Retinal Pigment Epithelial 'Punched-Out' Lesions in Tuberous Sclerosis Complex

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Tuberous sclerosis complex (TSC) is a dominantly inherited hamartomatous disorder affecting the brain, skin, eye and other organs.[1] The clinical manifestations and severity can vary widely with this disease, occasionally making diagnosis challenging. The Tuberous Sclerosis Consensus Conference established diagnostic criteria requiring the presence of 2 major features, or 1 major and 2 minor features of TSC for definitive diagnosis.[1] The ophthalmic major features are retinal astrocytic hamartoma and eyelid angiofibroma.[1] Other ophthalmic manifestations of TSC include iris atrophy, uveal coloboma, and disturbances of the retinal pigment epithelium (RPE), referred to as "punched-out" lesions.[2] Though described in previous work,[3] only recently have these RPE lesions been defined as a clear marker of TSC.[2,4]

CASE REPORT

A 16-year-old male was referred our medical center with a diagnosis of tuberous sclerosis complex since age 2 years. Ocular examination disclosed visual acuity of 20/20 in the right eye and 20/60 in the left eye.

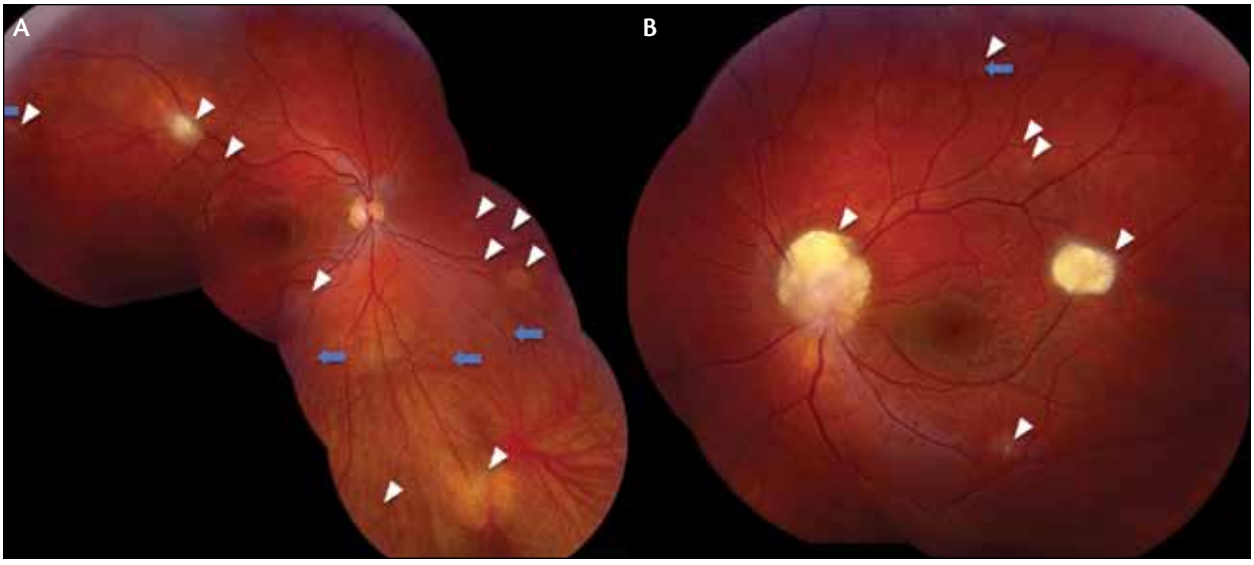

Figure 1. A 16-year-old white male with tuberous sclerosis complex showed numerous obvious and subtle bilateral astrocytic hamartomas (white arrowheads) and retinal pigment epithelial "punched-out" lesions (blue arrows) in the right (A) and left eye (B).

Fundoscopy showed multiple astrocytic hamartomas bilaterally (arrowheads in Figures 1 and 2), as well as bilateral multifocal RPE "punched-out" lesions (arrows in Figures 1 and 2), which were confirmed by the presence of transmission defect on fluorescein angiography (arrows in Figure 2B).

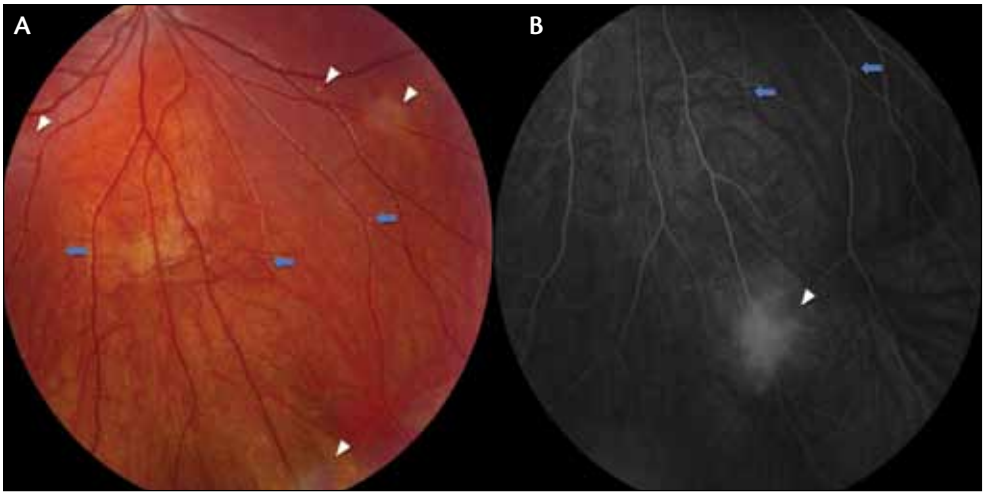

Figure 2. High power resolution of right eye showing numerous retinal astrocytic hamartomas (arrowheads) and retinal pigment epithelial "punched-out" lesions (blue arrows) (A). Fluorescein angiography confirming the presence of retinal astrocytic hamartomas (arrowheads), which showed hyperfluorescence in staining pattern, and retinal pigment epithelial "punched-out" lesions (blue arrows), which showed transmission defect (B).

DISCUSSION

The association of RPE depigmented lesions with TSC is often unrecognized. One minor feature of TSC is the retinal achromatic patch, which is not clearly described, but could represent a flat astrocytic hamartoma or could be a description of an RPE depigmented lesion. In 1975, Shelton reported on the presence of depigmented lesions in the retina of a TSC patient but attributed them to ocular histoplasmosis rather than an additional TSC finding.[3]

Rowley et al[4] and Shields et al[2] demonstrated the diagnostic importance of "punched-out" RPE lesions, describing them in 39% (n=39) and 21% (n=12) of TSC patients, respectively, significantly more common than in age matched controls ($P < .001$).[2,4] Shields et al further described a significant relationship of RPE lesions with definitive TSC, seizure history, mental retardation, cutaneous adenoma sebaceum, ash leaf macule, and increasing number of retinal astrocytic hamartomas per eye.[2]

SUMMARY

In summary, we illustrate a patient with definitive TSC showing classic retinal astrocytic hamartomas, a well-established major diagnostic marker of TSC. In addition, we portray the less well-known minor features of RPE "punched-out" lesions. These RPE lesions are often overlooked but could represent an important diagnostic ophthalmologic finding of tuberous sclerosis complex (TSC). ■

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