

**Transplantation Of Ex Vivo Expanded Epithelial Stem Cells  
In Limbal Stem Cell Deficiency  
(Laboratory / Clinical Prospective Interventional Non-  
Controlled Non- Randomized Study)**

A Thesis

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M.D Degree in Ophthalmology**

By

**Nancy Maher Ahmed Lotfy**

*M.B.B.Ch., M.Sc.*

Supervised by

**Prof. Dr. Samia Mamdouh Sabry**

*Professor of Ophthalmology*

*Faculty of Medicine*

*Cairo University*

**Prof. Dr. Hazem Mahmoud Ali Atta**

*Professor of Biochemistry*

*Faculty of Medicine*

*Cairo University*

**Prof. Dr. Sherif Ali Gamal Eldin**

*Professor of Ophthalmology*

*Faculty of Medicine*

*Cairo University*

**Faculty of Medicine  
Cairo University  
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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

سَئِرِيهِمْ ءَايَاتِنَا فِي الْأَفَاقِ  
وَفِي أَنْفُسِهِمْ حَتَّىٰ يَتَبَيَّنَ لَهُمْ أَنَّهُ  
الْحَقُّ أَوَّلَمَّا يَكْفِ بِرَبِّكَ أَنَّهُ  
عَلَىٰ كُلِّ شَيْءٍ شَهِيدٌ

صِدْقَ اللَّهِ الْعَظِيمِ

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# ABSTRACT

Limbal stem-cell deficiency can be congenital or acquired; it can also be partial or total. Treatment options include: conjunctival-limbal autografts, keratolimbal lamellar allograft, and living-related conjunctival-limbal allografts. A novel method of transplanting limbal stem cells is via ex-vivo expansion of limbal stem cells; with the advantages of: a smaller limbal biopsy, reduced risk of precipitating stem cell failure in the donor eye, and allowing the option of taking a further biopsy if required.

# KEY WORDS

Cornea – Stem cells – Limbal – ex-vivo expansion



Table of  
Contents

# TABLE OF CONTENTS

Table of contents.....	i
List of Figures .....	iv
List of tables.....	vii
List of Abbreviations .....	viii
Introduction.....	1
Aim of work.....	3
Anatomy of the ocular surface.....	4
Corneal epithelium.....	4
The basal lamina .....	9
The Bowman’s layer .....	9
Conjunctival epithelium.....	10
Limbal epithelium.....	12
Stem cells .....	15
Types of Stem Cells.....	15
Limbal epithelial stem cells .....	19
Corneal epithelial wound healing .....	22
Limbal stem cell deficiency .....	32
Causes ,clinical picture, and diagnosis .....	32
Ocular cicatricial pemphigoid.....	33
Stevens-Johnson syndrome.....	38
Chemical and thermal injuries .....	41
Iatrogenic LSCD .....	47

Contact lens induced keratopathy .....	47
Aniridia .....	48
<b>Management.....</b>	<b>49</b>
Conservative treatment .....	49
Surgical management of LSCD .....	50
Sequential sector conjunctival epitheliectomy .....	50
Amniotic membrane transplantation.....	51
Auto limbal transplantation: conjunctival limbal autograft.....	52
conjunctival limbal allograft.....	54
Ex vivo cultured limbal epithelial stem cells.....	55
Ex-vivo culture systems.....	58
A contact lens-based technique for expansion of LESC.....	63
Penetrating keratoplasty.....	63
Keratoprosthesis.....	64
<b>patients, materials and methods .....</b>	<b>66</b>
Preoperative evaluation of patients.....	72
Ex vivo culture of limbal epithelial stem cells .....	72
Amniotic membrane preparation .....	73
Corneal epithelial media (CEM).....	74
Transplantation Procedure, (Fig. 38).....	77
Postoperative management .....	77
<b>Results.....</b>	<b>80</b>
Clinical results .....	80
Complications .....	85

Discussion .....	92
Conclusion .....	98
summary .....	99
Bibliography .....	101
Arabic Summary .....	114

# LIST OF FIGURES

Figure 1: Anatomy of corneal epithelium. (Millodot, 2009).....	4
Figure 2: Corneal epithelium, stained with haematoxylin and eosin. (Millodot, 2009) .....	5
Figure 3: In vivo confocal microscopy of the normal cornea. (Browning, et al., 2003) .....	6
Figure 4: Ultra structural features of corneal epithelium. (Browning, et al., 2003).....	8
Figure 5: Stratified columnar epithelium of palpebral conjunctiva stained with hematoxlin and eosin. (Wolff & Warwick, 1976).....	11
Figure 6: Conjunctival epithelium stained with hematoxlin and eosin showing goblet cells. (Mills, 2007).....	12
Figure 7: Corneoscleral limbus. (Mills, 2007) .....	14
Figure 8: Microscopic view of a colony of embryonic stems cells. (Zhang, 2009) .....	15
Figure 9: The limbal palisades of Vogt. (Li, et al., 2007) .....	21
Figure 10: Mucous membrane pemphigoid, blisters and erosions on the face and oral mucosa. (Takahara, et al., 2009).....	33
Figure 11: Stage I OCP showing conjunctival injection and scarring. (Takahara, et al., 2009).....	34
Figure 13: Stage III OCP showing symblepheron formation. (Dua, et al., 2000).....	35
Figure 12: Stage II OCP showing inferior conjunctival scarring. (Dua, et al., 2000) .....	35
Figure 14: Stage IV OCP showing corneal scarring and and xerosis. (Dua, et al., 2000).....	36
Figure 15: Histology of OCP conjunctiva. (Lambiase, et al., 2009).....	37

Figure 16: Fluorescence microscopy of conjunctiva. (Lambiase, et al., 2009).....	38
Figure 17: Target lesions in Stevens Johnsons syndrome. (Mockenhaupt, 2011) .....	40
Figure 18: Hemorrhagic erosions of lips and oral cavity in Stevens–Johnson syndrome. (Mockenhaupt, 2011) .....	40
Figure 19: Eye involvement in Stevens–Johnson syndrome. (Mockenhaupt, 2011) .....	40
Fig. 20: Grade 1 ocular surface burn. (Dua, et al., 2001).....	43
Fig. 21: Grade 3 ocular surface burn following a domestic cleansing (alkali) injury. (Dua, et al., 2001).....	44
Fig. 22: Grade 3 ocular surface burn following an accident involving an industrial alkaline chemical. (Dua, et al., 2001).....	44
Fig. 23: Grade 4 ocular surface burn following an acid burn. (Dua, et al., 2001).....	45
Fig. 24: Grade 5 ocular surface burn following alkali injury. (Dua, et al., 2001).....	45
Fig. 25: Grade 6 ocular surface burn. (Dua, et al., 2001).....	46
Fig. 26 : Aniridia. (Holland, et al., 2003) .....	46
Figure 27: Explant culture system. (Shortt, et al., 2007).....	59
Figure 28: The 3T3 explant co-culture system. (Shortt, et al., 2007) .....	60
Figure 29: The suspension culture system. (Shortt, et al., 2007) .....	61
Figure 30: Osteo-odonto-keratoprosthesis. (Tan, et al., 2008).....	64
Figure 31: Boston keratoprosthesis. (Hicks, et al., 2006) .....	65
Figure 32: Boston keratoprosthesis in situ. (Hicks, et al., 2006).....	65
Figure 36: Inverted microscope.....	73
Figure 35: Laminar flow hood.....	74
Figure 36: Incubator.....	75
Figure 37: Limbal Epithelial Stem cells, by inverted microscopy.....	76

Figure 38: Transplantation of ex vivo cultured LESC’s to the patient’s cornea. .... 79

Figure 39: Visual acuity outcome after transplantation of cultured LESC’s..... 84

Figure 40: Patient 1..... 87

Figure 41: Patient 2..... 88

Figure 42: Patient 3..... 89

Figure 43: Patient 7..... 90

Figure 44: Complications in patient 4. .... 91

# LIST OF TABLES

Table 1: Classification of severity of ocular surface burns (Roper-Hall, 1965).....	42
Table 2: Classification of ocular surface burns (Dua, et al., 2001).....	43
Table 3: Inclusion and exclusion criteria.....	66
Table 4: patient demography and cause of LESC failure.....	70
Table 5: Effect on corneal vascularization .....	82
Table 6: Effect on visual acuity and epithelialization .....	83
Table 7: Success rate of transplantation of cultured LESC's .....	84

# LIST OF ABBREVIATIONS

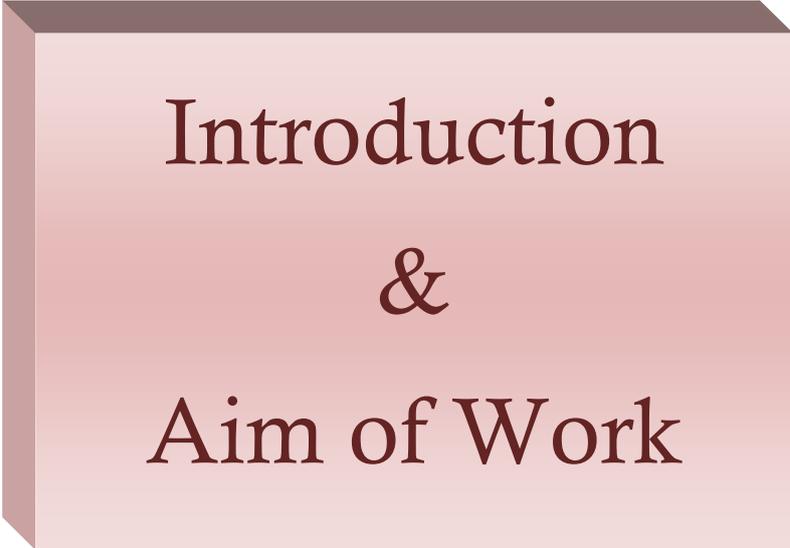
BSS .....	balanced salt solution
CLAU .....	conjunctival-limbal autografts
CUEB .....	Cairo University Eye Bank
EDTA .....	ethylenediaminetetraacetic acid
FGF .....	fibroblast growth factor
HMGP .....	hand motion good projection
IGF-1 .....	insulin-like growth factor-1
KLAL .....	keratolimbal lamellar allograft
LESCs .....	limbal epithelial stem cells
lr-CLAL .....	living-related conjunctival-limbal allografts
LSCD .....	limbal stem cell deficiency
M.K. medium .....	McCarey-Kaufman medium
NGF .....	nerve growth factor
NICD .....	notch intracellular domain
OCP .....	ocular cicatricial pemphigoid
PBS .....	phosphate buffered saline
PLGP .....	perception of light good projection
PMC .....	post mitotic cells
rpm .....	revolution per minute

SSCE .....sequential sector conjunctival epitheliectomy

TAC .....transient amplifying cells

TDC .....terminally differentiated cells

VA .....visual acuity



Introduction  
&  
Aim of Work