

Superficial epigastric vein sparing in the saphenous-femoral crosssectomy or in the closures of the saphena magna



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AIM: Considerations based on years of experience, have led our school to spare the superior collateral vein: the superficial epigastric vein.

MATERIAL OF STUDY: 1536 selective epigastric-sparing crosssectomies performed with the support of Duplex US to detect the normal functioning of terminal saphenous-femoral junction and femoral valves.

RESULTS: The selective-haemodynamic sapheno-femoral junction ligation" (although this is not strictly done), saves from ligation (but only in the presence of functioning femoral and saphenous terminal valves) and division the termination of the superficial epigastric vein into the common femoral vein.

DISCUSSION: Superficial epigastric vein is a descending draining vessel, assisted by gravity (unlike the inferior collaterals). In case of obesity or portal hypertension, the spared superficial epigastric vein could drain into the common femoral vein keeping its anatomical and haemodynamic functions.

CONCLUSIONS: The resulting anterograde flow will provide some flow through the residual saphenous stump, preventing its thrombosis.

KEY WORDS: Duplex US, Ligation, Saphenous vein

Introduction

The great number of post-surgical recurrences, neo-crosses and cavernomas reported in scientific literature, led us to an intensive study about histology, topographic anatomy and, above all, haemodynamic models of the confluent veins of sapheno-femoral junction.

These results have induced our school to modify traditional crosssectomy into a more selective procedure taking into greater account the involved haemodynamic aspects.

Therefore, we considered the sapheno-femoral junction as an independent structure of the perforating vein, useful to the out-flow of two distinct anatomical districts: the lower limb and the inguinal-abdominal one ¹.

Material and Method

This method proposes to spare the superior collaterals: ligation and dissection of the great saphenous vein and its inferior collaterals (draining the lower limb district) are performed and superficial epigastric and superficial circumflex-iliac veins (draining the inguinal-abdominal district) are preserved (but only in the presence of duplex US assessed ² functioning of femoral and saphenous ter-

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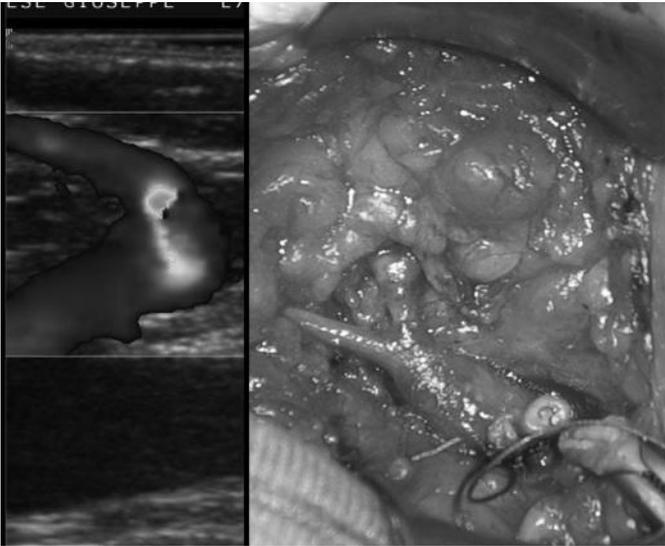


Fig. 1



Fig. 2

minal valves). This permits to obtain a physiological out-flow of the superior collateral veins (Fig. 1)

From a morphological point of view, deep veins have a propulsive function and a consequent histological conformation just like perforating veins, saphenous veins and superior collateral veins of great saphenous vein. These veins, in pathological conditions, show an increase in calibre (up to 10 times) and wall thickness due to compensatory hypertrophy of smooth muscle fibrocells, which usually characterizes the propulsive veins.

On the contrary, the superficial veins (apart from saphenous veins, epigastric superficial vein and superficial circumflex-iliac vein) show an almost total absence of muscular and elastic cells.

Therefore, when they become varicose, they have the typical characteristics of “*meiopragia*”, which is for a functional and organic condition of failure and vulnerability.

Results

Our experience is based on a large number of anatomic dissections on corpses in order to study the venous circulation of lower limbs and, above-all, the sapheno-femoral junction and its collateral veins (Fig. 2).

In our surgical and Duplex US experience, we found that superficial epigastric in 274 patients (17.83% of cases) is independent from great saphenous vein and directly anastomoses femoral vein preceding the saphenic out-flow.

Discussion and Comments

The first anatomical studies on these veins were done by Leonardo Da Vinci ³, who was the first to understand the

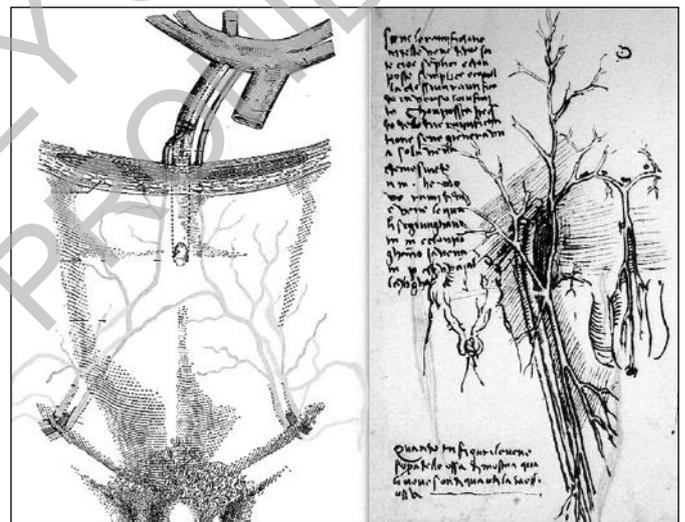


Fig. 3

importance, of the superior collateral veins of the sapheno-femoral junction: the superficial circumflex-iliac vein which, passing along iliac crest, drains blood from trochanteric region veins and part of abdominal wall veins and is often connected with the superficial epigastric vein. This vein originates from the anastomosis of paraumbilical venous-net (flowing into the portal vein trough Burows' vein⁴) with the descending branches of the inferior epigastric vein, connected to the abdominal subcutaneous venous net (Fig. 3).

Thus, Epigastric vein is a real descending out-flow duct which communicates with portal vein system: in case of obesity or portal hypertension (whatever the causes are) the venous circulation may invert its direction and allow

part of hepatic blood to flow into the superficial vein net ⁵.

From the above, it follows that hepatic venous blood may reach the inferior vena Cava flowing through the superficial epigastric vein at first and, then, to the femoral and iliac vein: this is the dramatically key role of the superficial epigastric vein ⁶.

Conclusions

Over twenty years of these observations, led us to carry-out 1536 selective crosssectomies, sparing the superficial epigastric vein with its femoral junction.

This allows a wash out of the residual stump, preventing its thrombosis ^{7,8}.

This procedure avoid developing of the recurrent veins in varicose primary patients.

Riassunto

Considerazioni basate su anni di esperienza, hanno portato la nostra scuola a preservare la vena collaterale superiore: la vena epigastrica superficiale. Questa rappresenta un vaso discendente che drena con l'ausilio della gravità (a differenza dei collaterali inferiori). In caso di obesità o ipertensione portale, la vena epigastrica superficiale risparmiata può defluire nella vena femorale comune mantenendo le sue funzioni anatomiche e emodinamiche. Questo concetto ci ha portato, ma solo in presenza delle valvole terminale femorale e safenica competen-

ti, ad un "legatura selettiva emodinamica della giunzione safeno-femorale" (anche se questo non viene fatto in modo rigido e sistematico), che evita la legatura dello sbocco della vena epigastrica superficiale nella vena femorale comune. Il flusso anterogrado risultante fornisce un certo flusso attraverso il moncone di safena residuo, impedendone la trombosi.

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