From Vision to Ocular Surface Rehabilitation, a Paradigm Shift in Scleral Contact Lens Prescribing

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INTRODUCTION

"The Role of Contact Lenses and Shells" Mr Frederick Ridley, 1946

To protect the eye from drying; to separate the conjunctival surfaces and to afford a mechanical barrier to irritation of the globe and cornea by ingrowing lashes, inturning lids or rough tarsal plates; and so to secure freedom from discharge and comfort for the patient while leading to a steady clearing of the cornea

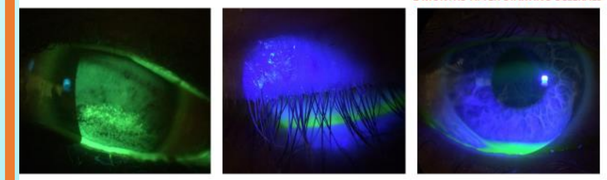
Scleral Lenses: Are We Moving from Optical to Therapeutic Applications

- **Does CXL reduce the need for scleral lenses???**
- Advances in diagnostic imaging → Early screening and treatment = functional UCVA
- In the literature: CXL dramatically reduce the need for PK [Godefrooij D, 2016; Sklar JC2019]
- Will the advances in topo guided PRK +CXL further reduce the need in scleral lenses???

- **Do we see an increase in therapeutic applications???**
- The status of scleral lenses for surface disease
- Tan, Pullum and Buckley, 1995 – OSD 6.4%
- Pullum and Buckley, 1997 - ocular surface disorders 8.2%
- Segal et al, 2003- dry eye and exposure 9.2%
- Nau et al, 2018 – surface disease 16%

Incomplete Closure – Corneal Exposure

- 61 yof, s/p Rt Accoustic Neuroma removal, OD better eye, highly myopic, OS Deep Amblyopia, hearing loss
- Incomplete closure→ gold weight implantation→ constricted superior VF→ gold weight removal → Severe Exposure Keratopathy
- **Options → Tarsorrhaphy vs Scleral Lens**



Persistent Epithelial Defect

- 78 yof, RA, Neurotrophic cornea, PK for perforated corneal ulcer
- Failed graft, Persistent ED for >4mo
- Failed BCL and serum tears. Refuses tarsorrhaphy. VA FC 3 FT
- Re-graft in a setup of NK vs Scleral Lenses

STUDY DESIGN

Emory University Department of Ophthalmology, Specialty Lens Service
Retrospective records review, April 2018 to March 2019
183 patients (281 eyes) fitted with scleral contact lenses
Fitting indications, ocular surface rehabilitation success rates among various OSD conditions

RESULTS

Indications:

- **Keratoconjunctivitis Sicca (KS)** of autoimmune etiology –
- 38 eyes (12 eyes with confirmed Sjogren's and etc.)
- **Ocular Graft-Versus-Host Disease (GVHD)** 18 eyes
- **Neurotrophic Keratitis (NK)** 15 eyes
- **Ocular Cicatricial Pemphigoid (OCP)** 11 eyes
- **Stevens-Johnson syndrome (SJS)** 6 eyes

- **94 eyes (33.5 %)!!! were fitted for management of ocular surface disease**
- Remaining 187 eyes - optical reasons (KC, post RK, K scarring and etc.)
- OSD group 51 patients (32F/19M) mean age 56±19.8 years, range (5-89)
- Irregular cornea group (68F/64M) mean age 45±17.5 years
- Wearing times and removal/reinsertion breaks

➢OSD 10 h/day with 1.7 breaks

➢KC group >12 h/day , 0.6 removal breaks

Results – Success Rates

- 88% of eyes fitted for ocular surface-related indications responded well to therapy and continued scleral lens wear
- Highest success rates were recorded in GVHD (86%), OCP (98%) and NK (84%) groups
- Visual acuity among surface disease patients improved from 20/80 to 20/30 scleral lens corrected (range, 20/400 to 20/20)
- >20 % of referrals were from non-ophthalmology providers (oncology, rheumatology, dermatology, etc.)

CONCLUSIONS

- Higher, than previously reported, rate of Scleral Lens use for OSD management (33.5% vs. 16%)
- High retention/success rates in patients with debilitating ocular surface conditions
- Referral to scleral lens fitting is not limited to ophthalmology
- Increased awareness of scleral lens therapeutic benefits among other specialties: Dermatology, Oncology, Rheumatology allows timely referrals and might save sight in many cases