The Value Of Bacteriological Examination Of Infected Diabetic Foot In The Management Of Groin Vascular Procedures

Thesis

Submitted for the partial fulfillment of master degree in general surgery

By

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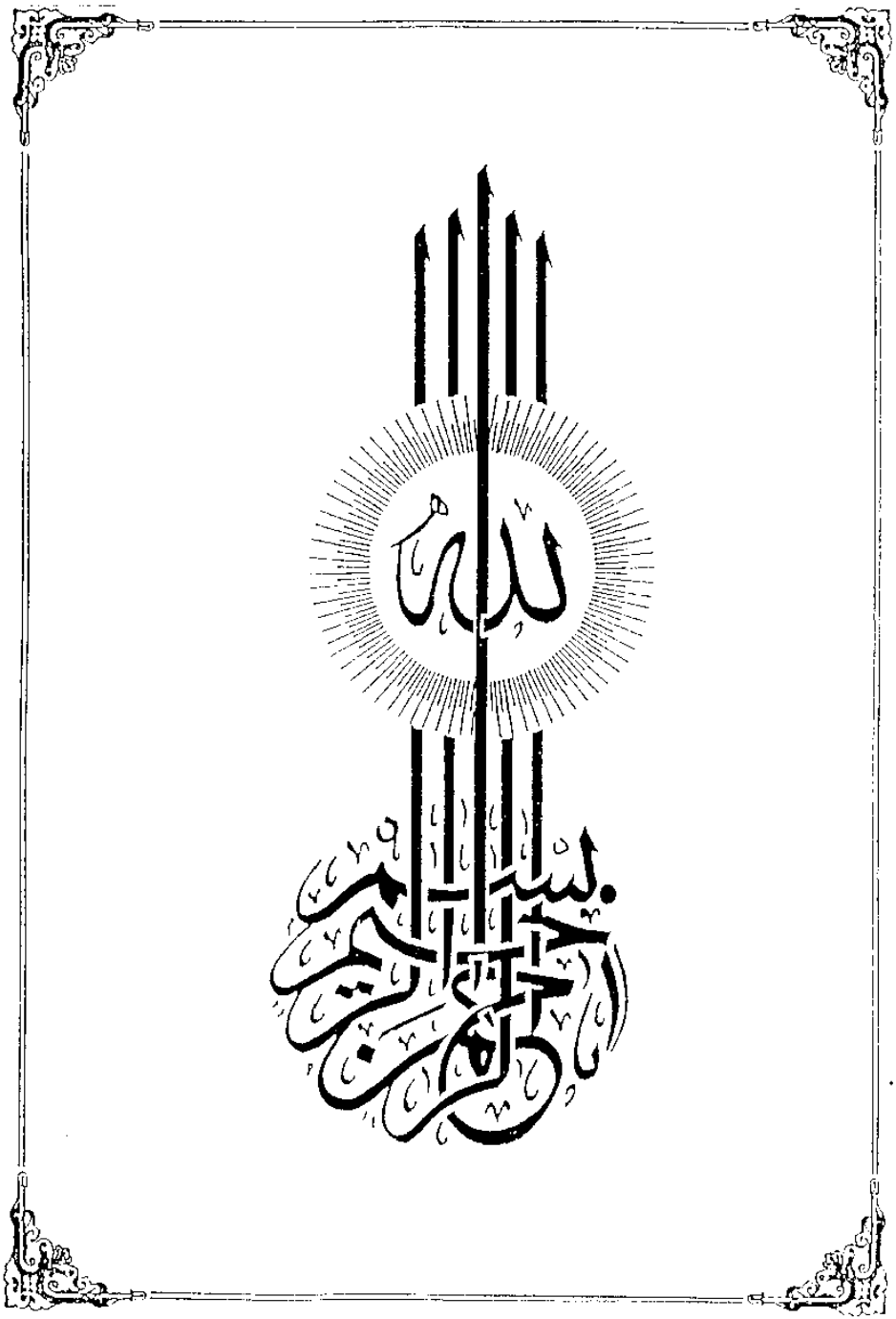

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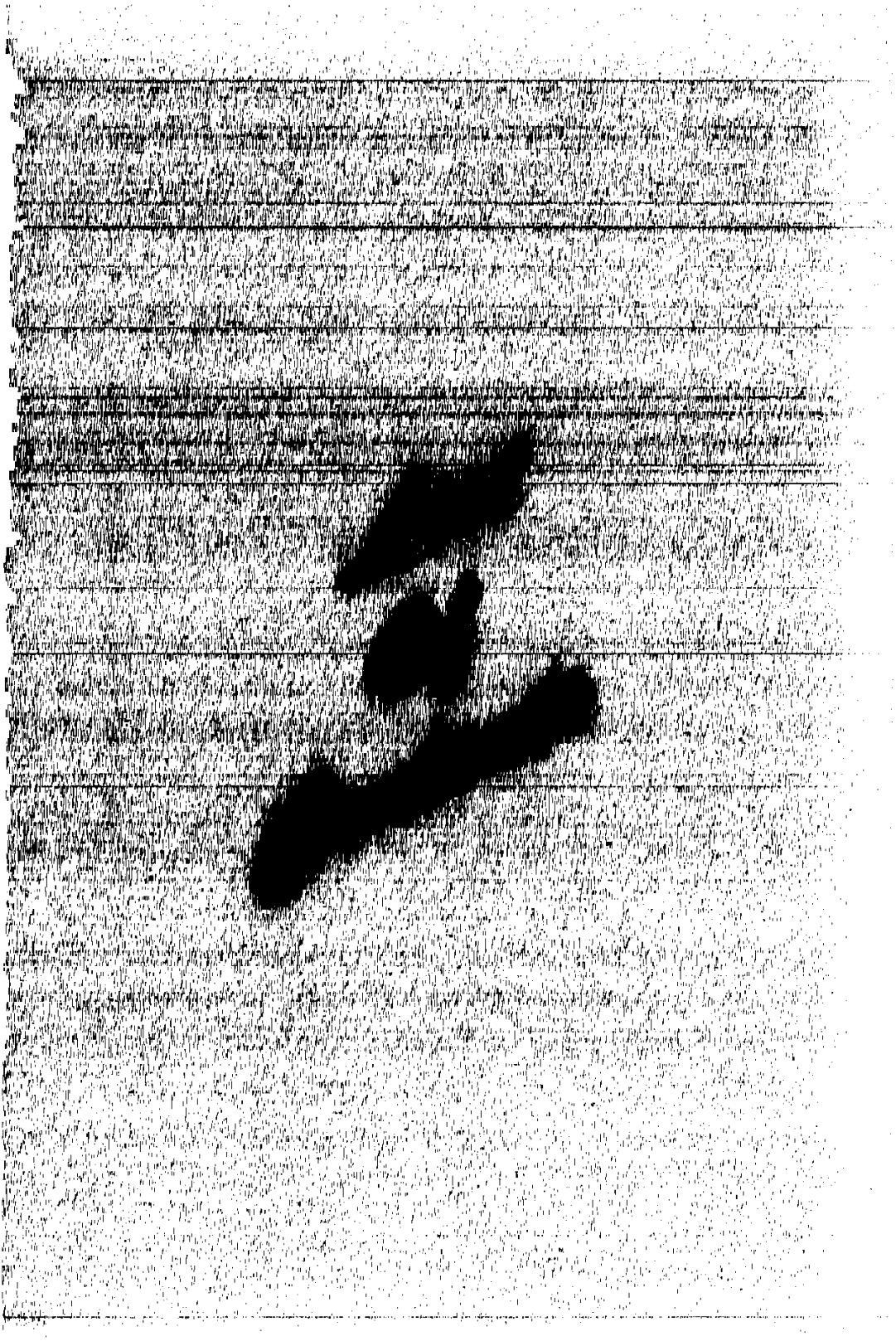
The Candidate



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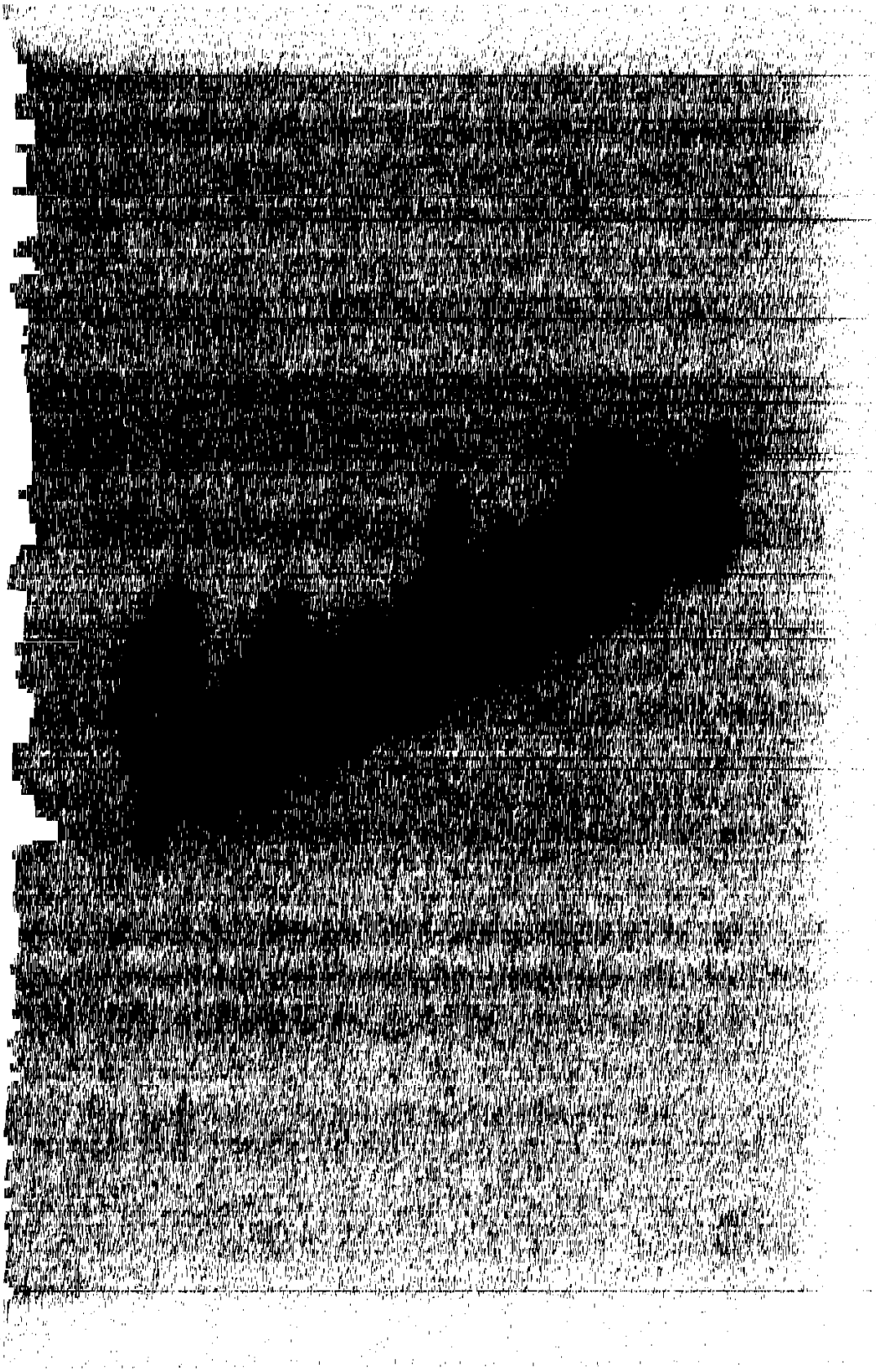

CHAPTER I

INTRODUCTION

Diabetes mellitus is one of the commonest diseases that affect popularity, it induces multi-organ and multi-system complications e.g. C.V.S., G.I.T., ... etc. One of the most common complication of diabetes is the foot problems which is the result of three interplaying pathogenic factors that are: Ischaemia, neuropathy and infection ***(Ruderman, 1984).***

About 25% of diabetics will eventually consult a clinician, surgeon or pediatrist for diabetes related problems of the lower limb and because diabetics are 17 times more likely to develop gangrene, it is not surprising that 66% of the major amputations performed in the United States are performed on diabetics which are accounted to be between 20000 to 30000 amputations annually ***(West, 1978).***

Proper management of diabetic ischaemic ulcers or toe gangrene or amputation stumps which may be infected indicating critical limb ischaemia, usually necessitates an urgent vascular reconstructive surgery e.g.: endarterectomy or bypass operation to increase the distal blood flow and consequently the immunity and healing, and to preserve the limb i.e.: limb salvage. ***(Taylor, 1980).***

The presence of persistent infection and sepsis in the diabetic foot, predisposes to a corresponding inguinal lymphadenopathy with possible microbiological contamination of these lymph nodes ***(Sapico, 1980).***

During the vascular reconstructive surgery in diabetic ischaemic patients which usually uses the common femoral artery as an inflow for the bypass operation, as the lesion in diabetes usually affect the distal femoral artery or tibial arteries ***(Ferrier, 1967).*** *So we have to dissect the groin and cutting through the inguinal lymph nodes. This carries a great risk of contaminating the field by the possible bacterial content*

of these lymph nodes.

So, our study is to examine the degree of contamination of the groin lymph nodes, and to correlate between the microorganisms which is responsible for the foot sepsis and those responsible for the lymph node contamination if present.

This will be helpful in predicting the micro-organism and consequently the nature of the antibiotic to be used for preoperative prophylaxis against spreading of the infection from the groin lymph node to the surrounding and consequently may endanger the outcome of the vascular reconstructive operation, through the bacteriological examination of the infected diabetic foot.

CHAPTER II

ANATOMY OF THE LYMPHATIC SYSTEM OF THE LOWER LIMB

The lymphatic system consists of lymph vessels (lymphatics) and lymphoid tissues which are formed from lymphocytes mainly and associated cells ***(Alexandre, 1968).***

General consideration

Lymphatic capillaries form plexuses in tissue spaces which have much wider meshes than those of adjacent blood capillaries. They often begin as dilated lymphatics with closed ends, the calibres are larger and cross sectional appearance are less regular than those of blood capillaries ***(Leak, 1984).***

Their endothelium is generally permeable to much larger molecules ***(Allen, 1967).***

Lymphatic capillaries join into larger vessels which pass to local or sometimes more remote lymph nodes, these are arranged largely in regional groups, each has its region of drainage. Nodes within a group are often interconnected ***(Kubik, 1974).***

The superficial lymphatics of the skin adjoin the deep fascia and accompany superficial veins, but some run independently; they have few connections with deep lymphatics ***(Bray, 1992).***

Deep lymphatic trunks usually accompany the arteries or veins, almost all reaching either the thoracic duct or the right lymphatic duct which join the left and right brachiocephalic veins respectively at the root of the neck, it's also reported that additional entry points into the venous system through the inferior vena cava, renal, suprarenal, iliac and azygos veins, most lymphatic vessels anastomose freely and across the

midline ***(Bolz, 1990).***

Lymph nodes are small, oval or reinform bodies, 0.1-2.5cm long, lying in the course of the lymphatic vessels. Each usually has a slight indentation on one side, the hilum, through which blood vessels enter and leave; an efferent lymphatic vessel also emerges. Several afferent lymphatic vessels enter peripherally ***(Fraley and Weiss, 1961).***

Lymphatic drainage of the lower limb

Most lymph from the lower limb traverses a large intermediary inguinal group of nodes; some may first traverse a few more peripheral intermediary nodes, however, these are less numerous in the lower limb than elsewhere ***(Brace, 1993).***

The inguinal lymph nodes are classified into superficial group which is superficial to the deep fassia, and other deep group which is deep to the deep fascia of the lower limb: