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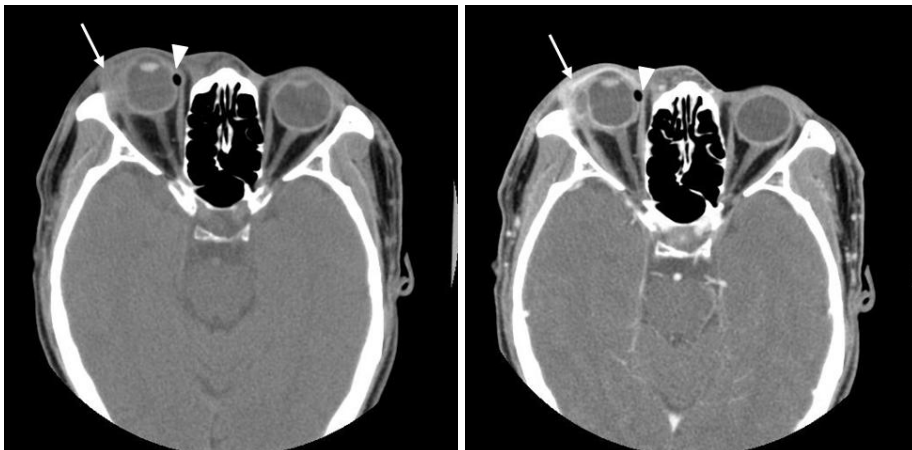
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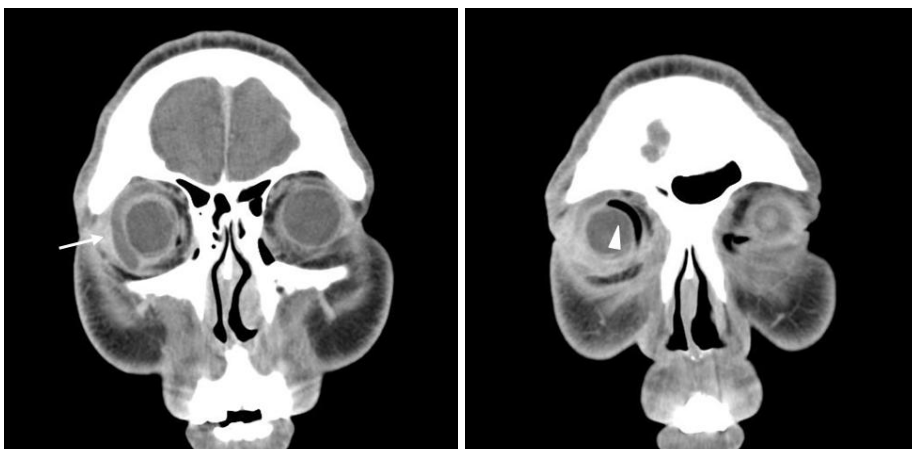
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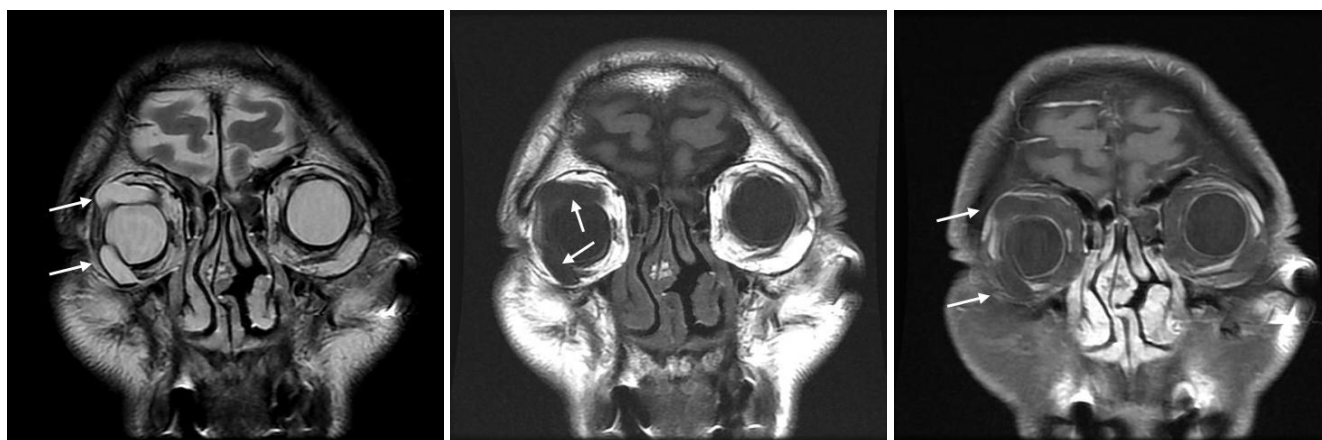


**Fig. 1.** Pre- and post-contrast axial (A, B) and post-contrast coronal (C) CT scans of hydrogel buckle (arrows) show circumferential soft tissue mass surrounding the globe with focal calcification and peripherally enhancing rim. Uncomplicated silicone sponge buckle is seen as low density, round structure (arrowheads).

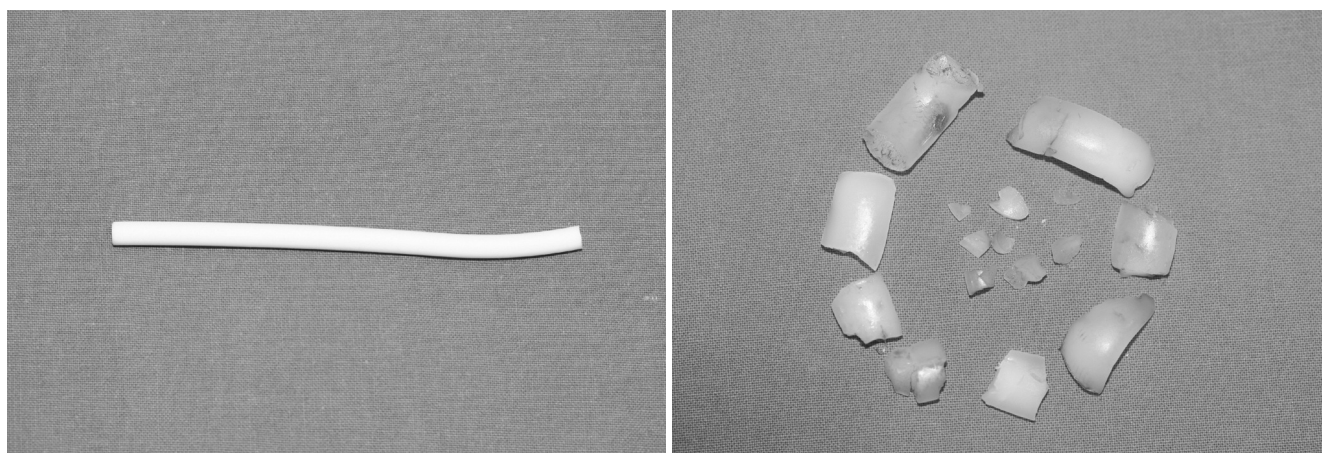


**Fig. 2.** Pre- and post-contrast axial (A, B) and post-contrast coronal (C, D) CT scans show hydrogel buckle (arrows) and uncomplicated silicone sponge buckle (arrowheads) in the right orbit.





**Fig. 3.** T2-weighted coronal (A), pre- and post-contrast T1-weighted axial (B, C) images show circumferential and lobulating contoured cystic mass with minimal rim enhancement corresponding to hydrolyzed, fragmented hydrogel buckle in the right orbit (arrows).



**Fig. 4.** Unused hydrogel buckle (A) is white in color and looks like compact pliable sponge. Fragments of surgically removed hydrogel buckle (B) are seen to be discolored, gel-like, translucent, friable, and swollen.

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1. Ho PC, Chan IM, Refojo MF, Tolentino FI. The MAI hydrophilic implant for scleral buckling: a review. *Ophthalmic Surg* 1984;15: 511-515
  2. Hwang KI, Lim JI. Hydrogel exoplane fragmentation 10 years after scleral buckling surgery. *Arch Ophthalmol* 1997;115:1205-1206
  3. Refojo MF, Leong FL. Poly (methyl acrylate-co-hydroxyethyl acrylate) hydrogel implant material of strength and softness. *J Biomed Mater Res* 1981;15:497-509
  4. Kearney JJ, Lahey JM, Borirakchanyavat S, Schwartz DM, Wilson D, Tanaka SC, et al. Complications of hydrogel explants used in scleral buckling surgery. *Am J Ophthalmol* 2004;137:96-100
  5. Lane JJ, Randall JG, Campeau NG, Overland PK, McCannel CA, Matsko TA. Imaging of hydrogel episcleral buckle fragmentation as a late complication after retinal reattachment surgery. *AJNR Am J Neuroradiol* 2001;22:1199-1202
  6. Kokame GT, Germar GG. Successful management of intruded hydrogel buckle with buckle removal, scleral patch graft, and vitrectomy. *Retina* 2003;23:536-538
  7. Chung EJ, Oh HS, Lee SC, Kwon OW. Diplopia and periorbital mass associated with Miragel buckling explant. *Korean J Ophthalmol* 2004;18:47-51
  8. Braunstein RA, Winnick M. Complications of miragel: pseudotumor. *Arch Ophthalmol* 2002;120:228-229
  9. Levy RJ, Schoen FJ, Levy JT, Nelson AC, Howard SL, Oshry LJ. Biologic determinants of dystrophic calcification and osteocalcin deposition in glutaraldehyde-preserved porcine aortic valve leaflets implanted subcutaneously in rats. *Am J Pathol* 1983;113: 143-155
  10. , , , . 2006;47:512-518

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## Radiologic Findings in Hydrated Hydrogel Buckles<sup>1</sup>

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Hydrogel buckles, which are used in scleral buckling surgery for retinal detachment, have been associated with late complications after successful retinal reattachment surgery, including strabismus, extraocular motility restriction, extrusion through the eyelid or conjunctiva, intraocular erosion, and scleral erosion. Hydrogel buckles sometimes appear as well-margined, circumferential, lobulating, contoured cystic masses mimicking orbital cysts on orbital CT or MRI. We report the radiologic findings in 5 patients whose hydrogel buckles needed to be differentiated from orbital cysts.

### Index words : Orbit

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Hydrogel

Scleral buckling

Foreign bodies

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