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Anterior Subcapsular Cataract Secondary to Black Mold Exposure

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Abstract

A case report of a 31-year-old woman who developed anterior subacapsular cataracts, and associated dermatological signs, after exposure to black mold. While atopic illness is commonly seen in childhood, a growing body of literature supports adult onset atopic dermatitis. Anterior subcapsular cataracts are pathognomonic for atopic illness, and can support a definitive and expedited dermatologic diagnosis of adult onset disease.

Keywords

cataract, atopic dermatitis, mold

Introduction

Adult onset atopic dermatitis is a newly recognized subtype of atopic dermatitis, first described in 2000. In most patients, atopic dermatitis is a disease originating in childhood, and most will have an episode before the age of five. Nevertheless, an increasing number of adults presenting with atopic disease de novo are emerging in the literature. While the criteria for a diagnosis is not well defined, as it is in children, many providers choose to use the Hanifin and Rajka criteria for diagnosis.[1] However, these criteria have limitations in practical application. The literature suggests that classic patterns seen in children are not always exhibited in adults, delaying or precluding the diagnosis of atopic disease. Because the condition is reliant on clinical examination, another consideration for a confident diagnosis is the presence of ocular findings. Anterior subcapsular cataracts are a highly suggestive sequela of this condition. We report an adult woman with exposure to black mold developing atopic dermatitis with an anterior subcapsular cataracts.

Report and Discussion

A 31-year-old African American female presented to an urban eye clinic with complaints of blurry vision. The patient reported a primary dermatological hypersensitivity reaction at age 28 to black mold in her apartment precipitating a change in vision and a subsequent diagnosis of cataract. Prior to this episode there was no history of allergy or atopic disease. Recent re-exposure to black mold triggered another severe dermatological reaction (Fig 1) associated with worsening visual acuity.

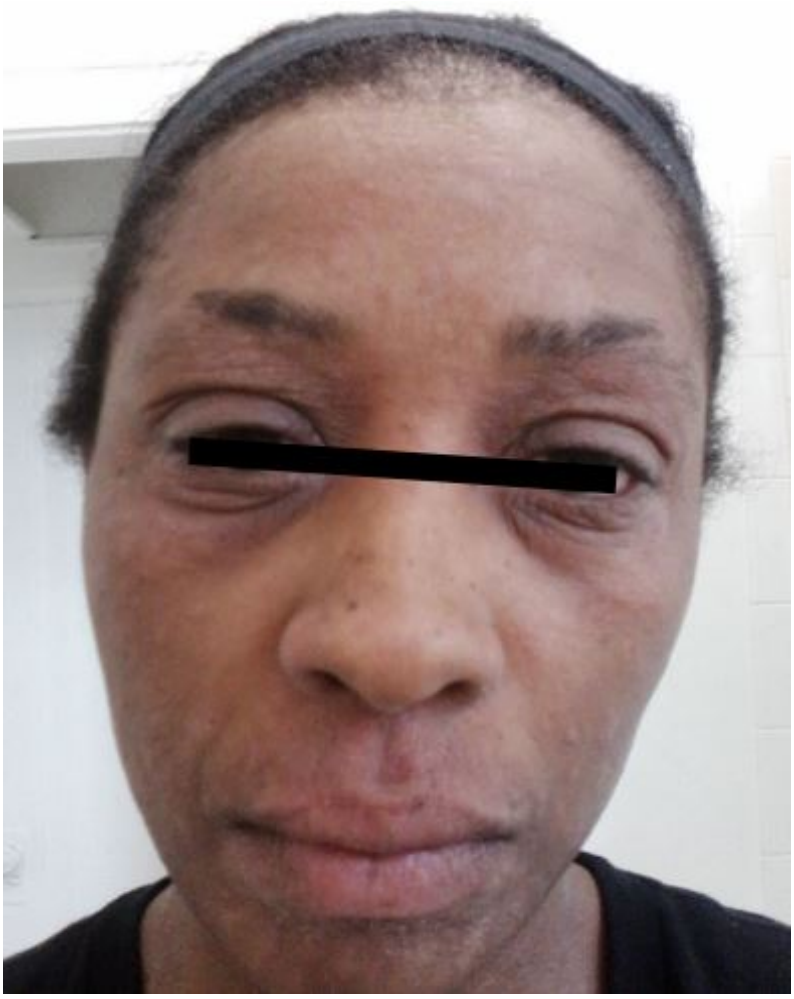

Figure 1: Dermatological appearance of the patient after black mold exposure.

Upon examination, the previously noted bilateral anterior subcapsular cataracts had progressed in both eyes (Fig 2), more so in the right eye to 3+ and the patient was reduced to 20/30.

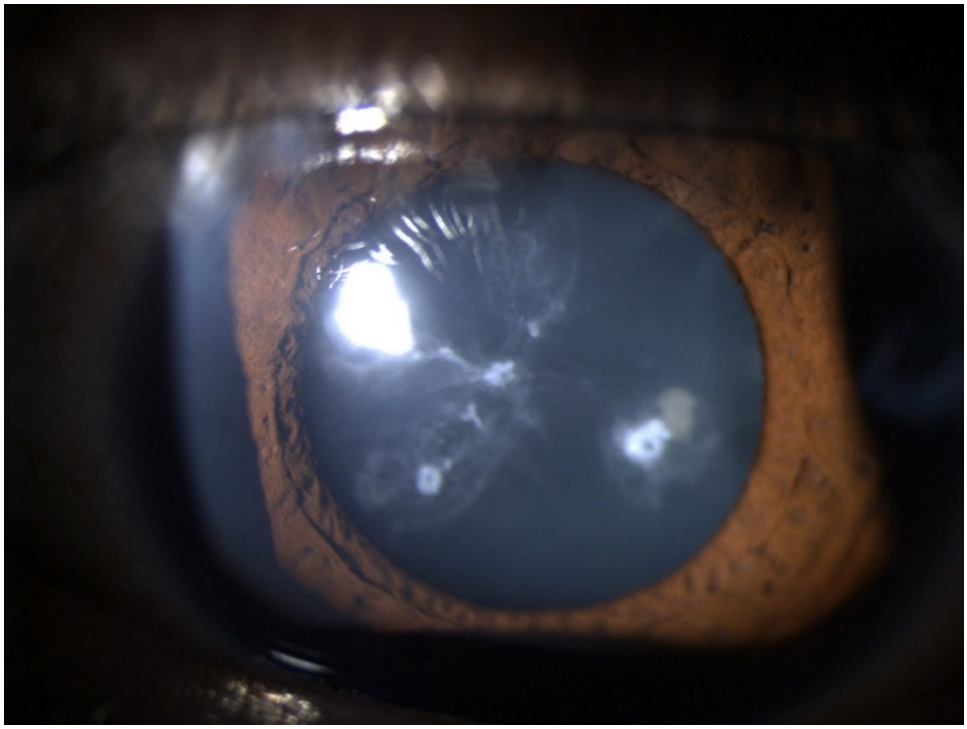

Figure 2: Anterior subscapular cataract

Intraocular pressure was 20 OD and OS. Dilated fundus examination was unremarkable OU. Allergy testing after the black mold exposure revealed the patient was now highly allergic to grasses, trees, molds, animals and various foods. A dermatology consult resulted in the diagnosis of atopic dermatitis.

It is estimated that atopic disease affects between 2 to 15% of adults.[1,2] Traditionally, a diagnosis is made based on clinical signs[1] and is commonly characterized as an atopic triad including atopic dermatitis, allergic rhinitis, and asthma when examining children. Clinical diagnosis of atopic dermatitis is made based on the appearance and pattern of the eczema, the waxing and waning of skin inflammation, and medical history[3] – all guided by the Hanifin and Rajka criteria. However, diagnostic criteria for adult onset atopic dermatitis may not fit traditional models and is still heavily weighted on clinical examination, rather than strict adherence to particular criteria. Differentials of atopic dermatitis in adults include a wide array of conditions, notably allergic dermatitis, seborrheic dermatitis, psoriasis, as well as many other inflammatory and infectious processes.[1, 3] Atopic dermatitis remains uncommon; however, other clinical signs thought to be minor diagnostic criteria may support atopic etiology.

Ocular manifestations have long been considered minor criteria in the diagnosis of atopic disease. Ocular involvement in atopic disease may be as high at 42%.[1]

Patients with atopic disease are reported to have a higher incidence of recurrent conjunctivitis, keratoconus, and retinal detachment. [1,4,5,6] Cataract formation is also widely reported.

Cataract formation may occur in up to half of patients with atopic dermatitis.[5] This includes both anterior subcapsular (ASC) and posterior subcapsular cataracts (PSC), the two forms of cataract most commonly encountered in this patient population. While corticosteroid use is linked to the development of PSC, the incidence of PSC in the steroid naïve AD group is similar to patients with a known history of steroid use[2,4], suggesting that cataract formation cannot be explained by steroid use alone. The presence of ASC is even more specific to the diagnosis of atopic dermatitis. Anterior subcapsular cataract formation is uncommon, and rarely seen outside of an atopic patient population.

Anterior subcapsular cataract formation is typically rapid[4] and appears as a central gray-white plaque.[2] Commonly encountered cataracts with a similar appearance include cortical, polar or traumatic cataracts and can be easily differentiated on slit lamp exam using an optic section. Clinically, ASC chronologically follows dermatological signs.[4] These cataracts are more common in young patients and their formation is more likely in severe atopic presentations.[2,6] The pathophysiology behind the development of these cataracts is poorly understood. Oxidative stress, elevated IgE, compromised blood aqueous barrier, elevated protein in the aqueous humor, epithelial-mesenchymal transition, and eye rubbing have all be postulated, but none proven.[2,4,5]

While adult onset atopic dermatitis is difficult to definitively diagnose, ocular signs may give confidence to the diagnosis. Cataracts, and more specifically anterior subcapsular cataracts, are a known manifestation of atopic dermatitis. The formation of anterior subcapsular cataracts may strengthen the diagnosis for adult onset atopic dermatitis and ensure that proper treatment and management options are available.

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