Managing Ocular Graft vs Host Disease with Scleral Lenses

Alamo Eye Care & Contact Lens Institute of San Antonio
Melanie Frogozo OD and Sabari Arcot BS

BACKGROUND

Ocular Graft vs. Host Disease (Ocular GVHD) is a condition that manifests after allogenic stem cell tissue transplantation, triggering immune cells to recognize donor cells as foreign aberrant cells, causing multitude of autoimmune mediated destruction of recipient tissue. Ocular manifestations include severe keratoconjunctivitis sicca, neurotrophic keratopathy, excessive neovascularization, and corneal melting. In most extreme cases, GVHD can cause corneal perforation or potentially compromise the integrity of limbal stem cells, warranting a limbal stem cell transplantation.

Patients with chronic GVHD often complain of loss of vision, ocular pain or light sensitivity. Patients with ocular GVHD often require frequent use of artificial tears, topical cyclosporine, oral immunosuppressives and in severe cases, scleral lenses to alleviate and reduce the chances of recurrent corneal erosions and further corneal surface damage.

CASE EVALUATION

This case presents a 38 year old male with history of graft vs host disease, secondary to bone marrow transplantation in 2016 due to myelodysplastic syndrome. Patient complains of significant dry eye due to GVHD (diagnosed in 2016) and was referred to the practice by a corneal specialist. Patient was initially fit in Zen lenses, however due to significant irregularities of the ocular surface, conventional lenses was deemed improper for this patient. Patient has had limbal stem cell transplantation in the right eye and 3 PKPs in the left eye (over the course of two years).

***Entering VAs*:** 20/100 OD and hand motion OS
Topographies were irregular and unreliable due to severe OSD.

Slit lamp examination:
OD: Full limbal stem cell transplantation 360, Symblepharon near nasal canthus, PCIOL
OS: Full PKP. Symblepharon located superior and inferiorly, PCIOL

CLINICAL OUTCOMES

Eyeprint pro, a prosthetic scleral shell design, was deemed appropriate for the proper protection and fit for this patient. Impressions were taken in the initial visit using polyvinyl siloxane material to create an impression mold of the ocular surface and sent to Advanced Vision Technologies for appropriate 3D scans of the mold to create the scleral lens using lathe technology to account for any irregularities of the corneal or scleral surface.

Used Europa 20 mm diameter lens to attain appropriate power for Eyeprint pro lenses.

Scleral Lens Design:
OD: +10.00/29.81/18.5 mm

With +4.00 glasses over scleral lenses (autologous serum and oasis tears in the bowel), patient attained 20/25 VAs. Patient was given glasses to reduce any sequela associated with increased central lens thickness.

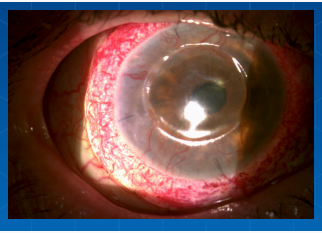

Figure 1: Limbal Stem Cell Transplantation (Right eye)

DISCUSSION AND CONCLUSION

- Ocular GVHD can significantly limit the quality of life in patients with frequent complaints of photophobia, significant conjunctival hyperemia, ocular pain, decreased vision and foreign body sensation.
- Large diameter lenses are often prescribed for these patients in order to appropriately protect the conjunctiva and the cornea from further possible damage and prevent desiccation and exposure.
- To improve the lubrication of ocular surface and improve the chances of viability of the limbal stem cell transplant, interventions such as scleral lenses, punctal plugs, and autologous serum tears are needed.
- It is imperative to monitor regularly patients with chronic GVHD for infectious keratitis, PSC, and increased IOP due to long term use of high dose systemic corticosteroids.
- With custom designed scleral lenses, this patient has 20/25 visual acuities in the right eye and has been able to wear his scleral lenses up to 8 hours a day.

SELECTED REFERENCES

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