Fibrotic bridge crossing over capsulorhexis opening: A rare presentation of anterior capsular contraction syndrome

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1. Case report

We describe four eyes (in three patients) of an unusual pattern of anterior capsular contraction syndrome (ACCS). In this pattern, a fibrotic strand forms postoperatively, acting as a bridge and traversing the border of anterior capsulorhexis, which divides the capsulotomy opening into 2–3 small sectors; this pattern is observed 3–18 months after uneventful phacoemulsification cataract surgery. In Case 1, a woman with type 2 diabetes exhibited two fibrotic strands crossing over the capsulorhexis opening in the right eye (Fig. 1) and one in the left eye (Fig. 2) after her cataract surgery at ages of 73 and 75 years, respectively. In Case 2, a 56-year-old woman developed a fibrotic strand after cataract surgery in the right eye (Fig. 3). In Case 3, a 77-year-old woman exhibited a thin fibrotic strand and apparent capsular phimosis in the right eye (Fig. 4) after cataract surgery. All four eyes had manual capsulorhexis with capsular polishing, similar intraocular lens (SA60AT, Alcon, Texas, USA), no apparent postoperative inflammation, and no other risk factors. Because the vision, refractive state, and overall size of the anterior capsulotomy opening of the eyes were stable after more than 6 years of follow-up, neither surgical removal nor laser treatment of the fibrosis was performed.

2. Discussion

Continuous curvilinear capsulorhexis openings created in phacoemulsification cataract surgery contract slightly in nonpathologic eyes.\textsuperscript{1} The pathogenesis of ACCS (or anterior capsule fibrosis and phimosis) remains unclear and may involve the residual metaplastic lens’ epithelial cells undergoing mesenchymal transition and differentiating into fiber-like cells.\textsuperscript{2} To the best of our knowledge, this is the first report of such fibrotic bridge presentation of ACCS. In two patients (3 of the 4 eyes, not Case 3), the shape of the capsulotomy opening was slightly distorted by the traction of the fibrotic strands. The severity of the distortion may be related to the number or thickness of fibrotic strands.

3. Conclusion

Fibrotic strands bridging the capsulotomy opening is a rare presentation of ACCS and may affect the opening’s diameter.

Patient consent

The informed consent to publication was obtained from the patients. This report does not contain any personal information that could lead to the identification of the patients.

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**Research ethics**

We further confirm that any aspect of the work covered in this manuscript that has involved human patients has been conducted with the ethical approval of all relevant bodies and that such approvals are acknowledged within the manuscript.

IRB approval was obtained (required for studies and series of 3 or more cases).

Written consent to publish potentially identifying information, such as details or the case and photographs, was obtained from the patient(s) or their legal guardian(s).

**Authorship**

The International Committee of Medical Journal Editors (ICMJE) recommends that authorship be based on the following four criteria:

1. Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
2. Drafting the work or revising it critically for important intellectual content; AND
3. Final approval of the version to be published; AND
4. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

**Declaration of competing interest**

No conflict of interest exists.

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