



CASE STUDY

# Study of *Profunda Femoris* Artery with a Rare Variation-A Case Report

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## ABSTRACT

Variation of Profunda femoris artery observed in a 48yr old male cadaver, during the dissection at Anatomy Dissection Hall. In the present case report we have reported profunda femoris artery (PFA) was originating from medial side of the femoral artery. The Profunda femoris artery provides the main blood supply to the thigh. Generally, PFA arises from the posterolateral aspect of the femoral artery and descends first laterally, and then posterior to the superficial femoral artery.

**Methods-** Regular dissection at anatomy dissection Hall.

**Result & conclusion;** in this present case we have observed that in the left femoral triangle profunda femoris artery (PFA) was arising from the medial side of the femoral artery. The right femoral artery does not show any anatomical variation. This type of variation is rarely found. This particular variation is important for clinical perspective. This case study is useful for angiographic diagnostic procedures as well as during performing surgery in the femoral region

**Key Words** *Anatomical Variation, Angiographic Diagnostic Procedure, Femoral Artery, Profunda Femoris Artery*

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## INTRODUCTION

The profunda femoris artery (PFA) provides the main blood supply to the thigh. Generally, PFA arises from the posterolateral aspect of the femoral artery and after that it descends first laterally, and then occurs posterior to the superficial femoral artery. Hereafter the artery runs down deep to the adductor longus muscle in the thigh, in close relation to the linea aspera of the femur, and it pierces the adductor magnus muscle to become the fourth perforating artery<sup>1</sup>. Clinically the knowledge of variations in pattern

of femoral artery and its branches are very important. Hence, it has received huge attention from various anatomists and surgeons. PFA is the largest deep branch of femoral artery, which provides the principal supply to the extensors, adductors<sup>2</sup>.

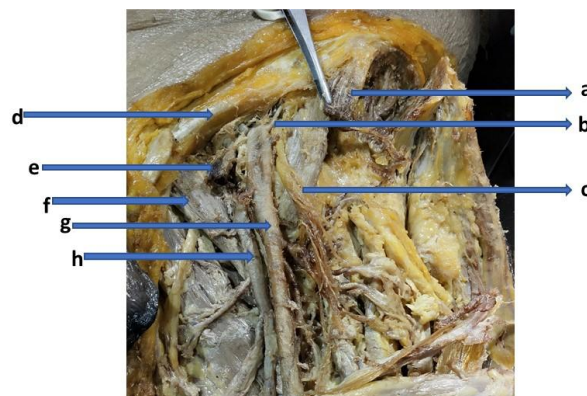
## CASE REPORT

During the routine dissection in the Department of Anatomy of the National Institute of Ayurveda, Jaipur, we have observed that in the

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left femoral triangle, the PFA was arising from the medial side of the femoral artery, as shown in figure 1. On the right side of the cadaver the profunda femoris arose from the posterolateral side of the femoral artery about 3 cm from the inguinal ligament and its course was normal. In this case report PFA passing in front of the pectineus muscle, gives the perforator branches and runs parallel to the common femoral artery. This case report is important for awareness of the apparent double puncture of the femoral artery and vein and the important complication of temporary cardiac pacing by the transfemoral approach. Before catheterisation of the femoral vessels and operations in the femoral triangle high-resolution ultrasonic imaging can provide

anatomical and functional information about the femoral vessels, and the knowledge of anatomical variation is also essential in the surgical repair of femoral hernias<sup>3</sup>.



**Figure 1** Picture of femoral region. In this, (a) Sartorius muscle, (b) Inferior epigastric artery, (c) Femoral nerve, (d) Spermatic cord, (e) Femoral vein, (f) Pectineus muscle, (g) Femoral artery, and (h) Profunda femoris artery

**Table 1** Direction of origin of profunda femoris artery (PFA) from femoral artery

Direction of origin of PFA from femoral artery	Right Side (n=23) Number (%)	Left Side (n=23) Number (%)	Both Side (n=46) Number (%)
<b>Postero Lateral</b>	15 (65.22 %)	15 (65.22 %)	30 (65.22 %)
<b>Lateral</b>	02 (8.70 %)	03 (13.04 %)	5 (10.86 %)
<b>Posterior</b>	03 (13.04 %)	03 (13.04 %)	6 (13.04 %)
<b>Posterior Medial</b>	03 (13.04 %)	02 (8.70 %)	5 (10.86 %)
<b>Medial</b>	0 %	0 %	0 %

### Known Variations

1. Forty-six femoral triangles were dissected and studied in embalmed cadavers at K.S. Hedge Medical Academy, Mangalore, India, over a period of 2 years from July 2011 to July 2013. The direction of origin of PFA from femoral artery was noted. In majority of cases the PFA originated from the posterolateral aspect of the femoral artery (65.22 %), the PFA originated from lateral aspect in 10.86 % of cases, from posteromedial aspect in 10.86 % of cases and from posterior aspect in 13.04 % of cases. There was no case in which the PFA originated from

the medial aspect of femoral artery<sup>4</sup>. Data given in below table-1.

2. According to Ashraf Y Nasr *et al.*<sup>5</sup>, the PFA originated mostly from the posterolateral aspect of the femoral artery.

3. MB Samarawickrama *et al.*<sup>6</sup> studied 26 femoral triangles of both sides. The deep femoral artery (DFA) in 46 % of the cases originated from the posterior side of femoral artery and in 30 % of the cases, from the posterolateral one<sup>6</sup>. In our study we observed PFA originated from the medial aspect of the femoral artery.



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### RESULTS AND CONCLUSION

When we have knowledge about the site of origin of the PFA it helps in identify the correct site of making incision for surgical exposure of the femoral artery and DFA junction. And it also helps in avoiding iatrogenic femoral arterio-venous fistula while performing femoral artery puncture. This case study might be useful for surgeons during performing surgery in the femoral region.



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