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A Study on Origin of Lateral Circumflex Femoral Artery an Original Article

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ABSTRACT

Lateral circumflex femoral artery is an important artery as its branches are used in clinical implications such as an anterolateral thigh flap, aortopopliteal bypass, and coronary artery bypass grafting. The ascending branch of the artery can also be used as a supply for vascularised iliac transplantation.The material for the present study comprises of 40 lower limbs of adult human cadavers irrespective of their sex. The study was done by dissection method.In 4 extremities (10%) lateral circumflex femoral artery originated directly from the femoral artery. In 2 extremities(5%) lateral circumflex femoral artery originated as a number of branches from the profundafemoris artery. Normal study was observed in 34 extremities (85%). This study gives an idea to clinicians about the variations of this artery, thus helping to improve their success in diagnosis and treatment. These variations in the origins of lateral circumflex femoral artery need to be taken into account and considered in all surgical and interventional procedures.

KEY WORDS Lateral circumflex femoral artery, Profunda femoris artery, femoral nerve

INTRODUCTION

Lateral circumflex artery is a lateral branch of the profunda fermoris artery. It passes laterally between the anterior and posterior divisions of the femoral nerve and disappears from the femoral triangle beneath the sartorius and rectus femoris muscles, and divides into ascending, transverse and descending branches which supply the greater trochanter, hip joint and anterolateral thigh.[1]

MATERIALS AND METHODS

The material for the present study comprises of 40 lower limbs of adult human cadavers irrespective of their sex. The study was done by dissection method.

OBSERVATIONS AND RESULTS

Variations observed in adults :

- In 4 extremities (10%), lateral circumflex femoral artery originated directly from the femoral artery.
- In 2 extremities (5%), lateral circumflex femoral artery originated as a number of branches from the profundafemoris artery.
- Normal study was observed in 34 extremities (85%).

DISCUSSION

Normally, the lateral circumflex femoral artery takes its origin from the lateral side of the profundafemoris artery, passes in between the anterior and posterior divisions of the femoral nerve. In the present study lateral circumflex femoral artery originated from the profundafemoris artery in 85 % of cases, and in 20% of cases directly from femoral artery. In 5% of cases, LCFA arises as a number of branches from the profundafemoris artery. The present study results are close to that of Massoud& Fletcherwhich is 81% from profundafemoris artery and 19 % from femoral artery.[2] In 2 extremity (5 %), the lateral circumflex femoral artery was made up of a number of separate arteries represented by a common stem. This kind of variation was also observed by Auburtin.[3] Bergman et al have reported cases of double lateral circumflex femoral artery, one from the femoral artery and the other from the profundafemoris artery. They have also reported that the lateral circumflex femoral artery can be made up of a number of arteries represented by a common stem and also have reported the origin of the obturator artery from the lateral circumflex femoral artery.[4]

Rui Fernandes and Jason Lee have reported the successful use of the lateral circumflex femoral artery perforator flap as a reliable option for the immediate reconstruction of large defects secondary to gunshot wounds of the face. The lateral circumflex femoral artery perforator flap is at a site which is not involved in the immediate resuscitation of trauma patients, thus ensuring an intact vascular system. This fact makes the lateral

Table: Comparison of various origins of lateral circumflex femoral artery.

Author's name	Origin from PFA	Origin directly from FA	Origin of LCFA as number of Branches from PFA	Common point of origin for PFA, MCFA & LCFA
Massoud et.al[2] (1997)	81%	19%	–	–
Vazquez MT et.al[5] (2007) (N =442)	92.2%	22.2%	–	–
MB Samarawickrama[6] (2009)(N= 26)	78.8%	–	–	8%
Present study (2012) (N = 40)	85%	10%	5%	–

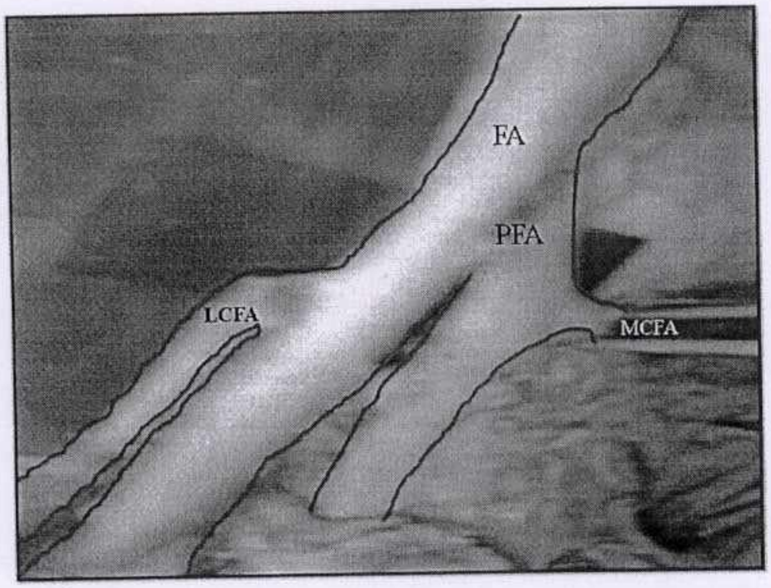
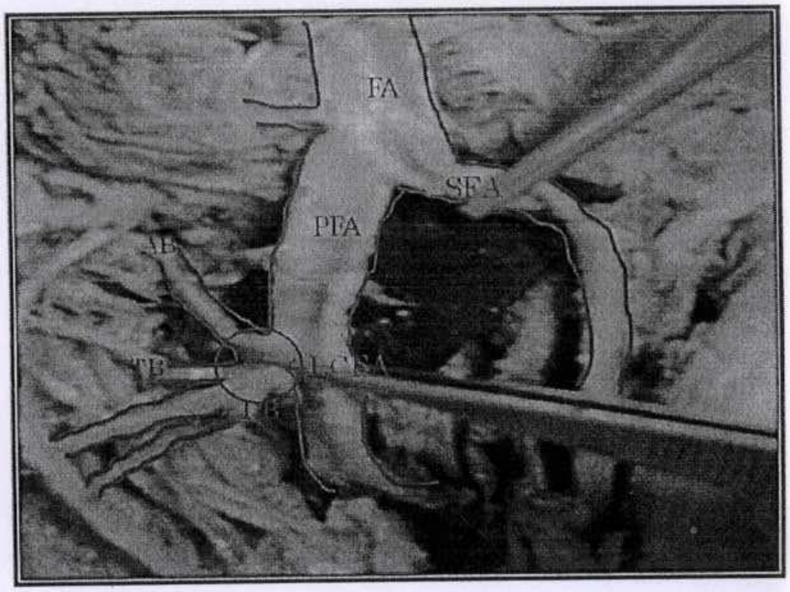


Photo 1 : Lateral circumflex femoral artery directly originating from femoral artery

FA- Femoral artery
PFA – Profunda femoris artery
LCFA – Lateral circumflex femoral artery
MCFA – Medial circumflex femoral artery

Photo 2: Lateral circumflex femoral artery originating as number of separate arteries represented by a common stem from profunda femoris artery.

FA- Femoral artery
PFA – Profunda femoris artery
LCFA – Lateral circumflex femoral artery
MCFA – Medial circumflex femoral artery



circumflex femoral artery perforator flap a reliable source for small to large soft tissues for reconstructing avulsive soft tissue losses in the head and neck.[7]

CONCLUSION

Lateral circumflex femoral artery is an important artery as its branches are used in clinical implications such as an anterolateral thigh flap, aortopopliteal bypass, and coronary artery bypass grafting. The ascending branch of the artery can also be used as a supply for vascularised iliac transplantation. These variations in the origins of the lateral circumflex femoral artery need to be taken into account and considered in all surgical and interventional procedures.

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