An 81-year-old man with history of retinal detachment 25 years ago repaired with MIRAgel (MIRA Inc, Waltham, MA) scleral buckle, presented with pain and chronic light perception vision in the OS. Coronal and axial CT (Fig. A,B) demonstrated indentation of the globe with scleral thinning and adjacent hyperdensities. Due to severe pain and a poor visual prognosis, the eye was enucleated. Intraoperatively, a significant amount of MIRAgel material (white arrow, Fig. C) was found in the orbit causing globe deformation and scleral thinning. Histopathology demonstrated the imprint of the MIRAgel explant present equatorially on both sides (red boxes, Fig. D). Foreign material consistent with MIRAgel (asterisk, Fig. E) was present with foci of adjacent superficial scleral calcification (black arrows, Fig. E). These areas of dystrophic calcification are likely secondary to scleral degenerative changes adjacent to the MIRAgel explant and correspond to the hyperdensities seen on orbital CT.

MIRAgel hydrogel explants were introduced in the mid-1980s as an alternative to silicone for treatment of rhegmatogenous retinal detachments. Hydrogels are hydrophilic polymers with numerous current utilities in ophthalmology including soft contact lenses, sustained release drug delivery systems, implants for anophthalmic socket, and fornix expansion. However, previous authors have demonstrated that the specific polymers used in MIRAgel may eventually undergo ester hydrolysis resulting in ionized carboxylic groups that absorb water. These changes lead to hydrolytic degradation with progressive swelling of the explant, which proved to be a serious flaw leading to complications such as pain, ocular motility disorders, globe perforation, and endophthalmitis. When complications arise, the explant requires surgical removal, which may prove difficult due to the friable and fragmented nature of the material. This case serves to remind ophthalmologists that while MIRAgel scleral buckles are no longer used, serious complications that necessitate surgical removal continue to arise decades later.

DOI: 10.1097/IOP.0000000000001875

Accepted for publication September 17, 2020.
Supported by NIH Center Core Grant P30EY014801 and a Research to Prevent Blindness Unrestricted Grant (New York, NY).
The authors have no financial or conflicts of interest to disclose. The authors would like to acknowledge Thomas E. Johnson, M.D., for his surgical expertise in this case.
Address correspondence and reprint requests to Andrew J. Rong, M.D., Department of Ophthalmology, Bascom Palmer Eye Institute, University of Miami Miller School of Medicine, 900 NW 17th Street, Miami, FL 33136.
E-mail: ajr211@med.miami.edu.