Research Article

Anatomical Variations in The Formation and Course of The Sciatic Nerve: A Cadaveric Study With Clinical Correlation

Arti[1*], Hema Nagpal[2], Amit Agarwal[3]

[1]Associate Professor, Department of Anatomy, GSVM Medical College, Kanpur, India.
[2]Associate Professor, Department of Anatomy, Saraswathi Institute of Medical Sciences, Hapur, Pilkhuwa, Uttar Pradesh, India.
[3]Associate Professor, Department of Anatomy, Saraswathi Institute of Medical Sciences, Hapur, Pilkhuwa, Uttar Pradesh, India.

*Corresponding Author: Dr. Arti, Email id: drarti80@gmail.com

ABSTRACT

Background: The sciatic nerve is the largest peripheral nerve of the human body and provides major motor and sensory innervation to the lower limb. Although its usual anatomical course and terminal division are well established, variations in its formation, relationship with the piriformis muscle, and level of terminal division are frequently reported and may have important clinical implications.

Aim: To study the anatomical variations in the formation and course of the sciatic nerve in cadavers and assess their clinical significance.

Materials and Methods: A descriptive cadaveric study was conducted on 40 adult human cadavers. The gluteal region, posterior thigh, and popliteal fossa were dissected bilaterally wherever the specimens were adequately preserved. The sciatic nerve was identified and traced along its course. Its relationship with the piriformis muscle and the level of division into the tibial and common fibular nerves were recorded. The findings were analyzed using descriptive statistics and expressed as frequencies and percentages.

Results: A total of 80 sciatic nerve specimens were examined. The sciatic nerve passed inferior to the piriformis muscle in 61 specimens (88.75%), while piriformis-related anatomical variations were observed in 9 specimens (11.25%). Division of the sciatic nerve within the popliteal fossa was observed in 63 specimens (78.75%), whereas 17 specimens (21.25%) demonstrated higher division. Among the higher divisions, 7 (8.75%) occurred in the lower third of the thigh, 4 (5.00%) in the middle third, 2 (2.50%) in the upper third, 2 (2.50%) in the gluteal region, and 2 (2.50%) in the pelvic region.

Conclusion: The sciatic nerve demonstrates appreciable anatomical variation in its relationship with the piriformis muscle and in the level of terminal division. Recognition of these variations is important for understanding sciatic nerve-related clinical conditions and for safely performing gluteal injections, regional nerve blocks, hip and pelvic surgery, and procedures involving the posterior thigh. Detailed anatomical knowledge can assist in surgical planning, accurate diagnosis, and prevention of iatrogenic nerve injury.

Keywords: Sciatic nerve; anatomical variation; piriformis muscle; cadaveric study; tibial nerve; common fibular nerve; nerve division.

INTRODUCTION

The sciatic nerve (SN) is the largest peripheral nerve in the human body and represents a major neural pathway supplying the lower limb. [1] It arises from the sacral plexus through the ventral rami of the lumbosacral spinal nerves and courses from the pelvis into the gluteal region and posterior aspect of the thigh before terminating in its principal branches. [2] Through its terminal divisions, the tibial nerve (TN) and common fibular nerve (CFN), the SN contributes substantially to the motor and sensory innervation of the lower extremity [3,4].

Under normal anatomical conditions, the SN remains as a single trunk through most of the thigh and usually separates into the TN and CFN near the superior angle of the popliteal fossa [5]. Nevertheless, considerable anatomical variability has been documented regarding both its formation and the level of separation of its terminal components. The division may occur unusually high, including within the pelvis or gluteal region, or at different levels of the thigh, in addition to the more commonly described division within the popliteal fossa.

Such variations in the anatomy of the SN are of considerable clinical and surgical importance. Differences in the relationship and level of division of the nerve may influence its interaction with the piriformis muscle and surrounding structures and have been implicated in the pathogenesis and clinical presentation of piriformis syndrome and sciatic pain [6-9].

The site of separation of the SN can also influence the distribution and characteristics of neurological symptoms following nerve compression or injury. Furthermore, knowledge of these anatomical patterns is particularly

relevant during intramuscular injections in the gluteal region, as well as during operative procedures involving the pelvis, hip, gluteal region, and posterior thigh, where inadvertent nerve injury can result in significant functional disability [10,11]. Extensive injury involving the sciatic nerve may produce profound motor and sensory deficits, with severe cases resulting in foot paralysis, flail foot, and marked impairment of gait [4,12].

Despite the recognized clinical relevance of sciatic nerve anatomy, the frequency and distribution of its variations, particularly those involving its formation and course, remain incompletely characterized. [13] Earlier meta-analyses have primarily focused on specific aspects of SN anatomy and clinical outcomes, including its relationship with the piriformis muscle, complications following acetabular fractures, and the efficacy of combined sciatic and femoral nerve blocks during knee arthroplasty [14-17]. Other systematic investigations have addressed sciatic neuropathy and MRI-detected anatomical variations associated with piriformis syndrome. However, comprehensive cadaveric assessment of variations in the formation and course of the SN, together with their potential clinical significance, remains warranted.

Therefore, the present study, **"**Anatomical variations in the formation and course of the sciatic nerve: a cadaveric study with clinical correlation" aims to systematically evaluate these anatomical variations and discuss their relevant clinical implications.

MATERIAL AND METHODS

The present study was designed as a descriptive observational cadaveric study to evaluate anatomical variations in the formation, course, and terminal division of the sciatic nerve (SN), with emphasis on their potential clinical relevance. The study was conducted in the Department of Anatomy, Saraswathi Institute of Medical Sciences, Hapur UP, after obtaining approval from the Institutional Ethics Committee.

A total of 40 cadavers were included in the study. Both male and female cadavers available for dissection during the study period were considered. Thus, a maximum of 80 sciatic nerves, from both right and left sides, could be examined depending on the integrity and suitability of the specimens.

Inclusion Criteria

- Adult human cadavers available for routine anatomical dissection.
- Cadavers in which the gluteal region, posterior thigh, and popliteal fossa were adequately preserved for identification of the sciatic nerve.
- Specimens with clearly identifiable sciatic nerve and its terminal branches.

Exclusion Criteria

- Cadavers with significant damage or decomposition involving the gluteal region, thigh, or popliteal fossa.
- Specimens with previous surgical intervention or gross traumatic disruption of the relevant anatomical structures.
- Cadavers in which the sciatic nerve could not be adequately traced because of extensive tissue damage.

Dissection Procedure

The gluteal region and posterior aspect of the thigh were dissected using standard anatomical dissection techniques. The sciatic nerve was carefully exposed from its emergence below or through the piriformis muscle and traced distally along its course. Particular attention was paid to its relationship with the piriformis muscle, surrounding muscles, and major bony landmarks. The point of formation and subsequent course of the SN were examined bilaterally wherever possible. The level at which the nerve divided into its terminal branches, namely the tibial nerve (TN) and common fibular nerve (CFN), was recorded. Variations in the level of division were classified according to their anatomical location, including the gluteal region, thigh, and popliteal fossa.

Parameters Studied

The following parameters were documented:

1. Side of the body involved.
2. Formation of the sciatic nerve.
3. Relationship of the SN with the piriformis muscle.
4. Course of the sciatic nerve in the gluteal and posterior thigh regions.
5. Level of division of the SN into TN and CFN.
6. Anatomical variations in the terminal branching pattern.
7. Bilateral or unilateral occurrence of observed variations.

8. Potential clinical implications of the documented variations.

Clinical Correlation

The anatomical findings were interpreted in relation to their possible clinical significance, particularly concerning piriformis syndrome, sciatic nerve injury, intramuscular gluteal injections, regional nerve blocks, and surgical procedures involving the hip, pelvis, gluteal region, and posterior thigh.

Data Collection and Analysis

All observations were systematically recorded in a structured data sheet. The findings were summarized using frequency and percentage distributions. Where appropriate, comparisons were made according to side, sex, and type of anatomical variation. The results were presented using tables and suitable graphical representations.

RESULTS

A total of 40 adult human cadavers were examined, providing 80 sciatic nerve specimens, with both right and left lower limbs assessed wherever adequately preserved. The sciatic nerves were carefully exposed and traced from their formation in the sacral plexus through the gluteal region and posterior thigh up to their terminal division into the tibial nerve and common fibular nerve. [Table 1, Figure 1]

Table 1. Distribution of Sciatic Nerve Specimens According to Side

Side	Number of specimens	Percentage
Right	40	50.0%
Left	40	50.0%
Total	**80**	**100.0%**

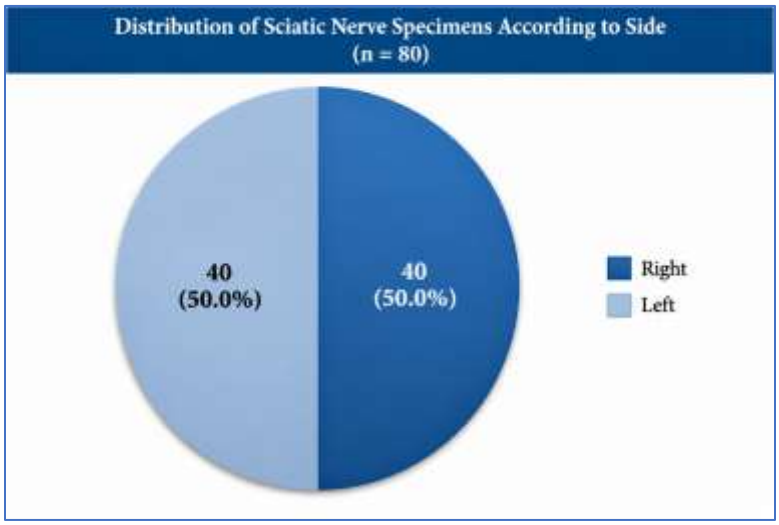


Figure 1. Distribution of Sciatic Nerve Specimens According to Side

Formation of the Sciatic Nerve: The sciatic nerve was formed by the union of its tibial and common fibular components in the majority of the examined specimens. The components remained united as a common trunk during their course through the gluteal region and posterior thigh in the typical pattern. No gross abnormality in the formation of the sciatic nerve was identified in the examined specimens.

Relationship of the Sciatic Nerve with the Piriformis Muscle: The relationship between the sciatic nerve and piriformis muscle was assessed in all 80 specimens. The classical relationship, with the undivided sciatic nerve passing inferior to the piriformis muscle, was observed in 71 specimens (88.75%). Anatomical variations in the relationship between the sciatic nerve and piriformis were observed in 9 specimens (11.25%). The most frequent variant was the common fibular nerve passing through the piriformis muscle, observed in 4 specimens (5.00%). A

pattern in which the tibial nerve passed inferior to piriformis while the common fibular nerve traversed the piriformis was observed in 2 specimens (2.50%). The sciatic nerve passing superior to piriformis was observed in 1 specimen (1.25%), while the tibial nerve passing inferiorly and common fibular nerve passing superiorly to piriformis was observed in 2 specimens (2.50%). [Table 2, Figure 2]

Table 2. Relationship of Sciatic Nerve with Piriformis Muscle

Relationship	Number (n=80)	Percentage
Sciatic nerve passing inferior to piriformis	71	88.75%
Common fibular nerve passing through piriformis	4	5.00%
Tibial nerve inferior to piriformis and common fibular nerve through piriformis	2	2.50%
Sciatic nerve passing superior to piriformis	1	1.25%
Tibial nerve inferior and common fibular nerve superior to piriformis	2	2.50%
Total	80	100.00%

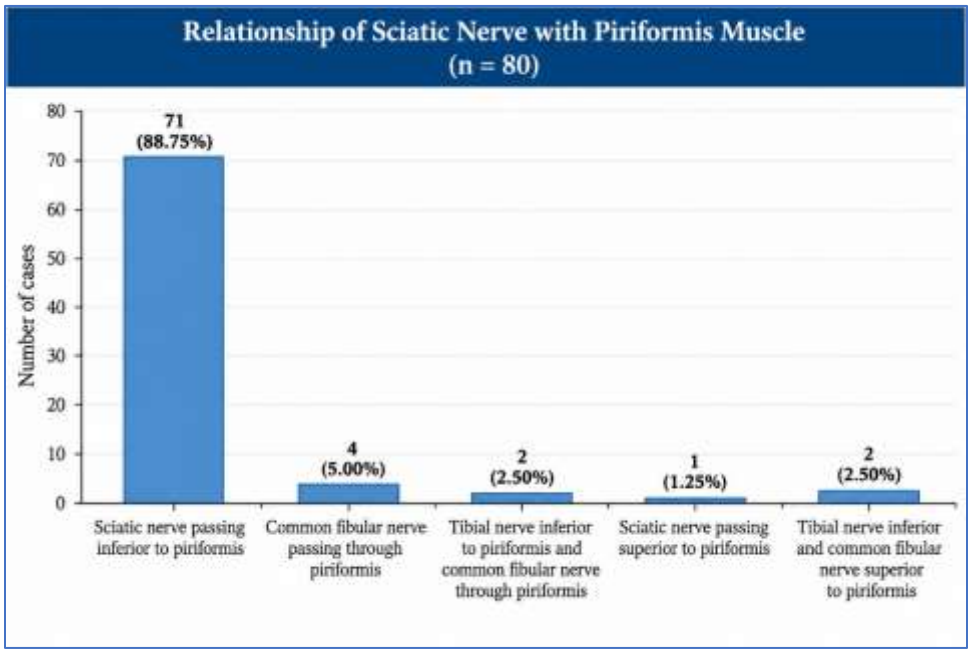


Figure 2: Relationship of Sciatic Nerve with Piriformis Muscle

Level of Terminal Division of the Sciatic Nerve: The level at which the sciatic nerve divided into the tibial nerve and common fibular nerve was recorded in all 80 specimens. The most common level of sciatic nerve division was the popliteal fossa, where division was observed in 63 specimens (78.75%). Higher division was observed in 17 specimens (21.25%). Among the specimens demonstrating high division, 9 (11.25%) divided in the lower third of the thigh, 4 (5.00%) in the middle third, and 2 (2.50%) in the upper third of the thigh. Division in the gluteal region was observed in 1 specimen (1.25%), while another 1 specimen (1.25%) demonstrated division at the pelvic level. [Table 3, Figure 3]

Table 3. Level of Division of Sciatic Nerve

Level of division	Number (n=80)	Percentage
Popliteal fossa	61	78.75%
Lower third of thigh	9	11.25%
Middle third of thigh	4	5.00%
Upper third of thigh	2	2.50%
Gluteal region	1	1.25%

Pelvic region	1	1.25%
Total	**80**	**100.00%**

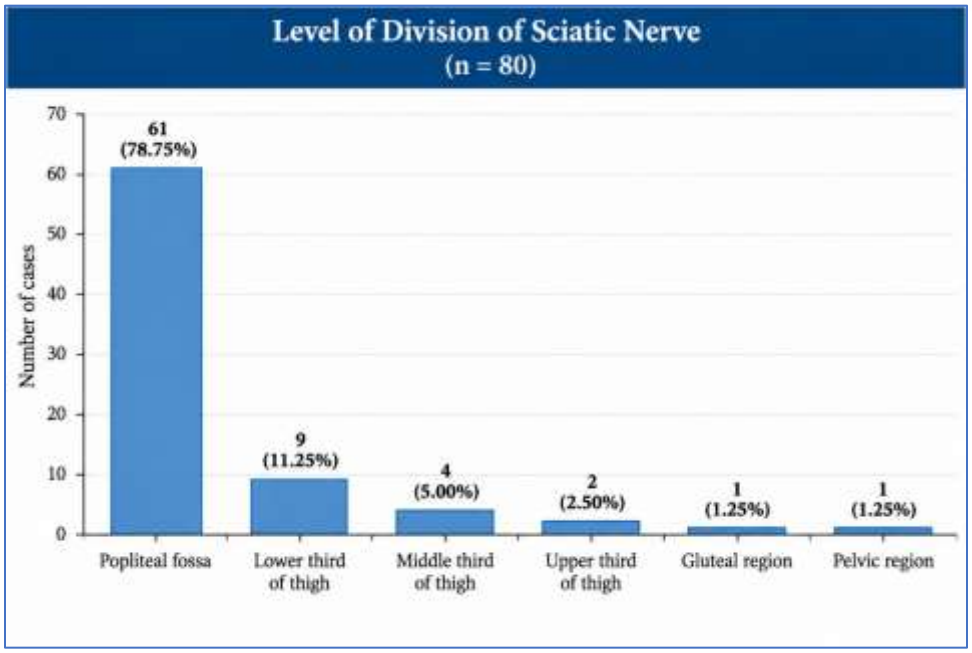


Figure 3: Level of Division of Sciatic Nerve

Typical and High Division Pattern: For further analysis, the specimens were grouped into typical division and high division patterns. The typical popliteal division was the predominant pattern, accounting for 63 specimens (78.75%), whereas 17 specimens (21.25%) showed division proximal to the usual popliteal level. [Table 4, Figure 4]

Table 4. Distribution of Typical and High Division

Pattern	Number (n=80)	Percentage
Typical division in popliteal fossa	63	78.75%
High division	17	21.25%
Total	80	100.00%

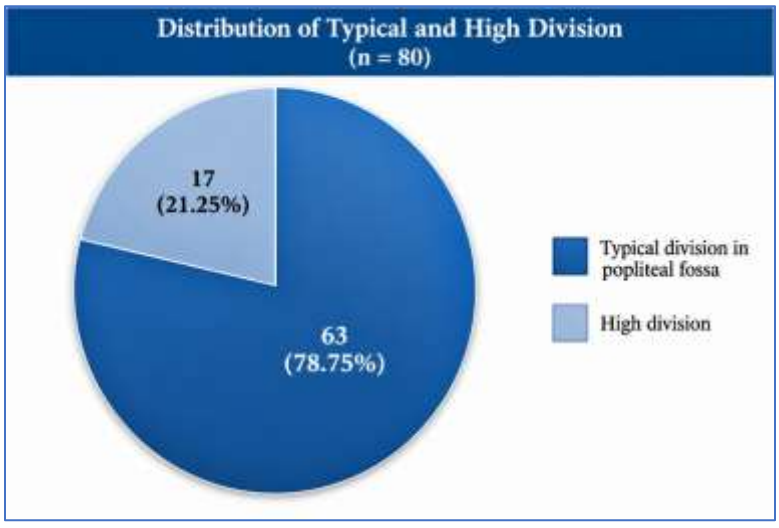


Figure 4. Distribution of Typical and High Division

High division was slightly more frequent on the right side (10 specimens) than on the left side (7 specimens). [Table 5, Figure 3]

Table 5. Distribution of High Division According to Side

Level of high division	Right	Left	Total
Lower third of thigh	**4**	**3**	**7**
Middle third of thigh	3	1	4
Upper third of thigh	1	1	2
Gluteal region	1	1	2
Pelvic region	1	1	2
Total	10	7	17

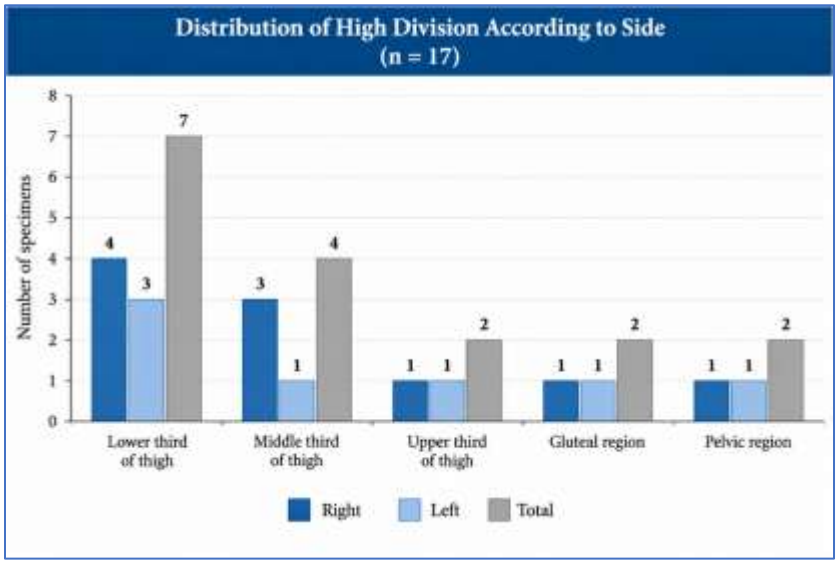


Figure 5: Typical Versus High Division of Sciatic Nerve

Beaton and Anson Classification: The anatomical relationship of the sciatic nerve with the piriformis muscle was categorized according to the Beaton and Anson classification. The majority of specimens demonstrated Type I, characterized by the undivided sciatic nerve passing inferior to the piriformis muscle. Variant patterns included passage of the common fibular component through the piriformis and other altered relationships between the tibial and common fibular components and the piriformis muscle. The variant shown in Figure 6 demonstrated high division of the sciatic nerve, with the common fibular nerve traversing the piriformis muscle and the tibial nerve passing inferior to it, corresponding to Beaton and Anson Type II.

Clinical Correlation: The anatomical variations observed were assessed for their potential clinical significance. Variations involving the relationship of the sciatic nerve or its terminal components with the piriformis muscle may be relevant to the development of piriformis syndrome and atypical sciatic pain. High division of the sciatic nerve may also alter the anatomical location of the tibial and common fibular components and therefore has implications for gluteal intramuscular injections, sciatic nerve blocks, regional anaesthesia, hip surgery, pelvic procedures, and posterior approaches to the thigh. The presence of the common fibular nerve within or in close relation to the piriformis muscle is particularly important because compression or irritation at this location may produce clinical manifestations involving the common fibular nerve distribution.

Overall, the sciatic nerve demonstrated the typical anatomical pattern in the majority of specimens, with the nerve passing inferior to the piriformis and dividing within the popliteal fossa. However, clinically relevant variations were identified in a considerable proportion of specimens. Piriformis-related variations were present in 11.25%, while high division of the sciatic nerve was observed in 21.25% of the examined specimens. These variations are of importance during gluteal injections, regional nerve blocks, surgical approaches to the hip and pelvis, and assessment of patients presenting with sciatic pain or piriformis syndrome.



Figure 6: Right lower limb specimen demonstrating high division of the sciatic nerve, with the common fibular nerve traversing the piriformis muscle and the tibial nerve passing inferior to the piriformis, corresponding to Beaton and Anson Type II. The inferior gluteal nerve and vessels are seen piercing the tibial nerve in the gluteal region.



Figure 7: Left lower limb specimen showing high division of the sciatic nerve, with the common fibular nerve passing through the piriformis muscle and the tibial nerve emerging inferior to the piriformis, consistent with Beaton and Anson Type II. The inferior gluteal nerve and accompanying vessels are seen crossing through the tibial nerve in the gluteal region.

DISCUSSION

The present cadaveric study evaluated the anatomical variations in the formation and course of the sciatic nerve (SN) in 80 cadavers, comprising 80 lower limbs. In the present study, the sciatic nerve followed the classical relationship with the piriformis muscle in 61 specimens (88.75%), whereas variations in its relationship with the piriformis were observed in 9 specimens (11.25%). With regard to terminal division, the sciatic nerve divided within the popliteal fossa in 63 specimens (78.75%), while a higher division was observed in 17 specimens (21.25%).

The predominance of the classical relationship between the sciatic nerve and piriformis muscle observed in the present study is consistent with recent cadaveric literature. Reynoso et al. (2022) examined 40 sciatic nerves from 20 cadavers and reported that the nerve passed inferior to the piriformis muscle in 37 limbs (92.5%), while

variations were identified in the remaining three limbs. They also observed terminal division in the proximal popliteal fossa in 55% of cases, in the gluteal region in 35%, and in the middle third of the thigh in 10% of cases. [18] The 88.75% prevalence of the classical piriformis relationship in the present study is slightly lower than their reported 92.5%, indicating a somewhat greater frequency of anatomical variation in the present series.

A similar predominance of the normal relationship was reported by Kumari et al. (2023) in a cadaveric study involving 80 lower extremities from 40 formalin-fixed cadavers. Type 1, representing the undivided sciatic nerve passing inferior to the piriformis muscle, was identified in 65 limbs (81.25%). Other patterns included Type 2 in 8 limbs, Type 3 in 3 limbs, Type 4 in 2 limbs, and Type 5 in 2 limbs. [19] Compared with this study, the present study demonstrated a higher frequency of the classical relationship (88.75% vs. 81.25%). The difference may be related to population variation, sample characteristics, and differences in classification or dissection methodology.

Further evidence of the variability of the sciatic nerve-piriformis relationship was provided by Branca et al. (2024), who described six different anatomical patterns during cadaveric dissection. Their study demonstrated that the sciatic nerve and its terminal components may pass below, above, or through different portions of the piriformis muscle. The authors emphasized that recognition of these variations is important because similar symptoms of sciatic neuralgia may have different anatomical causes and that knowledge of the nerve's course is relevant during diagnostic, therapeutic, and surgical procedures. [20] The presence of 11.25% piriformis-related variations in the present study supports the observations of Branca et al. and reinforces the concept that the classical arrangement, although predominant, should not be assumed universally.

A recent Indian study by Kumari et al. (2023) investigating the course and distribution of the sciatic nerve in the gluteal region and posterior thigh examined 34 extremities. Typical sciatic nerve division was observed in 76.47%, while atypical division occurred in 23.53%. The typical Type 1 relationship with piriformis was present in 91.18% of specimens. Regarding the level of terminal division, low-level division was observed in 76.48%, intermediate division in 14.70%, and high division in 8.82%. [21] The 78.75% popliteal division in the present study is very close to their reported 76.48% low-level division. However, the present study demonstrated a higher proportion of high division, suggesting that differences may exist between cadaveric populations.

Variation in the Level of Sciatic Nerve Division

In the present study, the sciatic nerve divided within the popliteal fossa in 63 of 80 specimens (78.75%), representing the most common pattern. A higher division was observed in 17 specimens (21.25%), involving the lower, middle, and upper thirds of the thigh as well as the gluteal and pelvic regions.

The findings are particularly comparable with those reported by Shah et al. (2023), who investigated high division of the sciatic nerve in 30 gluteal regions from 15 adult cadavers. They observed the normal pattern in 12 cadavers (80%), whereas 3 cadavers (20%) demonstrated high division. In these variant cases, the tibial and common fibular nerves emerged separately below the piriformis muscle in different fascial sheaths. [22] The prevalence of high division in the present study (21.25%) is remarkably close to the 20% reported by Shah et al., supporting the observation that high division is a relatively frequent anatomical variant.

The recent systematic review and meta-analysis by Liyew and Abebe (2026) provides broader evidence regarding the frequency of sciatic nerve division variations. Their analysis included 20 cadaveric studies and estimated a pooled prevalence of anatomical variation in sciatic nerve division of 31.01% (95% CI: 16.24–45.78), with substantial heterogeneity between studies (I^2=98.4%). The authors reported variations involving the popliteal fossa, pelvic region, middle and upper thirds of the thigh, and gluteal region. [23] The 21.25% high-division rate in the present study is lower than the pooled prevalence reported by Liyew and Abebe. However, direct comparison should be made cautiously because the meta-analysis considered several definitions and anatomical sites of sciatic nerve division, whereas the present study specifically grouped specimens according to the level of terminal division.

Interestingly, the meta-analysis reported the highest pooled variability in the popliteal fossa (21.17%), followed by the pelvic region (11.13%), middle third of the thigh (7.11%), gluteal region (4.86%), and upper third of the thigh (4.74%). [23] These findings demonstrate that the level of sciatic nerve bifurcation varies substantially between populations and cadaveric series. The marked heterogeneity reported in the meta-analysis also suggests that differences in sample size, geographical population, dissection methodology, and definitions used to classify variations may contribute to the wide range of reported frequencies.

Clinical Significance

The anatomical variations identified in the present study have important clinical implications. Variations in the relationship between the sciatic nerve and piriformis muscle may alter the susceptibility of the nerve or its terminal components to compression and may contribute to atypical presentations of piriformis syndrome and extraspinal sciatic pain. Reynoso et al. emphasized that recognition of these variations is important for accurate diagnosis and treatment, particularly because an altered course of the nerve can influence surgical approaches. [18]

High division of the sciatic nerve is also relevant during gluteal intramuscular injections, regional nerve blocks, hip surgery, pelvic surgery, and posterior approaches to the thigh. Shah et al. specifically highlighted the importance of recognizing high division to reduce the possibility of nerve injury and to improve the accuracy of sciatic nerve blockade. [22] Similarly, Liyew and Abebe concluded that variations in sciatic nerve division may influence surgical procedures and intramuscular injections and should therefore be considered during clinical interventions involving the lower limb. [23]

The findings of Branca et al. further support the clinical relevance of anatomical knowledge of the sciatic nerve. Their cadaveric observations demonstrated multiple patterns of interaction between the nerve and piriformis muscle and emphasized that understanding these anatomical configurations can assist in selecting appropriate diagnostic and therapeutic approaches and in reducing iatrogenic complications. [20]

Overall, the present study demonstrates that although the classical sciatic nerve anatomy remains the predominant pattern, variations in both the relationship with piriformis and the level of terminal division occur with clinically meaningful frequency. The findings also broadly agree with recent cadaveric studies showing that the sciatic nerve exhibits considerable anatomical variability. Recognition of these variations is therefore essential for anatomists, radiologists, anaesthesiologists, orthopaedic surgeons, neurosurgeons, and clinicians involved in procedures around the pelvis, hip, gluteal region, and posterior thigh.

CONCLUSION

Anatomical variations in the formation and course of the sciatic nerve are clinically important despite the predominance of the classical anatomical pattern. Variations in its relationship with the piriformis muscle and the level of terminal division may influence the presentation of sciatica and piriformis syndrome. These anatomical differences are particularly relevant during gluteal intramuscular injections, regional nerve blocks, hip and pelvic surgeries, and procedures involving the posterior thigh. A thorough understanding of the possible variations in sciatic nerve anatomy is therefore essential for accurate clinical assessment, appropriate surgical planning, effective regional anaesthesia, and prevention of inadvertent nerve injury.

REFERENCES

1. Liyew WA, Abebe S. Anatomical variation of the sciatic nerve division in the cadaver studies: a systematic review and meta-analysis. Anat Cell Biol. 2026 Jun 30;59(2):219-229. doi: 10.5115/acb.25.139.
2. Kiros M, Woldeyes D. Anatomical variations in the level of bifurcation of the sciatic nerve in Ethiopia. J Exp Clin Anat. 2015;14:1. doi: 10.4103/1596-2393.158916.
3. Saritha S, Praveen Kumar M, Supriya G. Anatomical variations in the bifurcation of the sciatic nerve, a cadaveric study and its clinical implications. Anat Physiol. 2012;2:111.
4. Bergsteedt BJ, Cilliers K, Greyling LM. Bifurcation of the sciatic nerve: a descriptive study on a South African cadaver cohort. Morphologie. 2022;106:155–62. doi: 10.1016/j.morpho.2021.05.002.
5. Soetoko AS, Fatmawati D. Anatomical variations of the tibial nerve and their clinical correlation. Anat Cell Biol. 2023;56:415–20. doi: 10.5115/acb.23.065.
6. Güvençer M, Iyem C, Akyer P, Tetik S, Naderi S. Variations in the high division of the sciatic nerve and relationship between the sciatic nerve and the piriformis. Turk Neurosurg. 2009;19:139–44.
7. Ogeng'o JA, El-Busaidy H, Mwika PM, Khanbhai MM, Munguti J. Variant anatomy of sciatic nerve in a black Kenyan population. Folia Morphol (Warsz) 2011;70:175–9.
8. Babinski MA, Machado FA, Costa WS. A rare variation in the high division of the sciatic nerve surrounding the superior gemellus muscle. Eur J Morphol. 2003;41:41–2. doi: 10.1076/ejom.41.1.41.28099.
9. Arifoglu Y, Sürücü HS, Sargon MF, Tanyeli E, Yazar F. Double superior gemellus together with double piriformis and high division of the sciatic nerve. Surg Radiol Anat. 1997;19:407–8. doi: 10.1007/BF01628510.

10. Natsis K, Totlis T, Konstantinidis GA, Paraskevas G, Piagkou M, Koebke J. Anatomical variations between the sciatic nerve and the piriformis muscle: a contribution to surgical anatomy in piriformis syndrome. Surg Radiol Anat. 2014;36:273–80. doi: 10.1007/s00276-013-1180-7.
11. Dhivya S, Anbusudar K. A study of the bifurcation of sciatic nerve and its clinical importance. Int J Anat Res. 2016;4:1828–32. doi: 10.16965/ijar.2015.345.
12. Sulak O, Sakalli B, Ozguner G, Kastamoni Y. Anatomical relation between sciatic nerve and piriformis muscle and its bifurcation level during fetal period in human. Surg Radiol Anat. 2014;36:265–72. doi: 10.1007/s00276-013-1179-0.
13. Tomaszewski KA, Graves MJ, Henry BM, Popieluszko P, Roy J, Pękala PA, Hsieh WC, Vikse J, Walocha JA. Surgical anatomy of the sciatic nerve: a meta-analysis. J Orthop Res. 2016;34:1820–7. doi: 10.1002/jor.23186.
14. Poutoglidou F, Piagkou M, Totlis T, Tzika M, Natsis K. Sciatic nerve variants and the piriformis muscle: a systematic review and meta-analysis. Cureus. 2020;12:e11531. doi: 10.7759/cureus.11531
15. Stavrakakis IM, Kritsotakis EI, Giannoudis PV, Kapsetakis P, Dimitriou R, Bastian JD, Tosounidis TH. Sciatic nerve injury after acetabular fractures: a meta-analysis of incidence and outcomes. Eur J Trauma Emerg Surg. 2022;48:2639–54. doi: 10.1007/s00068-022-01896-0.
16. Dinh J, Wilson TJ. Analysis of outcome reporting in sciatic neuropathy studies: a systematic review of the literature. Acta Neurochir (Wien) 2024;166:227. doi: 10.1007/s00701-024-06109-8.
17. Bartret AL, Beaulieu CF, Lutz AM. Is it painful to be different? Sciatic nerve anatomical variants on MRI and their relationship to piriformis syndrome. Eur Radiol. 2018;28:4681–6. doi: 10.1007/s00330-018-5447-6.
18. Reynoso JP, Encarnacion MDJ, Nurmukhametov R, Melchenko D, Efe IE, Goncharov E, Taveras AA, Pena IJR, Montemurro N. Anatomical Variations of the Sciatic Nerve Exit from the Pelvis and Its Relationship with the Piriformis Muscle: A Cadaveric Study. Neurology International. 2022;14(4):894-902. doi:10.3390/neurolint14040072.
19. Kumari S, Mazhar S, Ansari MMH, Madhukar PK, Sharma A. Anatomical Variations of the Sciatic Nerve Divisions in Relation to the Piriformis Muscle and Clinical Implications: A Human Cadaveric Study. Journal of Cardiovascular Disease Research. 2023;14(12):169-173.
20. Branca JJV, Guarnieri G, Morelli A, Benedini C, Fagni N, Gulisano M, Pacini A, Paternostro F. Sciatic Nerve and Its Anatomical Variations: In-Depth Understanding Acquired During Dissection Classes. Cureus. 2024;16(5):e60083. doi:10.7759/cureus.60083.
21. Kumari PRS, Narayana PSV, Indira T, Rani ST. Study of Variations in the Course and Distribution of Sciatic Nerve in the Gluteal Region and Back of Thigh in Adult Human Cadavers. Research Journal of Medical Sciences. 2023;17:792-796. doi:10.36478/makrjms.2023.5.792.796.
22. Shah MP, Damor PS, Vyas MB. A study of high division of sciatic nerve in human cadavers and its clinical significance. National Journal of Physiology, Pharmacy and Pharmacology. 2023;13(1):147-150. doi:10.5455/njppp.2023.13.11531202219112022.
23. Liyew WA, Abebe S. Anatomical variation of the sciatic nerve division in the cadaver studies: a systematic review and meta-analysis. Anatomy & Cell Biology. 2026;59(2):219-229. doi:10.5115/acb.25.139