BLEPHARITIS DUE TO FUNGUS INFECTION

THESIS

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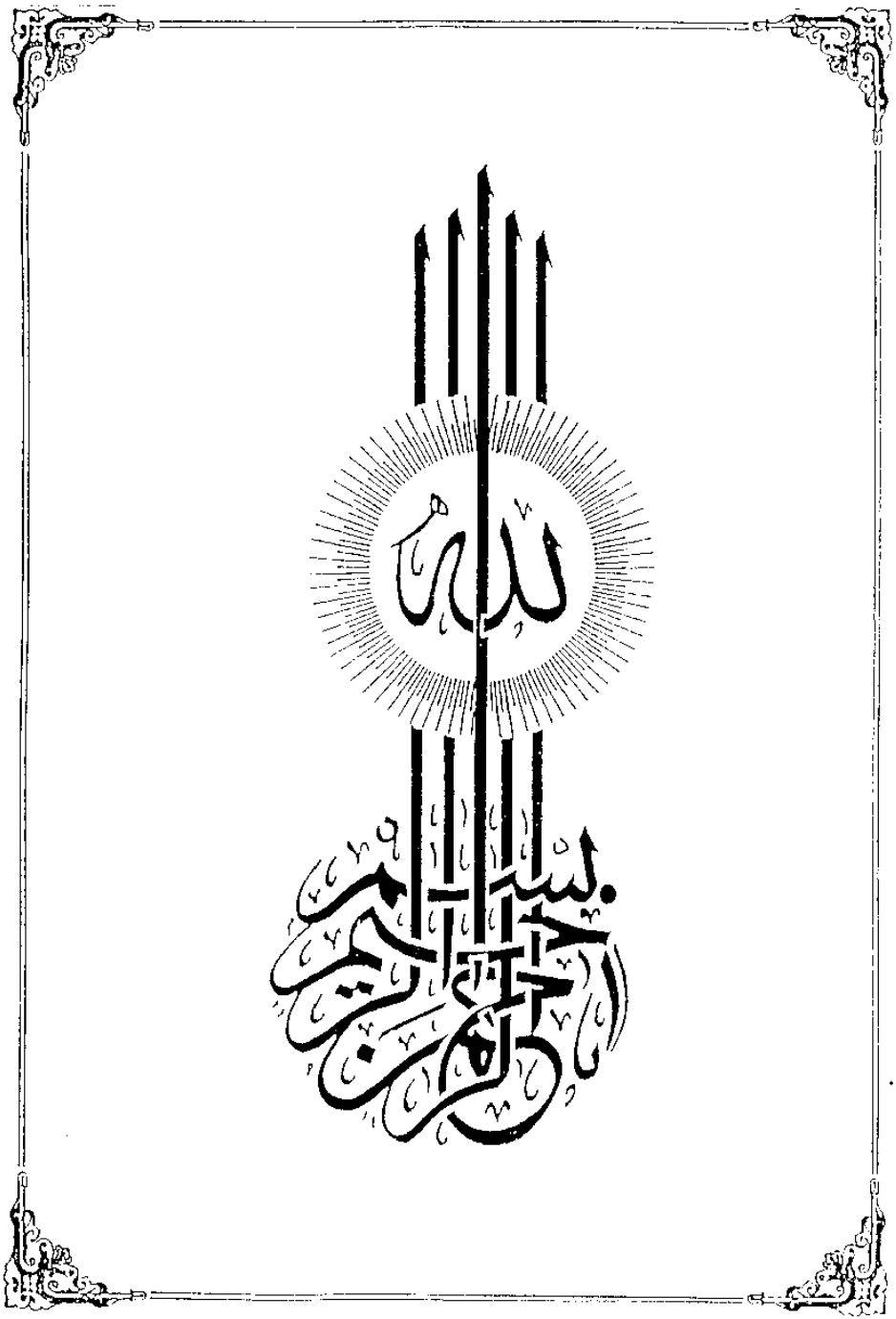

CONTENTS

THE LID MARGIN

It is the free border of the eye lid which is about 25 - 30 m.m long, and 2 m.m broad, it has a rounded anterior edge and a sharp posterior edge. It is considered as a transition zone between the skin of the eye lid and the palpebral conjunctiva, it has the characters of a mucocutaneous junction.

The lacrimal papilla lies at the junction of the lateral 5/6 with the medial 1/6 of the lid margin, it contains the lacrimal punctum.

The lateral 5/6 of the lid margin is called the ciliary part containing the eye lashs in front, and the orificies of Meibomian glands behind just in front of the sharp posterior edge of the lid margin.

The main anatomical and physiological piculurities of the lid margin are to maintain its protective action for the globe, the cilia have a very low threshold of

excitation, reflex blinking results from touching a cilium.

The lid margin is normally protected from infection by the effect of lysozyme of the tears, and the secreations of the conjunctive and Meibomian glands. If any of these normal Anatomical and physiological mechanisms is altered, the lid margin will be exposed to the dangers of many bacterial, viral and mycotic infections.

CHAPTER (I)

INTRODUCTION

INTRODUCTION

The lid margin being exposed is the part of the eye that frequently gets infected. It is sterile at birth but shortly thereafter becomes invaded with various saprophytic bacteria (Fedukowicz, 1963) and different species of fungi (Fazakas, 1934; Mitsui and Hanabusa, 1955; Hammeko and Ellis, 1960; Williamson et al. 1968; Wilson et al. 1969: Reyes et al. 1970; Costa et al, 1975; and Segal et al, 1977).

There is no evidence that viruses can be reclaimed from the healthy conjunctival sac (Duke Elder, 1972).

Gifford (1898) reported that a sterile state of the conjunctival sac and the lid margin could not be maintained, since bacteria lie under the epithelium in the ducts of the glands and in the roots of cilia. Gifford found potential pathogens among organisms presented in the healthy conjunctive and indicated that

they might be carried into the eye following any surgical trauma.

External infections of the eye are usually localized, but may spread to adjacent tissues from the lid margin to the conjunctiva, to the cornea or into the inner eye, orbit, or even to the brain.

Some external ocular infections are not uncommonly the focus from which metastatic involvement of the body occurs e.g.: meningococcus or gonococcus (Fedukowicz, 1963).

The general principle that infection is determined by the virulence of microorganisms, and by host resistance applies to the eye.

The majority of infections of the lid margin are bacterial or viral, fungal infections are few or rare (Fedukowicz, 1963; El-Mowafy, 1981).

In recent years there are increased reports on mycotic diseases including those of the eye.

The increased incidence of mycotic infection may be due to the increased use of systemic and topical corticosteroids and of broad spectrum antibiotics (Rheins et al., 1960; Suie and Havener, 1963; Mclean, 1963; and El-Mowafy, 1981).

FUNGI

Fungi are a large group of plant-like micro-organisms which are composed of somatic or vegetative structures that may take the form of single cells or tubular forms of strands of many cells. The true yeasts are the simplest forms of fungi. The term "yeasts" refers to an oval, spherical or elongated cell which reproduces by budding. The term "mould" signifies tubular branching cells which constitute a hyphae. The hyphae of most fungi are divided by cross walls or septa into multicellular hyphae or "septate hyphae" septa may be absent in which case it is described as "aseptate hyphae". The mycelium is a mass of intercommunicating hyphae. Spores are the reproductive units of fungi, which when separated from the parent organism are capable of developing into a new individual organism. Spores may be borne in a

sporangium, a sac-like structure on the hyphae, or in conidia which are structures that grow out at the tip or the side of hyphae. Conidia of different fungi are borne on hyphae in different ways.

Spores may be produced by sexual or asexual processes. Most of the fungi of medical importance sporulate asexually (Birge, 1952; Ajello et al, 1977).

In general fungi resemble green plants in their manner of growth but they neither posses stems, roots, or leaves nor have vascular systems or chlorophyl. Lack of chlorophyl is of great importance, since it renders fungi unable to synthesize carbohydrate from carbon dioxide of air. So it is necessary for fungi to depend on other living tissues for their growth and survival. Fungi are usually saprophytic a term implies a plant relationship. Saprobes however, live on dead

organic material, vegetable or animal material, but some fungi exist by invading live organisms in a parasitic manner (Emmons et al., 1977), Parastism occur when trauma or disease alters the host resistance (Devoe, 1971). Fungi are dependant upon enzyme systems to derive energy from organic substrates (Devoe, 1971; Emmons et al.,1977). They grow best in worm moist climates, at temperatures between zero and 35°C and can withstand very low temperatures. Dampness generally favours the growth of fungi (Hammeke and Ellis,1960; Ainly and Smith, 1965;Locatcher-Khorazo and Benham,1968; De Voe, 1971; Delaat, 1973; and Emmons et al., 1977). Some fungi especially in systemic mycoses are diphasic or "dimorphic". These fungi produce a mould-like colony at 25°C and yeast forms at 37°C. Most of pathogenic

fungi of man are dimorphic. They are moulds in their normal saprophytic growth but yeasts or yeast-like in animal tissues or when incubated on enriched media at 37°C (Ajello et al., 1966; Delaat, 1973; and Emmons e et al, 1977).

The ability of fungi to grow best in an acid medium of about 5.6 to 7.0 pH with a high sugar content, such as in sabouraud-dextrose agar medium, may be responsible for the predisposition of uncontrolled diabetic patients "acidotic diabetes mellitus" for fungus infections (Ajello et al, 1966; Devoe, 1971, Delaat, 1973; Emmons et al, 1977; Frey et al., 1979).

According to Alexopoulos (1962), Ajello et al, (1966), Beneke (1974) and Frey et al.(1979) fungi are classified biologically into four classes:

The zygomycetes phycomycetes; the Ascomycetes, the Basidiomycetes and Deuteromycetes or fungi imperfecti. In zygomycetes, zygot production follows fusion of hyphol tips, hyphae usually aseptate with broad mycelia and sporangia. In Ascomycetes, sexual spores are produced within an ascus or sac.

In Basidiomycetes, sexual reproduction or sexual spores are borne on a base or a basidium with a special club shaped cells called basidia.

Deuteromycetes, lack sexual spores and are produced by asexual spore formation only. It is defined as imperfect fungi because in this group the perfect stage, sexual stage, are unknown.

Most of the pathogenic fungi fall under class Deuteromycetes including Aspergillus, Blastomyces, Candida, Cephalosporium, coccidiodes, cryptococcus,