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Sir,
Anterior lens capsule has more affinity to trypan blue in patients with pseudoexfoliation

Although not necessarily needed in routine cases, capsule staining (ie, trypan blue) could be especially helpful in pseudoexfoliation syndrome (PEX).¹ Conceptually, the presence of the exfoliative material on the anterior lens capsule may interfere with staining capabilities of vital dyes.

Case series

In this unmasked prospective controlled clinical study, 26 patients with PEX and senile cataract (15 males; mean age = 73.92 ± 7.68 years) were compared with 24 healthy control subjects (14 males; mean age = 68.35 ± 10.34 years). People with a history of intraocular surgery, laser treatment, or ocular disease were excluded. Cases with white mature cataract, traumatic cataract, or subluxated lens were also eliminated. There were no statistically significant differences in sex and age between groups ($P = 0.963$ and $P = 0.084$, respectively). There was also no statistically significant difference in preoperative visual acuity (using LogMar) between groups (1.08 ± 0.29 and 1.03 ± 0.26 for PEX patients and controls, respectively; $P = 0.696$).

All participants had anterior capsule staining with 0.1 ml trypan blue 0.06% (Auroblue; Aurolab, Madurai, India) injected directly into the anterior chamber. After 10 s, the dye was washed out with 2.5 ml balanced salt solution. The staining patterns on the anterior capsule and effectiveness of the stain (graded from 0 (no staining) to 4 (excellent staining)) was assessed intraoperatively.² Grading was performed under a surgical microscope using uniform illumination by a single observer (HH). Nominal variables were evaluated by the χ^2 -test; continuous and ordinal variables were evaluated using the Mann–Whitney U -test.

Most of the patients with PEX had scores of 3 or 4 (median = 4), whereas most of the controls had scores of 1 or 2 (median = 1.50) ($P < 0.001$, Figure 1a). Moreover, the staining pattern in the PEX group was more frequently uneven compared with controls (odds ratio = 84, $P < 0.001$, Figures 1b and 2).

Comment

This study shows that application of trypan blue 0.06% for only 10 s effectively stains the anterior capsule in PEX eyes, whereas it is not effective in normal patients. This outcome was achieved because PEX materials were stained more heavily than the anterior capsule itself. Thus, lower concentrations and/or exposure is required for effective staining of the anterior capsule of PEX patients.

Figure 1 The effectiveness (a) and pattern (b) of anterior capsule staining with trypan blue 0.06% in pseudoexfoliation vs normal eyes.

Figure 2 The typical staining pattern of the anterior lens capsule in pseudoexfoliation syndrome as demonstrated by surgical biomicroscope after staining (a) and under light microscope (b) after the anterior capsule specimen was harvested from the eye after capsulorhexis. The arrowheads delineate the well-stained central disc and the arrow marks the layered peripheral zone with utmost staining.

Conflict of interest

The authors declare no conflict of interest.

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Ethical approval

We certify that all applicable institutional and governmental regulations concerning the ethical use of human volunteers were followed during this research.

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