

Corneal Crescents and Patches



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Financial Disclosure

	Company	Code	
1.	Abbott Medical Optics Inc.	S	C = Consultant / Advisor
2.	Bausch + Lomb	C,L	E = Employee
3.	Carl Zeiss Meditec	C	L = Lecture Fees
4.	Clarvista	C	O = Equity Owner
5.	Ellex	L	P = Patents / Royalty
6.	Excellens	C, O	S = Grant Support
7.	LinCor Biosciences	C	
8.	Medicem	C	
9.	Nidek, Inc.	C,L	
10.	Physiol	L	
11.	PRN	O	
12.	STAAR Surgical	C	
13.	Strathspey Crown	C	
14.	Scope Pharmaceuticals	C	
15.	Rayner	C	

Selective Corneal Surgery

Principles

- Replace or treat only the affected area
- Conservative
 - preserve endothelium
 - Minimize intervention inflamed eyes
- Utilize modern technology where possible

Patches and Crescents

Plastic Surgery on the Cornea

Variety of Lamellar Techniques

- Therapeutic
 - Perforations / near perforations
- Improvement in shape
 - High Astigmatism
 - Ectasia

Corneal Perforation



Infected & perforated = endophthalmitis

Patches and Crescents



Peripheral Ulcerative Keratitis & Perforation - Active systemic disease

Perforation

GOALS

- Closure
- If infected ?
 - Intracameral antibiotics
- Stabilise and quieten for later procedure (PK or DALK)
 - Planned – better outcomes
 - If PK – better chance of survival
 - PK – inflamed eye - <50% survival...

Perforation

OPTIONS

- Tissue Adhesive
- Morbidity increases if present > 6weeks
- Attracts vessels



Daya, Sheraz M.; Li Kok, Howe; Moshegov, Con N.; Hoe, Wilbert K. "A Review of Corneal Perforations" *Cornea*, March 1996, 15(2):225

Perforation

- Lamellar or full thickness Patch (Keratopatch)



Outside visual axis and once underlying disease stabilised
- may not need further intervention

“Kerato-patch”

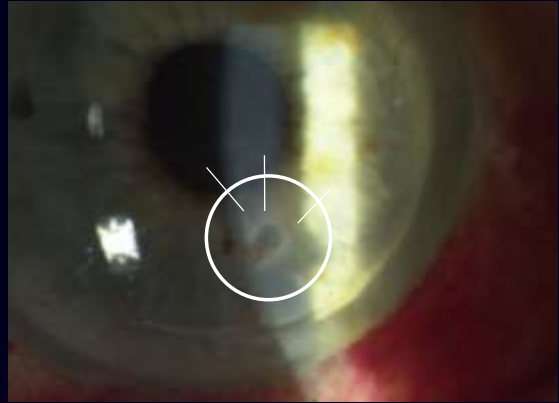
Small diameter

- Dermatome biopsy trephine (3mm / 4mm)
- Lamellar dissection if sterile
- All necrotic and infected material removed – (host may need full thickness trephination)



Perforation - HSV

- Elderly patient 83 yo
- Poor vision other eye
- closure close to visual axis
- Large Diameter DALK to encompass visual axis



DALK for perforation

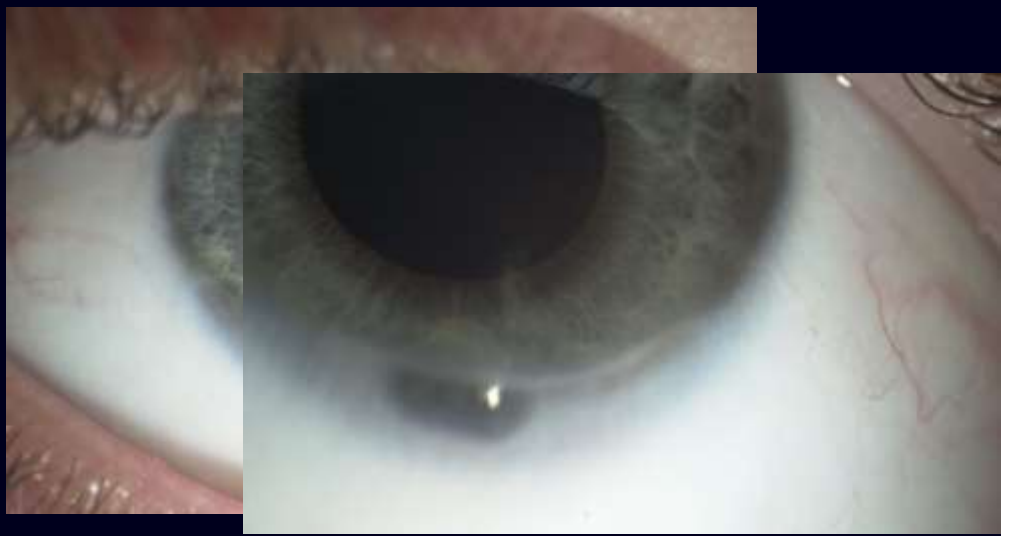
Technique Pearls

- Tissue adhesive
- Dissect using Modified Melles method (optical recognition)
- Dissect area of perforation last
- Keep chamber filled with air (dilated pupil) to ensure apposition – avoid double AC

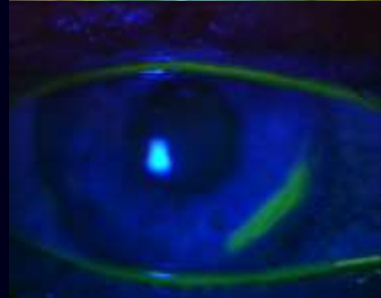
Peripheral thinning & perforation



Terrien's – intrastromal perforation



Terrien's - Other eye



Crescentic graft



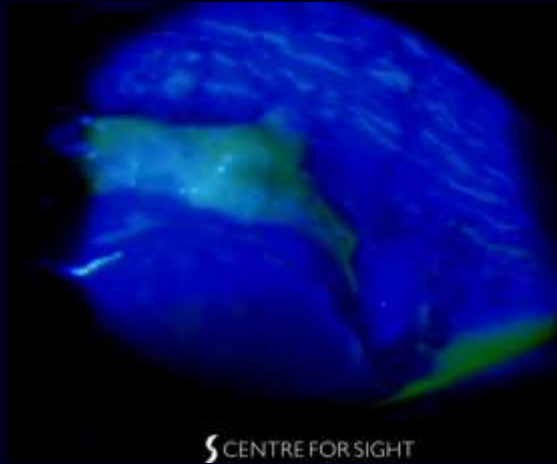
13 year old – Bilateral Keratitis



Bilateral Sclero-Keratitis



Sclerokeratitis - perforation



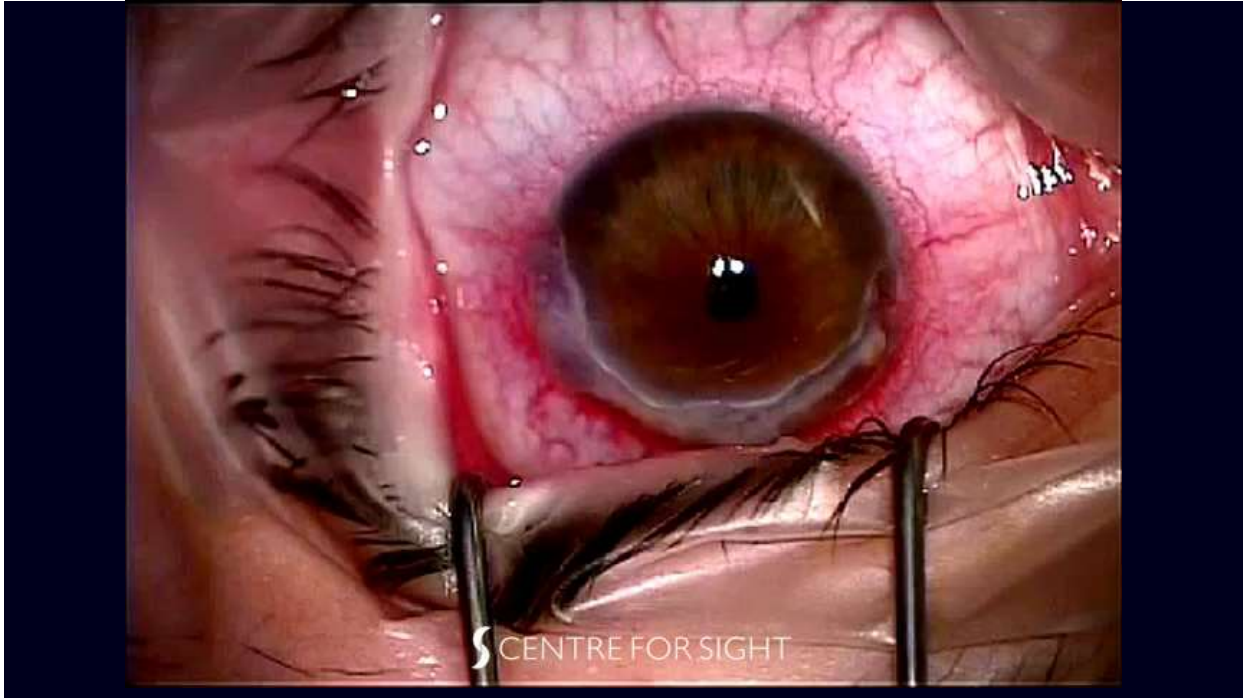
Sclerokeratitis / Moorens

Immunosuppression – vital

Eye Closure

Worry about Visual Rehabilitation later

- CLOSURE - principles
 - Preoperative IV steroids – large doses
 - Tissue – friable
 - Remove necrotic tissue – preserve as much tissue as possible
 - Crescentic Graft



Perforation – when all else fails...

- 35yo Greek female
army officer
 - 1 corneal patch graft
 - 2 scleral patch grafts

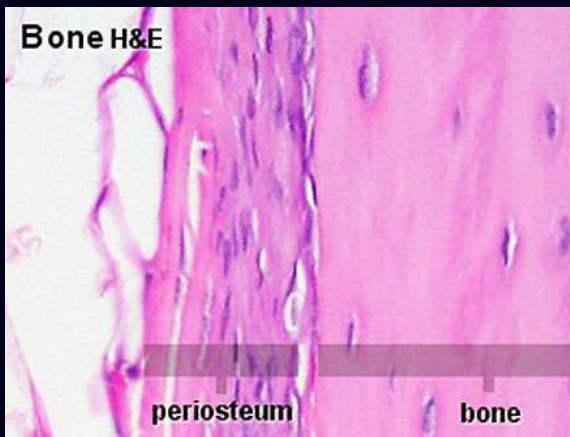


Alternate patch...

Sub-Tibial Periosteum



Periosteum



- Outer fibrous layer
- Inner
 - Bone cells/precursors
 - Blood vessels

Periosteal graft



Thick, vascularised and autologous



Scleral patch and overlying periosteum



2 years later

Courtesy Kostas Borboridis

Sclerokeratitis - perforation

Issues to consider

- Peripheral, Thin, Necrotic
- Active disease
 - Needs closure – systemic treatment takes time to work

Solution

- Needs tissue !
- Crescentic Grafts
- Periosteum - consideration

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Pericranium Grafts for Exposed Orbital Implants

Ijaz Sheikh, F.R.C.S.^{*}, Igor Leibovitch, M.D.T, Dinesh Selva, F.R.A.N.Z.C.O.T.,
Sheraz Darya, F.R.C.S.(ED), F.A.C.S.^{*}, and Ramun Malhotra, F.R.C.Ophth.^{*}

^{*}Consultant Oculi, Queen Victoria Hospital, East Grinstead, United Kingdom; and ^{*}Oculoplastic, Lacrimal, and Orbital Unit,
Department of Ophthalmology, Royal Adelaide Hospital, University of Adelaide, Adelaide, South Australia.

Crescentic action...

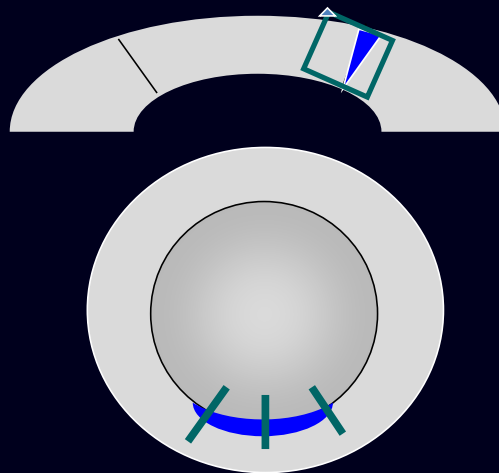
Post PK – 10 years rim ectasia

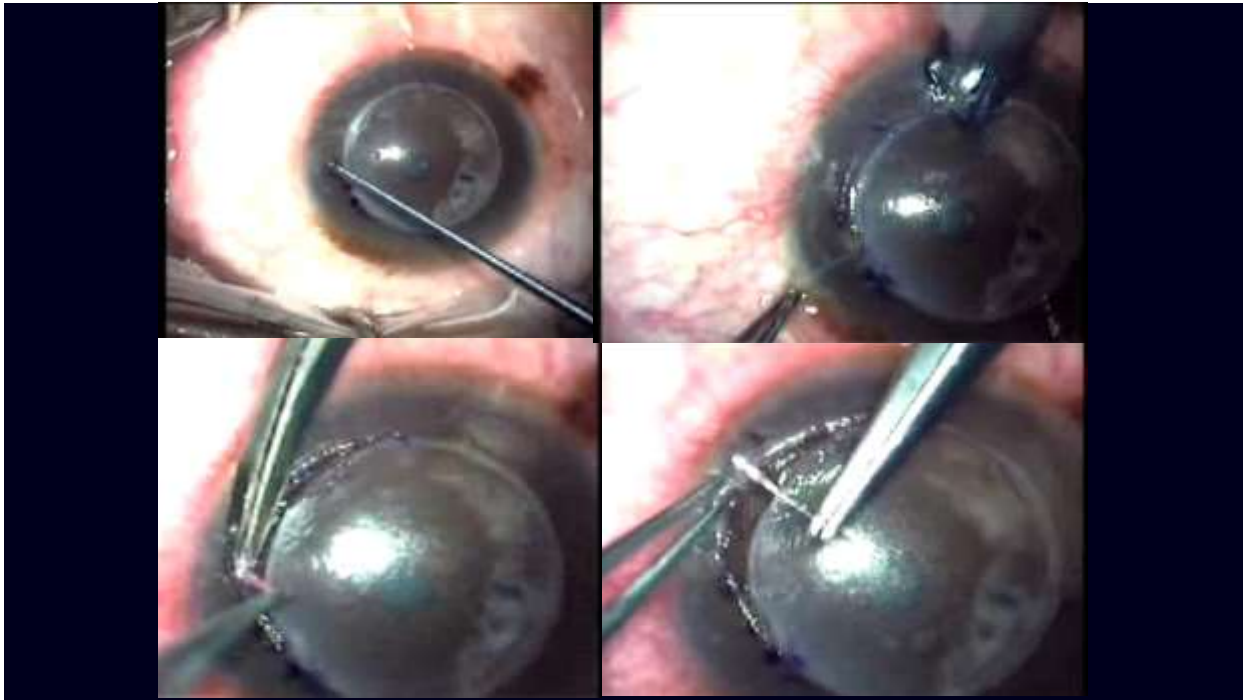


WEDGE RESECTION

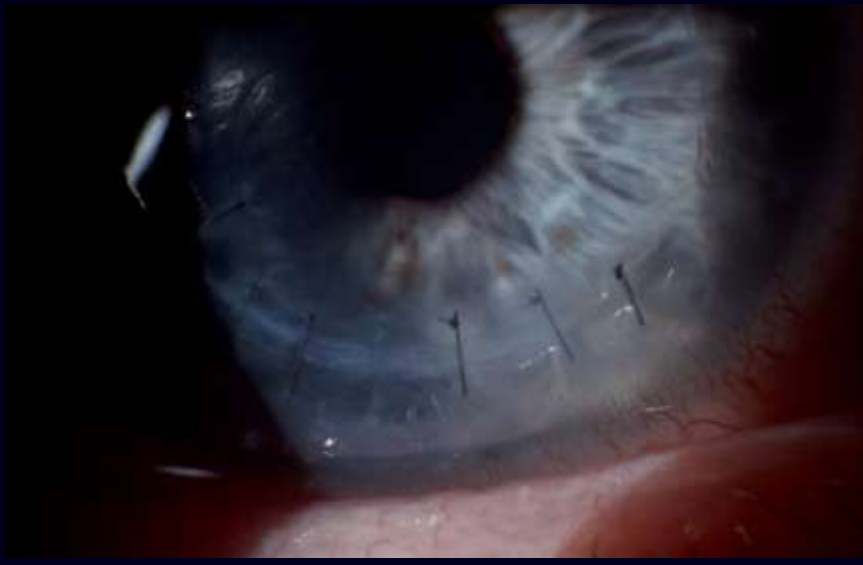
Conventionally in the GRAFT – *Troutman*

In the HOST if ectatic

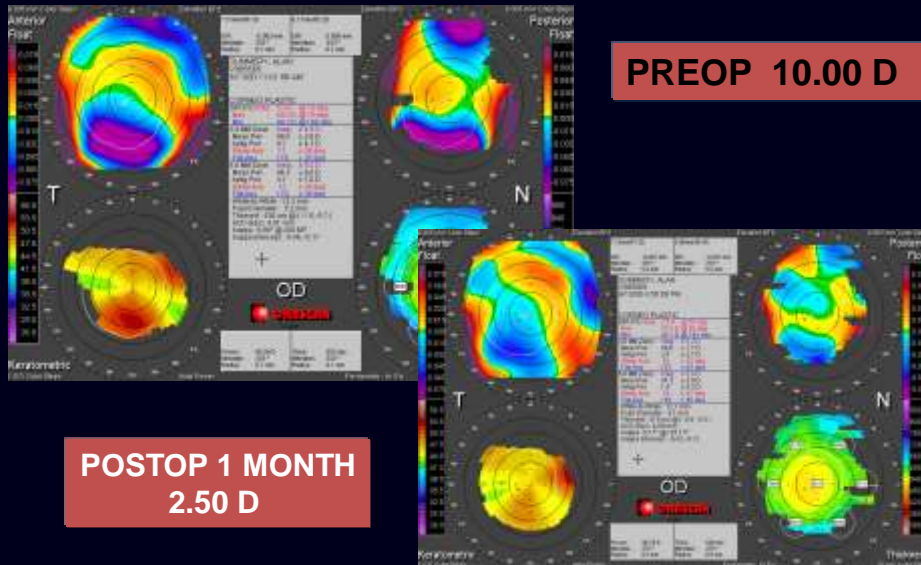




WEDGE RESECTION



WEDGE RESECTION



POSTOP 1 MONTH
2.50 D

Corneal wedge resection to treat progressive keratoconus in the host cornea after penetrating keratoplasty

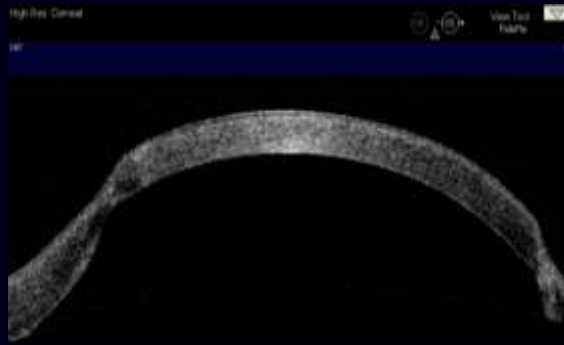
Luca Ilari, MD, Sheraz M. Daya, FRCS (Ed), FACS

We present 3 cases of progressive keratoconus in the host after penetrating keratoplasty PKP that were treated with a wide crescentic excision of the diseased tissue in the host cornea guided by Orbscan II topography (Bausch & Lomb). In all cases, the procedure resulted in a more regular corneal shape with a marked reduction in astigmatism, preventing the need for repeat PKP

J Cataract Refract Surg 2003; 29:395-401 © 2003 ASCRS and ESCRS

Lamellar – Advanced Application

- Extensive Peripheral Host-Rim Thinning 25 years post PK



DALK on PK



CLINICAL SCIENCE

Deep Anterior Lamellar Keratoplasty Over Penetrating Keratoplasty for Host Rim Thinning and Ectasia

Damian Lake, FRCOphth, Samer Hamada, FRCS (Ed), Saj Khan, FRCS (Ed), and Sheraz M. Daya, MD, FACS

TABLE 1. Comparison of Pre- and Post-Operative Data

Patient	Preoperative UCVA 20'	Postoperative UCVA 20'	Preoperative BCVA 20'	Postoperative BCVA 20'	Preoperative ECC /mm ²	Postoperative ECC /mm ²	Preoperative Average K	Postoperative Average K	Preoperative K Cyl	Postoperative K Cyl
1	200	40	50	32	—	911	47.16	46.06	9.25	2.08
2	250	200	200	40	—	910	48.11	46.25	11.17	5.23
3	200	200	63	40	—	601	47.1	44.2	7.9	1.6
4	800	400	400	63	796	815	48.85	47.02	8.63	2.8
5	125	32	50	25	947	—	47.75	42.5	9.5	2.75
6	400	63	400	60	1074	—	53.5	45.5	3.0	5.03
7	400	160	160	100	958	933	49.75	47.25	0.5	2.75

SR, selective removal; K Cyl, keratometric cylinder (diopters).

360 degree wedge resection

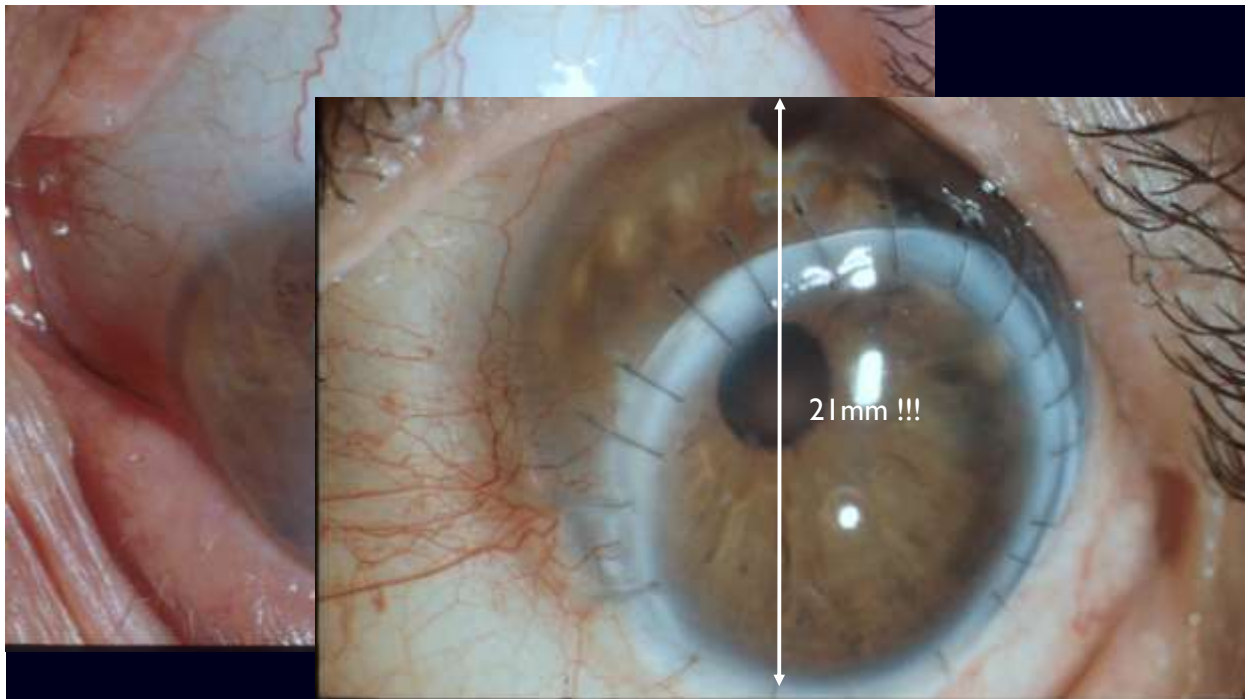
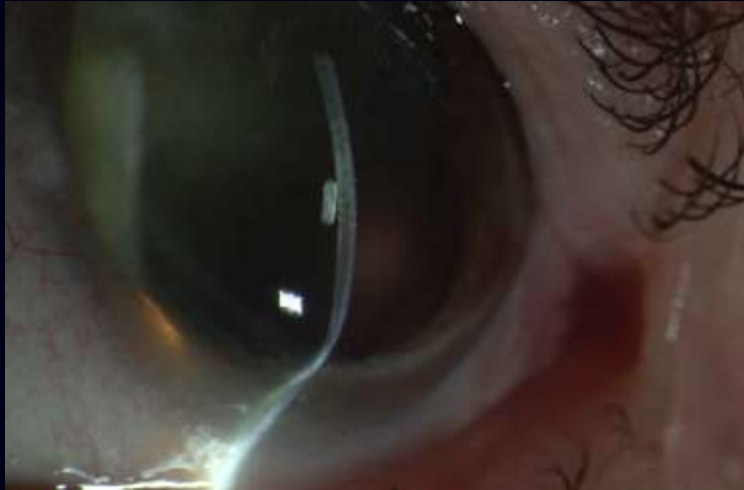


1 week postop



1 year postop

Pellucid Marginal Degeneration



Correction of Pellucid



Remove ectatic wedge



remove stroma



air in AC, lamellar
dissection superior
approach



whole cornea dissected



remove stroma



air in AC, lamellar
dissection superior
approach



whole cornea dissected

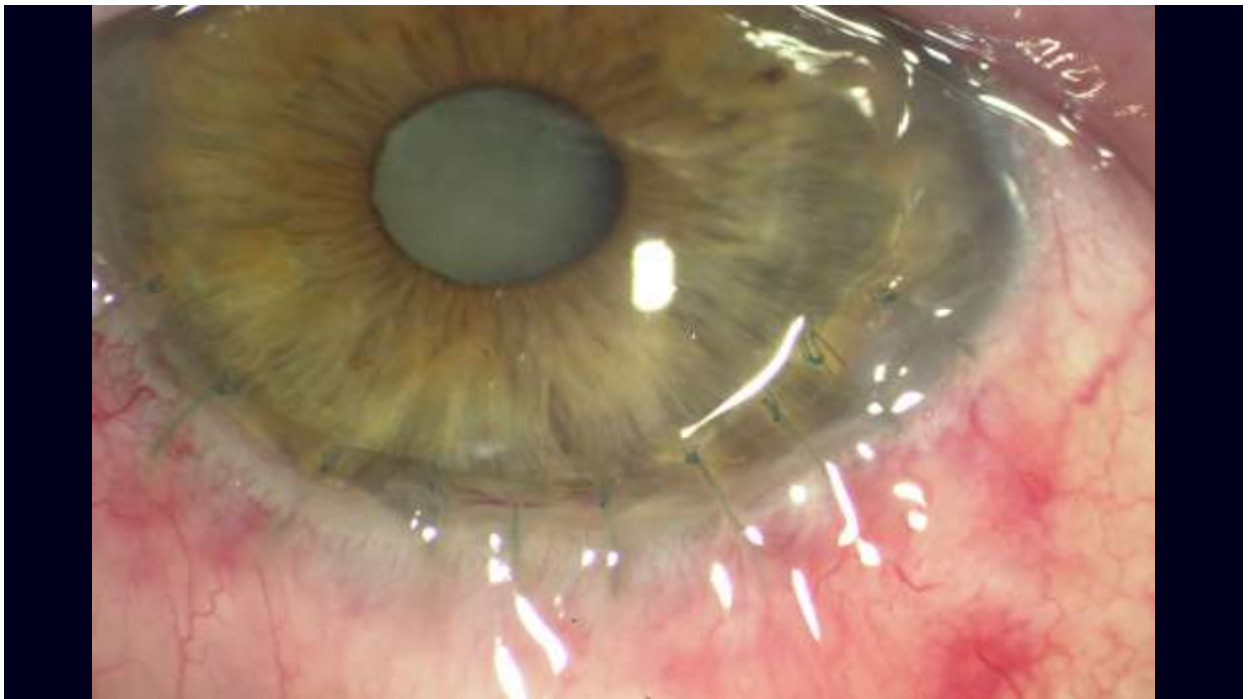
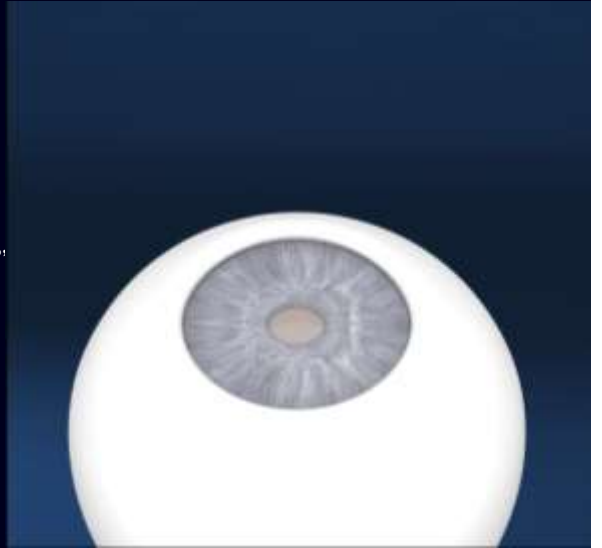




Closure of wedge mobilising anterior cornea inverse "face-lift"

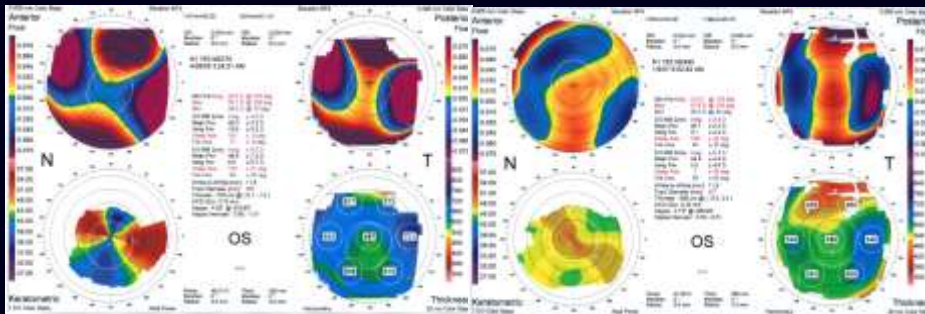


Full fill of air to appose posterior corneal lamellar tissue





Pellucid Wedge and inverse "facelift"

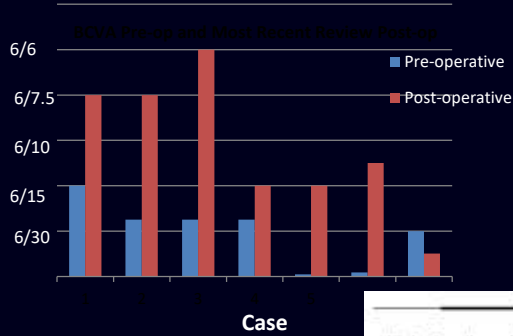


PREOP

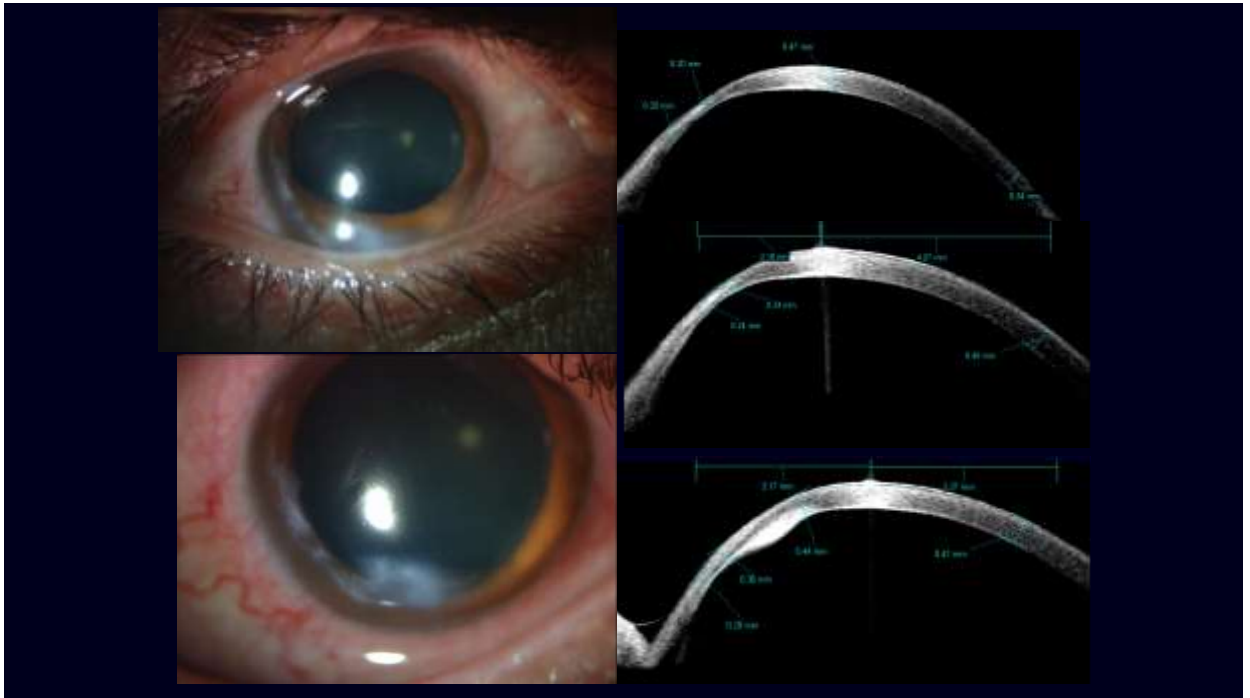
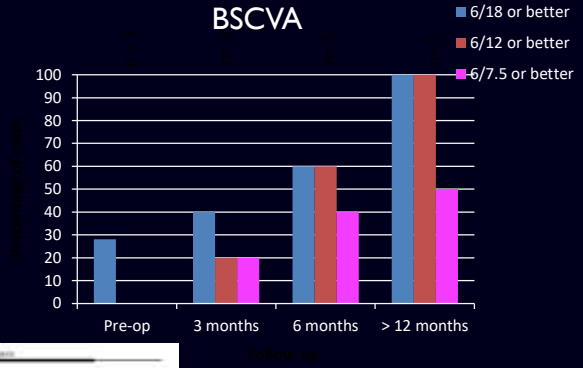
POSTOP 3 months

Wedge and Facelift for Pellucid

BSCVA



BSCVA



Alamjhan Amini
Date Of Birth: 30.05.1977 Patient ID: 117031

TECHNOLAS

Signed In: Dr. Sheraz Daya

Logout

Treatments: **OD** Arcuate Incisions

LRCS

Video

Scale/Width = 22.467 mm
Scale/Height = 16.752 mm

DCT 0°

Scale/Width = 17.436 mm
Scale/Height = 10.415 mm

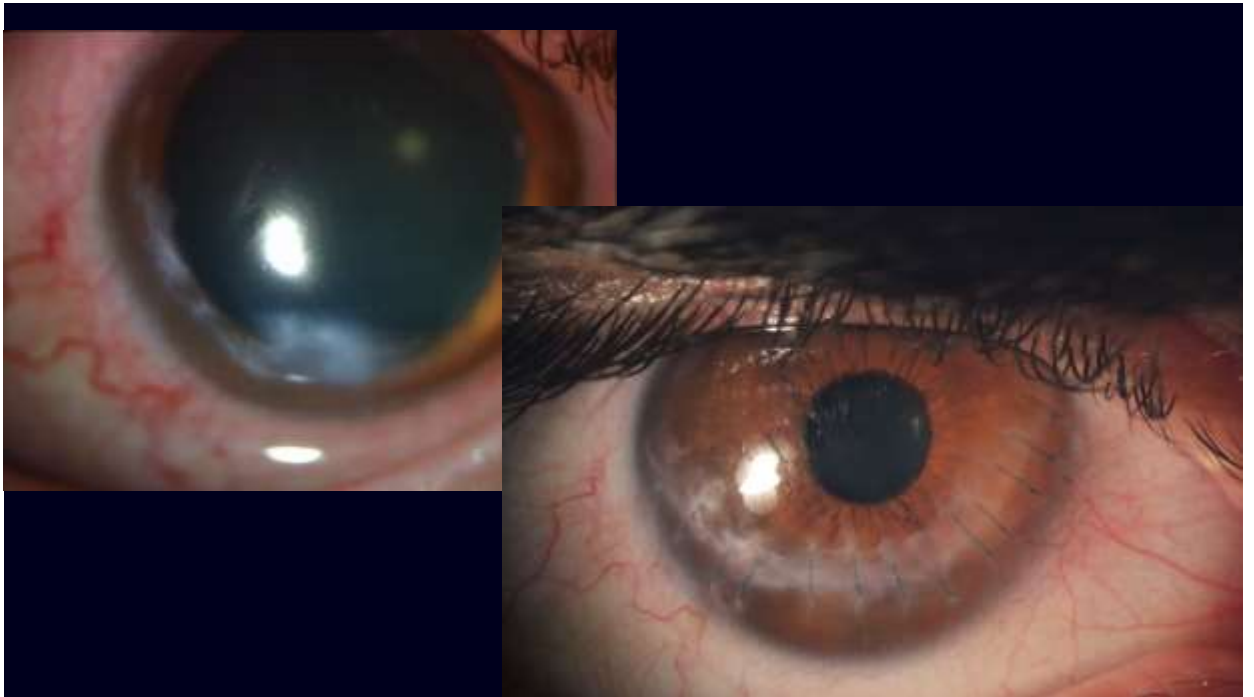
XY Centering

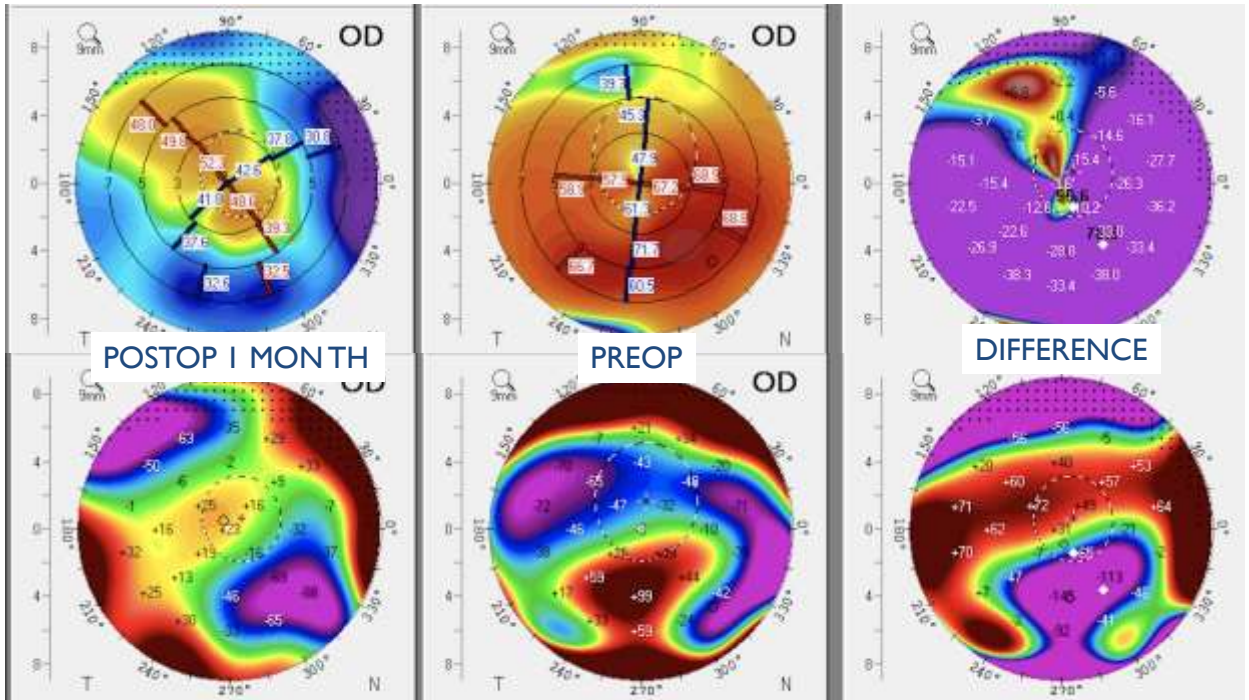
Accept Data

PI Fixation Eye Suction System Call

CENTRE FOR SIGHT
SHERAZ DAYA MD

STOP





Corneal Crescents and Patches

THERAPEUTIC -Peripheral melts and Perforations

- Tectonic
- Patch eye – quieten – preparation for PK/LK
- Terriens
- Moorens
- Rheumatoid Melt
- Corneal perforation – microbial Keratitis

SHAPE alteration – Astigmatism

- Post PK astigmatism
- Pellucid

Corneal Crescents and Patches

CORNEAL PLASTIC SURGERY

Sophisticated application of Lamellar/Grafting techniques

Wide ranging uses from Ocular preservation to Refractive correction....

Thank you...

