

Answer to Ophthalmology continued from page 1699

## 4. All of the above

This case describes a typical age-related cataract. A cataract is an abnormality in the clarity of the natural crystalline lens of the eye. Cataracts are the leading cause of blindness worldwide, with an estimated 54 million people 60 years of age and older to be affected by 2020.<sup>1</sup> Epidemiologic studies have identified a number of risk factors that act synergistically to result in age-related cataract formation, including environmental, hereditary, iatrogenic, nutritional, and systemic factors.

The classic environmental risk factor is cumulative exposure to UVB light, which has been confirmed by epidemiologic and animal studies.<sup>2</sup> Multiple studies have shown an increased risk of nuclear lens opacities in smokers.<sup>2</sup> Several systemic diseases have also been found to increase the risk of cataracts, in particular diabetes mellitus.<sup>3</sup> Patients with diabetes are at risk of cataract formation due to fluctuating changes in lens hydration, which occur with alterations in blood glucose levels.<sup>4</sup> Furthermore, certain drugs increase the risk of cataracts, the most important being topical, inhalational, or systemic corticosteroids. Steroids typically result in the development of posterior subcapsular cataracts.<sup>2</sup> The search for specific genes predisposing patients to adult-onset cataracts continues, as twin and population studies have suggested that up to 70% of age-related cataracts can be explained by inheritability.<sup>2</sup> Interestingly, a consistent association between low education and all cataract types has been shown even after an adjustment is made for diet, smoking, and UVB exposure.<sup>3</sup>

No medical treatment has been conclusively shown to prevent or reduce the progression of cataracts, as of yet. It has been demonstrated experimentally, however, that cataractous changes in the human crystalline lens are secondary to oxidative damage, and that deficiencies in certain antioxidants can both induce and accelerate the progression of cataracts.<sup>5</sup> It has also been shown experimentally that supplementation with antioxidants retards such progression.<sup>5</sup> A number of clinical studies have looked at the effectiveness of multivitamin supplements and antioxidants (in particular vitamins C, E, and carotenoids). Although some of the data suggest that nutritional supplementation might help prevent and delay the progression of cataracts, the overall results are inconsistent. There is currently insufficient data to recommend the routine use of antioxidants in the management of patients with cataracts.<sup>5,6</sup>

Recently, another group of antioxidants in the xanthophyll class (lutein and zeaxanthin) as well as omega-3 fatty acids have received increased attention.<sup>7-9</sup> Again, these therapies have shown effect in vitro, and some observational studies have suggested that they are moderately effective for decreasing the progression of cataracts. However, more convincing data from well-designed studies are lacking.<sup>10</sup>

## Management

This patient should be referred to an ophthalmologist on a nonurgent basis. The patient's visual acuity and slit-lamp examination, in combination with the self-reported effect the patient's visual disability has on his or her lifestyle, are helpful in deciding whether or not surgical intervention would be beneficial. Often, a change in prescription lenses can provide improved high-contrast visual acuity for patients. Some patients might also benefit from the use of magnification aids and adequate illumination to optimize vision. Finally, symptomatic patients can improve their visual acuity, colour vision, contrast sensitivity, night vision, and overall quality of life with cataract surgery.<sup>11</sup>

## Recommendations

Although there is no proven preventive treatment for cataracts, risk factor modification might slow the progression of cataracts. Lifestyle changes, such as smoking cessation, wearing sunglasses, and controlling blood glucose levels, can help slow down the progression of cataracts. Although observational studies suggest that a diet rich in antioxidants might be beneficial in delaying early or mild cataracts, this has not been demonstrated conclusively. Patients with clinically significant cataracts benefit from cataract surgery. 

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**Competing interests**  
None declared

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