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Evaluation of location of lateral circumflex femoral artery present in human limb

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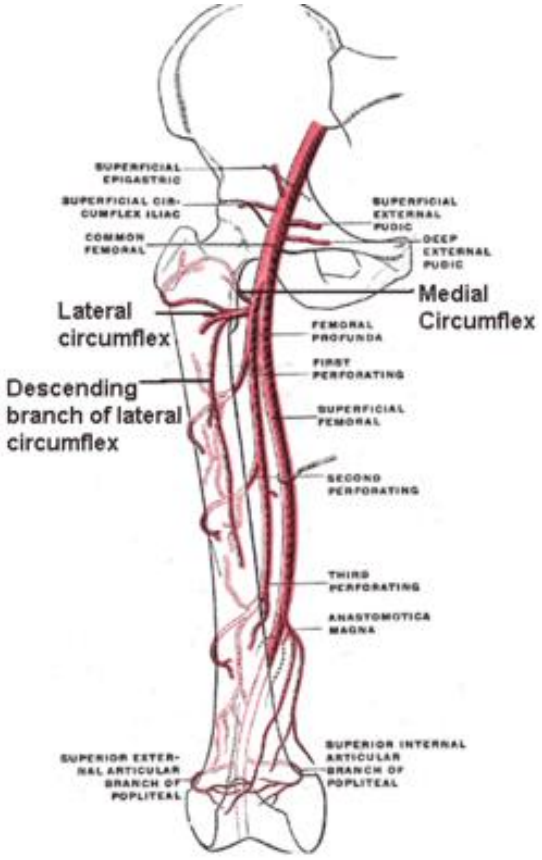
Abstract
The lateral circumflex femoral artery arises from the side of the deep femoral artery, which supplies much of the musculature in the front and middle compartments of the thigh. Some of its vessels penetrate through the muscles to the back compartment and contribute to the supply of the hamstrings. The lateral circumflex femoral artery passes behind the Sartorius and rectus femoris muscles, where it divides into three branches: the ascending, transverse, and descending branches.
The lateral femoral circumflex artery ascends from the lateral side of the Profunda femoris artery, permits horizontally between the separations of the femoral nerve, and after the Sartorius and rectus femoris, and splits into ascending, transverse, and descending branches.
The surgeons must be aware of variations in level of origin and branching pattern of PFA to avoid iatrogenic complications. This knowledge is also useful to radiologists in interpreting radiographs and to anatomists for new and rare variations.
There are total 41 limbs are observed where the origin of lateral circumflex femoral artery is on lateral side. The 8 cases are where Origin from FA common stem with PFA. There are only 3 cases where Origin from femoral artery superior to Profunda femoris artery. The only one limb is seen with lateral circumflex femoral artery is absent.

Keywords: femoral artery, profunda femoris artery, lateral circumflex femoral artery etc

Introduction
The lateral circumflex femoral artery (lateral femoral circumflex artery, external circumflex artery) is the type of artery in the upper thigh.Lateral circumflex femoral artery is a branch of Profunda femoris artery



The lateral femoral circumflex artery ascends from the lateral side of the profunda femoris artery, permits horizontally between the separations of the femoral nerve, and after the sartorius and rectus femoris, and splits into ascending, transverse, and descending branches. The lateral femoral circumflex artery may occasionally arise directly from the femoral artery. The artery usually courses anterior to the femoral neck and in between the branches of femoral nerve. A rare variant where the artery passes posterior to the femoral nerve has also been reported which is of great significance to the surgeon [1].
The lateral circumflex femoral artery has three branches:

- The ascending branch of lateral circumflex femoral artery passes upward, beneath the tensor fasciae latae muscle, to the lateral aspect of the hip, and anastomoses with the terminal branches of the superior gluteal and deep circumflex iliac artery.
- The descending branch of lateral circumflex femoral artery runs downward, behind the rectus femoris, upon the vastuslateralis, to which it gives offsets; one Long Branch descends in the muscle as far as the knee, and anastomoses with the superior lateral genicular artery. It is accompanied by the branch of the femoral nerve to the vastuslateralis muscle.
- The transverse branch of lateral circumflex femoral artery is a small artery in the thigh. It is the smallest branch of the lateral circumflex femoral artery and passes lateralward over the vastusintermedius, pierces the vastuslateralis, and winds around the femur, just below the greater trochanter, anastomosing on the back of the thigh with the medial femoral circumflex artery, the inferior gluteal artery, and the perforating arteries of the profundafemoris artery.

Methodology

The study had included the 50 limbs of formalin fixed adult human cadavers used for the routine dissection procedure. These are routinely used in the Department of Anatomy, in the Hind Institute of Medical Science, Mau, Ataria, Sitapur. Around 50 femoral triangles were dissected. From the dissection the information like origin and course of artery was documented in data sheet. The Cunningham's manual of practical Anatomy is referred for the detailed dissection procedure.

The approval of the Institutional Ethics Committee is taken for the present study. The study was conducted from the Jan 2016 to Dec 2016. The information was collected and discussed in following sections.

Results & Discussion

The data from the 50 limbs were composed and presented in the following texts. In the 50 limbs there are 32 limbs are from male origin whereas 28 limbs are from female origin.

Table 1: Site of origin of lateral circumflex femoral artery

Site	Origin from PFA on lateral aspect	Origin from FA common stem with PFA	Origin from FA superior to PFA	Origin from FA common stem with PFA	LCF artery may be absent
No. of limbs only on right side	4	3	2	1	0
No. of limbs only on left side	5	2	1	2	1
No. of limbs on Bilateral	32	3	0	0	0
Total	41	8	3	3	1

FA: femoral artery is a branch of Profunda femoris artery (PFA)

There are total 41 limbs are observed where the origin of lateral circumflex femoral artery is on lateral side. The 8 cases are where Origin from FA common stem with PFA. There are only 3 cases where Origin from femoral artery superior to Profunda femoris artery. The only one limb is seen with lateral circumflex femoral artery is absent.

The 20-30 mmis the most mutual distance of origin of LCF artery from Profunda femoral artery we had observed in the present study. This is also common range in both sexes.

The lateral circumflex femoral artery and its branches is important artery supplying blood to the femur, fossa and knee joint.

Uzel M *et al* studied 110 inguinal regions andfound lateral circumflex femoral artery arising from Profunda femoris artery in 85 cases (77.3%) and from femoral artery including common stemin 25 cases (22.7%) [2].

In study of Prakash, the lateral femoral circumflex artery in 52 out of 64 (81.25%)extremities originated from the profunda femoris artery; whereas in 12 out of 64 (18.75%)extremities itoriginated from the femoral artery[3].

Dixit D *et al* observed the origin of lateralcircumflex femoral artery on the right side was from profunda femoris artery in 72.8% (83cases), from femoral artery as a common stem with profunda femoris artery in 17.5% (20 cases), from femoral artery superior to profunda femoris artery in 5.2% (6 cases), from femoral artery inferior to profunda femoris artery in 2.6% (3cases) [4].

Bergman RA *et al* in 1996 observed 200 limbsout of which in 123 cases both the lateral and medial circumflex femoral arteries originated from Profunda femoris artery. Out of the remaining cases lateral circumflex femoral artery was arising from femoral artery in 29 cases [5].

According to our study and other studies, variation in branching pattern of the lateral circumflex femoral artery is common.

Conclusion

The surgeons must be aware of variations in level of origin and branching pattern of PFA to avoid iatrogenic complications. This knowledge is also useful to radiologists in interpreting radiographs and to anatomists for new and rare variations.

References

1. Goel Shivi, Arora Jyoti, Mehta Vandana, Sharma Mona, Suri RK, Rath Gayatri. Unusual disposition of lateral circumflex femoral artery: Anatomical description and clinical implications. World Journal of Clinical Cases. 2015; 3(1):85-88. PMC 4295224 Freely accessible. PMID 25610855. doi:10.12998/wjcc.v3.i1.85.
2. Uzel M, Tanyeli E, Yildirim M. Anatomical study ofthe origin of lateral circumflex femoral artery inTurkish population. Folia Morphol (Warsz), 2008; 67(4):226-230.
3. Prakash Jyoti K, Bhardwaj AK, Jose BA, Yaday SK, Singh G. Variations in the origins of the Profundafemoris, medial and lateral femoral circumflex arteries: a cadaveric study in Indian population. Rom J Morphol Embryo. 2010; 51:167-70.
4. Dixit D, Kubavat DM, Rathod SP, Pateld MM, Singel TC. A study of variations in the origin of profundafemoris artery and its circumflex branches. Int J Biol Med Res. 2011; 2:1084-1089.
5. Bergman RA, Afifi AK, Miyauchi R. Illustrated encyclopaedia of human anatomic variation. Opus II: Cardiovascular system. Arteries. Lower limb, medial and lateral femoral circumflex arteries (http://www.anatomyatlases.org/AnatomicVariants/Cardiovascular//Text/Arteries/FemoralCircumflexMedLat).