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SFO COMMUNICATION

Impact of lens thickness on complications of hypermature cataract surgery: A prospective study☆

Impact de l'épaisseur cristallinienne sur les complications survenant au cours de la chirurgie des cataractes blanches obturantes : étude prospective

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Ocular ultrasonography;
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Summary
Purpose. — To assess the correlation between lens thickness (LT) measured by ultrasonography and duration of surgery as well as complications.
Setting. — The study was conducted in a hospital in the Parisian suburb of Bobigny, France.
Design. — A prospective and monocentric study was conducted. All patients undergoing surgery for hypermature cataract between January 2013 and March 2014 were included.
Methods. — Morphological features, including LT, axial length, anterior chamber depth and vitreous length were assessed using A-scan ultrasonography. The other parameters assessed were the duration of surgery, occurrence of complications during surgery, visual acuity (VA) and corneal edema score one week after surgery.
Results. — Thirty eyes of 29 patients were included. Mean LT was 4.11 ± 0.64 mm (median: 3.89 mm). Mean surgery duration was 24.2 ± 8.7 min. Three patients experienced complications during surgery: 2 capsular breaks and 1 posterior lens dislocation. At one week, the mean decimal VA was 0.49 ± 0.34 and the mean corneal edema score was 0.76 ± 1.09. The Pearson

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correlation coefficient was $r = 0.27$ ($P > 0.05$) between LT and surgery duration while it was $r = -0.53$ ($P = 0.01$) between VA and LT. No correlation was found for the other parameters studied.
Discussion. — In this study, the linear correlation between LT and the surgery duration was low. The visual recovery at day 7 appeared inversely correlated with the LT.
Conclusions. — LT did not seem to be a marker for longer surgery duration but appeared related to the visual recovery at one week.

MOTS CLÉS
Cataracte blanche obturante ;
Épaisseur cristallinienne ;
Échographie oculaire ;
Chirurgie de cataracte

Résumé
But. — Évaluer la corrélation entre l'épaisseur cristallinienne (EC) mesurée par échographie et la durée de la chirurgie de cataracte ainsi que les complications chirurgicales.
Méthodes. — Une étude prospective monocentrique a été menée. Tous les patients opérés de cataracte blanche hypermature entre janvier 2013 et mars 2014 ont été inclus. Les caractéristiques morphologiques comprenant l'EC, la longueur axiale, la profondeur de la chambre antérieure et la longueur axiale du vitré ont été évalués en utilisant l'échographie en mode A. Les autres paramètres évalués étaient la durée de la chirurgie, la survenue de complications pendant la chirurgie, l'acuité visuelle (AV) et l'edème cornéen une semaine après la chirurgie.
Résultats. — Trente yeux de 29 patients ont été inclus. L'EC moyenne était de $4,11 \pm 0,64$ mm (médiane : 3,89 mm). La durée moyenne de la chirurgie était de $24,2 \pm 8,7$ minutes. Trois patients ont eu des complications pendant la chirurgie : 2 ruptures capsulaires et 1 luxation postérieure du cristallin. À une semaine, la moyenne d'AV était de $0,49 \pm 0,34$ (décimales) et le score moyen de l'œdème cornéen était de $0,76 \pm 1,09$. Le coefficient de corrélation de Pearson entre l'EC et la durée de l'intervention chirurgicale était $r = 0,27$ ($P > 0,05$), et $r = -0,53$ ($P = 0,01$) entre l'AV et de l'EC. Aucune corrélation n'a été trouvée pour les autres paramètres étudiés.
Discussion. — Dans cette étude, la corrélation linéaire entre l'EC et la durée opératoire est faible. La récupération visuelle à j7 semblait inversement corrélée avec l'EC.
Conclusion. — L'EC ne semble pas être un marqueur de chirurgie plus longue ou plus compliquée mais semble toutefois liée à une récupération visuelle plus faible à une semaine post-opératoire.

Introduction

Cataract is the leading cause of vision loss in developing countries [1,2], and a major cause of visual impairment in developed countries [3]. Phacoemulsification has been for many years used the standard treatment for lens opacification in developed countries. This is a well-controlled surgery with a low complication rate. However, lens extraction by phacoemulsification of a white hypermature cataract is always challenging for the surgeon: the retro-illumination being absent, performing capsulorexhis is sometimes hazardous, because it tends to spread to the periphery due to a high intracapsular pressure [4,5]. Furthermore, the capsular bag of white hypermature cataracts can be weakened by manipulation of a harder and/or denser nucleus. However, Ermiss et al. [6] have found a capsular break rate comparable between white hypermature cataracts and posterior subcapsular, nuclear, cortical, or mixed cataracts. In contrast, others have found a capsular break rate of 11% in white hypermature cataracts [7]. Moreover, the lens density and surgical difficulty may vary depending on the white cataracts and it would therefore be useful to have objective preoperative parameters to anticipate surgical difficulty.

The primary aim of this study was to evaluate the lens thickness (LT) measured by ultrasonography as a criterion for surgical difficulty. The secondary aim was to assess the correlation between the LT and the postoperative clinical course.

Patients and methods

Patient population

All consecutive patients operated on for white hypermature cataract in the Ophthalmology Department of Avicenne hospital, Bobigny, France, between January 2013 and March 2014 were prospectively included. The study was conducted in accordance with the tenets of the Declaration of Helsinki, and an informed consent was obtained from all patients. The diagnosis of white hypermature cataract was based on the presence of a white cataract with absence of fundus