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البقرة : آية (١٥١)

صدق الله العظيم

DISTURBANCE OF BLOOD-OCULAR BARRIERS AFTER IMPLANTATION OF POSTERIOR CHAMBER INTRAOCULAR LENS

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To my mother

LIST OF ABBREVIATIONS

ACME	Angiographic cystoid macular edema
BAB	Blood-aqueous barrier
BCVA	Best corrected visual acuity
BRB	Blood-retinal barrier
CME	Cystoid macular edema
ECCE	Extracapsular cataract extraction
I / A	Irrigation / aspiration
ICCE	Intracapsular cataract extraction
IOL	Intraocular lens
IOP	Intraocular pressure
KPs	Keratic precipitates
NSAI	Non steroidal anti-inflammatory
PC-IOL	Posterior chamber intraocular lens
PCO	Posterior capsule opacification
PG	Prostaglandins
PMMA	Polymethylmethacrylate
U / S	Ultra sound

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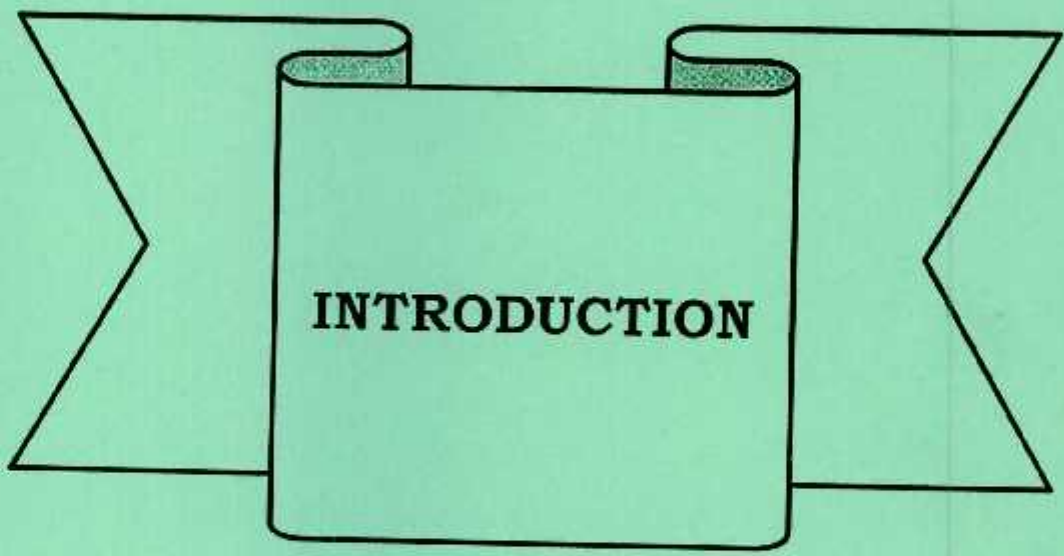
Chapter I



INTRODUCTION

Cataract surgery with intraocular lens (IOL) implantation has become the most successful microsurgical procedure.[1] And although the safety of cataract surgery continues to improve, postoperative intraocular inflammation and its related disorders like synechia , elevated intraocular pressure (IOP), cystoid macular edema (CME) , or capsule opacification could lead to sight-threatening complications.[2]

Surgical trauma during cataract surgery causes alteration of the blood-aqueous barrier (BAB), leading to augmented protein leakage and cellular reaction in the aqueous humour.[2]

The inflammation histopathologically observed following IOL implantation is dependent on the stability of the IOL and on the reaction to IOL.[3]

Although, inflammatory complications in uncomplicated cataract surgery are rare, formation of inflammatory sequelae, fibrin reaction, and chronic uveitis can occur.[4]

Breakdown and re-establishment of the BAB following cataract surgery and IOL implantation was evaluated by anterior segment slitlamp fluorophotometry [5], anterior segment fluorescein angiography [6] and laser flare photometry.[2]

Anatomical site of the blood-ocular barriers:

a) Site of the BAB:

The main structures involved in the BAB are the ciliary body and the iris

1-Ciliary body:-

a)Blood vessels of the ciliary body:- The small vessels in the subepithelial stroma of the ciliary body are large in diameter. So plasma proteins and blood-borne traces of similar size escape easily in the ciliary stroma through the permeable walls of these vessels.[7]

b)Ciliary epithelium:-The ciliary epithelium consists of two cell layers, the non- pigmented and pigmented epithelium.

The tight junctions of the non-pigmented ciliary epithelium represent the principle site of the BAB to circulating macromolecules .[8] Tight junctions are areas of intercellular contact composed of two plasma membranes held together by interlinked rows of integral membrane proteins which create a more or less impermeable seal.

2-Iris:

a)vessels of the iris:- The endothelial cells of the iris vessels lack fenestration and appear to be joined by tight junctions. [9]

Shakib and cunha-vaz [10] showed that the junctional structures of the iris occupied only a very small part of the interendothelial spaces and apparently did not surround completely the adjacent endothelial cells.

The amount of cross-linking in the areas of cellular contact appears to be responsible for their capability to with-stand stress. [11]

It is noteworthy that the tight junctions of the iridial vessels have been shown to be less stable, opening up with relative ease after paracentesis or local application of histamine or prostaglandin, in contrast to the more stable behavior of the tight junctions of the retinal vessels. [10,12]