



## Variation in Formation of Lateral Femoral Cutaneous Nerve – A Case Study

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### Abstract

**Aims and Objectives:** *The lateral femoral cutaneous nerve is a purely sensory nerve and originates from the upper lumbar roots (L2, L3). The aim of this study is to identify the variation in formation of lateral femoral cutaneous nerve.*

**Materials and Methods:** *The study was performed on 25 cadavers (50 body-sides) and the variation in formation of lateral femoral cutaneous nerve was observed.*

**Results:** *In 20 specimens out of 50 specimens, the lateral femoral cutaneous nerve was formed by L2 & L3 (40%). The lateral femoral cutaneous nerve was formed by L1 & L2 in 16 specimens out of 50 specimens (32%). In 14 specimens out of 50 specimens, the lateral femoral cutaneous nerve was absent (28%).*

**Conclusion:** *The lateral femoral cutaneous nerve and its variations are important to consider especially during inguinal hernia repair, abdominoplasty, and iliac bone grafting.*

**Key Words:** *Lateral Femoral Cutaneous Nerve, Lumbar Plexus, Meralgia Paresthetica.*

### Introduction

The lateral femoral cutaneous nerve of the thigh is normally a derivative of the posterior divisions of the L2 and L3 spinal nerves that travels through the pelvis heading towards the anterior superior iliac spine. It then usually exits the lesser pelvis under the inguinal ligament, anterior to the ASIS, bifurcates into an anterior and posterior division along the length of the thigh, and provides sensory innervations to the

skin of the anterolateral and lateral aspects of the thigh<sup>(1)</sup>. The lateral femoral cutaneous nerve is part of the lumbar plexus. It functions primarily as a sensory nerve and its composition varies among individuals with several different combinations of lumbar nerves that originate from L1 to L3<sup>(2)</sup>. The lateral femoral cutaneous nerve has received much attention because of its association with meralgia paresthetica<sup>(3)</sup>.

## Materials and Methods

Ethical clearance of the study had taken.

The present study was carried out on twenty five (25) adult human formalin-embalmed cadavers who were allotted to the undergraduate students for dissection at Osmania Medical College, Hyderabad during October 2011 to September 2012. This study was conducted in Dissection hall of Department of Anatomy, Osmania Medical College.

## Dissection Method

The adult cadavers were selected irrespective of their age and sex. The students were allowed to dissect the specimen allotted to them up to the region of the posterior abdominal wall, retaining it intact. The specimens were subsequently cleaned and the branches of lumbar plexus with psoas major muscle intact were identified. Later on the psoas major muscle was removed by piecemeal dissection and the branches were traced back to the roots towards the intervertebral foramina. As the tracing of the nerves to the roots was being done, roots involved in the formation of each nerve was noted and recorded. And variation in formation of lateral femoral cutaneous nerve noted. Since it was a one-time observation, the observations of the individual specimen were recorded as and when available, it was continued for a period of one year. The photographs were taken and each specimen was serially numbered from 1 to 50 and 1st lumbar to 5th lumbar intervertebral foramina were marked, the side to which it was belonged also specifically mentioned as R and L for right and left sides respectively and the nerves which were observed were named. And especially variation in formation of lateral femoral cutaneous nerve observed.

## Results

In 20 specimens out of 50 specimens, the lateral femoral cutaneous nerve was formed by L2 & L3 (40%). The lateral femoral cutaneous nerve was formed by L1 & L2 in 16 specimens out of

50 specimens (32%). In 14 specimens out of 50 specimens, the lateral femoral cutaneous nerve was absent (28%).

## Discussion

Philip A. Anloague et al in 2009 dissected 34 lumbar plexuses. They found six of the 34 plexuses (17.6%) demonstrated variation in the lateral femoral cutaneous nerve. Whereas the lateral femoral cutaneous nerve normally arises from the posterior divisions of the L2 and L3 roots (88%), in 4 lumbar plexuses, the lateral femoral cutaneous nerve arose from the L1 and L2 nerve roots (11.76%) and in one plexus it had its origin solely from the L2 nerve (2.9%).

In the Present Study, out of 50 specimens, the lateral femoral cutaneous nerve in 20 specimens formed by L2 & L3 (40%), by L1 & L2 in 16 specimens (32%) and absent in 14 specimens (28%).

**Table-01:** Comparative study of the lateral femoral cutaneous nerve.

Authors	L2 & L3	L1 & L2	L2	Abse nt
Philip A. Anloague et al (2009)	88%	11.76 %	2.9 %	----
Present Study (2012)	40%	32%	Nil	28%

There were other authors who worked on variation in formation of lateral femoral cutaneous nerve <sup>(4, 5, 6, and 7)</sup>

## Conclusions

The lateral femoral cutaneous nerve was formed by L2 & L3 in 20 specimens (40%). In 16 specimens, it was formed by L1 & L2 (32%) and absent in 14 specimens (28%). The variations defined in the present study comprised variation in formation of lateral femoral cutaneous nerve which may be injured during certain surgical procedures, particularly in the lower abdominal region (appendectomy, inguinal hernia repair,

iliac crest bone graft harvesting and gynecologic procedures through transverse incision). After such operations, clinical condition may be encountered such as meralgia paresthetica in which the lateral femoral cutaneous nerve is mostly involved. Thus, a better knowledge of the regional anatomy and its variations is essential for preventing from the lesions of the branches of the lumbar plexus. Their early identification and preservation is likely to abolish, or considerably decrease, the incidence of postoperative sensory changes and/or neuralgia pain. Awareness of the possibility of encountering multiple variations and the ability to identify them quickly may prevent the occurrence of post-operational complications.

### Acknowledgements

The author is very grateful to Department of Anatomy, Osmania Medical College where the study was conducted.

**Conflicts of Interests:** None

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