

Cadaveric Study of Higher Division of Sciatic Nerve

Ch. Jayamma¹, Padmaja Vasi², Raju Sugavasi³

ABSTRACT

Introduction: Sciatic nerve is derived from the anterior divisions of L4 to S3 in the pelvis and divides into tibial and the common peroneal nerves. The regular position of division takes place at junction of the middle and lower thirds of the thigh. Objective of the study was to find out the position of division of the sciatic nerve because it is highly variable.

Materials and Methods: present study conducted on 30 cadavers at Kurnool, Gandhi, Fathima medical college in south India,

Result: out of 60 specimens single variation (1.6%) was found and sciatic nerve was divides within the gluteal region extends to the thigh above the piriformis.

Conclusion: This kind of variations is important for surgeons and anesthetists.

Keywords: Gluteal region, Piriformis, Sciatic Nerve

INTRODUCTION

The sciatic nerve is thickest nerve in the body which is about 2 cm wide and arises from anterior divisions of L4 to S3 spinal nerve roots. Various levels of proximal to the knee joint the nerve divides into tibial and common peroneal nerves. Majority of sciatic nerve division takes place at the junction of the middle and lower thirds of the thigh in related to the apex of the popliteal fossa. Occasionally it divides with in pelvis, such cases the common peroneal part passes through the piriformis and tibial part passes below the muscle.¹ High division of sciatic nerve in pelvis is the reason for nerve compression leads to piriformis syndrome.

MATERIAL AND METHODS

Study of higher division of sciatic nerve was conducted on 30 adult cadavers both right and left sides (60 specimens) at Kurnool government medical college, Kurnool, Fathima institute of medical sciences, kadapa, Andhra Pradesh and Gandhi medical college, secunderabad, Telangana states of India. Formalin fixed cadavers were dissected according to standard dissection manual and the gluteus maximus muscle was cut and reflected to expose the sciatic nerve in related to piriformis muscle. Carefully identified the sciatic nerve location and site of division then recorded the variations.

RESULTS

Higher division of sciatic nerve in the gluteal region with the emergence of common peroneal nerve above the piriformis and tibial nerve emerging below the piriformis was observed only in one case on left side out of 60 specimens and percentage was only 1.6% (Figure.1). Two components

of sciatic nerves passes in the thigh parallel to each other and reached superior angle of popliteal fossa, Thereafter the rest of the course of both nerves were normal.

DISCUSSION

According to Beaton and Anson classification², variations of the sciatic nerve related to piriformis muscle as follows; Type 1: Undivided nerve below undivided muscle, Type 2: Divisions of nerve between and below undivided muscle Type 3: Divisions above and below undivided muscle Type 4: Undivided nerve between heads Type 5: Divisions between and above heads Type 6: Undivided nerve above undivided muscle. In the present study we found 1.6% of variation is similar to Type 3 classification of Beaton and Anson. Prakash et al³ observed the 2.3% of present variation where the bifurcation of sciatic nerve took place in the gluteal region itself.

Muthu kumar T et al noticed Present type c in 4 limbs 8% in Indian population.⁴ Shailesh Patel et al observed type c variation in 5.81% of Gujarat region.⁵ Sharma et al noticed this kind of type c variation in in 60 years male cadaver.⁶ Guvencer et al studied variation of higher division of the sciatic nerve in related to Piriformis.⁷ Existence of high division of the sciatic nerve may lead to failure of popliteal block by anesthesia.⁸

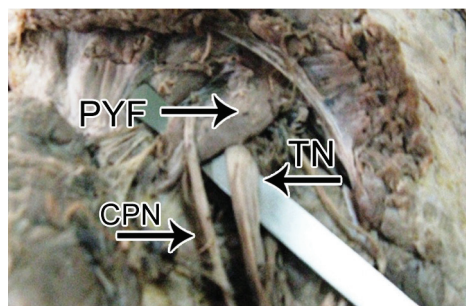


Figure-1: High division of sciatic nerve shows PYF: Piriformis, TN: Tibial nerve, CPN: Common Peroneal Nerve

¹Associate Professor, Department of Anatomy, Kurnool Medical College, Kurnool, Andhra Pradesh, ²Assistant Professor, Department of Anatomy, Gandhi Medical College, Secunderabad, Telangana, ³Assistant Professor, Department of Anatomy, Fathima Institute of Medical Sciences (FIMS), Kadapa, A.P., India.

Corresponding author: Raju Sugavasi, (BPT, M.Sc. Medical Anatomy.), Assistant Professor, Department of Anatomy, Fathima Institute of Medical sciences (FIMS), Kadapa, 516003, Andhra Pradesh (A.P), India.

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CONCLUSION

The anatomical and topographic knowledge of high division of the sciatic nerve is clinically important for surgeons, orthopaedicians for diagnosis of sciatic nerve entrapment and compressive neuropathies.

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