

بسم الله الرحمن الرحيم



-C-02-50-2-





شبكة المعلومات الجامعية التوثيق الالكتروني والميكرونيلم





جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأقراص المدمجة يعيدا عن الغيار













بالرسالة صفحات لم ترد بالأصل



Macular Translocation

Essay submitted in partial fulfillment of the requirement of

Master degree in Ophthalmology

By

Ehab Mohammed Abo Ali

M.B.B.Ch

Supervisors

DR. Wahid Mahmoud Orouk

Prof. of Ophthalmology Benha Faculty of Medicine

DR. Mohammed Taher Higazy

Prof. of Ophthalmology Benha Faculty of Medicine

DR. Ashraf Abdelhameid Alshayeb

Assistant Prof. of Ophthalmology Benha Faculty of Medicine

Benha Faculty of Medicine

Benha University 2006



ACKNOWLEDGMENT

To **GOD** the all knowing, whose knowledge is beyond all the knowledge and to him I relate any success in my life.

I would like to express my gratitude to **Dr.** Wahid Mahmoud Orouk Prof. of Ophthalmology Benha Faculty of Medicine, to whom I owe a very special debt without wisdom, close, and continuous supervision, constructive criticism and his keenness for high standards of performance, this work would have never achieved whatever positive aspects it has got.

I have no suitable words to express my deepest heartily thanks and respect to **Dr.** Mohammed Taher Higazy Prof. of Ophthalmology Benha Faculty of Medicine and **Dr.** Ashraf Abdelhameid Alshayeb Assistant Prof. of Ophthalmology Benha Faculty of Medicine, not only they have been steady source of encouragement, but also given me creative thoughts, patience and efforts throughout their entire work.

Aim of Essay

To review the Principle, classification, Indications of macular translocation, and gives notes on different techniques and complications of each technique of macular translocation.

List of Abbreviations

AMD	A1-4 - 1 1 - 1 1'
AMD	Age-related macular degeneration.
BIOM	Binocular indirect ophthalmoscopy Moeller-
	wedele.
BSS	Balanced saline solution.
CNV	Choroidal neovascularization.
CNVM	Choroidal neovascular membrane.
fmERG	Focal macular electroretinogram.
FA	Fluorescein angiography.
ICG	Indocyanine green.
MPS	Macular photocoagulation study group.
Group	
OCT	Optical coherent tomography.
PVR	Proliferative Vitrortinopathy.
QOL	Quality of life.
RD	Retinal detachment.
RPE	Retinal pigment epithelium.
SLO	Scanning Laser Ophhalmoscope.

List of contents

Introduction	Page
I- Anatomical background	1
The area centralis	2
General articheture of the retina	6
The retinal pigment epithelium	8
Retinal vasculature and circulation	10
II- Indications of macular translocation	11
Choroidal neovascularization (CNV)	12
Diagnosis and ancillary testing	16
III- Principle and classification	24
Concept of effective macular translocation	29
Postoperative foveal displacement	34
Classification of macular translocation	36
IV- Macular translocation with large circumferential retinotomy	
A- Full macular translocation	38
Tortional muscle surgery	38
Vitroretinal surgery	40
Results and complication	44
B- Operation using 180 degree retinotomy	57
Results and complications	60

List of contents (cont.)

V- Limited macular translocation	62
(1) Scleral imbrication	62
A- Scleral imbrication with scleral resection	62
Difficulties with Scleral imbrication with scleral resection	66
Results and complications	67
B- Scleral imbrication without scleral resection	70
Results and complications	77
(2) Scleral outfolding	90
Scleral outfolding using clips	91
Scleral outfolding using sutures	95
Results and complications	96
(3) LMT without Scleral shortening	102
VI- Summary	104
VII- References	107
VIII- Arabic Summary	

List of Figures

No.	Subjects	Page
1	Anatomical landmarks fovea.	2
2	Cross-section of fovea.	3
3	Diagram summarizing the main ultra structure features of the retinal pigment epithelium.	9
4	The concept of exudative age related macular degeneration. Note the choroidal new vessels growing through the breaks in the Bruch's membrane.	15
5	Fluorescein angiogram showing a classical choroidal neovascular membrane.	17
6	ICG angiogram showing a "hot-spot" at the macula caused by an occult choroidal neovascular membrane	18
7	OCT demonstrate CNV beneath the fovea	20
8	Right: Classification of location of fixation Left: Classification of fixation stability using SLO.	23
9	Schematic diagram showing left ocular fundus (left) before and (right) after macular transloction with 360-degree retinotomy.	26
10	Schematic diagram showing left ocular fundus (left) befor and (right) after macular transloction with large retinotomy.	27
11	Schematic diagram showing left ocular fundus (left) before and (right) after macular transloction with punctuate retinotomy and chorioscleral shortening.	28
12	Schematic diagram showing probable post operative displacement of points on the retina along three imaginary straight lines radiating from the optic disc to the temporal retinal periphery.	28
13	The minimum desired translocation for an inferior transloction.	30

List of figures (cont.)

_		
14	Schematic diagram showing the fundi of three eyes	32
	with subfoveal lesion.	
15	The minimum desired translocations (FI) for an inferior	33
	transloction for lesions A,B, and C.	
16	Schematic diagram showing two eyes with a subfoveal	33
	recurrent choroidal neovascularization (CNV) after	Marine II
	previous laser photocoagulation.	
17	Schematic diagram showing the fundus of an eye (left)	35
	before and (right) after inferior macular transloction.	
18	Schematic diagram showing drawings of macular	43
	transloction procedures with 360-degree retinotomy.	
19	Subfoveal hemorrhage preoperative and postoperative	49
	of macular transloction with 360-degree retinotomy.	47
20	Optical coherent tomography and fluorescein	50
20	angiograme after macular transloction with 360-degree	30
	retinotomy.	
21	Postoperative fluorescein angiograme showing leakage	51
21	in 16 of 23 eyes after macular transloction with 360-	31
22	degree retinotomy.	5.4
22	Postoperative fluorescein angiograme in 78-years old	54
	male with age related macular degeneration.	
23	Possible translocations after limited macular	64
	translocation.	
24	An anteroposterior "crescent shaped" scleral shortening	65
	on the equator.	
25	The 50 nylon mattress sutures are placed 2	71
	mm9posterior to the rectus muscle insertion.	
26	A 39 gauge flexible cannula is used to inject balanced	72
	saline solution.	

List of figures (cont.)

Marie Control of the		
27	[A]: The balanced saline solution is injected slowly to detach the sensory retina concentrically until no additional retina is being detached. [B]: Additional injections are made in different locations until multiple dome shaped retinal detachments are obtained	73
28	[A]: To cause the dome shaped retinal detachments to coalesce; a fluid-air exchange is performed. [B]: A retinal manipulator with small openings is used to engage the sensory retina and detach in from the retinal pigment epithelium	73
29	(Top) A retinal manipulator is used to engage the sensory retina and detach it from the retinal pigment epithelium. (Bottom) The sensory retina is completely detached from the retinal pigment epithelium.	75
30	[A] The sensory retina is detached from the retinal pigment epithelium extending from the optic nerve head to the ora serrata in the temporal 180 degrees and inferonsal quadrants. [B] With the sensory retina detached, and after lowering of the intraocular pressure, the scleral sutures are tied, imbricating the sclera.	76
31	[A] 60% to 70% fluid air exchange is performed without draining subretinal fluid. [B] The patient is placed postoperatively in a sitting position allowing the foveal center to displace inferonasally.	76
32	Illustration showing histopathologic finding in patient who underwent limited macular translocation surgery.	88
33	In macular translocation with chorioscleral outfolding, there is a decrease in the internal surface area of the eye as compared with the external scleral diameter (A B A). In contrast to the scleral infolding C	90

List of figures (cont.)

		List of figures (cont.)	
3	4	[A] For radial outfolding [B]: After lowering the intraocular pressure, forceps are used to out fold the	93
		retinal pigment epithelium, choroid, and sclera while	
2		the clips are placed using an inserter.	02
3	5	[A]: For circumferential out folding [B] After lowering	93
		the intraocular pressure, forceps are used to out fold the retinal pigment epithelium, choroid, and sclera (A),	
		while the clips are placed with an inserter (B). In most	
		patients six clips are placed (C)	
3	6	A retinotomy is performed with a 39 gauge cannula to	94
		drain the subretinal fluid while air is insufflated into	
		the eye	
3'	7	[A] Silicone tipped instrument is used to manipulate	94
		the retina and create an equatorial fold. [B]	
		Reattachment of the retina with creation of an	
		equatorial fold and displacement of the fovea.	
38	8	(Top left) Preoperatively, the early phases of the FA showed a classic CNV. (Top right) Preoperatively, the late phases of the FA showed also an occult component to the CNV. (Middle left) Postoperatively, the fovea was rotated inferiorly and the CNV is in an extrafoveal location. (Middle right) Postoperative color	98
		Photographs immediately following photocoagulation	
		to the now extrafoveal CNV. (Bottom left) Color	
		photograph six months following macular translocation	
		demonstrating a photocoagulation scar. (Bottom right)	
		FA six months following macular translocation	
		showing closure of the CNV and no evidence of	
20	<u> </u>	recurrent CNV, Final visual acuity, 20/80	00
39	,	Three different methods for chorioscleral shortening (left) a circumferential chorioscleral infolding using 5	99
		(left) a circumferential chorioscleral infolding using 5- 0 nylon sutures; (middle) a circumferential	
		chorioscleral outflding using scleral clips; (right) a	
		radial chorioscleral outflding uses scleral clips.	
		rudial elletteseteral eathanig ases seletal elles.	