Genetics and Geography: A milder presentation of an ABCA 4 c.6320G>A mutation in an African American female

Raman Bhakhri, OD, FAAO
Chicago, Illinois

BACKGROUND

ACBA4 mutations number in the hundreds and are responsible for Stargardt disease, cone rod dystrophy, and retinitis pigmentosa. Many of the mutations are now known to be specific for patients from particular geographic areas and ethnic backgrounds. Research has also shown that these wide-ranging mutations in certain populations results in different funduscopic presentations along with varying symptoms. We report an atypical macular presentation, mild and late onset, in an African American female with a ABCA4 mutation that was verified through genetic testing.

CASE HISTORY

A 65-year-old black female presented for a comprehensive eye exam. Best corrected visual acuity was 20/20 OD and OS. External examination, entrance testing, slit lamp examination findings were unremarkable. IOP's were 16 mmHg OD/OS with Goldmann applanation tonometry. Dilated fundus examination revealed optic discs with 0.25/0.25 cup to disc ratio OD/OS. RPE atrophy was noted inferior to the fovea OU. Fundus autofluorescence revealed circular hyper-auto fluorescence around the fovea that corresponded to the RPE atrophy. SD-OCT revealed loss of the inner segment/outer segment junction layer along with RPE atrophy. An inherited retinal disease panel was ordered and revealed a mutation in the ABCA4 gene at c.6320G>A. Further history revealed the patient to be of West-African origin. Based on the examination findings and the patient's ethnic origin, the patient was diagnosed with late onset Stargardt disease. Genetic counselling was advised. The patient continues to be followed with her last visit showing stable findings.

FIGURE 1
Optos image OD showing obvious RPE atrophy more so inferior to the fovea along with scattered RPE and drusen like changes

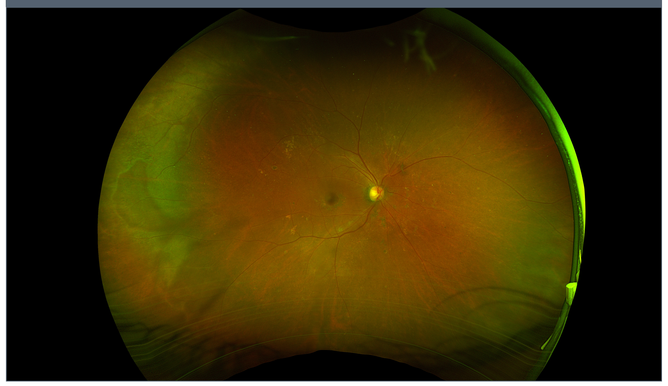


FIGURE 2
Optos image OS showing obvious RPE atrophy more so inferior to the fovea along with scattered RPE and drusen like changes

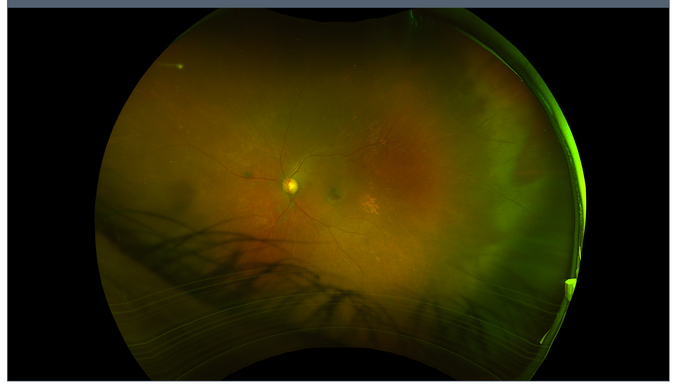


FIGURE 3
FAF OD revealed circular hyper-auto fluorescence around the fovea that corresponds to the RPE atrophy

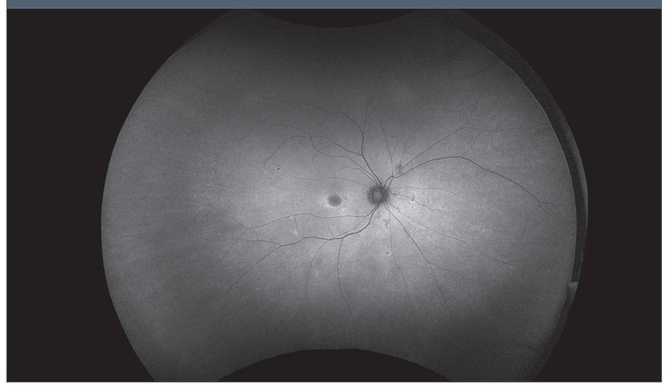


FIGURE 4
FAF OS revealed circular hyper-auto fluorescence around the fovea that corresponds to the RPE atrophy

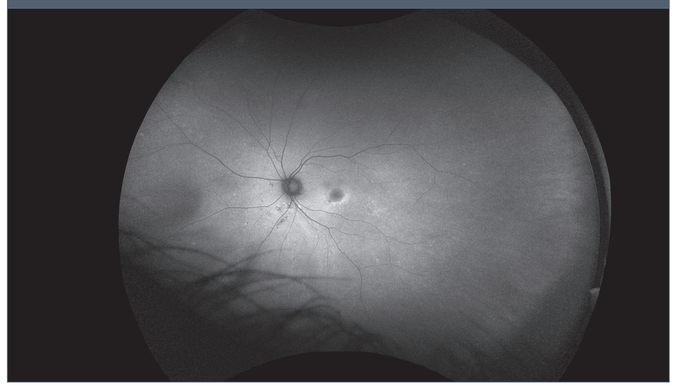


FIGURE 5
SD-OCT OD revealed loss of the inner segment/outer segment junction layer along with RPE atrophy

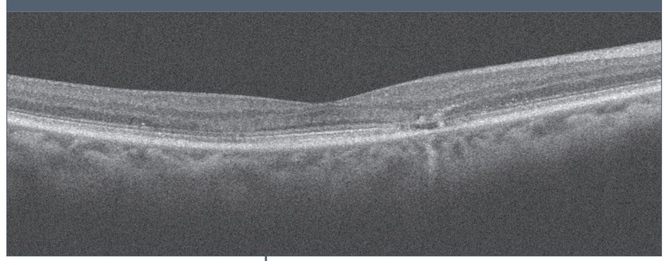
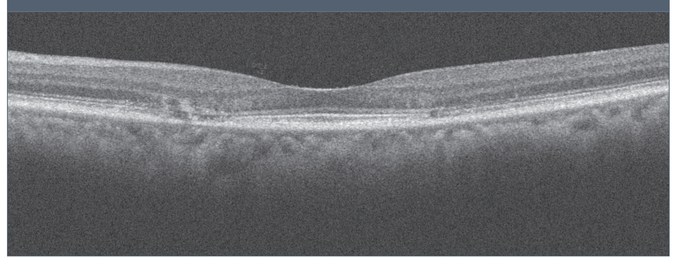


FIGURE 6
SD-OCT OS revealed loss of the inner segment/outer segment junction layer along with RPE atrophy



DISCUSSION

Autosomal recessive Stargardt disease is linked to hundreds of mutations in the ABCA4 gene. These mutations can be specific to certain racial and ethnic groups. Research has shown that African American patients with mutations in ABCA4, especially those of West African descent, present with a milder fundoscopic presentation and patient symptoms along with a later age of onset (5th decade or later) when compared to patients of European origin. The most common mutation in this study was the mutation noted in our patient, ABCA 4 c.6320G>A. Clinicians should be aware of the varied clinical and genetical heterogeneity in ABCA4 related disease, especially in patients of West African descent. Genetic testing is recommended in all suspected patients in order to provide a better prognosis on their condition.

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CONTACT

Raman Bhakhri, OD, FAAO
rbhakhri@ico.edu