VOLUME - 14, ISSUE - 09, SEPTEMBER - 2025 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

Ophthalomology

SHIMMERING CLUES: INCIDENTALLY DETECTED BILATERAL CERULEAN CATARACTS IN A YOUNG FEMALE

Yadav Priyanka*	MBBS, PG-Resident, Department of Ophthalmology, NC Medical College and Hospital, Israna, Panipat, Haryana *Corresponding Author
Garg Kritika	MBBS, MS Department of Ophthalmology, NC Medical College and Hospital, Israna, Panipat, Haryana
Soni Tarun	Assistant Professor, Department of Ophthalmology, NC Medical College and Hospital, Israna, Panipat, Haryana

ABSTRACT

Objective: To describe a case of incidentally detected bilateral cerulean cataracts in a young female with epiphora, emphasizing the importance of thorough ocular examination and appropriate management. **Background:** Cerulean (blue-dot) cataract is a rare congenital lens opacity characterized by small bluish-white cortical opacities, usually bilateral, with autosomal dominant inheritance. While typically benign and non-progressive, its recognition is essential to avoid misdiagnosis and unnecessary intervention. Genetic studies have linked it to mutations in CRYBB2, CRYGD, and MAF. **Case Presentation:** A 29-year-old female presented with bilateral epiphora of two months' duration. Visual acuity was 6/6 and N6 near vision in both eyes. Slit-lamp examination uncovered multiple discrete bluish-white cortical lens opacities in both eyes, consistent with cerulean cataracts. Lacrimal and tear film evaluations were normal. Given preserved visual function and benign nature, she was reassured and started on lubricating drops, with follow-up planned. **Conclusion:** This case highlights the incidental discovery of cerulean cataracts in the evaluation of nonspecific symptoms. Recognizing this benign lens anomaly prevents unnecessary treatment and anxiety, reinforcing the value of comprehensive ophthalmic evaluation.

KEYWORDS : Cerulean cataract, Blue-dot cataract, Epiphora, Incidental finding, Congenital

INTRODUCTION

Congenital cataracts remain an important cause of avoidable blindness worldwide, with an estimated incidence of 1–6 per 10,000 live births. [1] They are clinically heterogeneous, ranging from dense, visually significant opacities to subtle, non-progressive forms discovered incidentally in adulthood. [2]

Cerulean cataract, also called blue-dot cataract, is a distinctive subtype characterized by multiple small bluish-white opacities in the cortical region of the lens, usually bilateral. [3] The condition is typically inherited in an autosomal dominant manner, and genetic studies have linked it to mutations in crystallin genes (CRYBB2, CRYGD) and transcription factors such as MAF. [4,5]

Although benign and non-progressive in most cases, cerulean cataracts are clinically significant because they can mimic metabolic, diabetic, or drug-induced cataracts. [6] Recognizing the characteristic "blue dot" appearance allows appropriate reassurance and prevents unnecessary interventions.

Case Presentation

A 29-year-old woman presented with bilateral watering of the eyes for two months. There was no associated pain, redness, photophobia, or decreased vision. She denied systemic illness, trauma, surgery, or relevant family history.

On examination, best-corrected visual acuity was 6/6 and near vision N6 in both eyes. Extraocular movements and pupillary reflexes were normal.

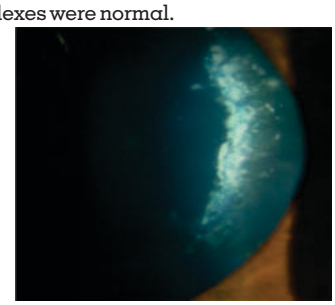

Figure 1. Slit-lamp image showing multiple bluish-white cortical opacities characteristic of cerulean (blue-dot) cataracts.

Slit-lamp examination revealed multiple small, bluish-white, punctate cortical opacities in both lenses (Figure 1). The rest of the anterior segment and fundus were normal.

Lacrimal syringing was patent bilaterally, and Schirmer's test and tear breakup time were within normal limits, excluding lacrimal or tear film pathology.

A diagnosis of bilateral cerulean cataracts was made. As the cataracts were not visually significant, the patient was reassured, prescribed lubricating drops for symptomatic relief, and scheduled for follow-up.

DISCUSSION

Cerulean cataract was first described in detail in the early 20th century. [7] It is clinically distinguished by bilateral, bluish-white cortical opacities, typically arranged in concentric or stellate patterns, most apparent under retroillumination. [8] Unlike many congenital cataracts, visual acuity often remains preserved, and surgical intervention is rarely required unless progression occurs. [9]

Genetic studies have shown considerable heterogeneity. Mutations in CRYBB2, CRYGD, and MAF disrupt crystallin proteins and transcriptional regulation, leading to lens opacity. [4,10,11] More recently, loci on chromosome 12q24 have also been implicated. [12] These findings highlight the molecular complexity of congenital cataracts.

Differential diagnosis includes snowflake cataracts of diabetes, metabolic cataracts of galactosemia and hypocalcemia, and drug-induced cataracts. [6,8] Distinguishing features include systemic associations and different morphological patterns, whereas cerulean cataracts display their unique bluish punctate appearance.

Management is conservative in asymptomatic patients. Reassurance and follow-up are essential, with surgery reserved for cases where visual acuity is compromised. [9,13] In the present case, the patient was counselled regarding the

benign course, but also informed about the possibility of progression requiring cataract extraction in adulthood.

CONCLUSION

This case highlights the incidental finding of cerulean cataracts in a young adult presenting with epiphora. Recognizing this benign lens anomaly is important for accurate counseling, preventing misdiagnosis, and guiding appropriate follow-up.

REFERENCES

1. Foster A, Gilbert C, Rahi J. Epidemiology of cataract in childhood: A global perspective. J Cataract Refract Surg. 1997;23 Suppl 1:601–4.
2. Merin S. Inherited Eye Diseases: Diagnosis and Management. 2nd ed. Boca Raton: CRC Press; 2005.
3. Khan AO. Congenital cataract: Principles and practice. Middle East Afr J Ophthalmol. 2010;17(1):14–20.
4. Gill D, Klose R, Munier FL, et al. Genetic heterogeneity of cerulean cataract: Mutations in the CRYBB2 and CRYGD genes. Invest Ophthalmol Vis Sci. 2000;41(10):2768–74.
5. Shiels A, Hejtmancik JF. Genetic origins of congenital cataract. Arch Ophthalmol. 2007;125(2):165–73.
6. Reddy MA, Francis PJ, Berry V, Bhattacharya SS, Moore AT. Molecular genetic basis of inherited cataract and associated phenotypes. Surv Ophthalmol. 2004;49(3):300–15.
7. Vogt A. Lehrbuch und Atlas der Spaltlampenmikroskopie des lebenden Auges. Springer; 1921.
8. Graw J. Congenital hereditary cataracts. Int J Dev Biol. 2004;48(8–9):1031–44.
9. Churchill A, Graw J. Clinical and genetic update on congenital cataract. Ophthalmic Genet. 2011;32(4):195–205.
10. Santana A, Waiswo M. The genetic and molecular basis of congenital cataract. Arq Bras Oftalmol. 2011;74(2):136–42.
11. Hejtmancik JF. Congenital cataracts and their molecular genetics. Semin Cell Dev Biol. 2008;19(2):134–49.
12. Vanita V, Singh JR, Sarhadi VK, et al. A unique form of autosomal dominant cerulean cataract maps to chromosome 12q24. Hum Genet. 2001; 108(5):409–15.
13. Berry V, Moore AT. Congenital cataracts: Aetiology and management. Eye (Lond). 2012;26(2):173–80.