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OcuSeal Ocular Bandage: Improved Patient Comfort and Wound Integrity Postoperatively

By Lynda Charters

Reviewed by Matteo Piovella, MD

San Francisco—A new hydrogel product, OcuSeal Ocular Bandage (Beaver Visitec International), provides improved patient comfort and wound integrity and closure following cataract surgery.

The material is a synthetic hydrogel (85% water) that comes packaged as two separate components, powder and liquid, that are mixed together in a small cylindrical applicator.

“The liquid and powder should be mixed for 5 seconds before use. The solution must be used within 10 seconds!” Matteo Piovella, MD, emphasized during the American Society of Cataract and Refractive Surgery meeting.

When spread over the patient’s wound, the hydrogel film interacts with the underlying tissues and forms a seal that lasts 2 to 3 days. He demonstrated that the hydrogel microstructure was comprised of holes 2 to 3 microns in size on day 1 postoperatively compared with holes that were 10 microns in size **on day 1**

“The epithelium has more room to heal and eventually the healed epithelial tissue replaces the OcuSeal,” he said.

Dr. Piovella and coauthor Barbara Kusa, MD, who are in clinical practice at the Centro Microchirurgia Ambulatoriale, Monza, Italy, reported their 4-year experience with the product. During that period, they applied the liquid bandage to the clear corneal incisions of 181 patients (246 eyes; 89 men, 92 women). The mean patient age was 68.57 years. The authors found that the ocular bandage cross-linked within 20 seconds of application and formed a smooth, soft, transparent protective film over the incisions.

Dr. Piovella reported that no patient experienced discomfort, and no complications or adverse effects occurred during the first 6 months postoperatively.

There is a learning curve attached to use of the product, and in 16 eyes in this series the ocular bandage was applied incorrectly; in these cases, the application was not accomplished quickly enough because the product polymerizes in 15 seconds, he reported. He also pointed out that in **1% of** cases the hydrogel film cannot be applied to the cornea as a result of imperfect mixing of the two components.

In the 246 study eyes, the best-corrected visual acuity was 0.47 1 hour postoperatively and 0.82 1 day postoperatively. Only 10% of patients in whom the ocular bandage was applied reported a

foreign body sensation 1 day after surgery compared with 70% of patients in whom OcuSeal was not used.

Any residual ocular bandage that was inadvertently applied disappeared within 12 hours of surgery in all patients.

Dr. Piovella believes that patient comfort during the initial period of healing is an important reason to use this product. In addition, he noted, that studies have implicated unsealed clear-corneal incisions as a possible cause of infections postoperatively. Researchers have suggested that rapid fluctuations in intraocular pressure, such as might occur with eye rubbing, can cause unhealed cataract wounds to gape, allowing conjunctival fluid and bacteria into the eye.

The ocular bandage may contribute to wound strength following cataract surgery. A comparison performed in human cadaver eyes with and without the ocular bandage indicated that the average pressure at which incisions burst in eyes in which the ocular bandage was not applied was 59.46 mmHg compared with 221.84 mmHg in eyes in which the ocular bandage was applied.

Recently BVI has tightened up the sterilization parameters and is now filling the PEG powder in oxygen and humidity controlled environment to create better bandage consistency to apply it easier . Also added a blue tint to improve bandage visibility

Dr. Piovella now uses the ocular bandage routinely after cataract surgery.

“OcuSeal improves wound integrity and closure after cataract surgery and mostly eliminates the postoperative foreign body sensation. Our results support the routine use of OcuSeal after cataract surgery,” Dr. Piovella concluded.

Dr. Piovella receives lecture fees from Beaver Visitec International.

Contact Information

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Take-Home Message

A new hydrogel product, OcuSeal Ocular Bandage (Beaver Visitec International), provides improved patient comfort and wound integrity and closure following cataract surgery.