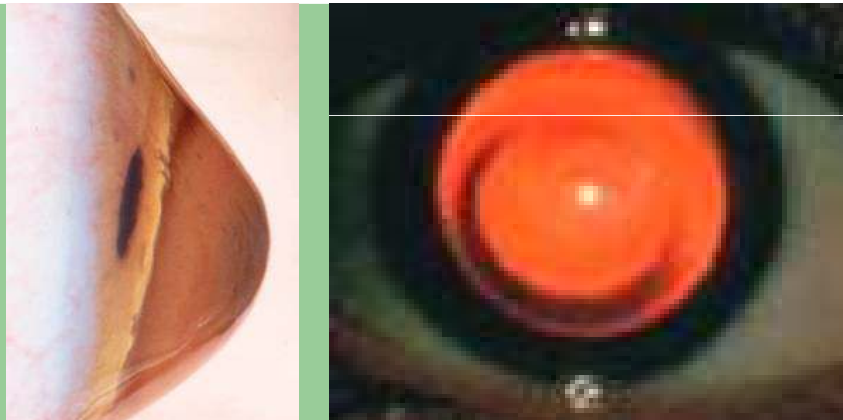


Visual Performance of RGP Contact Lens in Keratoconus patients attending BPKLCOS

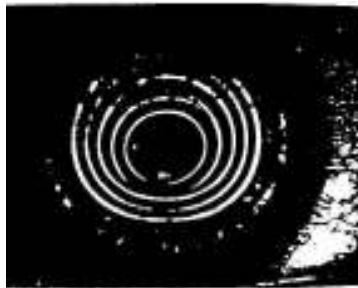


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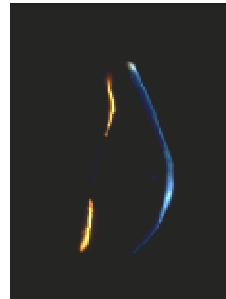
Introduction

- Defⁿ
 - bilateral, asymmetric and progressive non inflammatory condition
 - localized manifestation of mild connective tissue disorder
 - corneal thinning and ectasia
- Age of onset: 12 - 26 (or even later)
- Prevalence: 55/100,000
 - Variable: Holland (1 in 40,000), UK (1 in 10,000)

Diagnostic signs



Corneal distortion:
Placido's disc



Central corneal
thinning < 0.48 mm



Visible corneal
nerves



Vogt's striae



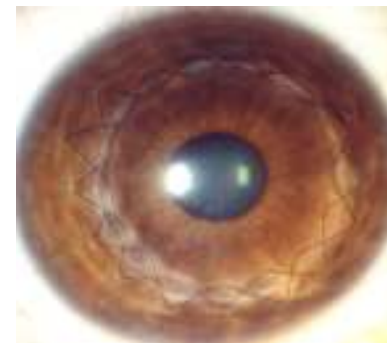
Fleischer's ring



Munson sign

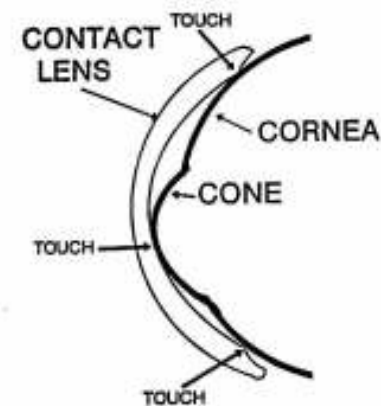
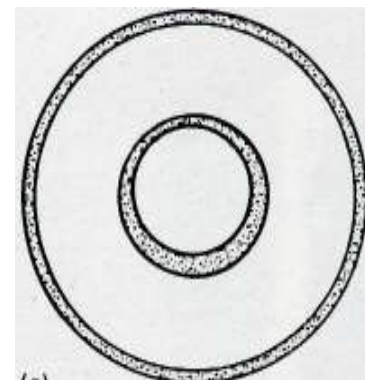
Management Strategies

- Spectacles – Mild KC
 - Scissor retinoscopy reflex
 - Definitive pinhole Improvement
 - Mild-moderate vision loss (VA < 6/12)
 - Frequent spectacle changes
- Contact lenses – Moderate KC
 - Piggy Back or Hybrid lens
 - Scleral & RGP lenses
- Surgery (Penetrating Keratoplasty) – Severe KC
 - Poor CL fit & or tolerance, VA < 6/18 with CL
 - Corneal thinning ~ 5 mm or point of perforation

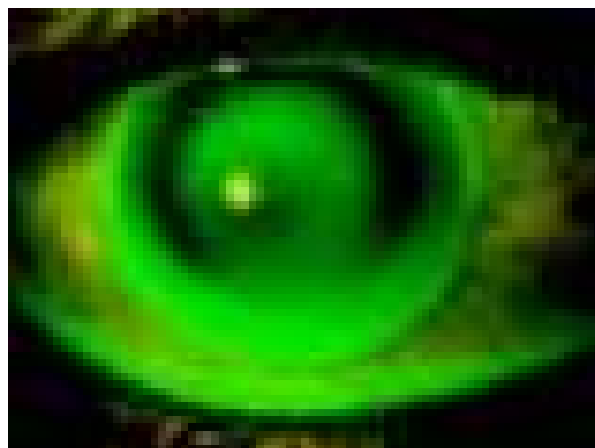
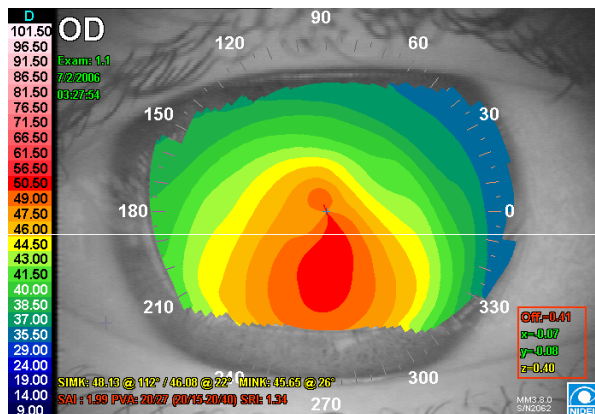


RGP Fit Philosophy

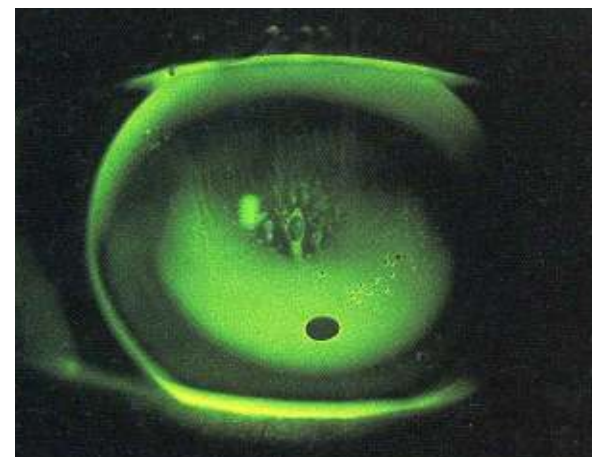
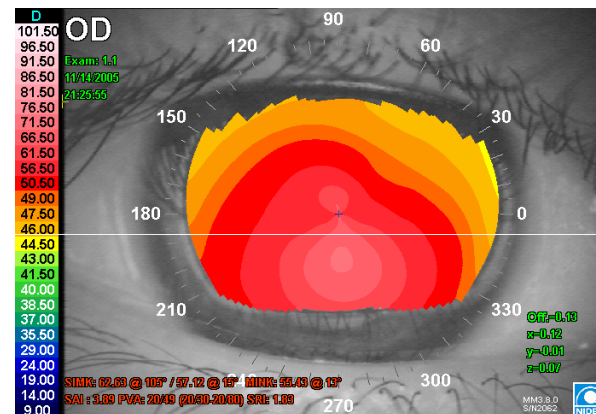
- **Keratoconus Severity grades**
 - Mild (average SIM K < 45D)
 - Moderate (average SIM K 45- 52D)
 - Severe (average SIM K > 52D)
- **Three Point touch- Popular fit pattern**
 - Apical bearing zone of 2-3 mm
 - An intermediate Clearance Zone
 - Mid periphery annulus contact &
 - Conventional edge clearance at Periphery



Fitting Characteristics



RGP CL Fit in Moderate Keratoconus



RGP CL Fit in Severe Keratoconus

Objective

- General
 - To measure Visual performance of RGP CL in Keratoconus.
- Specific
 - To find out the age and gender predilection
 - To compare the quantitative VA improvement b/w CL and Spectacles
 - To find out association of ocular allergy to Keratoconus
 - To determine the amount of corneal power & its progression / regression after RGP wear

Methodology

- Inclusion Criteria:
 - All clinically diagnosed case of Keratoconus
 - Age: At least 12 years old
 - Irregular corneal surface – scissor reflex in retinoscopy
 - Slit lamp biomicroscopic findings
 - Follow-up status – one year
- Exclusion Criteria:
 - Surgical status: bilateral corneal transplants
 - Other ocular disease: nonkeratoconic ocular disease (not glaucoma)

Methods

- Slit lamp examination – diagnostic signs
- Refraction & Visual acuity with spectacles
- Corneal Topography – severity grades & CL design
- Pre- CL Fit Assessment
- K-Conus RGP CL Fittings
- Follow-up Records
 - Visual Acuity
 - Refraction
 - Corneal curvature
 - Complication and Comfort Issue



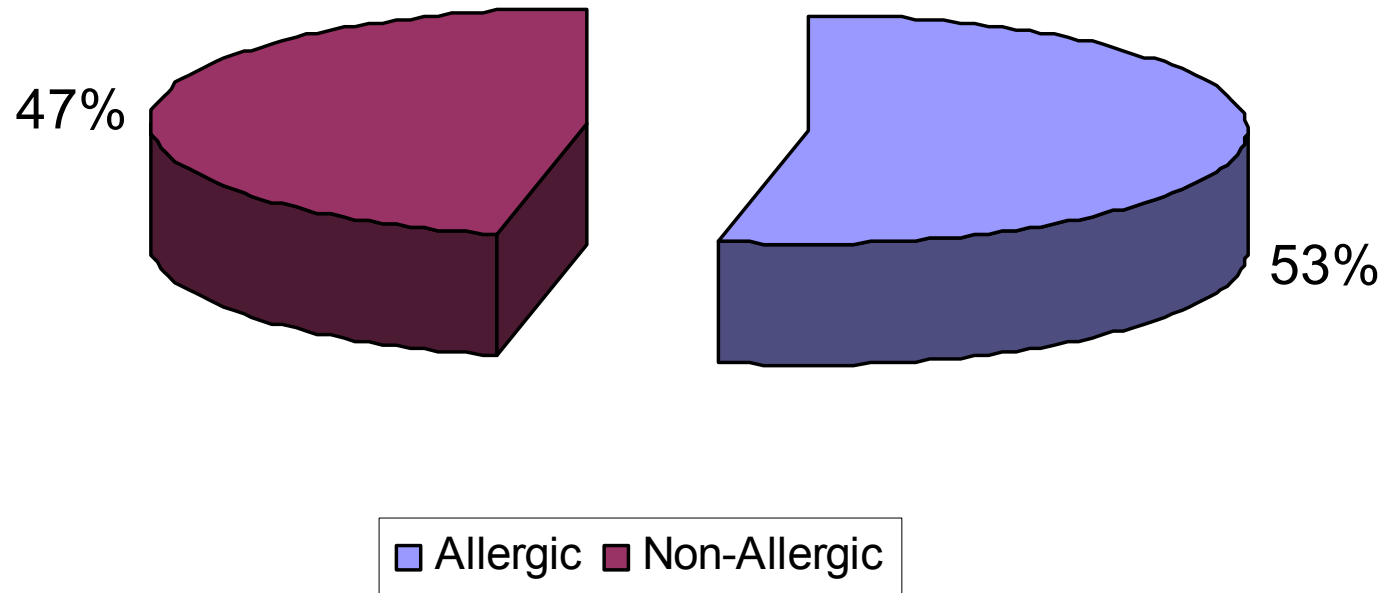
Results

- Total No. of Patients: 15 patients
(Male, n = 14; Female, n =1)
- Out of 30 eyes, six were excluded
 - One Penetrating Keratoplasty performed eye
 - One severe Keratoconus (Sim K= 70.25D) unsuccessful fit due to extensive central corneal scarring
 - Four eyes - clinically no Keratoconus
- Total No. of Eyes included: 24 (RE:LE=1:1)
- Age Range: 12 yrs to 24 yrs
- Mean Age: 18.9 ± 3.9 yrs

Visual Acuity with Optical Correction Based on Severity

Optical Correction	Visual Acuity	Moderate Keratoconus Eyes	Severe Keratoconus Eyes
Spectacles	>20/40	1	-
	20/40 – 20/80	21	-
	<20/80	-	2
RGP CL	>20/40	22	-
	20/40 – 20/80	-	2
	<20/80	-	-

Association of ocular allergy to Keratoconus



Corneal Diopters Vs K-conus Progression

	Right Eye	Left Eye
Initial Average Sim K	50.11±5.08D	49.61±3.73D
F/U Average Sim K	49.54±4.33D	49.48±3.29D

Discussion

- High incidence of Keratoconus was seen in males (male: female = 6:1)
 - Karseras, Ruben, Woodward & Ihalainen study (1981) showed male: female = 3:2
- Mean age: 18.9 ± 3.9 yrs (Range: 12-24 yrs)
 - However, Jain et al; study had mean age: 21.2 ± 10.5 yrs (Range: 12-61 yrs)
 - This study reveals the early response of the patients to non-improvement in their visual acuity, hence got the better result.

Discussion

- Almost 92% of cases had improved visual acuity of >20/40 after K-conus RGP wear
 - CLEK study, 77.9% cases had >20/40 visual acuity

(CLEK STUDY: Szczotka, Barr, Zadnik et al. Optometry 2001; 72: 574-87)

- RGP CL fit succeeded in 24 eyes (96%) out of 25.
 - 1 eye failed CL trial due to high average sim K (70.25D)
 - Similar result - 97% success rate

(Jain AK; Sukhija J, IJO 2007; 55:121-5)

Discussion

- Many literatures suggest ocular allergies & eye rubbing is one of the etiologies of Keratoconus
 - This study reveals 53% of the cases had associated ocular allergies.
- There is no significant regression in corneal curvature ($p= 0.49$).
 - However, RGP seems to be the best choice to retard the progression of cone.

Conclusion

- Fitting of speciality contact lens is quite challenging in Keratoconus.
- K-conus RGP sets are the appropriate contact lenses in the management of moderate Keratoconus eyes.
(success rate-100%, BVA >20/40)
- Further investigations required to consider factors related to SIM K & appropriate lens design and address the issue of high order aberrations.

Thank you

