatic nerve. This is the largest nerve in the body and is the continuation of the main part of the sacral plexus. Its root value is L₄, L₅, S₁, S₂ and S₃. The sciatic nerve is 2 cm wide at its origin and is the thickest nerve in the body. It leaves the pelvis via the greater sciatic foramen below piriformis and descends between the greater trochanter and ischial tuberosity, along the back of the thigh, dividing into the tibial and common fibular nerves at a varying level proximal to the knee. Superiorly it lies deep to gluteus maximus, resting first on the posterior ischial surface with the nerve to quadratus femoris between them. It then crosses posterior to obturator internus, the gemelli and quadratus femoris, separated by the latter from obturator externus and the hip joint. It is accompanied medially by the posterior femoral cutaneous nerve and the inferior gluteal artery. More distally it lies behind adductor magnus and is crossed posteriorly by the long head of biceps femoris. It corresponds to a line drawn from just medial to the midpoint between the

ischial tuberosity and greater trochanter to the apex of the popliteal fossa. The sciatic nerve is so large that it receives a named branch of the inferior gluteal artery, the artery to the sciatic nerve.

The point of division of the sciatic nerve into its major components (tibial and common fibular) is very variable. The common site is at the junction of the middle and lower thirds of the thigh, near the apex of the popliteal fossa, but the division may occur at any level above this point, and rarely may occur below it. However, in approximately 12% of people, the nerves separate as they leave the pelvis. In these cases, the bifurcation of sciatic nerve is found below the piriformis muscle in the gluteal region.

CASE REPORT

During routine gross anatomy dissection of lower limb in National Institute of Ayurveda, Jaipur we observed a case of variation of sciatic nerve on the left sided lower limb. We found that the nerves separate as it leaves the pelvis. However, such variation was also found in the opposite lower limb.

MATERIALS AND METHODOLOGY

Materials-

For literary study:-

1. Available literature regarding sciatic nerve of lower limb from Modern texts.
2. Research journals or papers presented on the related topics.
3. Authentic Internet sources.

For cadaveric dissection Study:-

1. Cadaver: Male
2. Dissection kit

Methodology-

*Literature Study: All the information regarding sciatic nerve of lower limb was collected from modern texts, research journals or papers presented on the related topics and authentic internet sources.

*Cadaveric Study: - Cadaveric dissection was done in the dissection hall of department of *Sharira Rachana* of NIA, Jaipur. While studying the dissected cadaver, photo images were taken with the help of digital camera.

Dissection of the lower limb was done on cadaver by using dissection kit; Cunningham's manual of practical anatomy, Grant's Dissector, Frank H. Netter and B. D. Chaurasia's Human Anatomy for

understanding the variation of sciatic nerve of lower limb.

DISCUSSION

Generally tibial nerve and common fibular nerve which are the divisions of sciatic nerve, separate at the superior angle of popliteal fossa but in this case study the division is found at where it leaves the pelvis below the piriformis muscle in the gluteal region.

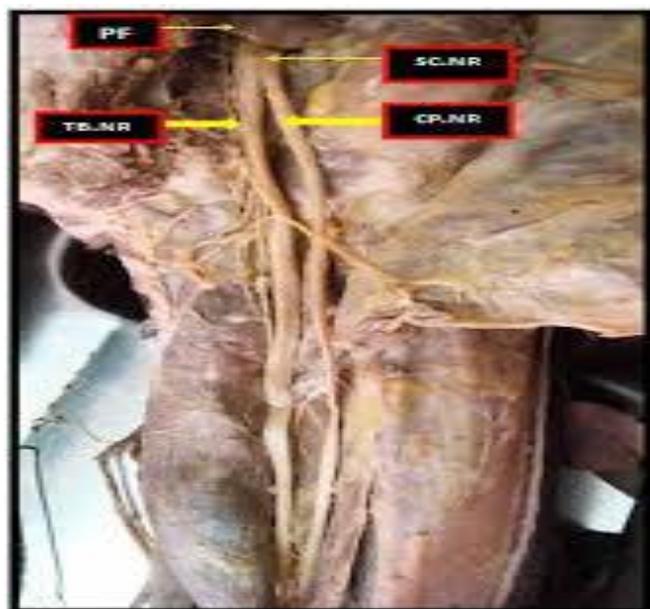


Figure No. 1 Showing bifurcation of Sciatic nerve in gluteal region

PF=Piriformis muscle,
SC.NR=Sciatic nerve,
TB.NR=Tibial nerve,
CP.NR=Common peroneal nerve

CONCLUSION

Sciatic nerve is the largest nerve in the body. It is the main branch of the sacral plexus. The sciatic nerve is really two nerves, the tibial, derived from anterior division of primary rami and the common peroneal nerve derived from posterior division of the anterior rami which are loosely bound together in the same connective tissue sheath. Usually these two separate in the distal thigh however it can be separate as it leaves the pelvis in the gluteal region.

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