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DESCRIPTION AND CLINICAL IMPLICATIONS OF VARIATIONS IN SCIATIC NERVE ANATOMY: A CADAVERIC STUDY REPORTING A NEW ANATOMICAL VARIANT

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Background and aim. The goal of the study was to identify and examine the anatomical variations of the proximal sciatic nerve in relation to the piriformis muscle and to compare the results with previously conducted studies analysing anatomical variations in this area.

Materials and methods. Seventeen human adult cadavers (34 lower limbs, 10 female and 7 male) were dissected to expose the sciatic and piriformis muscle in the retro-trochanteric space and observed anatomical variations were described and reported. Anatomical variations were classified according to the Beaton and Anson classification.

Results. Anatomical variations were observed in 4 cadavers (12%) of the specimens, with two cadavers displaying unilateral variations and one cadaver showing bilateral variations of the exact same type. All the variations were found in female specimens.

According to the Beaton and Anson classification 30 limbs (88%) were classified as Type A, i.e., the sciatic nerve passes underneath the piriformis muscle. 3 limbs (9%) were classified as type B, i.e., the tibial division pierces through the piriformis forming two distinct muscular bellies, while the common peroneal division crosses underneath the muscle.

Type C, D, E, F according to the Beaton and Anson classification were not found in this study.

We also found a previously unreported variant, where the peroneal division of the sciatic nerve passes below the piriformis and the tibial division separates into two nerve branches splitting the piriformis into three distinct separate muscle bellies.

Conclusions. Our results align with the results of the existing literature, with Type A being the most common variation followed by Type B. However, we discovered a previously unreported rare variation that has not been described in any of the existing classifications for the sciatic nerve-piriformis junction. This finding highlights the extreme anatomical variability of the sciatic nerve and its branches and reminds us once again the importance of cadaveric studies in deepening our understanding of human anatomy in order to reduce surgical complications and explore the possible clinical significance of all the existing variations.

Keywords. Sciatic nerve; Piriformis muscle; Variations.