

Cataract in Keratoconus

Ahmed El-Massry MD
Professor of Ophthalmology
Alexandria University
Egypt

No Financial interest

RIO 2017

Surgical Management of Cataract In Patients with keratoconus

- ***Age***
- ***Stage of Keratoconus or Ectasia in general***
- ***Stability***

Main problem:

IOL Calculation and Refractive Outcomes in Ectatic Corneas

Age

- *Young*
- *Middle aged*
- *Old age*

Stage of Keratoconus

- *Mild ectasia*
- *Moderate*
- *Severe*

Stability

- *Unstable*
- *Stable*

- -**Young** patients with Cataract,
-**Mild KC**
“Unstable” KC:

•**Stability is a must:**

- Signs of Progression of KC:

- . **Thinning** of the cornea more than **ten microns** per year.
- . Increase of **the curvature** of the cornea more than **one Diopter per year.**
- . Increase the **difference between the superior and inferior** meridians more than **one and half Diopters.**

How to stabilize the irregular cornea before cataract surgery???

Young patients before 30 years of age with unstable cornea :
Stabilize the cornea by **Corneal Collagen Cross linking (CXL).**

- **Young** patients : Till 35 years of age:
- **With Mild Keratoconus**
- **and stable readings:** (natural CxI or Cxled)

1- **Pentacam** is mandatory.

2- **Optical and Ultrasonic Biometry** are essential

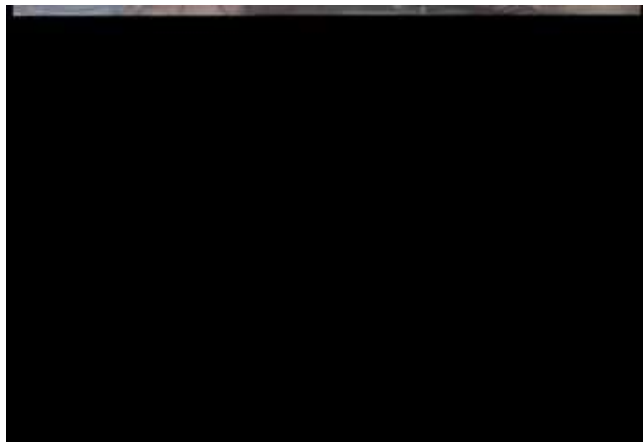
3- **Third generation Formulae** for IOL calculation:

- **Haigis L**
- Shamma
- Masket
- Holladay 2

4- All results should be **within two diopters of Haigis L** formula

- **K readings considerations for Biometry.**
- **Not less than six months post CXL**
- **Cataract is hard !!!!!!**

Post CXL



El-Massry

Middle aged cataract patients with Mild, Moderate KC Stable:

- 1- **Pentacam** is mandatory
- 2- **Optical Biometry** is reliable
- 3- Compare **K readings in pentacam and Lenstar or IOL Master.**
- 4- **Third generation** Formulae like Haigis L .
- 5- **Toric IOLs don't have good results in irregular cornea in these cases, nor opposite CCC, or femto arcuate incisions have a role: (Debatable)**

- **Middle aged Cataract patients:**
 - Moderate Keratoconus,
 - with Unstable Cornea.

**"As you can't depend on
the unstable & irregular Ks"**

- **ICRS** and wait for **three months** then :

- Pentacam

-Optical Biometry:

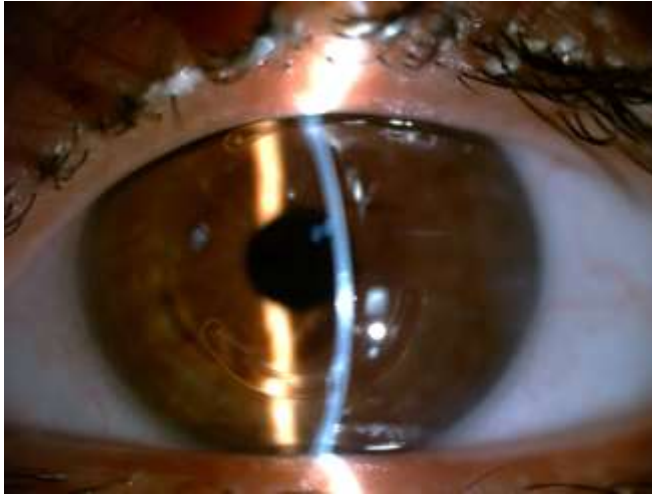
Haigis L Masket Shammas

Olson Dr.Hill ASCRS on lines



Post-operatively:

- No extra surgical skills
- Clear cornea



Post Intacs:

- Challenging k readings.
- Difficult visualization.
- Long time of surgery.



Middle aged Cataract patient : with advanced KC

- **Triple procedure :**
DALK, Phaco and IOL.
- **Hydrops:**
PKP and Cataract extraction and IOL.

Old age above 60 years and KC:

- **Mild Keratoconus K1 with steep cornea:(up to 54 D)**

Mostly stable: Depend on the pentacam readings.

- **Moderate with K2, K3 :**

Make the surgery on steps:

first : remove the cataract then assess the need of the IOL especially when the powers of IOLs are out of range...(-17.00 D ,
- 15.00 D IOL)

Old age with advanced KC

- **Signs of advancement:**
 - Pachymetry **less than 400** microns in the center .
 - Kmax more than **66 D**
 - **Endothelial folds**
 - History of **Hydrops**.
 - **Opaque apex.:**
- **Standard PKP and Cataract and IOL**

- Post PKP:**
- Wait one year after PKP.
 - Full explanation of rejection chance.
 - Soft shell technique for endothelial protection.
 - Small air bubble indicator for endothelial coating.

**You can depend on
post Keratoplasty
K readings after a year**

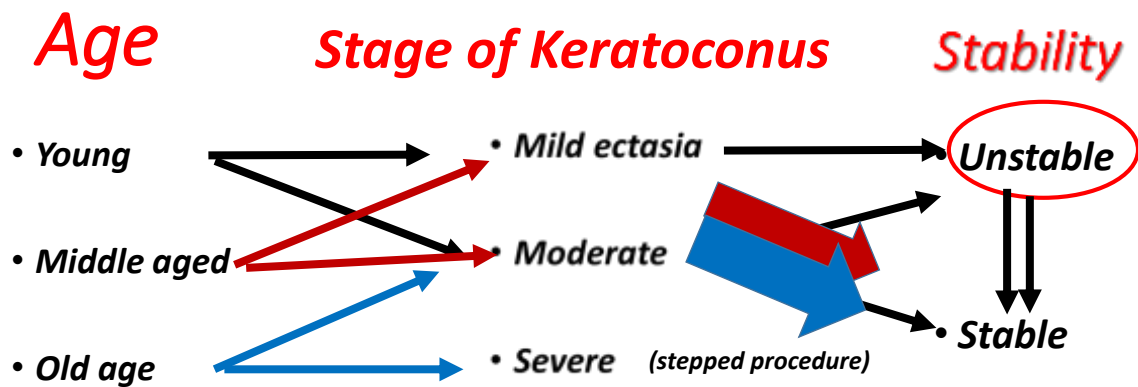


Day 1 postop

One day post-Operative



To Summarize The Guidelines for Management of Cataract in KC



El-Massry



Thank You

AHMED EL-MASSRY MD