



(CASE REPORT)



CHRISTMAS TREE CATARACT: A CASE REPORT

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ABSTRACT

Introduction: Christmas tree cataract is a rare lens opacity characterized by polychromatic, needle-shaped crystals in the deep cortex, usually found incidentally on slit-lamp examination.

Case: A 65-year-old woman with type 2 diabetes treated with oral antidiabetic drugs presented with progressive unilateral visual loss and coloured halos around lights, worse at night. Corrected distance visual acuity was 5/10 in the left eye and 9/10 in the right eye. Slit-lamp examination of the left eye showed multicoloured refractile opacities in the central and temporal anterior cortex, associated with nuclear cataract. Dilated fundus examination showed no diabetic retinopathy. Phacoemulsification with in-the-bag intraocular lens implantation was performed, and visual acuity reached 10/10 one month postoperatively.

Conclusion: Although often asymptomatic, Christmas tree cataract can cause significant visual disturbance and is effectively treated by standard phacoemulsification.

Keywords: Christmas tree cataract; Polychromatic cataract; Cystine crystals; Phacoemulsification; Myotonic dystrophy.

1 INTRODUCTION

Christmas tree cataract is a rare form of lens opacity, usually discovered incidentally during slit-lamp examination. It is characterized by polychromatic, needle-shaped crystals located mainly in the deep cortex of the lens. These highly reflective crystals appear red, green, blue, gold or pink depending on the angle of incident light, evoking the tinsel of a Christmas tree [8-10]. The condition is often asymptomatic and unilateral, but it may progress to significant visual impairment.

2 CASE PRESENTATION

A 65-year-old woman with type 2 diabetes, treated with oral antidiabetic drugs, presented with progressive visual loss in one eye and perception of coloured halos around lights, particularly at night. Corrected distance visual acuity was 5/10 in the left eye and 9/10 in the right eye. Slit-lamp examination of the left eye revealed multicoloured opacities in the central and temporal anterior cortex of the lens, associated with a nuclear cataract (Figure 1). Dilated fundus examination showed no diabetic retinopathy. Ocular motility was normal, there was no ptosis, and the patient reported no neuromuscular weakness, pain or muscle stiffness.

A diagnosis of Christmas tree cataract was made. The patient underwent phacoemulsification with in-the-bag intraocular lens implantation. The postoperative course was uneventful, and visual acuity improved to 10/10 one month after surgery.

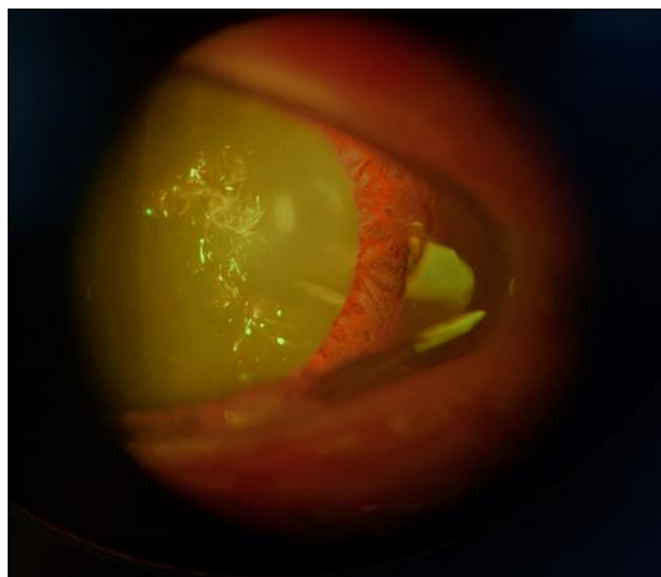


Figure 1: Slit-lamp photograph of the left eye showing multicoloured, specular crystalline opacities in the central anterior cortex, giving the typical “Christmas tree” appearance.

3 DISCUSSION

The pathogenesis of Christmas tree cataract remains uncertain. Early reports attributed the crystals to cholesterol deposition resulting from altered lens metabolism [1,3], and diffraction of light by stacked lens-fibre membranes was proposed to explain the polychromatic lustre [2]. A later morphological and chemical study concluded that the needles are most likely composed of cystine, resulting from age-related aberrant breakdown of crystallins induced by elevated intralenticular calcium [4]. Accelerated breakdown of membrane-associated proteins with cystine accumulation has also been suggested [7].

Several aetiological factors have been proposed: ageing, with denaturation of lens proteins; metabolic disorders, notably hyperlipidaemia; and oxidative stress, which may favour crystal precipitation. Importantly, Christmas tree cataract may be associated with myotonic dystrophy; in one series, this was found in about one in six affected patients [6]. A search for neuromuscular symptoms is therefore warranted, as was done in our patient, in whom none were found [6,9].

The lesion is usually visually non-disturbing and may require observation only [8]. When visual function is affected, as in our patient, surgery is indicated. Phacoemulsification with intraocular lens implantation is the standard treatment and generally gives a good visual outcome. The highly refractile crystals may alter the red reflex during surgery.

4 CONCLUSION

Christmas tree cataract is a rare entity whose spectacular polychromatic appearance contrasts with a usually discreet symptomatology. Diagnosis rests on slit-lamp biomicroscopy. Management consists of monitoring until functional impact occurs, followed by conventional phacoemulsification, which allows excellent visual recovery. Clinicians should remain aware of the possible association with myotonic dystrophy.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

Disclosure of conflict of interest

The authors declare no conflicts of interest regarding this manuscript.

Statement of informed consent

Written informed consent for publication of the case and image was obtained from the patient.

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