

Ultrasound Biomicroscopy in the Diagnosis of a Primary Peripheral Iris Cyst

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A primary peripheral cyst behind the iris is difficult to detect during a routine slit lamp examination. It is usually asymptomatic unless the cyst is sufficiently large. We report on a 73-year-old woman who underwent phacoemulsification of a cataract and incidentally presented a small dark mass behind the peripheral iris. The lesion was initially suspected of being a melanoma, but it could not be localized by conventional techniques postoperatively. A diagnosis of primary iris cyst was not made until 1 year later when high-frequency ultrasound biomicroscopy (UBM) was employed. UBM displayed a distinct thin-wall cystic lesion ($0.5 \times 0.8 \times 0.6$ mm) with low internal reflectivity at the iridociliary sulcus of the inferotemporal quadrant. UBM allows good imaging access to a lesion behind the iris that is otherwise difficult to detect with traditional techniques. (*Chang Gung Med J* 2003;26:299-302)

Key words: ultrasound biomicroscopy, iris cyst, phacoemulsification, melanoma.

A primary peripheral iris cyst behind the iris is difficult to visualize and detect during a routine slit lamp examination. It is usually asymptomatic unless the cyst is sufficiently large. If the pupil is maximally dilated, a peripheral iris cyst can be detected.⁽¹⁾ It was suggested that ultrasound biomicroscopy will produce a high-resolution image of the anterior segment.^(2,3)

We report on a case with a peripheral mass behind the iris incidentally noted during cataract surgery. The lesion could not be localized with conventional examination methods after surgery. A diagnosis of an iris cyst was not made until high-frequency ultrasound biomicroscopy became available.

CASE REPORT

A 73-year-old woman received phacoemulsification and intraocular lens implantation for a senile cataract in her left eye. Before surgery, routine slit

lamp and fundus examinations were performed. There was no apparent ocular anomaly except for lens cloudiness. During the operation, a dark mass hidden behind the iris over the inferotemporal quadrant was incidentally noted. Although the lesion seemed close to the margin of the pupil which was fully dilated, it was barely visible only when the underlying cortical material was aspirated when water irrigation pushed the iris slightly to one side. We tried to photograph the lesion intraoperatively with a camera coupled to a surgical microscope, but in vain. After that, the surgical procedure continued, and an intraocular lens was implanted.

Postoperatively, the patient was carefully evaluated. Her best-corrected visual acuity was 20/20 in the left eye. Her history indicated that she denied previous ocular trauma, surgery, and use of miotic drugs. A slit-lamp exam showed completely normal iris architecture and a reactive round pupil (Fig. 1).

Gonioscopy with a 3-mirror lens was performed

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before and after dilation of the pupil, but we were unable to detect the lesion posterior to the peripheral iris. To confirm the lesion, we used orbital computed tomographic scanning, since ultrasound biomicroscopy was not then available at our hospital. However, the lesion could still not be localized. This patient was followed-up very closely under suspicion of a melanoma, which might have spread out of the

eyeball during cataract surgery.

A year later, high-frequency ultrasound biomicroscopy became available at our hospital. The patient was checked with this new technique, and a distinct thin-walled cyst ($0.5 \times 0.8 \times 0.6$ mm) with low internal reflectivity at the iridociliary junction of the left eye was displayed (Fig. 2).

DISCUSSION

Peripheral iris cysts are usually asymptomatic and nonprogressive. They are 3 times more common in women than men.^(1,2) They are usually found in the inferotemporal quadrant of the eye, especially between 7:00 and 9:00 o'clock in the right eye and between 3:00 and 5:00 o'clock in the left eye.⁽²⁾ The iridociliary sulcus is the most common location.⁽⁵⁾ The lesion might only be able to be detected when its size is large enough to elevate the iris or if the pupil is maximally dilated. Occasionally small cysts are incidentally detected on examination for some other clinical indication.⁽⁴⁾ As the occurrence of iris cysts is uncommon, it is important to rule out a melanoma or other malignancies in the clinical evaluation of patients with an iris cyst.⁽⁶⁾ This case exhibited typical symptoms of an iris cyst, in terms of location and epidemic characteristics. However, since the heavily pigmented surface of the lesion can simulate a melanoma, we could not diagnose the lesion as an iris cyst without reliable confirmation.

Traditional diagnostic techniques such as a slit lamp exam, gonioscopy, photography, conventional B-scan ultrasound, and orbital computed tomography scanning all had limitations in this case due to the small size and far-peripheral location of the cyst.^(2,7) Although a lesion behind the iris had been detected during cataract surgery, exact localization was not accessible with conventional examination methods postoperatively. The recent introduction of high-frequency ultrasound biomicroscopy (UBM) produced an easily recognizable image of the anterior segment at microscopic resolution. This technology is based on high-frequency (range 50-100 MHz) transducers incorporated into a B-mode clinical scanner which allow quasi-histological sections with resolution to a depth of 4 mm in vivo.^(3,4) It was suggested that UBM might be good at imaging lesions of the iridociliary region.⁽⁴⁾ In this case, we carefully scanned clockwise for 360° of the anterior segment when the



Fig. 1 Postoperative photograph showing completely normal iris architecture and a round pupil. No apparent iris elevation can be noted at the periphery.

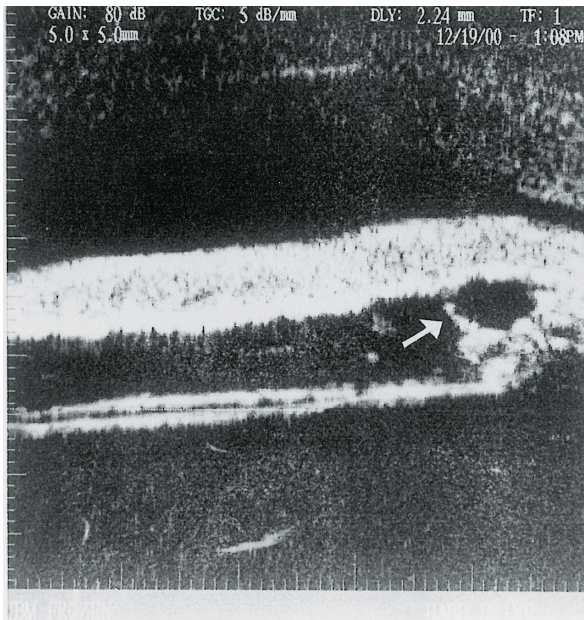


Fig. 2 Ultrasound biomicroscopy displaying a cyst at the iridociliary junction.

UMB was available, and the iridociliary cyst was finally localized. UBM contributed significant additional information that was previously inaccessible and allowed us to establish a correct diagnosis.

In summary, ultrasound biomicroscopy provides an easy and excellent method of evaluating a lesion behind the iris. We present this case and suggest that UBM allows good imaging access to lesions behind the iris that are otherwise difficult to detect using traditional techniques.

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運用高頻率超音波生物顯微鏡診斷原發性週邊虹彩囊腫

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原發性週邊虹彩囊腫很難在例行性細隙燈生物顯微鏡檢查被發現。臨床上除非囊腫已經很大，一般都沒有症狀。而虹彩囊腫的外觀和顏色與色素瘤極為相似，必須鑑別診斷。本文報告一位73歲女性病人在接受左眼白內障手術過程中隱約被發現週邊虹彩後面有一暗色腫瘤。在不排除惡性黑色素腫瘤的情況下，本病人術後接受仔細的傳統眼科儀器檢查，都無法再度發現術中的可疑腫瘤；最後使用電腦斷層亦無法定位出可疑的病灶。一年後，本院引進高頻率超音波生物顯微鏡，本病人經此新儀器仔細搜尋，終於在左眼顳側下方虹彩和睫狀體交會處顯示一俱明顯且薄的外壁，內部低反射的虹彩囊腫。本病例展現高頻率超音波生物顯微鏡在偵測前房病灶提供更精密之診斷經驗。(長庚醫誌 2003;26:299-302)

關鍵字：超音波生物顯微鏡，虹彩囊腫，晶體乳化術，色素瘤。

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