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CASE REPORT

VARIATIONS IN THE COURSE AND TERMINATION OF GREAT SAPHENOUS VEIN: A CASE REPORT

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ABSTRACT: During routine dissection of lower limb in an embalmed male cadaver, variation in the course of great saphenous vein was seen on the right side. The embryological and clinical significance of the same were reviewed with the available literature.

KEYWORDS: Great Saphenaous Vein, Accessory Saphenaous Vein.

INTRODUCTION: Great saphenous vein is longest vein in the body. It commences from dorsum of foot, passes in front of medial malleolus straight up to posteromedial aspect of the knee joint, one hand breadth posterior to patella and then up to the fossa ovalis or saphenous opening (4 cm below and lateral to pubic tubercle) where it enters the femoral vein. Usually, the GSV ascends 2.5–3cm anterior to the tibial malleolus, crosses the distal third of the medial surface of the tibia obliquely to its medial border, then ascends a little behind the border of the knee.[1,2]

TRIBUTARIES: Just below the knee the great saphenous vein receives major tributaries, the posterior arch vein the anterior veins of the leg ascend diagonally across the skin and join either the great saphenous vein or posterior arch vein.

In the thigh, near its junction with femoral vein receives posteromedial and anterolateral veins, and external pudendal, inferior epigastric and circumflex iliac veins enter the great saphenous vein at the saphenous opening.

CASE REPORT: During routine dissection of right lower limb in an embalmed cadaver, the great saphenous vein found to be normally placed. There was another vein parallel to it but in a posterior plane going behind the medial malleolus, behind the knee and in the thigh it was found to be joining with femoral vein at the saphenofemoral junction. This was labelled as accessory saphenous vein.

Embryological Basis: Embryological source of this variation may be explained as an abnormal deviation from the normal process of embryonic development of vascular plexus. Blood vessels form in two ways; vasculogenesis where by vessels arise from blood islands and angiogenesis which entails sprouting from existing vessels. Angiogenesis is mediated by vascular endothelialial growth factor (VEGF) which stimulates the proliferation of endothelial cells at points where new vessels are to be formed. Maturation and modelling of the vasculature are regulated by other growth factor (PDGF) and transforming growth factor until the adult pattern is established. In this case angiogenesis in the posteromedial aspect of the thigh, leads to the formation of this additional vein.

Clinical Significance: It has been postulated that accessory saphenous vein is more prone to varicose changes. Histologic changes demonstrate that accessory saphenous veins have thinner walls with less

elastic fibres and muscle cells than adjacent segment of great saphenous vein. On USG examination, the wall of great saphenous vein is more echogenic than adjacent accessory saphenous veins. With this finding, the concept that all superficial veins in the lower extremity are equally suited for use as an arterial conduit is necessarily challenged. The clinical importance of the described great saphenous vein variation is of utmost significance for surgeons, cardiologists and vascular specialists.

DISCUSSION: Frequent anatomical variations in the venous system make it more inconstant when compared to the arterial system.[2,3]

The vein in its course may be highly variable both in its distance from the major bony landmarks and its tributaries. Variability has been observed in the reported incidence of tributaries, duplicated or accessory great saphenous vein.[4]

A fore mentioned anatomical facts including mode of termination of great saphenous vein can be of importance for surgeons planning intervention in this area. This vein can also be used as an arterial graft because of its easy accessibility. Therefore, a good understanding of the appearance of the great saphenous vein and its relationship to the major bony prominences is important.[5]

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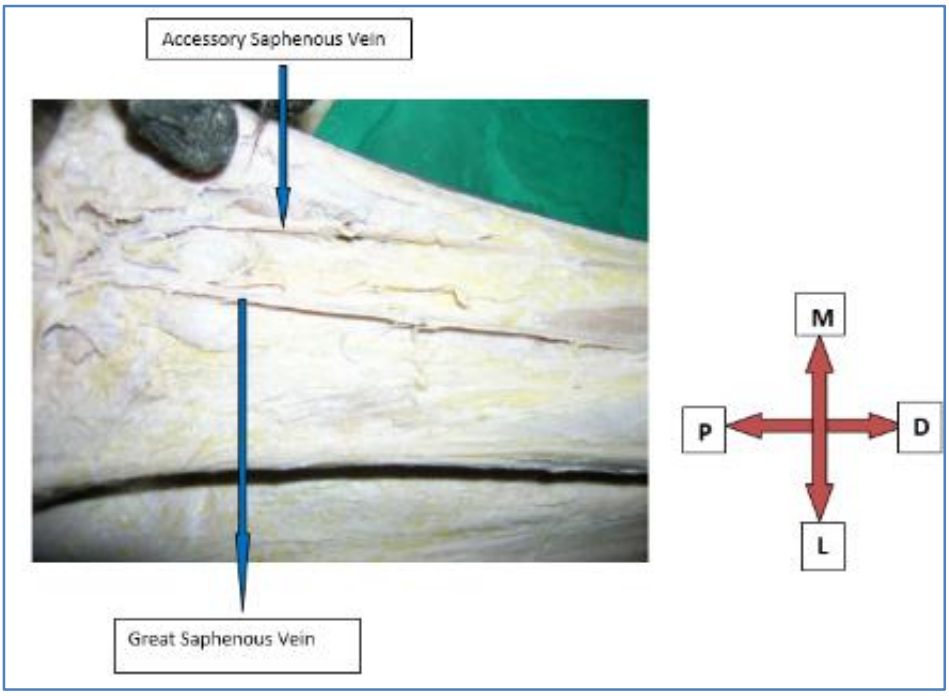

Fig. 1

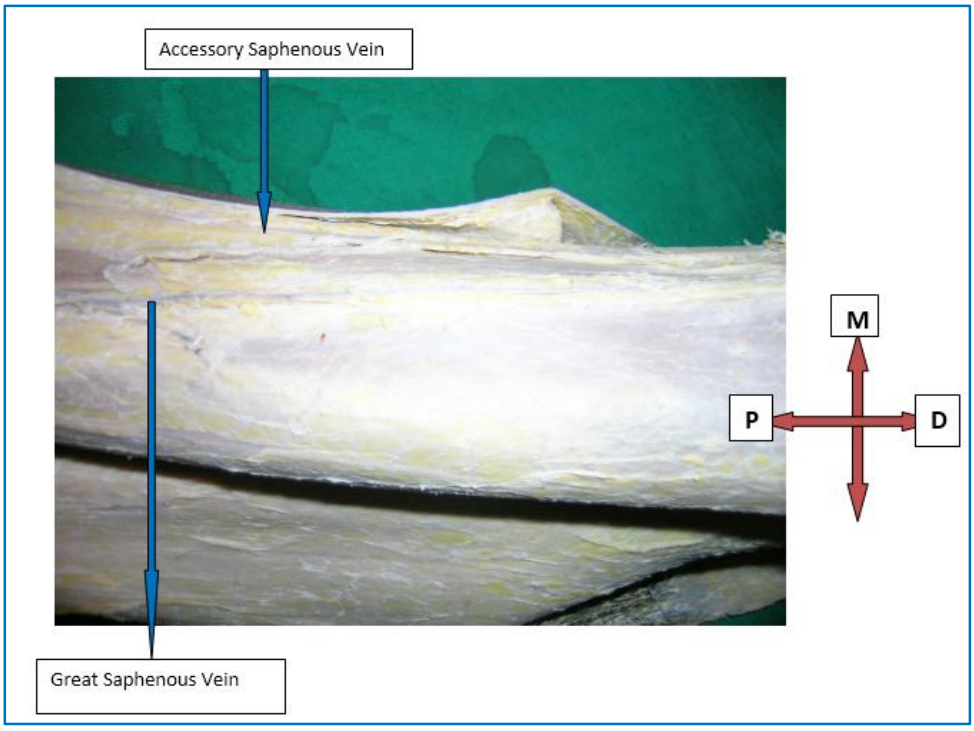

Fig. 2

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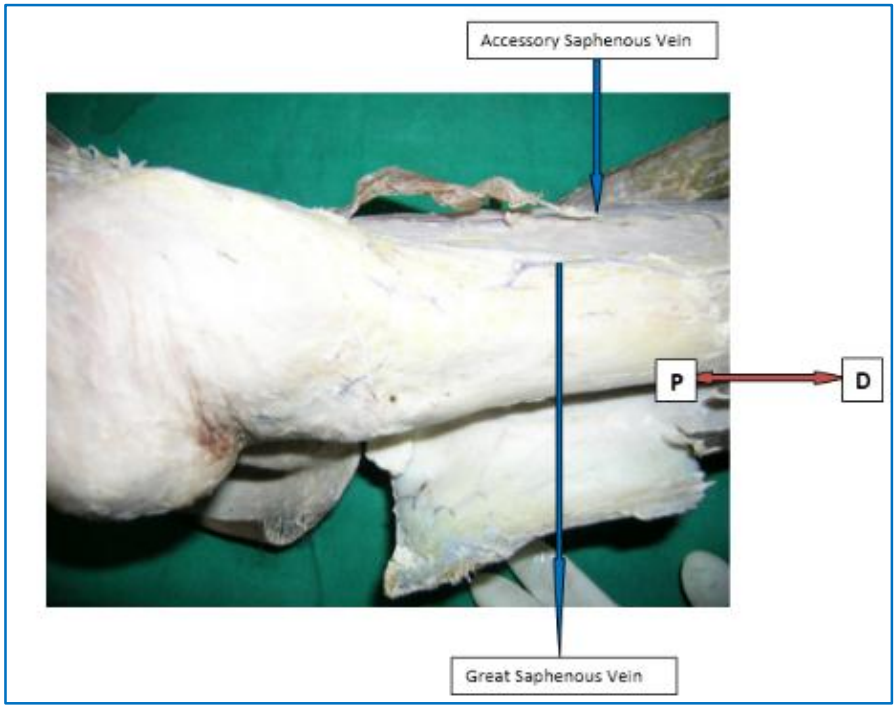

Fig. 3

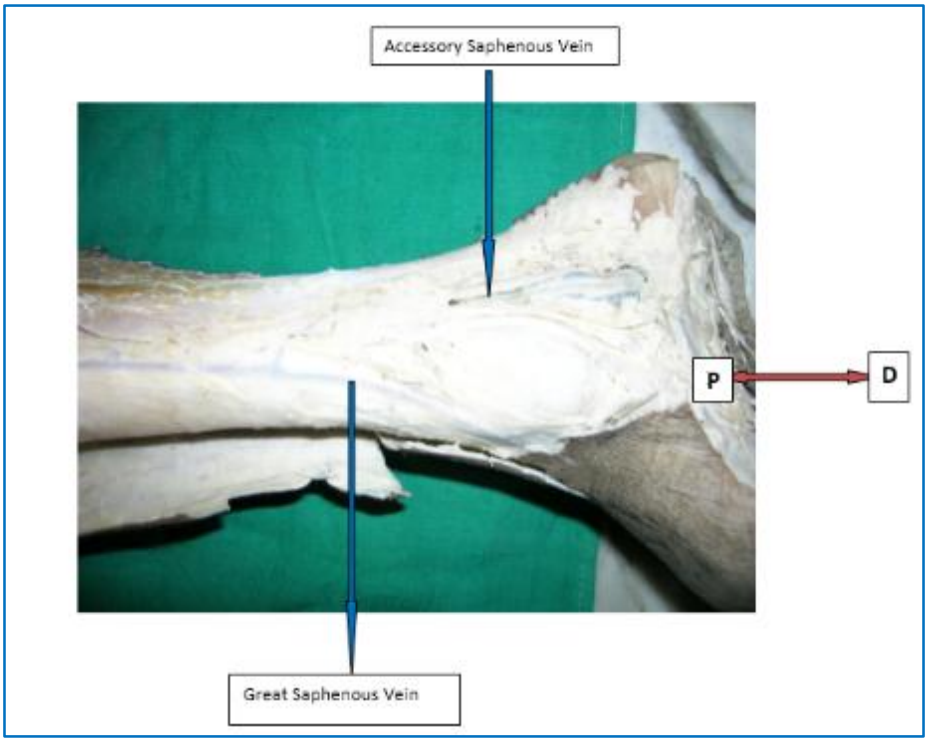

Fig. 4

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