

White Ring in Her Beautiful Eyes – Rare Entity

Dr Deeksha C.S.¹, Dr Ajay S Hatti²

¹Final year postgraduate, Department of ophthalmology, S.S. Institute of Medical Sciences and Research Centre, Davangere-577005, Karnataka, India

²Professor, Department of ophthalmology, S.S. Institute of Medical Sciences and Research Centre, Davangere-577005, Karnataka, India

Abstract- We report a first rare case of a 25-year-old young female patient came to our outpatient department of ophthalmology with chief complaints of white ring noticed in her eyes since 2years, which was insidious in onset and gradually progressive in nature, painless and no history of any other ocular complaints. She is a known case of hypothyroidism since 5 years and she is on medications with tablet thyronorm 75mcg OD. And there was nothing significant family history. By diffuse and oblique slit lamp examination its been physically diagnosed as “Arcus juvenilis” in her both eyes. Her Intraocular pressure (IOP) and fundus examination is also within normal limits. We asked her to get her lipid profile, thyroid profile, electrocardiogram (ECG) to be done and laboratoty reports showing deranged thyroid profile and lipid profile was within normal limits and asked her for further followup. In hypothyroidism patients also we should check for corneal arcus in his/her eyes. Both Ophthalmologists and physicians plays a very important role in early diagnosis and management in this case of patients. In our case we found out there is a strong association of arcus juvenilis and hypothyroidism.

Keywords: young female, hypothyroidism, Arcus juvenilis, lipid profile, ECG.

CASE REPORT

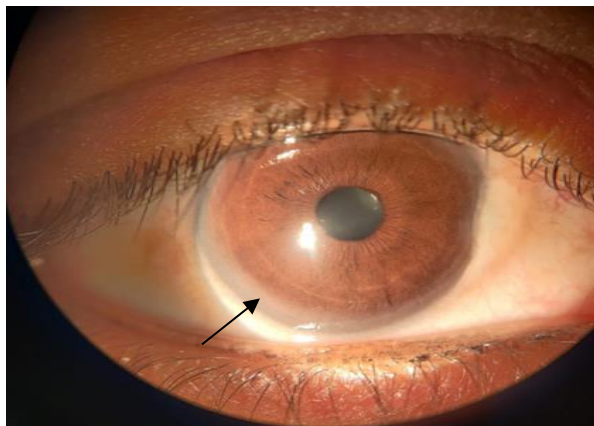


Fig1-Slit-Lamp photograph of right eye in diffuse illumination showing diffuse arcus juvenilis

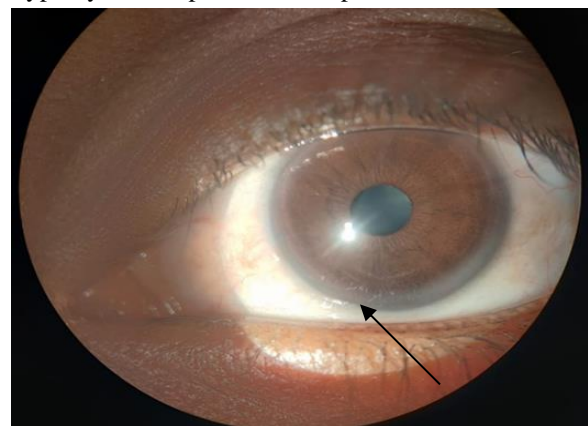


Fig2-Slit-Lamp photograph of left eye in diffuse illumination showing diffuse arcus juvenilis

A 25 year old young female (BMI- presented to the outpatient department of ophthalmology with chief complaints of white ring noticed in her eyes since 2 years, which was insidious in onset and gradually progressive nature, painless. She was fine before that and there was no significant history of ocular trauma, ocular surgery. She is a known case of hypothyroidism since 5 years and she is on oral medications with tablet thyronorm 75mcg OD and there was nothing significant family history.

On examination, her visual acuity is 20/20 and N6 in her both eyes. Even color vision was normal in her both eyes. Her eyelids were looking normal and extraocular movements were full. On diffuse and oblique slit lamp examination it showed diffuse arcus juvenilis as shown in figure 1. and 2. Her IOP was 14mmHg in her right eye and 14mmHg in her left eye. Her posterior segment was unremarkable. We asked her for to get lipid profile, thyroid profile, random blood sugar level, electrocardiogram (ECG) to be done and laboratoty reports showing deranged thyroid profile and lipid profile was within normal limits. We called her for further follow up. To our best knowledge this is a first case of arcus juvenilis in a hypothyroidism patient ever reported in this world.

DISCUSSION

Corneal arcus, also known as arcus senilis or arcus juvenilis depending on the age of presentation, is characterized by a white or gray ring around the corneal periphery. It is caused by lipid deposits accumulating in the cornea peripherally, which appears as a ring around the iris upon examination. Corneal arcus is highly associated with normal aging and occurs in around 60 percent of individuals between 50-60 years of age. However, when it occurs in individuals under the age of 40, it may be associated with a lipid metabolism disorder or coronary artery disease. Those with schneider central crystalline dystrophy may also develop corneal arcus. It may not present with any symptoms other than the arc or ring that develops in the eye(s). Often, an eye exam or slit lamp exam performed by an ophthalmologist may be used to diagnose the condition. Individuals under the age of 50 may also need blood tests to assess their lipid levels. If corneal arcus is due to a lipid metabolism disorder, medications to lower lipid levels may be prescribed. Conversely, when corneal arcus is due to aging, treatment may not be required. Lertchavanakul A et.al in their study concluded that while corneal arcus is primarily an aged-related change, if present in people under 50 years it should be considered for dyslipidemia which is one of the risk factors for coronary heart disease. Reports also have linked corneal arcus with alcoholism, diabetes mellitus and atherosclerotic heart disease. Unilateral arcus is a rare entity that is associated with carotid artery disease or ocular hypotony. Diffuse corneal opacities associated with hypolipidemic disorders such as LCAT deficiency, fisheye disease and Tangier disease, may be the initial manifestation of these disorders and puts the ophthalmologist in a position to make an early diagnosis. Wasielica-Poslednik J et.al in their observational study they concluded that Arcus was not associated with socio-economic status, BMI, arterial blood pressure, and HbA1c. Vurgese S et.al in their study they concluded that adult rural Central Indian population with low mean BMI, the prevalence of corneal arcus was $10.7\% \pm 1.0\%$. The only systemic parameter associated with corneal arcus was increasing age ($P < 0.001$). Corneal arcus was not associated with dyslipidemia, diabetes mellitus, arterial hypertension, alcohol consumption, or

smoking. In this population with low BMI, corneal arcus was not a clinical biomarker for major metabolic disorders. The intereye associations between corneal arcus and low intraocular pressure, thin central cornea, and hyperopia may be of importance in the ophthalmic examination.

CONCLUSION

We report a rare case of a 25-year-old young female patient who is suffering from hypothyroidism since 5 years and on oral medications with arcus juvenilis. As corneal arcus is irreversible, and no treatment is available so far. Even in hypothyroid also we should look for arcus juvenilis because there will be decrease in the elimination of cholesterol levels in their body due to slow metabolism. We should send for lipid profile to rule out lipid metabolism disorder. In individuals under 40 years, corneal arcus is strongly associated with increased risk of coronary artery disease. If the corneal arcus is only present in one eye, then it may also be associated with carotid vascular disease. Prevention is better than cure. Still a lot of studies yet to be started to find out the prevalence of arcus juvenilis and hypothyroidism association. Hence, we conclude that in hypothyroidism patients we also should check for a corneal arcus in his/her both eyes. Both Ophthalmologists and physicians plays a very important role in early diagnosis and management in this case of patients.

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