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Original article

Posterior capsule opacification, capsular bag distension syndrome, and anterior capsular phimosis: A retrospective cohort study[☆]



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ABSTRACT

Objective: To determine the incidence and the risk factors involved in the development of the three main postoperative capsular complications: posterior capsule opacification (PCO), capsular bag distension syndrome (CBDS), and anterior capsular phimosis syndrome (ACP). **Subjects, materials and methods:** A retrospective cohort study was conducted on 801 patients submitted to cataract surgery in the ophthalmology unit of Hospital del Henares (Madrid) from March 2, 2009 to February 28, 2010. Computerized clinical charts were reviewed during July 2012. PCO was studied using the Kaplan–Meier method (log rank test).

Results: A total of 167 patients developed PCO. No association could be demonstrated between PCO and age, sex, diabetes mellitus, phaco technique, IOL model, tamsulosin intake, glaucoma, and age-related macular degeneration. Three patients developed CBDS, all of them have received a Akreos Adapt AO[®] (Bausch & Lomb). Two of them were young men who had received surgery for posterior subcapsular cataracts. Three patients developed ACP, 2 of whom had received a MicroSlim[®] IOL (PhysIOL).

Conclusions: No association was found between PCO and any of the studied variables. Male gender, young age, subcapsular cataract and large non-angulated lens such as Akreos Adapt AO[®] could be associated with CBDS. ACP could be more frequent when microincision IOLs (like MicroSlim[®]) are implanted.

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Opacificación de la cápsula posterior, síndrome de distensión capsular y síndrome de fimosis de la cápsula anterior: estudio de cohortes retrospectivo

R E S U M E N

Palabras clave:

Opacificación de cápsula posterior
Síndrome de distensión capsular
Fimosis de la cápsula anterior
Capsulotomía Nd-YAG
Complicaciones de cirugía de catarata

Objetivo: Determinar la incidencia y los factores de riesgo implicados en el desarrollo de las tres principales complicaciones capsulares postoperatorias: opacificación de cápsula posterior (OCP), síndrome de distensión capsular (SDC) y fimosis de la cápsula anterior (FCA).

Sujetos, material y métodos: Estudio de cohortes retrospectivo. Se incluyó a 801 pacientes operados mediante cirugía de catarata en el Servicio de Oftalmología del Hospital del Henares (Madrid), entre el 2 de marzo de 2009 y el 28 de febrero de 2010. La historia clínica electrónica fue revisada durante el mes de julio de 2012. La OCP se estudió utilizando el método de Kaplan-Meier (log rank test).

Resultados: Un total de 167 pacientes desarrollaron OCP. No se pudo demostrar asociación entre la OCP y edad, sexo, diabetes mellitus, técnica de facoemulsificación, modelo de lente intraocular (LIO), consumo de tamsulosina, grado de síndrome de iris flácido intraoperatorio, glaucoma ni la degeneración macular asociada a la edad. Tres pacientes desarrollaron SDC, todos ellos habían recibido una LIO Akreos Adapt AO® (Bausch & Lomb). Dos de ellos eran varones jóvenes, con diagnóstico de catarata subcapsular posterior. Tres pacientes desarrollaron FCA, dos de ellos habían recibido una LIO MicroSlim® (PhysIOL).

Conclusiones: No pudo demostrarse asociación de la OCP con ninguna de las variables estudiadas. El sexo masculino, la edad joven, la catarata subcapsular posterior y las LIO grandes no anguladas como la Akreos Adapt AO® podrían asociarse al desarrollo de SDC. Las LIO de microincisión, como la MicroSlim®, podrían asociarse al desarrollo de FCA.

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Introduction

Posterior capsule opacification (PCO) is the most frequent complication in cataract surgery.¹ In developed countries it can be safely treated utilizing neodymium-doped yttrium aluminum garnet laser (Nd-YAG). However, treatments for this complication involve significant costs.¹ In developing countries where laser technology is not readily available, PCO continues to be an important cause of severe visual loss, requiring ophthalmologists to adopt imaginative solutions.^{2,3}

PCO is the consequence of the ability of the lens to regenerate on the basis of epithelial residual cells.⁴ Even though our knowledge of the natural history of this complication has improved in recent years, many details still remain to be discovered. The literature discussing risk factors involved in PCO is contradictory, to the point that a recent Cochrane Collaboration review has concluded that only the design of the intraocular lens (IOL), small diameter capsulorhexis and implantation inside the capsular bag reduce the incidence of this complication.⁵

The capsular bag distention syndrome (CDS) and anterior capsular phimosis (ACP) are less frequent complications with very few cases reported in the literature. In fact, many publications refer only one or 2 cases, frequently omitting important information such as the type of cataract exhibited by the patient or the model of implanted IOL. The authors believe this is the first cohort study analyzing the aggregate incidence

and risk factors involved in the development of said 3 complications concurrently.

Subjects, materials and methods

Between March 2, 2009 and February 28, 2010, 801 cataract operations were performed at the Ophthalmology Service of the Henares University Hospital (Coslada, Madrid). Said hospital is a secondary center covering an area with about 190,000 inhabitants. The Ophthalmology Service comprises 8 ophthalmologists who perform about 100 cataract operations every year. The electronic clinic history of patients was reviewed by JGMM in the course of July, 2012.

All the patients were administered presurgery prophylaxis with topical ofloxacin during 3 days and were dilated by means of 3 drops of tropicamide (Colircusi Tropicamida®, Alcon Labs, Fort Worth, TX, USA), and a further 3 of phenylephrine (Colircusi Fenilefrina®, Alcon Labs). Two different phacoemulsification devices were used, i.e., Infiniti® (Alcon Labs) and Stellaris® (Bausch & Lomb, Rochester, New York, USA). Three types of IOL were implanted: Akreos Adapt AO® (Bausch & Lomb); Acrysof IQ SN60WF® (Alcon Labs) and MicroSlim® (PhysIOL, Liege, Belgium). In all cases the cataracts were operated by means of an incision in the clear cornea, usually under topical anesthesia. Intracamerular 1% lidocaine was systematically injected in the anterior chamber at the beginning of the intervention and 1 mg cefuroxime at the end thereof. If the

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