A rare variation of the profunda femoris vein in the popliteal fossa

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ABSTRACT

The profunda femoris artery is normally accompanied by a profunda femoris vein (deep femoral vein), which begins at the adductor magnus with various tributaries and drains into the femoral vein at the femoral triangle. Very rarely, the profunda femoris vein establishes communication with the popliteal vein. We present an anomalous profunda femoris vein in a 62-year-old male cadaver whose vein was located in the popliteal fossa as a direct communicating channel between the popliteal vein and the femoral vein.

Keywords: adductor magnus, anomalous profunda femoris vein, deep femoral vein, popliteal vein, profunda femoris vein, venous anatomical variant

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INTRODUCTION

The venous drainage of the lower limb is of great importance as the veins are prone to the formation of thrombus due to accidents and long immobilisation of the limbs. In surgical procedures, the femoral vein may be ligated to prevent the ascent of thrombus. The deep veins of the foot and leg drain into the popliteal vein. The popliteal vein ascends to form the femoral vein; the latter receives the profunda femoris vein (deep femoral vein) as a tributary from the deep part of front of the thigh.[1,2] However, the deep femoral vein, the vein accompanying the profunda femoris artery, communicates with the popliteal vein or the lower end of the femoral vein.[3] The deep femoral vein, formed by the union of three or four perforating veins, normally drains into the femoral vein 8–9 cm below the inguinal ligament.[4-6] Sujatha et al reported a case of deep femoral vein replacing most of the femoral vein.[7] We describe a rare variation of the deep femoral vein.

CASE REPORT

The present case was observed during the routine dissection of a male cadaver, aged 62 years. The profunda femoris vein was present on the right side, and was unilateral. It was very thick and ran vertically upwards from the popliteal vein to

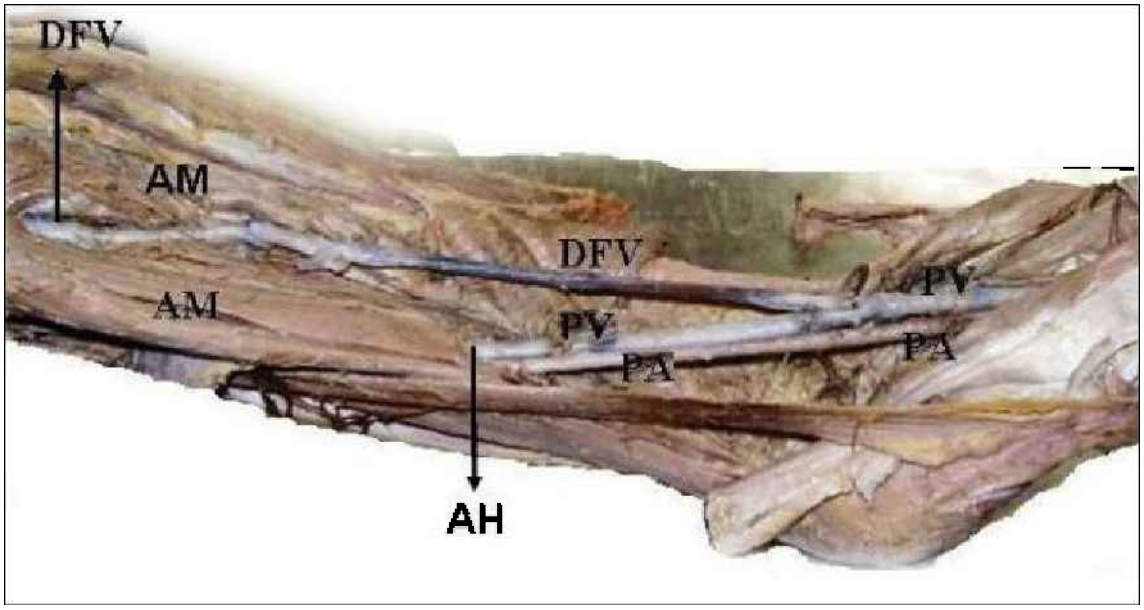

Fig. 1 Photograph of the popliteal fossa shows the popliteal vein (PV) and deep femoral vein (DFV). The popliteal artery (PA) is also shown. Note the DFV in the popliteal fossa, when traced proximally pierces the adductor magnus (AM) muscle. PV and PA continues as FV and FA at the adductor hiatus (AH).

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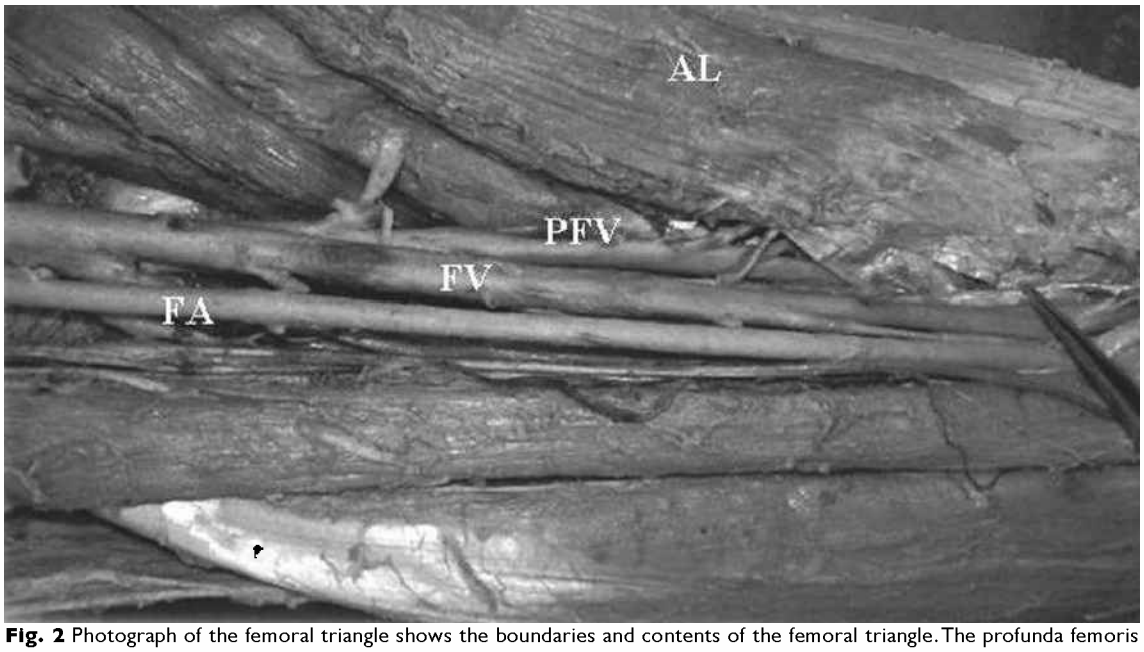

Fig. 2 Photograph of the femoral triangle shows the boundaries and contents of the femoral triangle. The profunda femoris vein (PFV) opens into the femoral vein (FV). The femoral artery (FA) lies laterally to the FV. The adductor longus (AL) muscle is marked.

the superior angle of the popliteal fossa. The popliteal vein received a tributary from the small saphenous vein, and terminated into two veins, namely the femoral vein and the profunda femoris vein. The femoral vein was normal and thin, and ascended into the femoral triangle through the adductor hiatus. The profunda femoris vein was thick, and was 18 cm long (Fig. 1) at the lower part of the back of thigh. When traced proximally, it pierced the adductor magnus at the superior angle of the popliteal fossa, lying deep to the hamstring muscles. It continued as profunda femoris vein, which was 10 cm long, accompanying the corresponding artery, and drained into the femoral vein in the femoral triangle (Fig. 2). The total length of the profunda femoris vein was 28 cm from its origin to termination. In the popliteal fossa, the profunda femoris vein was deep to the hamstring muscles and the sciatic nerve. It had three tributaries from the biceps femoris and vastus lateralis muscles; two medial tributaries from the adductor magnus muscle, and one superficial vein at its formation. The course and relations of the popliteal vein and that of the femoral vein were normal.

DISCUSSION

A rare variation of the deep femoral vein formed by the tibial vein and replacing the popliteal vein has previously been discussed in the literature.[7] Edwards and Robuck reported the communication of the deep femoral vein with the lower part of the femoral vein,[5] while Mavor and Galloway have found communication of the deep femoral vein with the popliteal vein.[3] According to Henry Gray, the profunda femoris vein, through its tributaries, connects distally with the popliteal vein, and proximally with the inferior gluteal veins.[1] In the present case, the profunda femoris vein directly communicated with the popliteal vein to the femoral vein; to our knowledge, this has not been reported in the recent literature. The present variation stresses the importance of cognisance and familiarity with the profunda femoris vein in surgical procedures, as the deep veins of the leg are common sites for thrombus formation.

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