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## Original article

# Ultrasound biomicroscopic analysis of iris cysts<sup>☆</sup>



L. Pedro-Aguilar<sup>a</sup>, C. Fuentes-Cataño<sup>b</sup>, M. Pedroza-Seres<sup>c,\*</sup>

<sup>a</sup> Departamento de Córnea y Cirugía Refractiva, Instituto de Oftalmología Fundación Conde de Valenciana, Mexico City, Mexico

<sup>b</sup> Departamento de Inflamación Ocular y Uveítis, Instituto de Oftalmología Fundación Conde de Valenciana, Mexico City, Mexico

<sup>c</sup> Departamento de Uveítis, Instituto de Oftalmología Fundación Conde de Valenciana, Mexico City, Mexico

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## ABSTRACT

**Purpose:** To describe the ultrasound biomicroscopic (UBM) features and complications associated with iris cysts.

**Design:** A retrospective case series.

**Methods:** Thirteen patients with iris cysts were identified in a 10 year period study at a ophthalmologic reference center in Mexico City. The variables included demographic data, ocular and medical history, clinical course, and complications. All patients were examined by UBM, and type, number, location, and acoustic characteristics of cysts were evaluated. Descriptive statistics were performed.

**Results:** Thirteen patients were included (8 men and 5 women). The mean age was  $44.5 \pm 15.5$  years (range 6–70 years). The origin most prevalent was neuroepithelial (92.3%), and 7.7% had stromal cysts. Regarding to location 76.9% were found in the periphery, and 69.2% between meridians II and VI. All cysts showed a moderate to high reflectivity in the wall. Complications were present in 38.5% of cases (15.4% partial angle closure, 15.4% secondary angle closure glaucoma and 7.7% dyscoria).

**Conclusions:** Most cysts are derived from iris pigmented epithelium, with a benign course and a minor rate of complications. The UBM is an indispensable tool that allows us to plan more specific and conservative treatments, with less damage to ocular structures and, therefore, better visual prognosis.

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\* Corresponding author.

E-mail address: [mpedrozaseres@gmail.com](mailto:mpedrozaseres@gmail.com) (M. Pedroza-Seres).

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## Análisis ultrabiomicroscópico de quistes iridianos

### R E S U M E N

#### Palabras clave:

Ultrabiomicroscopia  
Tumores de iris  
Quistes de iris  
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Iris

**Objetivo:** Describir los hallazgos ultrabiomicroscópicos y complicaciones de pacientes con quistes iridianos.

**Diseño:** Serie de casos, retrospectivo.

**Método:** Se incluyó a 13 pacientes con diagnóstico de quistes de iris, confirmado mediante ultrabiomicroscopia (UBM) en un periodo de 10 años (2002–2012) en un centro oftalmológico de la ciudad de México. Se incluyeron datos demográficos, historia clínica médica y ocular, características clínicas y ultrabiomicroscópicas (tipo, número, localización y hallazgos acústicos), así como complicaciones asociadas. Se realizó un análisis descriptivo, incluyendo medias y desviación estándar.

**Resultados:** La distribución por sexo fue 8 mujeres y 5 hombres, con edad promedio de 44,5 años  $\pm$  15,5 (rango de 6 a 70 años). El 92,3% fueron quistes del epitelio pigmentado y 7,7% del estroma; el 76,9% se encontraron en la periferia y 69,2% entre los meridianos de las II y las VI horas del reloj. Todos los quistes mostraron una pared con reflectividad moderada a alta. El 38,5% presentó complicaciones (el 15,4% cierre parcial del ángulo camerular; el 15,4% glaucoma secundario de ángulo cerrado y el 7,7% discoria).

**Conclusiones:** La mayoría de los quistes de iris son derivados del epitelio pigmentado, de curso benigno y con una baja tasa de complicaciones. La UBM es una herramienta indispensable que nos permite planear tratamientos localizados, específicos, más conservadores y menos destructivos, con un daño potencial menor de las estructuras oculares y, por lo tanto, mejor pronóstico visual.

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## Introduction

Iris cysts are infrequent and benign lesions, the characteristics and course of which have not been extensively studied.<sup>1</sup> Their etiology remains uncertain, although several theories have been proposed ranging from formation due to elements derived from the neuroectoderm<sup>2</sup> and defects in the embryonic fissure<sup>3</sup> derived from ectopic ductal elements of the lacrimal gland.<sup>4</sup>

In accordance with the categorization developed by Shields, iris cysts can be classified by age of appearance as congenital or acquired cases, and by etiology as primary or secondary cases. Primary cysts are those having undetermined etiology, but it is believed that their origin is neuroepithelial, while secondary cysts occur as the result of implantation, trauma, drugs, malign tumors or parasites.<sup>5</sup>

Ultrasound exploration is essential to determine the tumor characteristics as it allows the evaluation of lesions that cannot be assessed during biomicroscopy and provide valuable information such as location, size, internal reflectiveness, edges and analysis of involved adjacent structures. In addition, it is useful for the objective follow-up and monitoring of the lesion.<sup>6-8</sup>

The objective of this study is to describe the ultrabiomicroscopic findings and complications of patients with iridian cysts in a 10-year period at the reference center of Mexico City.

## Subjects, materials and methods

### Clinical evaluation

The study included patients with confirmed ultrabiomicroscopic (UBM) diagnostic of iris cysts in the *Instituto de Oftalmología Conde de Valenciana* (Mexico), in the 2002–2012 period.

A full ophthalmological examination was carried out, including clinical record (history of cancer, ocular trauma, intraocular surgery and ocular inflammation), visual acuity measured with and without correction by means of the Snellen chart, tonometry, slitlamp biomicroscopy, gonioscopy and transillumination, as well as in-depth examination of eyelids, conjunctiva, chamber angle and iris. A description was made of the morphology, surface, color, size (millimeters of largest diameter), involved quadrants, involved structures and associated complications.

### Ultrabiomicroscopy

UBM was performed with a commercial unit (Paradigm model P40, 2002, Salt Lake City, USA). This system operates with 50 MHz and provides a maximum resolution of 50  $\mu$ m and a tissue penetration of approximately 4–5 mm. The scan was carried out with the patient lying on his back, utilizing a cup filled with 2% hydroxypropyl methyl cellulose. The examination involved scanning the cornea, anterior chamber, iris, anterior lens capsule and ciliary body. When the lesion was

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