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Duet procedure to achieve reversible trifocality in a young patient with hereditary hyperferritinemia-cataract syndrome

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1. Case report

An 18-year-old patient presented with bilateral hereditary hyperferritinemia-cataract syndrome (HHCS) with a decrease in visual acuity and glare symptoms (Fig. 1).[1] Given the loss of accommodation in cataract surgery, we informed the patient about multifocal intraocular lenses (IOLs) and after careful consideration we decided on a duet procedure.[2] A toric-monofocal IOL, RayOne toric +22.5/+1.0 D, (Rayner, Worthing, United Kingdom) was implanted into the capsular bag aiming for emmetropia and - sequentially - a supplementary IOL, the diffractive Rayner Sulcoflex trifocal without additional basic power, was implanted into the ciliary sulcus. Three months postoperatively the patient achieved good uncorrected distance, intermediate and near visual acuity with a remaining subjective refraction of plano −0,25 @ 80° (Fig. 2).

2. Discussion

HHCS is a rare autosomal-dominant trait resulting from mutation in the ferritin light-chain (L-ferritin) gene. It is supposed that as L-ferritin accumulates in the crystalline lens it provokes cataract.[1] For young patients the prospect of loss of accommodation in cataract surgery is worrisome. The duet procedure offers trifocality with an optical performance equivalent to single trifocal IOL capsular implantation.[2] The trifocality is reversible and this is strategically attractive for young patients who might develop other ophthalmic conditions later in life or for older patients in a risk group for ocular diseases.[3] Unlike capsular IOLs, the supplementary IOL does not become enmeshed in intraocular tissue, making it comparatively easy to explant. By being a more reversible procedure, and by choosing a duet operation, the surgeon can anticipate potential future developments in the patient's condition. For instance, the patient might develop retinal disease many years after the duet implantation. The presence of a trifocal optic could decrease the patient's visual quality, or increase symptoms of dysphotopsia. In such a case removing a sulcus trifocal lens should be less daunting than explanting a trifocal lens that has been fixed in the capsule.

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Authorship

All authors attest that they meet the current ICMJE criteria for Authorship.

Patient consent

Written consent to publish this case has not been obtained, as this

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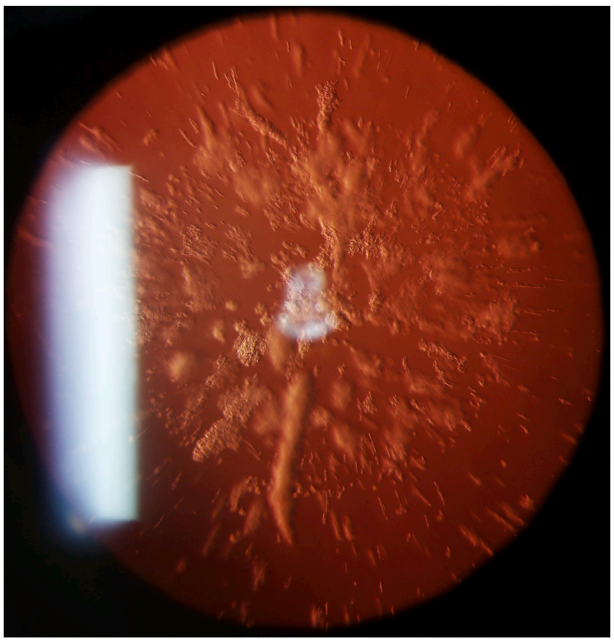

Fig. 1. In this preoperative, retroillumination, slit-lamp photograph of the left eye, the crystalline lens shows white 'breadcrumb' nuclear and cortical opacities.[1]

Fig. 2. Postoperative, retroillumination, slit-lamp image of the polypseudophakic left eye showing the primary monofocal-toric IOL in the capsular bag with toric marks visible at the peripheral optic at 143°. A second, supplementary, diffractive trifocal IOL lies in the ciliary sulcus, anterior to the primary IOL.

report does not contain any personal identifying information.

Declaration of competing interest

G. Auffarth and R. Khoramnia report grants, personal fees and non-financial support from Rayner. T. Yildirim and I. Baur have nothing to disclose.

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References

1. Chang-Godinich A, Ades S, Schenkein D, Brooks D, Stambolian D, Raizman MB. Lens changes in hereditary hyperferritinemia-cataract syndrome. *Am J Ophthalmol.* 2001; 132:786–788.
2. Khoramnia R, Yildirim TM, Son HS, Labuz G, Mayer CS, Auffarth GU. [Duet procedure to achieve reversible trifocality]. *Ophthalmologe.* 2020;117:999–1004.
3. Łabuz G, Auffarth GU, Knorz MC, Son HS, Yildirim TM, Khoramnia R. Trifocality achieved through polypseudophakia: optical quality and light loss compared with a single trifocal intraocular lens. *J Refract Surg.* 2020;36:570–577.