

STUDY OF LATERAL CIRCUMFLEX ARTERY

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ABSTRACT

Background: The lower limb arteries are commonly involved with peripheral occlusive arterial diseases and the femoral artery at femoral triangle is widely used for certain clinical procedures like arterial catheterization, as it can be readily accessed. Lateral circumflex femoral artery is a laterally running branch given off near the root of the profunda femoris. It supplies blood to head and neck of femur, greater trochanter, vastus lateralis and knee. It has many implications in clinical practice, it is used in an anterolateral thigh flap, aortopoplital bypass, coronary artery bypass surgery, extracranial- intracranial bypass surgery.

Methods: 50 adult lowerlimbs were procured from embalmed cadavers of J.J.M. Medical College and S.S.I.M.S & R.C, Davangere, Karnataka, India for the study. Dissection of femoral triangle was carried out according to Cunningham's manual. Site and mode of origin of the branches of femoral artery were studied, configuration of the femoral origin lateral circumflex femoral artery and its prevalence were studied.

Results: out of 50 cases Lateral circumflex femoral artery took origin from profunda femoris in 45 specimens and from the femoral artery in 5 specimens.

Conclusion: The knowledge of normal origin and variation of lateral circumflex femoral artery is very valuable in preventing iatrogenic injury to these vessels during surgical procedures of femoral triangle. As medial and lateral circumflex femoral arteries supply blood to head and neck of femur, it is important to avoid injuring them during surgery of hip joint to prevent necrosis of femoral head. Lateral circumflex femoral artery has many implication in clinical practice. It is used in an anterolateral thigh flap.

KEYWORDS: Lateral circumflex artery, Femoral artery, Lower limb arteries.

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INTRODUCTION

The knowledge of the variations in the arterial pattern of the lower limb is very important for the vascular surgeons and the intervention radiologists which may be the cause of severe haemorrhage. Variations which involve the Femoral, Profunda femoris or Deep femoral and the Circumflex femoral arteries are important in vascular reconstructive surgeries, in surgical interventions for embolism, catheterization procedures and in raising myocutaneous grafts with pedicles. Variations of the lateral circumflex femoral artery are of much significance in making

the antero lateral thigh flaps. The lateral circumflex femoral artery is commonly a branch of the deep femoral artery or sometimes of the femoral artery and passes between divisions of the femoral nerve posterior to the sartorius and rectus femoris muscles. After passing behind these structures, it divides into its ascending, transverse and descending branches. It supplies blood to the head and neck of the femur, greater trochanter, the vastus lateralis and the knee [1]. It has many implications in clinical practice. The branches of the lateral circumflex femoral artery are used in an anterolateral thigh flap, aorto

popliteal bypass [2,3,4], coronary artery bypass grafting and extracranial intracranial bypass surgery. The descending branch of the artery can act as collateral. The ascending branch of the artery can be used as a supply for vascularised iliac transplantation [5,6,7].

The arterial variations of the lower limb, especially the femoral artery, has gained popularity recently, because of its close association with the repair of femoral hernias and because of its common use in coronary angiographies. These variations may not endanger the life of the patients and they are usually subclinical and are found only during surgeries, autopsies and dissections. Several variations of the femoral artery and the profunda femoris artery had been reported in the past, such as the duplication of the profunda femoris artery and the abnormal course of the profunda femoris, which passed in front of the femoral vein [8].

In the study of Sridevi N S lateral circumflex femoral artery originated from the profunda femoris 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 profunda femoris artery. In two extremity (5 %), the lateral circumflex femoral artery was made up of a number of separate arteries represented by a common stem[9].

MATERIALS AND METHODS

50 adult lowerlimbs were procured from embalmed cadavers of J.J.M. Medical College and S.S.I.M.S & R.C, Davangere, Karnataka,

India for the study. Dissection of femoral triangle was carried out according to Cunningham's manual. Site and mode of origin of the branches of femoral artery were studied, configuration of the femoral origin lateral circumflex femoral artery and their prevalence were studied.

RESULTS

out of 50 cases Lateral circumflex femoral artery took origin from profunda femoris in 45 specimens and from the femoral artery in 5 specimens.

DISCUSSION

Lateral circumflex femoral artery and its branches are used in various bypass surgeries in iliofemoral region as well as in cranial cavity [10]. 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 lateral circumflex artery perforator flap a reliable source for small and large soft tissues for reconstructing avulsive soft tissue losses in the head and neck[11].

In a study of Balachandra N, 64 extremities it was reported that the lateral circumflex femoral artery originated from femoral artery in around 18.75% (12 cases). Other similar cadaveric studies the occurrence were reported as 16.6%,

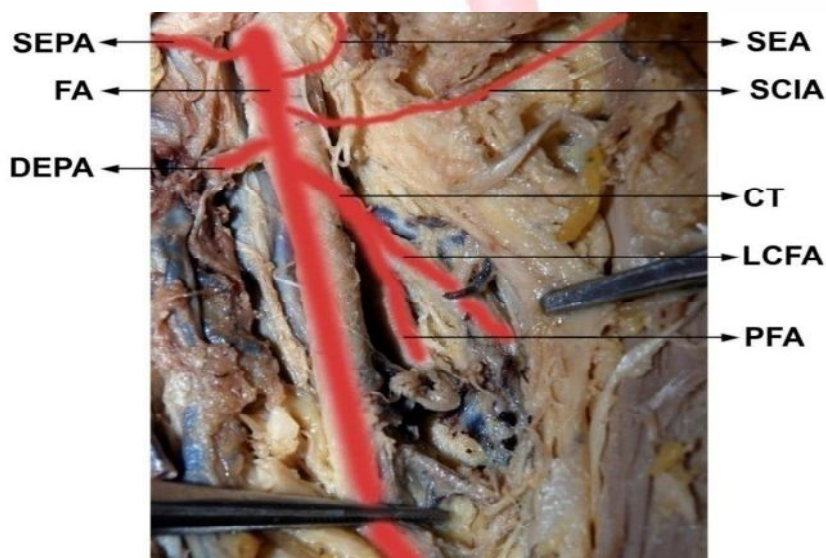


Fig. 1: Shows common trunk was observed which took origin femoral artery. This common trunk divided into lateral circumflex femoral artery and

13.2% and 43.33%, respectively. Bilateral origin of lateral circumflex femoral artery from the femoral artery has been reported [12].

In a study of Siddharth P et al, in 100 dissected thighs only one side had a high origin of profunda femoris artery at the level of inguinal ligament [13]. In study of Voboril R., a high origin of the artery at or above the inguinal ligament was found in 1.2% of the subjects in 253 lower limb arteriograms from Czech Republic [14]. Shankar N was reported that the artery originated less than 1 cm distal to the inguinal ligament [15]. In a study of Dixit D, in 224 femoral triangles around 39% of cases profunda femoris artery was found to arise either from medial or posterior aspect of femoral artery. Out of that 5 cases profunda femoris artery was coursing superficial to femoral artery [16]. In a study of Prakash, in Indian population two out of 64 extremities (3.1%) reported profunda femoris artery came from medial side of femoral artery [17]. The knowledge of lateral circumflex artery is important in vascular surgeries.

Conflicts of Interests: None

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