Comparison of Vision: Custom Silicone Hydrogel Toric Contact Lenses vs Manifest Refraction – Case Reports

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Purpose
Silicone-hydrogel toric custom made-to-order (MTO) lenses have recently become available in the U.S. The purpose of these case studies is to assess the patient care and practice management aspects of utilizing this new modality. The specific questions is:

- Could the initial diagnostic lenses sent from the laboratory provide acceptable fit and visual acuity can be dispensed as diagnostic trials?

Accordingly four soft lens patients were selected with significant refractive astigmatism, unusual toric prescriptions, or atypical corneal diameters.

Initial lenses were ordered with laboratory consultations:
- Custom visual acuities with initial soft MTO silicone hydrogel lenses were compared to the visual acuity of four patients with their B&A manifest refraction.

The data could be a good indication of the accuracy and ease of utilizing these lenses in managing and caring for the unusual soft toric patient.

Background
One of the current patient care and practice management challenges is caring for soft lens patients with significant refractive astigmatism, unusual lens prescriptions, or atypical corneal diameters.

Commercially molded soft silicone hydrogel (SiHy) toric contact lenses are available. While appropriate for a variety of patients, it is difficult to solicit those who have unusual prescriptions and/or atypical corneal diameters because these molded lenses are limited to the most common parameters.

With improved designs and increasing repeatability, custom MTO molded toric lenses have been available for decades. While manufacturers can provide very accurate lenses for unusual or high prescriptions, the lathe has not been recognized risk factor for corneal edema, red eye, and microbial keratitis.

For any custom or MTO contact lenses product, there are significant management challenges to be met.

- Minimal patient data was required to order the lenses:
  - Keratometry and HVID
  - Best Manifest Spectacle Refraction

- All of the initial Custom SiHy Toric lenses provided acuities and visual acuities, allowing patients to be dispensed with follow up appointments to determine the final contact lens prescription.

- All initial patient lenses arrived within four working days of ordering.

- All initial Custom SiHy Toric lenses provided acuities and visual acuities within one line of the acuity from B&A manifest refraction.

- All of the initial patient lenses, even with the most challenging prescriptions, could be dispensed with follow up appointments to determine the final contact lens prescription.

Methods

To be eligible for entry into the review, four patients were selected with significant refractive astigmatism or unusual prescriptions, all with at least one of the following:

- Intellisense Custom Astigmatic Toric Lenses were ordered from Art Optical using:
  - Manifest spectacle Rx and acuity – the best distance manifest spectacle refraction and corrected acuities were taken before ordering contact lenses.

- Sim K's and HVID (horizontal visual iris diameter/corneal diameter) – taken from Medmont Topographer to minimize practitioner variability.

- The lenses arrived from Art Optical Laboratory, the contact lenses were inserted for evaluation:
  - Following the fitting guide recommendations, the patients were the contact lenses for at least 10 minutes.
  - Visual acuities, sphero-cylindrical over-refraction, and HVID of each lens were used to determine if these initial lenses could be dispensed.

- Sim K's and HVID (horizontal visual iris diameter/corneal diameter) – taken from Medmont Topography to minimize practitioner variability.

- Minimal patient data was required to order the lenses:
  - Keratometry and HVID
  - Best Manifest Spectacle Refraction

- All of the initial Custom SiHy Toric lenses, including those with unusual prescriptions, arrived from the laboratory within four days.

- Even though patients had challenging toric prescriptions, all initial Intellisense Toric lenses were appropriate fit and vision and were dispensed with follow up appointments to determine the final contact lens prescription.

- All of the initial patient lenses, even with the most challenging prescriptions, could be dispensed with follow up appointments to determine the final contact lens prescription.

- All initial patient lenses arrived within four working days of ordering.

Conclusion
In these case studies, Intellisense Custom Astigmatic Toric Lenses from Art Optical have met both patient care and practice management challenges for soft lens patients with significant refractive astigmatism or unusual prescriptions.

- Minimal patient data was required to order the lenses:
  - Keratometry and HVID
  - Best Manifest Spectacle Refraction

- All of the initial Custom SiHy Toric lenses, including those with unusual prescriptions, arrived from the laboratory within four days.

- Even though patients had challenging toric prescriptions, all initial Intellisense Toric lenses were dispensed with follow up appointments to determine the final contact lens prescription.

- All initial patient lenses arrived within four working days of ordering.

A further study involving more patients and including an assessment of quality of vision is planned.

Results

**Manifest spectacle Rx and acuity –** the best manifest spectacle refraction and corrected acuities taken before ordering contact lenses.

**Toric CL Acuities –** taken after inserting the initial custom Intellisense Sily Soft Toric lens received from Art Optical.

**OR of Lens –** the sphero-cylindrical over-refraction of the initially inserted Intellisense Toric lens performed at the initial dispensing visit.

**Sim K's and HVID** (horizontal visual iris diameter/corneal diameter) – taken from Medmont Topography to minimize practitioner variability.

**Patient**

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<thead>
<tr>
<th>Lens</th>
<th>Manifest Spec Rx and Acuity</th>
<th>Toric CL Acuity</th>
<th>OR of Lens</th>
<th>Sim K’s</th>
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**References**