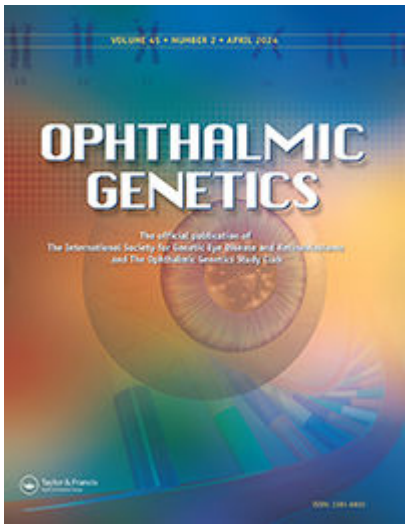

Variable expressivity of the autosomal dominant vitreoretinochoroidopathy (ADVIRC) phenotype associated with a novel variant in *BEST1*

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Received 04 Mar 2024, Accepted 11 Jun 2024, Published online: 03 Jul 2024

- https://doi.org/10.1080/13816810.2024.2368797

ABSTRACT

Background

This case report explores the relationship between genetics and phenotypic variability in autosomal dominant vitreoretinochoroidopathy (ADVIRC). The study focuses on a case presenting a novel mutation in the *BEST1* gene and its phenotype in the case's relatives, shedding light on the structural and functional intricacies underlying this rare ophthalmologic disorder.

Case Presentation

A 33-year-old female presented for consultation with a history of bilateral retinal damage accompanied by a complaint of decreased visual acuity, progressive visual field deficit, and night blindness over the past year. Ophthalmic examination revealed

a distinctive phenotype, including fibrillar vitreous, pigmented cells, and atrophic hyperpigmented retina in the periphery which was suggestive of a diagnosis of ADVIRC. Genetic testing revealed a heterozygous c.1101–1 G>T variant in *BEST1*, a novel splice site mutation. Functional analysis confirmed its impact on pre-mRNA splicing, resulting in an in-frame deletion (p(Ser367_Asn579del)). Family investigation revealed varying degrees of ophthalmologic impairment in the patient's mother and half-sister, both carrying the same mutation.

Conclusions

This case report provides the first clinical description of the c.1101–1 G>T mutation in the *BEST1* gene associated with ADVIRC. The presence of intrafamilial variability, as evidenced by the differing clinical features observed in the index case and her half-sister, suggests the potential involvement of mechanisms influencing phenotype expression.

Abbreviation: ADVIRC : autosomal dominant vitreoretinochoroidopathy; RNA : ribonucleic acid; RPE : retinal pigment epithelium.