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## Variation of the Profunda Femoris Artery and its branches

*Mr. Ravikumar Urjana<sup>1</sup>, Prof.Dr.Vimal Modi<sup>2</sup>*

<sup>1</sup>Research Scholar, Malwanchal University

<sup>2</sup>Research Supervisor, Malwanchal University

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### Introduction

The profunda femoris artery is the thigh's major arterial supply, coming from the lateral side of the femoral artery around 3-4 cm distal to the inguinal ligament. The lateral and medial circumflex femoral arteries emerge from the profunda femoris artery on opposite sides. The profunda femoris artery is often used in vascular reconstruction surgery.

When utilised in plastic and reconstructive surgery, understanding differences in the height of the profunda femoris artery and its branches is critical for avoiding flap necrosis, especially tensor fascia latae.

According to Gautier et al, precise knowledge of the anatomy of the medial circumflex femoral artery is required when performing both trochanteric and intertrochanteric osteotomies, and it is also useful in avoiding iatrogenic vascular necrosis of the head of the femur in hip reconstructive surgery and fixation of acetabular fractures via the posterior approach.

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### Methodology

At the department of Anatomy Index Medical College indore, 50 lower limbs from 25 cadavers (15 male and 10 female) were dissected. The femoral artery and its branches were found and traced using a traditional dissection approach. The profunda femoris artery (PFA) was found to be connected to the femoral artery at its origin. The distance between the profunda femoris origin and the midpoint of the inguinal ligament was measured.

The origins of the lateral circumflex femoral artery (LCFA) and medial circumflex femoral artery (MCFA) were also recorded, and the distance between their origins and the profunda femoris artery was measured.

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### Results

Distance of profunda femoris artery origin from midpoint of inguinal ligament: In the current research, 69% of profunda femoris arteries originate at a distance of 20-40mm from the inguinal ligament, 20% at a distance of 40-60mm, and only 11% at a distance of 11-21mm from the inguinal ligament.

Origin of the profunda femoris artery from the femoral artery: 60% of the profunda femoris artery develops from the posterolateral section, 30% from the posterior, and 10% from the lateral side.

The lateral circumflex femoral artery's origin. 72% emerge from the lateral side of the profunda femoris artery, whereas 28% arise straight from the femoral artery near the profunda femoris artery's origin.

Origin of the medial circumflex femoral artery from the profunda femoris artery: 68% of it originates at a distance of 11-30mm from the profunda femoris artery, 30% at a distance of 0-10mm, and just 2% at a distance of 30-40mm.

The medial circumflex femoral artery's origin 94% emerge from the medial aspect, whereas 6% arise from the medial aspect of the lateral circumflex femoral artery (as common trunk).

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### Conclusion

Differences in the origin of the profunda femoris artery and its circumflex branches are rather frequent. To minimise difficulties during surgical operations in the thigh, doctors must be aware of variances in the origin of these arteries.

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