

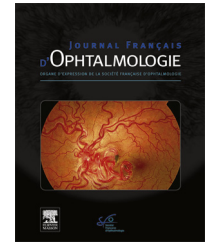


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LETTER TO THE EDITOR

Cataract formation after application of intense focused ultrasound for facial rejuvenation



Cataracte après application d'ultrasons focalisés pour rajeunissement facial

Intense focused ultrasound (IFUS) tightening is a popular cosmetic procedure in the field of dermatology. This modality aims at lifting/tightening of the skin by rearranging collagen using thermal coagulation excreted from ultrasound waves. The procedure may be performed near eyeballs e.g. for lifting the eyebrow and eyelid [1–3].

A 44-year-old woman visited the Persian eye clinic (Isfahan, Iran) with complaint of deteriorated visual quality in her left eye one week after a session of IFUS applied on the upper face and eyebrows.

Her corrected and uncorrected visual acuity were 10/10 OD and 9/10 OS; though, she complained of glare in her left eye. Four densities with approximate depth of 50% were detected in the crystalline lens of her left eye through dilated biomicroscopy (Fig. 1). Scheimpflug images of the lens demonstrated 4 roughly horizontally aligned opacities in the lens body (Figs. 2 and 3). Pentacam 4-map display of the cornea was unremarkable (Fig. 4).

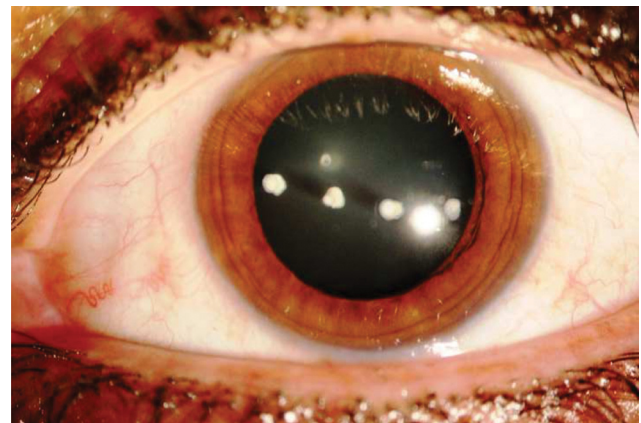


Figure 1. Dilated biomicroscopy of the left eye.

During 6 months of follow up, her visual acuity of both eyes did not change; as well as lens opacities that remained stationary. Her overall visual performance including corrected near vision remained sufficient for her daily activities; hence, we did not consider cataract surgery yet.

To our knowledge, this is the first report of IFUS intraocular complication i.e. cataractous lens opacity. Ultrasound waves vibrate molecules of the target tissue, and the

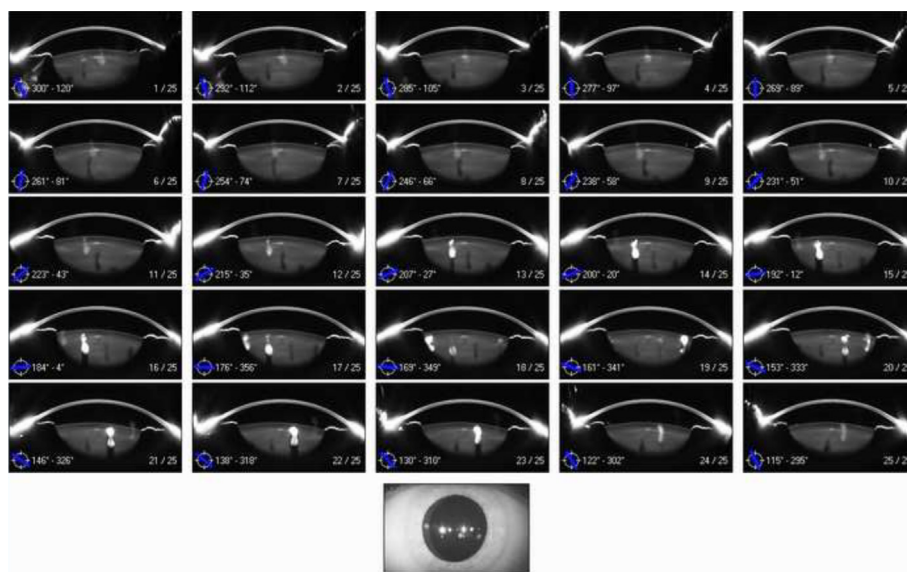


Figure 2. Pentacam Scheimpflug overview images of the anterior segment of the left eye.

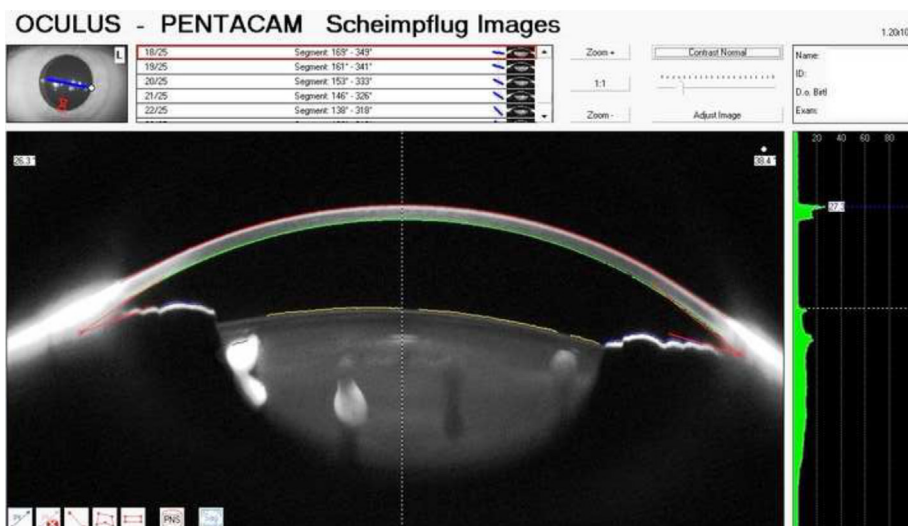


Figure 3. Best plane of Pentacam Scheimpflug imaging to show depth and shape of the opacities.

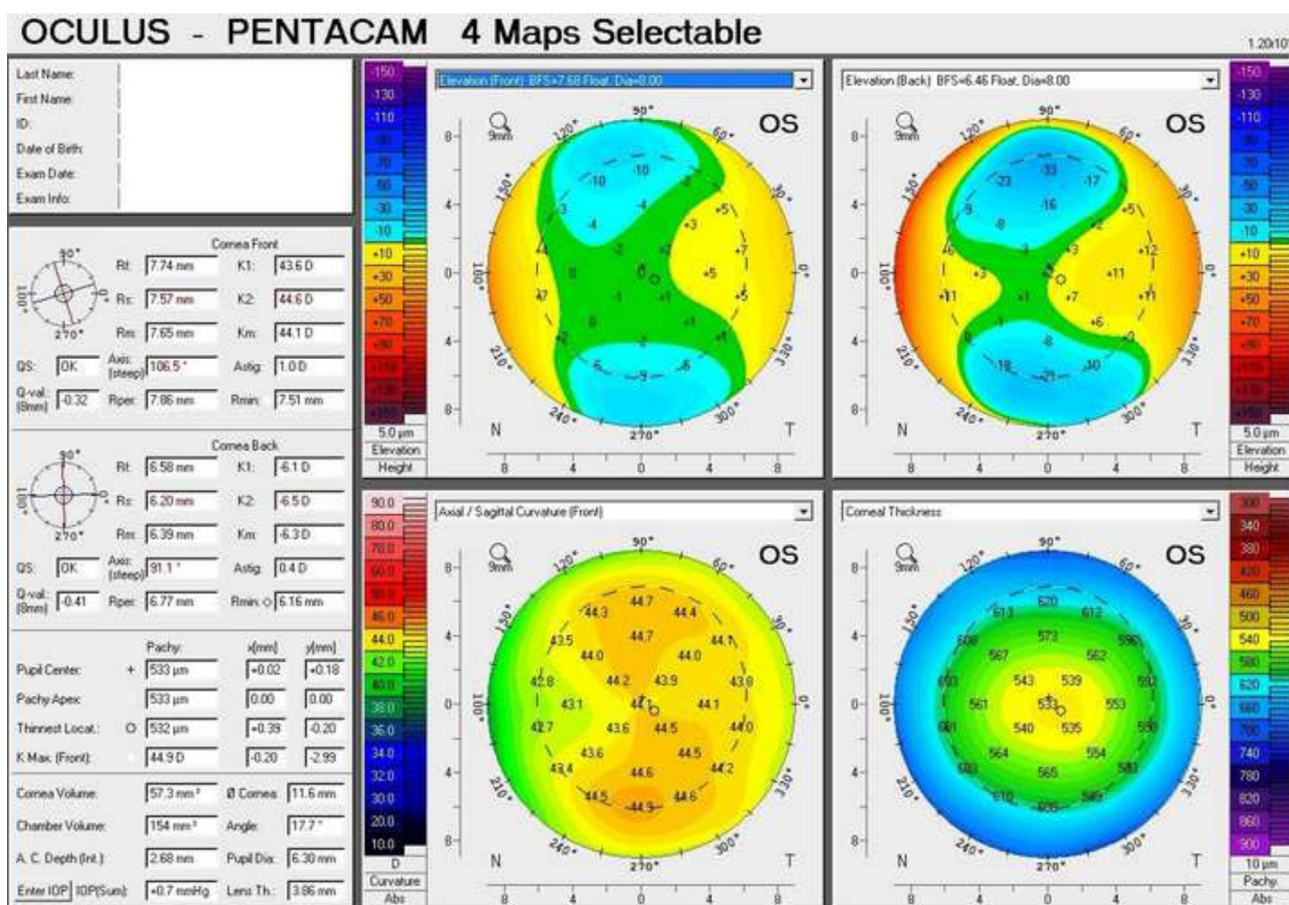


Figure 4. Pentacam 4-map display of the left cornea with normal findings.

consequent vibration results in heat generation. IFUS energy is planned to bypasses the superficial tissues to avoid cosmetic complications. However, this cosmetics advantage may accompany serious damage to deep vital organs, e.g. eyeballs as in our case. Eyelids have the most delicate skin of the body with minimal fat layer [1–3]. Hence, the

thermal effect of IFUS may readily reach the globe and cause injuries. In the literature, there are sparse instances of ophthalmologic complications following employing IFUS and similar technologies near eyebrows. Kyung Jung et al. [2] reported a single case of corneal stromal damage and Sabet-Peyman et al. [3] reported eyebrow paralysis. Such

complications, although rare, are extremely serious especially when occurred inside the globe as in our case. Ultrasound heat can cause denaturation/insolubilization of the crystallins and protein coagulation that lead to cataractous opacities through the lens.

Dermatologists and cosmetic surgeons should avoid inaccurate targeting of the IFUS probe and also apply a shield to cover the whole anterior surface of the eye when operating next to the globe.

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Disclosure of interest

The authors declare that they have no competing interest.

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