Excision of Rhesis Phimosis using Bipolar Diathermy

Formation of capsular fibrosis / rhesis phimosis


Anterior capsule opacification derives from the anterior lens epithelial cells, or "A-cells" that reside on the anterior capsular leaf left behind after capsulorhexis. Though these cells also exhibit some potential to migrate, their characteristic is the exquisite potential to turn into myofibroblasts. These cells then tend to contract and deposit collagen, which leads to shrinkage and whitening of the anterior capsule. This entity is addressed as "fibrotic" after-cataract, "capsular fibrosis", or simply "fibrosis". Fibrosis typically forms in the area of contact between the anterior capsule leaf adjacent to the rhesis rim ("rhesis leaf") and the IOL optic, but also on the posterior capsule central to the rhesis edge in a collapsed (e.g. aphakic) capsular bag.

If fibrosis is excessive, significant contraction of the rhesis opening ("rhesis phimosis") may result. Shrinkage of the anterior capsular leaf may be asymmetric, resulting in sometimes significant secondary decentration of the IOL optic despite a centered rhesis opening. As A-cells also migrate, they may gain access to the anterior optic central to the rhesis edge to there form transient and sometimes permanent LEC membranes.

Fibrotic after-cataract formation usually ceases after 3 to 6 months, while regeneratory after-cataract develops over a much longer time to become visually disturbing after 1 to 3 years, or later.

Standard Surgical Methods

The standard method to remove a rhesis phimosis is the excision by microscissors. But this is quite cumbersome: first of all, several incisions have to be made in order to be able to cut circumferentially. Second, the fibrotic tissue tends to be too thick and too tenacious to be easily cut with the scissors.

Fig.1: Capsular fibrosis
Excision using HF-Diathermy

The use of a diathermy instrument, very similar to the well-known HF-capsulotomy instrument, has proven to be much more efficient in cutting the fibrotic anterior capsule leaf. Only one single incision is necessary and cutting is very easy, independent of the degree of fibrosis. The cutting of the fibrosis will take about 30 seconds only. The concentric ring of fibrosed capsule thus cut out is grasped by microforceps (e.g. vitreous forceps) inserted through the paracentesis opening and removed from the eye.

Conclusions

Even though the cases of capsular fibrosis / rhexis phimosis may be quite scarce, in the few cases where surgical intervention is necessary, the surgeon will be happy to have an appropriate cutting instrument at hand. Using the Capsular Fibrosis HF-Tip (Oertli Instruments, VE201730) and the “Capsulotomy” function on any of the Oertli surgery consoles, treatment of a capsular phimosis is much easier and controlled than with microscissors.

Machine settings and instrumentation

Machines: OS3, CataRhex, Kloeti Bipolar Unit (Oertli Instruments)
Settings: Function “CAPS REGULAR” or “CAPS HIGH”
Instrument: HF-tip “Capsular Fibrosis” VE201730

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