COMPARATIVE HISTOPATHOLOGICAL LIGHT, IMMUNOFLUORESCENT AND ULTRASTRUCTURAL STUDY OF TRUE PTERYGIUM AND PINGUECULA

thesis

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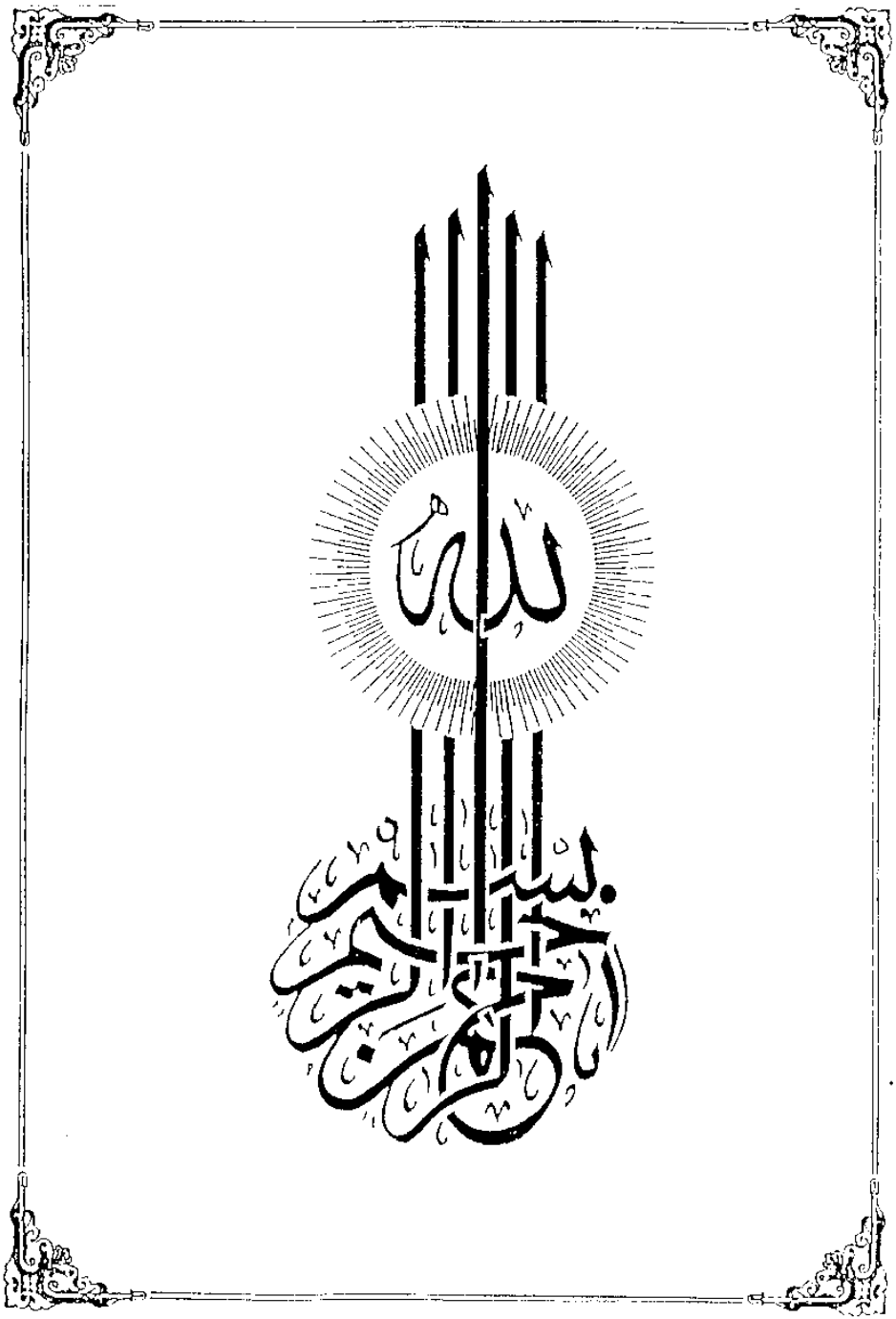
بسم الله الرحمن الرحيم

"وقل رب زدني علما"

صدق الله العظيم



TO MY HUSBAND

AND MY DAUGHTER

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TABLE OF CONTENTS

INTRODUCTION

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Pterygium as described by Duke Elder (1965) is a triangular encroachment of the conjunctiva into the cornea. It is a degenerative and hyperplastic process in which the conjunctiva invades the cornea. It occurs medially and laterally in the palpebral aperture. Histopathologically there are usually some elastosis, hyaline degenerations, acute and chronic inflammatory cells as well as a congestion and alteration of blood vessels.

Pinguecula was described also by Duke Elder (1965) as a yellowish triangular patch formed by hyaline degeneration of the connective tissue situated in the bulbar conjunctiva on either side of the cornea.

Histopathologically there is elastotic degeneration of the collagen in the substantia propria with the deposition of amorphous hyaline material.

Pteryguim is believed by some workers to develop from pinguecula (Hilgers, 1960 and Cameron, 1965). Both consist of hyaline connective tissue subjected to elastoid degeneration (Hogan and, Ziramermann, 1966 and Klintrworth 1972). Others hold that these disorders have common causes but that development of pterygium requires extra releasing factors (Young and Finlay, 1975 and Garner et al. 1976). However, Norn (1979) showed that pterygium and pinguecula are totally independant degenerations and are considered as two distinct disorders.

AIM OF THE WORK

The aim of this work is to try to find if there is any relationship in the pathogenesis of both pterygium and pinguecula. This will be achieved by doing histopathological, ultrastructural and immunolofluorescent study for both conditions.

REVIEW OF LITERATURE

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Histology of the normal conjunctiva

A- Light microscopy of normal conjunctiva

According to Peyman et al (1980) and Ham 1887, the conjunctiva is divided into three portions. The palpebral, fornix and bulbar conjunctiva.

All conjunctival tissue consists of an epithelium and underlying substantia propria, or stroma. The epithelium is a characteristically stratified columnar epithelium that is made up of three layers of cell, a basal layer of columnar cells, a middle layer of polygonal cells and a superficial layer of squamous or low cuboidal cells. Scattered throughout this epithelium are numerous goblet cells that elaborate the mucopolysacharride component of the tear film. A basement membrane is located between the epithelium and the underlying stroma. The stroma is composed of delicate connective tissue fibrils, blood vessels and

scattered accumulations of lymphocytes and plasma cells. Minor modifications of this basic structure are characterisitic of the palpebral, fornix, and bulbar conjunctiva. The epithelium of the palpebral region is thick with only a moderate number of goblet cells. At the fornix the epithelium becomes thinner and the goblet cells are abundant. The accessory lacrimal gland of Krause is located in this region. As the bulbar conjunctiva is approached, the goblet cells disappear, leaving a homogeneous, stratified columnar epithelium that becomes continuous with the corneal epithelium at the limbus. The basal surface of the conjunctival epithelium at the limbus contains some papillae or rete pegs (Palisades of Vogt) in contrast to that adjacent to the corneal epithelium in which the basal aspect is flat. The stroma of the bulbar conjunctiva is loosly adherent to the underlying Tenon's capsule but becomes more firmly attached at the limbus and eventually merges with the anterior corneal stroma at Bowman's membrane.

B- Electron microscopy of normal conjunctiva

1) The epithelium: According to Shibuya, (1958); Wanko et al, (1963) and Ralph etal (1975) the normal conjunctiva consists of six or more layers of predominantly polyhedral cells without keratinization. The superficial stratum, with the air surface as its outer boundary, is populated by two kinds of cells. These are, first, the polyhedral or,occasionally, squamous prickle cells with identical intracellular composition, which are arranged in several layers, and second, the goblet cells, which are interspersed between the cells at the surface. The deeper stratum contains the columnar cells with their proximal surface lying on the basement membrane. Also, melanocytes are found in this layer. Their cell bodies are either in contact with the basement membrane or the columnar cell of this layer. Finally, interposed with the cells of this layer, are polyhedral cells similar to those in the superficial layers.

Abd El-Khalek et al (1978) added that the superficial cells varies with age. In the tissue from persons aged 50 to 79 the superficial cells were poly gonal and their structural components were similar to those of the intermediate cell layers. In approximately one-third of the biopsies from persons older than 80 years the shape of the superficial cells became flatter and more elongated. An associated feature was the narrowing of the intercellular spaces and a reduction in frequency, height, and width of the microplicae. The organelle content of these stratified superficial cells were not alter significantly. In some biopsies, round electron- dense strucures, were found in the peripheral cytoplasm. When present they were found in all the epithelial cells other than the basal layer.

The distal cell membranes of the superficial layer of the prickle cells constitute the outer surface of the conjunctival epithelium . This boundary is characterized by a multitude