



# Incomplete Transposition of Femoral Artery and Vein Associated with a Rare Variation of the Large Saphenous Vein

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## Abstract

We report a case of incomplete transposition of the artery and the femoral vein associated with large saphenous vein splitting separated from its tributaries, which formed a common trunk before falling directly into the femoral vein in a cadaver of sex. Male, about 32 years old, at the anatomy laboratory of the Faculty of Medicine of Bamako. The femoral artery superficially crossed the saphenofemoral junction before being placed within the femoral vein above the femoral trine vertex. The DFA had a high origin and passed in front of the femoral vein. It gave birth to the inferior epigastric artery, the medial circumflex artery of the thigh and two muscular arteries for the pectin and the adductor longus. The proximal portion of the femoral vein was almost entirely obscured by the femoral artery and DFA.

**Conclusion:** The anatomical variations of the femoral artery and vein, as well as the great saphenous vein, are very frequent at the level of the femoral trine and can pose technical difficulties in the practice of certain gestures in this region, from where the need for knowledge of these variations.

**Keywords:** Transposition; Femoral artery; Femoral vein; Large saphenous vein; Anatomical variation

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**Received Date:** 21 Oct 2019

**Accepted Date:** 15 Nov 2019

**Published Date:** 19 Nov 2019

### Citation:

Touré T, Ba B, Kanté A, Koné M, Issa-Touré A-L, Guissé F, et al. Incomplete Transposition of Femoral Artery and Vein Associated with a Rare Variation of the Large Saphenous Vein. *Ann Clin Anat.* 2019; 2(1): 1008.

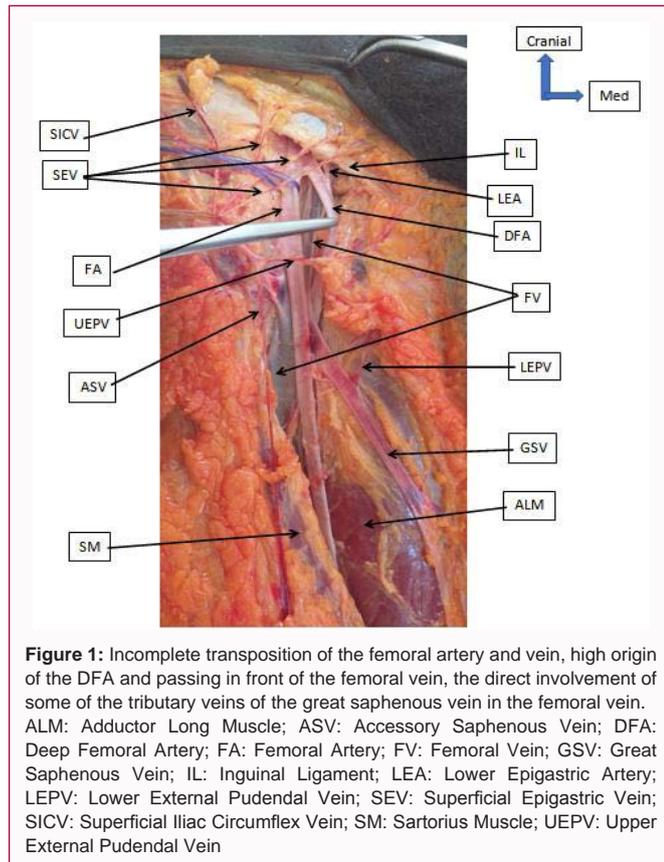
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## Introduction

Large arterial trunk of the thigh, the femoral artery follows the external iliac artery at the level of the crural arch (inguinal ligament) and ends at the adductor third (adductor third hiatus) where it is continued by the popliteal artery. The Deep Femoral Artery (DFA) originates in the femoral trunk, 4 cm below the crural arch (inguinal ligament), of the posterior face of the femoral artery. At the level of the femoral trine, the femoral vein is within the femoral artery and tends to become posterior. In the femoral trunk, the femoral vein receives the long saphenous vein (large saphenous vein) and the large femoral vein deep [1]. Incomplete transposition of the femoral artery and vein has been reported 3 times in the literature but [2-4], its association with a high and medial origin of DFA and a variation of the large saphenous vein have not been reported.

## Results

In the anatomy laboratory of the Faculty of Medicine and Odontostomatology of Bamako, during a dissection in a male cadaver, about 32 years old, we discovered on the left side, at the level of the femoral trine that the great saphenous vein received only one of its usual tributary veins, the inferior external pudendal vein. All its other affluent veins, namely the circumflex superficial iliac veins, the superficial epigastric veins (which numbered three), the lateral accessory of the saphenous vein and the superior external pudendale formed a common trunk which threw itself directly into the femoral vein outside the femoral artery. The large saphenous vein, at the level of the femoral trine, had a diameter of 5 cm. It was thrown into the femoral vein within the femoral artery at a distance of 73 mm from the inguinal ligament. She had a lower bite. After opening the vascular sheath, we observed incomplete transposition of the femoral artery and vein. Just below the inguinal ligament, the femoral artery was located outside the femoral vein, and then it intersected the anterior aspect of the femoral vein between the LSV and the common trunk formed by the tributary veins of



the LSV. The femoral artery was placed within the femoral vein above the apex of the femoral trine. We also observed that the deep artery of the thigh (DFA) had a high origin; it originated from the medial side of the femoral artery just below the inguinal ligament and passed in front of the femoral vein to place itself behind the latter before engaging between the muscles. DFA gave birth in the femoral trine to the inferior epigastric artery, the medial circumflex artery of the thigh and two muscular arteries, one for the pectinus muscle, the other for the adductor longus muscle. The quadriceps artery originated directly from the femoral artery by a common trunk with the circumflex lateral artery of the thigh. The veins of the femoral vein had the following veins: the deep femoral vein which entered the femoral vein at a distance of 117 mm from the inguinal ligament, the LSV, common trunk formed the usual tributaries of LSV, the quadriceps veins, the femoral circumflex veins and the inferior epigastric vein.

## Discussion

Incomplete transposition of femoral vessels is rare in the literature. It has been reported 3 times by [2-4]. Incomplete transposition of femoral vessels associated with low LSV and direct contact of common LSV tributaries by common trunk has not been reported in the literature. According to [5], poor confidence with anatomical abnormalities, such as a separate entry of the LSV into the femoral below its affluents, a transposition of the femoral artery and vein or a femoral artery running past the saphenous junction could result in serious arterial or venous lesions. Anterior position of the common femoral artery may evolve into a "foot syndrome" of the common femoral vein contributing to DVT or secondary varicose veins [2]. Believe that the mobilization of the artery could be useful particularly in cases of incomplete transposition or abnormal origin of the deep femoral artery placed before the SFJ and the LSV [6]. According

to Bergamn [7], the deep artery of the thigh passing in front of the femoral vein is rare. This has been reported by some authors [8-12]. DFA originating from the medial aspect of the femoral artery just below the inguinal ligament, passing the femoral vein and giving rise to the inferior epigastric artery has not been reported. In our case, the common femoral artery (proximal part of the femoral artery, before the birth of DFA) was non-existent. According to [13], in the arteriography of the lower limbs to study all branches of division of the common femoral artery, the catheter should be placed in the trunk of the common femoral artery; if the trunk of the common femoral artery is too short or absent, the catheter may be in the superficial femoral artery; thus the branches of the DFA will not be seen on radiography. In our case, the proximal part of the femoral vein was almost completely masked by the femoral artery and DFA. This could lead to technical difficulties in catheterization of the femoral vein or the cause of an arteriovenous fistula [14]. In 5050 stripping operations of varicose veins, found in two patients (0.04%), the great saphenous vein entered the femoral vein completely separated from its branches, which joined to form a trunk before emptying into the femoral vein. In our case, the great saphenous vein received only the inferior external pudendal vein at the level of the femoral trine, its other veins tributary to the femoral trine formed a common trunk which threw itself directly into the femoral vein.

## Conclusion

The anatomical variations of the femoral artery and vein, as well as the great saphenous vein, are very frequent at the level of the femoral triangle and can pose technical difficulties in the practice of certain gestures in this region, hence the need for knowledge of these variations.

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