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Health tourism and the need for occasional strong paternalism: complications and management of cosmetic anterior chamber iris implantation

Craig Wilde¹ · Andrew R. Ross¹ · Senthil Maharajan¹

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Health tourism involves intentional travel abroad to obtain private medical care. Motivations are numerous, ranging from financial (affordable treatment) to accessing care unavailable at home [1]. Evidence regarding risk is often limited, sometimes speculative, with little information to guide decisions. It can be biased, based on sensationalist reports, often produced by people with inadequate expertise in such procedures [2]. Most reports reflect individual cases or small case series of problems. Limited studies publishing complication rates for health tourism exist [3], making risk hard to assess. Complications may be underreported where surgery is associated with financial gain and where patients travel from abroad with poor follow up. A survey by the British Association of Plastic, Reconstructive and Aesthetic Surgery found 37% of members had seen complications of health tourism [4], raising concerns for an individual's risk but the burden within public healthcare facilities treating complications.

Several publications exist on the dangers of cosmetic iris implants [5], the risks of which have been known for years. We report a case of devastating complications following the procedure.

A 45-year old phakic male had bilateral BrightOcular implantation in 2013 in Jordan (Fig. 1a). Upon return he periodically developed red, painful, photophobic eyes. Intraocular pressures were elevated during those episodes with associated anterior chamber inflammation. Gonioscopy showed peripheral iris entrapment into the iridocorneal angle (Fig. 1b). Uveitis, glaucoma, hyphema syndrome

was diagnosed. He was asked to return promptly to Jordan for implant removal. After a period of delay, he went as advised. On return, subsequent examination revealed bilateral corectopia, extensive iris atrophy, stretch holes, peripheral anterior synechiae and cataract formation (Fig. 1c, d). Intraocular pressures were elevated and cyclodiode was performed. Despite implant removal, progressive endothelial cell loss with corneal decompensation ensued (Fig. 1e). The patient was listed for Descemet's stripping automated endothelial keratoplasty (DSAEK). While awaiting a graft he developed bacterial keratitis (Fig. 1f), resulting in right eye corneal scarring, and the need for penetrating keratoplasty (PK) bilaterally. The right eye did well (Fig. 1g), with the graft remaining clear and Snellen best corrected visual acuity (BCVA) of 6/6. The left eye vision recovered, but developed a suture abscess with subsequent graft failure (Fig. 1h). The patient is awaiting a second PK (with BCVA of hand movements).

Despite previous reports of significant complications, cosmetic iris implants are still advertised across multiple websites and social media platforms in various countries. Some testify the procedure as safe with no patient going blind. We highlight the dangers, reporting potential for bilateral pain, severe sight loss and morbidity. We emphasise visual rehabilitation is not always simple following implant extraction. Cataracts, glaucoma surgery, iris deformation and endothelial cell loss constitute multiple challenges. We join colleagues in calling for international eye surgery communities to increase awareness of this potentially sight threatening issue and informing patients of risks prior to undertaking surgery. Professional governing bodies should encourage reporting of complications from such cosmetic surgery and consider closer monitoring. Better international legislation restricting dangerous surgical practice could be explored.

✉ Senthil Maharajan
senthil.maharajan@nuh.nhs.uk

¹ Ophthalmology and Vision Sciences, Division of Clinical Neurosciences, B Floor, EENT Centre, Queen's Medical Centre, University of Nottingham, Nottingham, UK

Fig. 1 **a** BrightOcular single piece silicone iris implant in situ with conjunctival injection secondary to uveitis. The implant appears decentered in relation to the pupil, reflecting the issue of poor fit of a single size implant. Whether the pigment used to colour the implant is inert over time or contributes to inflammation or endothelial toxicity and cell loss remains to be elucidated. **b** Gonioscopy photograph showing the iridocorneal angle with the BrightOcular in situ. One of several foot processes is impinging the peripheral iris and is in part responsible for stretch hole formation. Secondary glaucoma can develop from pigment dispersion from contact between the implant and iris, direct trabecular meshwork damage from implant edge and chronic inflammation with angle closure. Whether iris and implant were adherent and if trauma occurred during implant removal is unknown. Significant adhesions have been reported. **c, d** Eyes following BrightOcular removal. Temporal corneal wounds are visible from surgery to explant the artificial iris. Conjunctival injection secondary to persistent anterior uveitis with development of early cataracts secondary to either direct contact from the implants, associated inflammation or topical steroid use. Widespread permanent iris damage is evident. Symmetrical temporal corectopia is visible, with iris thinning in the opposite nasal segment with large corresponding stretch holes. **e** Corneal decompensation with multiple large epithelial bullae and associated epithelial defects. The patient suffers significant episodes of pain. **f** Acutely painful red eye secondary to *Pseudomonas Aeruginosa* keratitis. **g** Clear PK in right eye with patient achieving good BCVA. **h** Failed corneal graft in left eye. Inferior suture abscess and hypopyon. There is significant capsular opacification

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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