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ANATOMICAL VARIATIONS AND MORPHOMETRIC CHARACTERISTICS OF THE SURAL NERVE: A CADAVERIC STUDY IN THE LITHUANIAN POPULATION

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Background and Aim: The sural nerve (SN) is the most frequently harvested nerve for autologous grafting, a common biopsy site in diagnosing peripheral neuropathies, and is highly prone to iatrogenic injury during lower limb surgery. Given its anatomical variability, knowledge of SN formation patterns is essential for surgical planning and optimising outcomes. This study examined anatomical variations in SN formation and morphometry in Lithuanian cadavers.

Materials and Methods: Twenty-four lower limbs were dissected. The SN and its contributing branches were identified and traced to origin using standard dissection techniques. Variations in SN formation were documented and classified according to the system proposed by P.K. Ramakrishnan et al. Morphometric measurements of the SN and its contributing branches were obtained and subsequently analysed. Statistical analysis was performed using SPSS, applying Student's t-tests and Mann-Whitney U tests.

Results: Type 3 was the most frequent SN formation pattern, occurring in 11 of 24 limbs (45.8%), whereas Type 6 was not identified. The SN was most commonly formed within the middle third of the leg (50.0%). Morphometric characteristics varied significantly according to formation pattern. Nerves formed by two contributing branches exhibited greater diameter and length than those arising from a single contributor, with mean diameters of 3.11 mm and 2.04 mm, respectively ($p < 0.001$), and mean lengths of 297.2 mm and 191.2 mm ($p = 0.008$). Bilateral symmetry of SN formation was observed in 58.3% of cadavers.

Conclusions: There is substantial variability in SN anatomy within this Lithuanian cadaveric sample. The predominance of Type 3 formation, the frequent formation of the nerve within the middle third of the leg, the observed bilateral symmetry, and the association between SN diameter and the number of contributing branches provide important anatomical insights that are potentially relevant for clinical and surgical practice.

Keywords: anatomical variations, cadaveric study, sural nerve