CHRONIC LEG ULCERS

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SUBMITTED IN PARTIAL FULLFILMENT FOR THE MASTER DEGREE IN GENERAL SURGERY

BY

NASSER NASSIEF MESSIHA

M. B. B. ch (AIN SHAMS)

SUPERVISED BY

PROF. DR. REFAAT KAMEL

PROF OF SURGERY

AIN SHAMS UNIVERSITY

FACULTY OF MEDICINE

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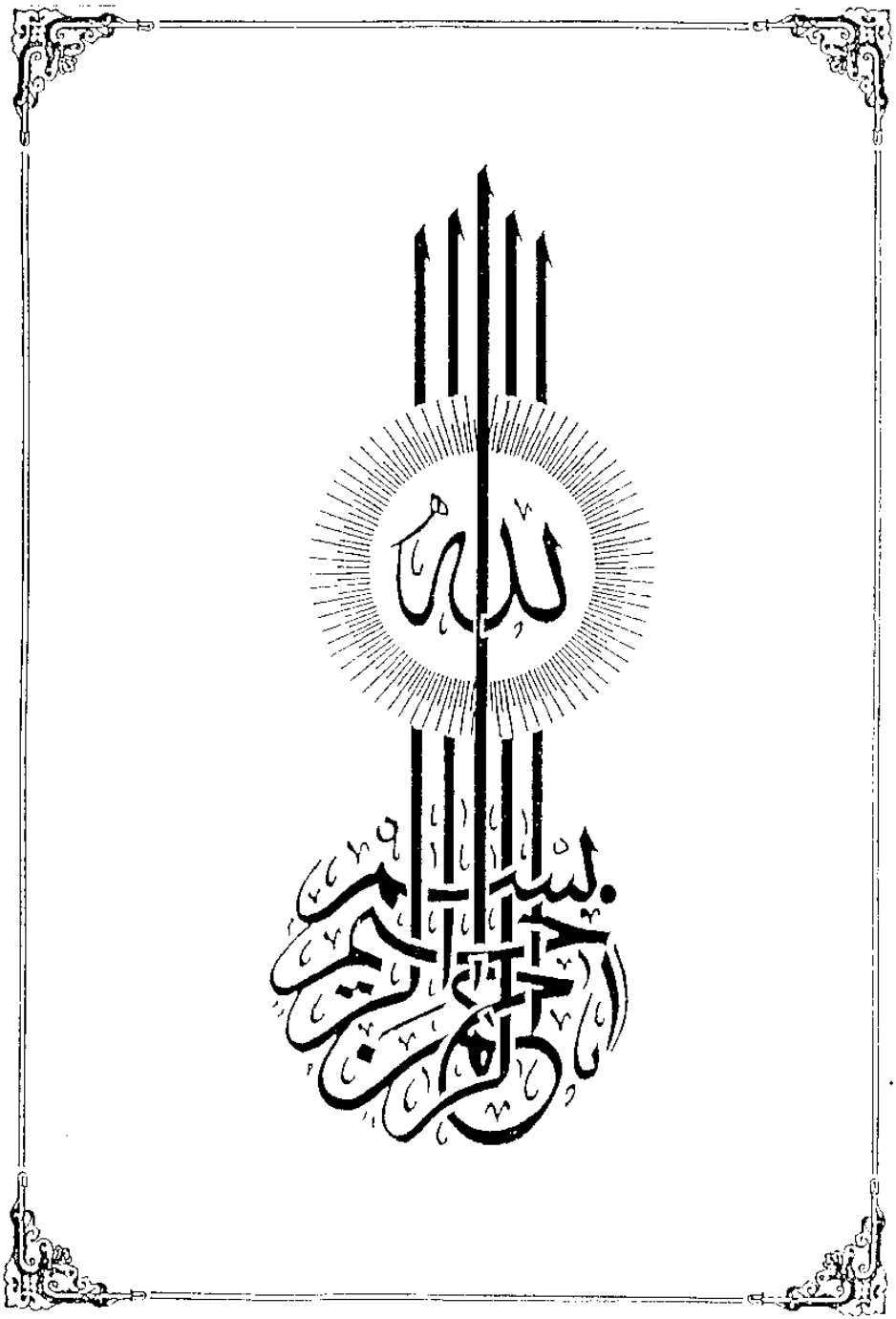

C O N T E N T S

REVIEW OF LITERATURE

(1): AIM OF THE WORK

Ulceration of the lower extremities is common in surgical practice. They present as diagnostic and therapeutic problems. The actiology of the ulcers varies. It may be due to arterial insufficency or venous stasis. Infection plays a role is these ulcers, which may be fungal or bacterial. Trauma, Tumors and underlaying metabolic disorders may be one of the Causes.

Gonin, (1963) stated that 70 % of his patients has associated vascular conditions such as varicose veins or a history of thrombophelbitis.

Lofgren, (1965) described stasis ulcer as a distressing and disabling complication of chronic venous insufficiency.

Tayler and cotton, (1973) described stasis ulcer as an open defect in the skin and subcutanus tissues brought on by venous congestion, Synonyms are varicose, postphlebitic, indolent, Gravitational venous and simply leg ulcer.

Roenigk and Young, (1975) described stasis ulcer as occulusive disease of larg and medium siged veins and is the ceuse of 90 % of chronic leg ulcers.

We are geing to discuss the different aetislogical factors, and the pathology of chroniclleg ulcers.

Invistigations of cases will be done to reach diagnosis.

Different methods of treatment will be disscussed in this wark.

The Venous System of the Lower Limb

The lower limb has three anatomically and functionally distinguishable sets of veins :-

1. Subcutaneous (Superficial). These have relatively thick, masoular walls. The major trunks run in tunnels, created by a condensation of the superficial fascia and lined by arealar tissue. Each limb has two major superficial systems of veins that intercommunicate freely with each other as well as with the deep veins. Each superficial system ends by penetrating the deep fuscia to enter a major deep vein.

2. Deep (intermuscular, intramuscular) These have thin, scantily muscled walls. The intermuscular veins accompany named arteries, taking the form of a plesous below the level of the knee, and forming a single major vein toward the root of the limb.

3. Perforating (Communicating) veins, These, too, are thin walled. They passe through the deep fascia to link the superficial and deep sets of veins.

The great saphenous vein begins at a point mid way between the medial malleolus and the tendon of the

tibialis anterior muscle, and ends by passing through as opening in the deep fascia (fossa avalis) to enter the femoral vein at a fairly constant site 3 cm. Lateral to, and 3 cm below, the pubic tubercle. The trunk of the great saphenous vein is sometimes reduplicated (Particulary in the lawer thigh), and there may be a double entry into the femoral vein. In the last 5cm of its course the great saphenous vein receives a variable number of subcutaneous tributaries : pudendal, epigastric, circumpflex iliac, and medial and lateral femoral.

In the leg, the great saphenous vein is clasely accompanied by the saphenous nerve. IJust below the knee it usually receives a major tributary (Sometimes called the pasterior arch vein) this callects blood from a complex of veins overlying the posteromedial aspect of the calf, and has multiple communications with the deep system. Both below and above the knee the great Saphenous vein receives tributaries that run upward and medially from the sonall saphenous vein. Throughout its course the great saphenous vein is closely accompanied by lymphatic trunks.

Below the knee, numerous perforatint veins join tributaries of the great saphanous vein to the deep veins

of the leg. The most important from the surgical point of veiw is the medial set, which joins the posterior arch complex of veins to the venae comitantes of the posterior tibial artery, and the antromedial set running close to the periosteum of the tibia. An anterolateral set enters the anterior tibial vein. In the thigh, a perforating vein often joins the great saphenous vein (or a tributary) to the femoral vein (or its subsartorial tributary).

The small saphenous vein begins at a point miduway between the Achilles tendon and the posterior border of the lateral malleolus. It passes almost vertically to the middle of the popliteal fossa, accompanied by the sural nerve and by lymphatics. It penetrates the deep fascia at about the middle of the leg. It usually enters the deep system (the papliteal vein) in the middle of the popliteal fossa, but the precise level is variable. A posterolateral set of perforating veins joins its tributaries to the peroneal vein, while less constant perforating veins enter calf muscle veins.

At the root of the lawer limb there are alternative routes for venous drainage from the skin, by way of the internal pudendal vein (Scrotum, Vulva) and through

the gluteal veins (thigh below the gluteal crease) ultimately these drain into the internal iliac vein.

The popliteal vein is formed from the plexiform venae comitantes of the three main branches of the popliteal artery and then is joined by the veins draing the gastrocnemus and soleus muscles to constitute a single (or sometimes double) Vessel behind the artery. The gastrocnemic l and soleal veins are so large and toruous that the latter have been termed (Soleal venous sinuses).

The peroneal veins are quite small in the distal thrid of the leg and run deep to the flexor hallucis origin from the fibula in clase relation to the interosseus membrane. In this region they recive a fairly constant large lateral perforating vein which as it winds round the fibula recieves a tributary from the soleus muscles. In the upper half of the leg the peroneal veins emerge from under the flexor hallucis muscle belly to lie in the posterior compartment and here they recieve several large lax tributaries from the lateral aspect at the soleus muscle which repidly convert them into large veins befor they unite with posterior tibial veins in the formation of politeal vein.

There is one large constant external perforating vein, this vein is called lateral or external ankle perforator. As it perforates the deep fascia, it recieves a tributary from the lower part of the soleus muscle and winds round the fibular to joints the peroneal vein. The vessel is also significant for the point of vein of ulceration of the laer $\frac{1}{3}$ of the leg.

There is also a midcalf perforatint vein draining directly into the soleus sinusoids in about 25 % of people. At the groin the femoral vein lies a little behind, as well as medial to, the Corresponding artery. It receives its large deep femoral tributories just below the point of entry of great saphenous vein.

Most veins posses valves : two fail cusps attached to a point of thickening of the vein wall (the valve ring). There is a dilatation of the vein wall immediately downstream from the valve ring (the valve sinus).

There are general rules about the frequency distribtion of valves, and about the direction in which they face.

They tend to be located immediatly distal to a point of entry of a major tributary, and the orificies of the

major tributaries themselves usually bear valves. In the limbs, volves usually directs blood flow from distal to proximal, and from superficial to deep.
Notable exceptions are the perforating veins of the feet in whibh flow is from deep to superficial valves occur with greater frequency distally in a lims than proximally.

Minute venous drainage of skin of lawer limb :

There is a capillary venous plexus immediatly below the epidermis which sends tufts of capillaries into the interpapillary spaces.

This subpapillary venous plexus is drained by a number of small veins into larger veins which lie deep in the subcutenous tissue.

In the dermis these collecting veins anastomose freely, but as they pass through the layer of subcutaneous fat, they recieve a small number of veins, each one of which drains its own area of fatty subcutaneous tissues and is an end vein (that is to say it does not anastomose with other venules draining adjecent fat labules). Thus if one of the veins is thrombosed or if flow from it is hindered by local venous pressure (hypertension), the result can only be swelling and eventual necrosis of the labule of fat drained by it. The effect of local rise

of venous pressure on the subpapillary venous plexus and vessels in the dermis is to cause dilation of the plexus over the affected area and dilation of the capillary tufts.

It is not intended to be accurate representation in the vessels concerned but simply to show the differences between the venous trainage of the two capillary beds. The superficial layer is supplied by a capillary bed draining into a horizontal, reticular venous plexus which is inturn drained by vertical veins connecting with the main veins running deep in the subcutaneous fat and in the plane of the deep fascia.

The capillary bed supplying the deeper layers of the dermis and fat do not drain into a plexus but into labular veins which run directly into vertical veins.

The subepidermal venous plexus and its capillary bed acts as an ascape volve for generall rises in the venous pressure in the skin and a diffuser of local ones by distension of the plexus and proliferation of the capillary bed.

The labular vascular supply of the deeper layers has not this ability to expaned and if the venous pressure rises severely in this field due to spasm or

thrombosis circulation ceases and necrosis occurs (Dodd and Cockett, 1976).

The lymphatic drainage of the lower limbs :

In each limb the rule applies that superficial lymphatics follous veins, while deep lymphatics follows arterics. The lymph is taken to lymph nodes lying in the groin.

The superficial lymphatics of the lower limb accompany the great and small saphenous veins. This is because particulary all the superficial tissues and skin of the lower limb drain to the groin along the route of the great saphenous vein, only a very small area of skin and subcutaneous tissues over the heal drains only along the small saphenous vein to the lymphnnodes in the popliteal fassa.

The superficial lymphatics along the course of the great saphenous vein drain into nodes lying is a vertical chain along the termination of the vein.

The remaining nodes of the groin lying laterally and medially to the saphenous opening recieves lymph from the lateral side of the trunk and from the back below the waist and from the anterior abdominal wall below umblicus and perineum.