

ABSTRACT

Background: The thigh region houses many delicate and vital nerves that have been commonly associated with accidental and iatrogenic injuries and should be protected when surgically exploring this area. Such nerves include the femoral, obturator as well as the sciatic nerve and its terminating branches. Anatomical variations associated with the origin, course, relations, and termination of these nerves may be misinterpreted while performing clinical examinations and surgical interventions, which can mislead the radiologists, anaesthesiologists, surgeons, and orthopaedicians. A careful cadaveric study can reveal these anomalies and provide the guidelines for the anatomists, clinicians and the future researchers. Although a mentionable number of cadaveric studies have been reported in the medical literatures, there is a paucity of such studies involving Malaysian cadavers. The unique quality of this study is to provide a comprehensive database regarding the course, topographical anatomy and relations with any variant anatomy of all the vital nerves of the thigh region in the Malaysian cadavers that are of utmost importance for the surgeons and interventionists dealing with this region.

Objective: The present study is an attempt to analyze the morphometric topography and variant anatomy of the major nerves of thigh region with their clinical implications in the Malaysian cadavers.

Materials and methods: This study was conducted with the involvement of 78 adult lower limb specimens of both genders (cadaveric and disarticulated) of different ethnicity obtained from the units of Anatomy AIMST University, Kedah, Malaysia and University Kebangsaan Malaysia (UKM), Selangor, Malaysia. All the measurements were taken with digital Vernier caliper (DVC) and measuring tape and the examining areas were highlighted applying different colours for easy visualization of the important structures such as the nerves,

vessels, muscles etc. and were recorded with digital camera. The recorded data were analysed by using appropriate statistical methods in the SPSS (22nd version).

Results: The mean dimensions of all the nerves at different levels mostly resembled the previous studies with few exceptions. The femoral nerve was found to travel in the thigh region with a lateral inclination towards the anterior-superior iliac spine (ASIS). On the contrary, the sciatic nerve coursed maintaining a medial inclination while passing between the greater trochanter (GT) and ischial tuberosity (IT), at which level the nerve was thicker than the previous literature. However, the width of the nerve was less at the lower border of piriformis muscle (PM). Similarly, the obturator nerve was found to be wider at the obturator foramen (OF) that opposed the finding of the previous study. Some important variations have been reported in the sciatic, tibial and common peroneal nerves with related clinical implications.

Conclusion: This knowledge of the topographical and variant anatomy of the course, relation, termination of the important nerves of thigh region will not only assist the neurologists and future researchers, but also facilitate the clinicians to prevent the misdiagnoses and iatrogenic neurological damages.