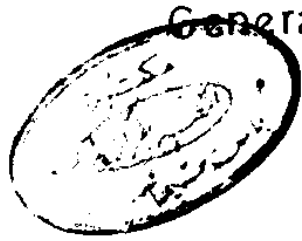
EVALUATION OF DIFFERENT SURGICAL METHODS FOR TREATMENT OF VARICOSE VEINS IN THE LOWER LIMB

Thesis

Submitted in Partial Fulfillment of
the master degree in
General Surgery .



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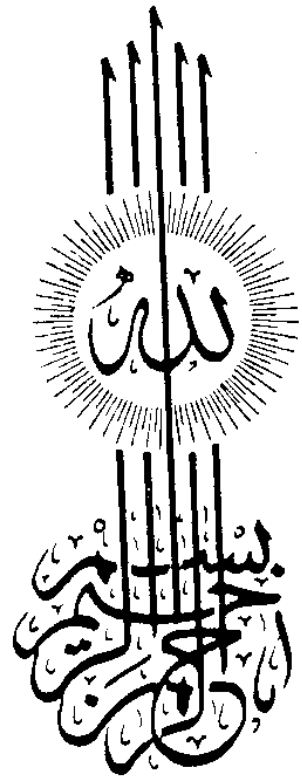

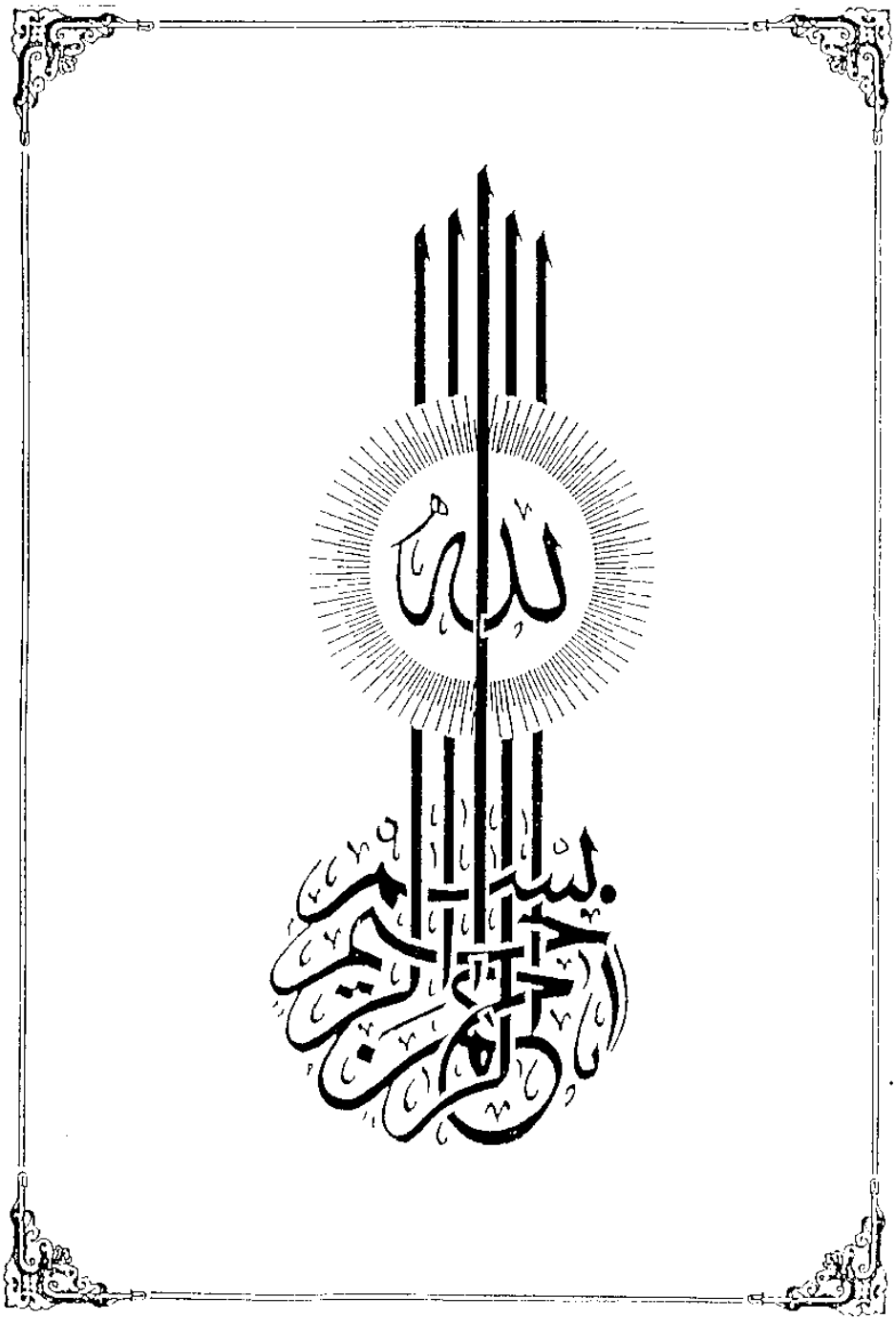

To Soul

My Father

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Abdalla M. Attia

CONTENTS

Section I

Review of Litrature

Surgical anatomy of the veins of the lower limbs

The veins which drain the lower limb may be devided into three main groups :-

I Superficial veins .

II Deep veins .

III Perforating veins .

I The superficial veins of the lower limb :-

These are the long and short saphenous veins and their tributaries . Which lie in the fat between the skin and the deep fascia . Being closer to the latter. the middle coat of these vessels is much thicker than that of other veins . Consisting mostly of smooth muscle with some elastic tissue . (Plessis 1975) .

The long saphenous vein :- (Fig. 1)

Is the longest vein in the body . It begins as the medial marginal vein of the foot and ends in the femoral vein about 3 cm. below the inguinal ligament . it ascends about 2.5 to 3 cm. in front of the medial malleolus and runs upwards postero-medial to the medial

Fig. 1 The long saphenous vein and its tributaries .

condyles of the tibia and the femur and along the medial side of the thigh to reach the saphenous opening where it penetrates the cribriform fascia to join the femoral vein. the saphenous opening is about 2.5 to 3.5 cm below and lateral to the pubic tubercle (Williams and Warwick,1980) . The relation of the long saphenous vein to the deep fascia is important surgically . In the lower two-thirds of the leg and in the upper two-thirds of the thigh the vein lies closely on the deep fascia, while at the knee , In 50% of

cases it become more superficial and may be subcuticular (Dodd and Cockett, 1956) .

* Tributatrres of the long saphenous vein :-

- At the ankle-it drains the sole of the foot through the medial marginal veins .

- In the leg . There is a constant small connection between it and the upper most three internal ankle perforating veins and their may be one or two small tributaries from the anterior aspect of the leg joining it at its lower third . There is a free anastomosis between tributaries of the long and short saphenous veins in the lower third of the leg .

Below the knee the long saphenous vein receives 3 large branches :-

1- Calf branch-draining the posterior part of the calf.

2- An anterior vein of the leg-runs up from the dorsum of the foot . Ankle and anterior surface of the leg to join the long saphenous vein below the knee .

3- The posterior-arch vein -

Which is large and constant, it connects the three internal (medial) ankle perforating veins and posses up

the medial surface of the leg to join the long saphenous vein at the inner aspect of the knee . This vein is also known by Leonardo davinci vein . (Dodd and Cockett,1956)

- In the thigh - several small tributaries are received but the largest are the postero-medial and antero-lateral veins joining the long saphenous close to its termination .

- The postero-medial vein : Is formed in part by asmall vein which arises from the short saphenous vein just befor it enters the popliteal vein in the popliteal fossa and by other tributaries from the popliteal area . This vein runs up the posterior aspect of the thigh under the deep fascia .

- The antero-lateral vein : drains the antero-lateral surface of the thigh . It courses diagonally upwards from the outer side of the leg-knee and thigh to join the long saphenous vein at its termination . It lies in the superficial layer of subcutaneous tissue .

- At the saphenous opening :- There are several tributaries which join the long saphenous vein at its termination :-

1- The superficial and deep external pudendal veins :-

Which drains the perineum, upper inner aspect of the thigh and the external genitalia .

2- The superficial epigastric vein :-

Draining the centeral area of the lower part of the abdominal wall . It connects with its fellow on the opp-site side across the midline and with the axillary vein of the same side (thoraco-epigastric vein) .

It joins the anterior aspect of the termination of the long saphenous vein .

3- The superficial circumflex iliac vein :-

Drains the superficial tissues of the upper and outer aspects of the thigh and the lower and outer quadrant of the abdominal wall . It joins the lateral or anterior as-pect of the termination of the long saphenous vein (Dodd and Cockett, 1956) .

The long saphenous vein may enter the femoral vein 2.5 cm or more distal to its usual termination . The tri-butaries it usually receives may go directly into the

femoral vein .This arrangement may be atrap for the unwary, so that the femoral vein is ligated in error during trendelenburg operation (Bevan et.al., 1956) .

The relationship between saphenous nerve and long saphenous vein :-

The saphenous nerve is closely related to the long saphenous vein and may be injured during operations on the vein causing unpleasant anaesthia . Hypoaesthia, or sometimes hyperaesthia . This nerve must be exposed and protected during the operation . This nerve lies posterior to the vein at the knee and remains so down to the ankle in 40% of cases . While in the 60% of cases it crosses the vein at a variable level in the leg to lie anterior to the vein at the ankle (Plessis, 1975) .

* The short saphenous vein :-

Begins by the fusion of a number of small veins below and behind the lateral malleolus . Where it is related to the large sural nerve which lies just lateral to the vein in the lower third of the leg . The vein then runs along the outer edge of the Achilles tendon then passes

(Fig. 2.) The short saphenous vein and its tributaries .

to the midline where it continues until the middle of the poplileal space . In the popliteal fossa the vein dips sharply to end in the popliteal vein . It may run non-stop through the popliteal space and end in the deep veins in the lower thigh, or join the long saphenous in the upper third of the thigh, or even enter the long saphenous just below the knee joint , (Plessis, 1975) .

In 90% of cases the short saphenous vein perforates the investing fascia of the leg at a variable distance below the popliteal fossa and runs a subfascial course to the popliteal fossa . If in such cases the vein is merely ligated in its subcutaneous position.recurrent varicosities will occur because the incompetent upper segment will be left intact, so exploration of the popliteal space will avoid this error . (Moosman and Hart well ., 1964).

The sural nerve is usually lateral to the short saphenous vein . But in about 20% of cases it is medial to the vein . The nerve often crosses from one side of the vein to the other (Plessis ,1975) .

The superficial lymphatics run along with the short and long saphenous veins . Hence . Surgical removal of these two systems would appear to be a cause of disruption of the lymphatic channels (Bellan et al ., 1977) .

II The deep veins of the lower limb :-

These accompany the arteries and their branches,They possess numerous valves .