

Unusual Branching Pattern of External Iliac Artery. Case Report

Patrón Inusual de Ramificación de la Arteria Iliaca Externa. Reporte de Caso

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SUMMARY: During the routine dissection, a rare anomaly was observed in left lower limb of a female cadaver. The external iliac artery continued as femoral artery, branched on lateral side as the lateral circumflex femoral artery and on medial side as profunda femoris artery. On tracing the lateral circumflex femoral artery, the ascending branch towards the spinous anastomosis was very thin and coursed behind the rectus femoris muscle. The transverse and descending branches were not observed, however, the artery coursed along the vastus lateralis towards the knee. The femoral artery had its normal course and continued as popliteal artery. The profunda femoris artery originated from the medial side of the external iliac artery, initially superficial to the femoral vein, coursed downwards and posteriorly, relating posteromedial to femoral artery. The medial circumflex femoral artery originated as thin branch, which further divided into two divisions. The profunda femoris gave origin of 3 perforators and continued as 4th perforator. The unusual branching pattern was observed to be novel and not reported in the literature.

KEY WORDS: External iliac artery; Profunda femoris; Lateral circumflex femoral artery; Variations; Vascular anatomy.

INTRODUCTION

In the present era of interventional radiology, knowledge of anatomical variations in the vascular patterns of various regions is important. In the lower limb, the vascular pattern of femoral, profunda femoris and its branches and their variations, catch the eye of radiologists and clinicians as profunda femoris artery is frequently used in the vascular reconstructive procedures in the proximal leg (Siddharth *et al.*, 1985). There have been few reports about the variations in origin of lateral circumflex femoral artery, deep femoral artery (Dixit *et al.*, 2001), femoral artery and branching pattern of internal iliac artery. Among the vascular variations in lower limb, existence of common origin for inferior epigastric and obturator arteries is relatively high (Bergman *et al.*, 1984). Sañudo *et al.* (1993), have reported common origin for inferior epigastric, obturator and medial circumflex femoral arteries from external iliac artery. Nayak (2008) reported an abnormal branch of external iliac artery in the iliac fossa. Knowledge of variations vascular anatomy of lower limb have a great impact for preventing flap necrosis, particularly tensor fascia lata, when used in plastic and reconstructive surgeries, performing trochanteric and intertrochanteric osteotomies and it is helpful to avoid iatrogenic vascular necrosis of the head of femur in reconstructive surgeries of the hip and fixation of acetabular fractures through posterior approach.

CASE REPORT

We observed an unusual ramification pattern of external iliac artery on the left side of female cadaver of unknown age, which was dissected during the practical session conducted in Narayana Medical College campus.

In the left limb, a common trunk was composed of femoral artery, lateral circumflex femoral artery and profunda femoris artery origination at the transition of external iliac artery to femoral artery under the inguinal ligament (Fig. 1a). The femoral artery and lateral circumflex femoral artery coursed together along with motor branches of femoral nerve (Fig. 1b). The ascending branch of lateral circumflex femoral artery was thin and directed towards the anterior superior iliac spine coursed behind the rectus femoris muscle. After a short course, the lateral circumflex femoral artery, left the companion femoral artery, ran along the vastus intermedius. The profunda femoris artery (Fig. 1c), looped around the termination of great saphenous vein, outside the cribriform fascia, coursed medial to the femoral vein, then behind the femoral vein, gave origin to three perforators and continued as fourth perforator. The medial circumflex femoral artery originated as small thin branch from the profunda femoris. The femoral artery gave origin to muscular branches and continued at the fifth osseoaponeurotic opening as popliteal artery.

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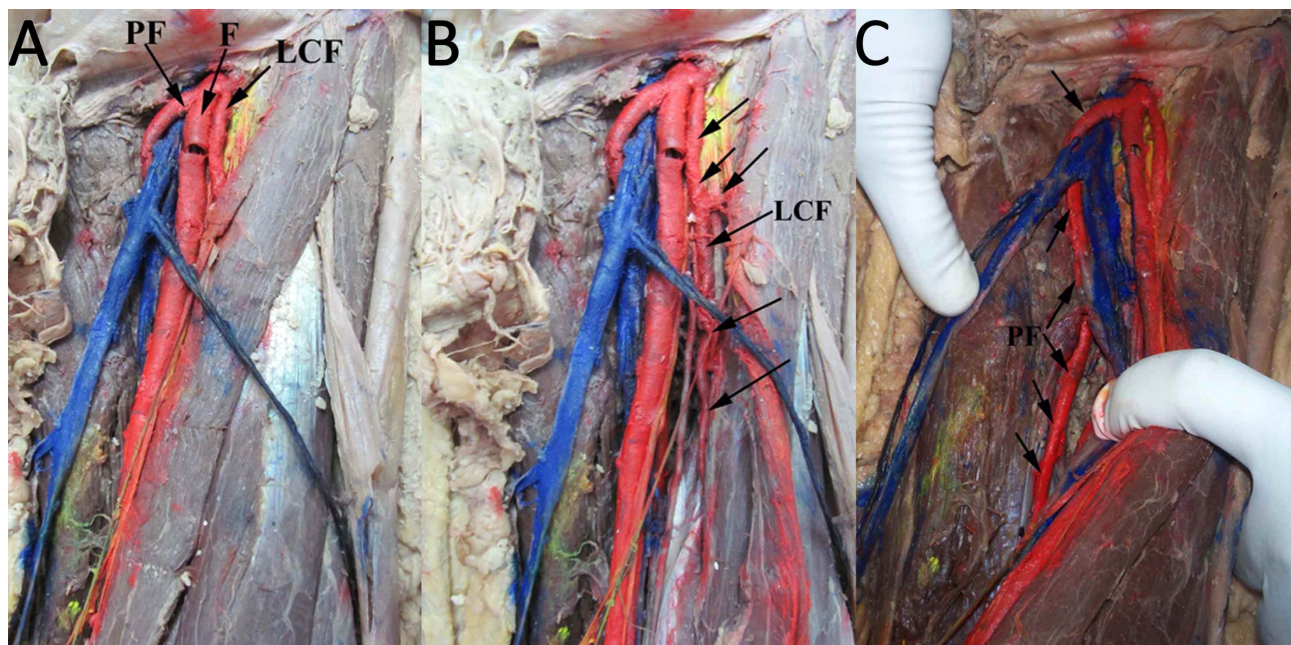


Fig. 1. Unusual branching pattern of external iliac artery. A. Trifurcated external iliac artery. Profunda femoris (PF), Femoral (F), Lateral Circumflex femoral (LCF) arteries. B. Course and distribution of Lateral Circumflex Femoral artery (LCF). C. Course and distribution of Profunda femoris artery (PF).

DISCUSSION

The external iliac artery course inferior and lateral above the pelvic inlet and at the midpoint of anatomic boundary between pelvis and lower limb, it divides into two terminal branches, inferior epigastric artery and deep circumflex artery. These branches provide arterial supply to inferior abdominal wall. Beyond this, the external iliac artery continues as femoral artery. Variations of external iliac artery are usually rare. There are few reports about the dimensions indicating the tortuosity, its origin from

aorta (Mansfield & Howard, 2005) or its looping in lesser pelvis (von Hochstetter, 1989) which may cause complications in hip replacement surgeries. In comparison with the existing literature, the observed variation in the present case report is unusual and the course and size of lateral circumflex femoral artery is in complicated position especially for femoral hernia or hip surgeries. The present observation may of interest for surgeons.

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RESUMEN: Durante una disección de rutina, se observó una rara anomalía en el miembro inferior izquierdo de un cadáver de sexo femenino. La arteria íliaca externa dio origen en el lado lateral ala arteria circunfleja femoral lateral y en el lado medial a la arteria femoral profunda. En el recorrido de la arteria circunfleja femoral lateral, la rama ascendente era muy delgada y corría detrás del músculo recto femoral. No se observaron ramas transversales y descendente, sin embargo, la arteria descendió hacia la rodilla a lo largo del músculo vasto lateral. La arteria femoral tuvo su curso normal y continuó como arteria poplítea. La arteria femoral profunda, inicialmente superficial a la vena femoral, se dirigió inferior y posteriormente colocándose posteromedial a la arteria femoral. La arteria circunfleja femoral medial se originó como una rama delgada, que otorgó dos arterias. La arteria femoral profunda dio origen a tres ramas perforantes y continuó como cuarta perforante. Este patrón de ramificación inusual es una descripción nueva no reportada en la literatura.

PALABRAS CLAVE: Arteria íliaca externa; Arteria femoral profunda; Arteria femoral lateral circunfleja; Variaciones; Anatomía vascular.

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