FREQUENCY OF DIABETICS IN ASTEROID HYALOSIS PATIENTS

Amjad Akram, M. Khizar Niazi, Mazhar Ishaq, Nadia Azad

Department of Ophthalmology, Military Hospital, Rawalpindi

Background: Asteroid hyalosis is a benign condition characterized by small white or yellow-white spherical opacities throughout the vitreous. The aetiology of this disorder is not clearly understood. Association of asteroid hyalosis with diabetes mellitus has been a debatable issue in ophthalmology. This study was carried out to determine the relationship between asteroid hyalosis and diabetes. **Methods:** The study was carried out in the Department of Ophthalmology, Military Hospital, Rawalpindi. Cases were picked up during routine eye examination that showed evidence of asteroid hyalosis. All patients of diabetes scheduled for routine follow-ups were also checked for active signs of diabetes. Fasting and two-hour postprandial blood glucose were checked and the frequency of diabetes mellitus in patients with asteroid hyalosis was determined. **Results:** Ninety-six cases of asteroid hyalosis were included. The median age of presentation was 55.68 years (range 40–71). It was bilateral in thirty-six cases. Twenty-eight cases were positive for diabetes. **Conclusion:** The association between asteroid hyalosis and diabetes appears to be significant. Patients found to be having the findings of asteroid hyalosis should be screened for diabetes.

KEYWORDS: Asteroid Hyalosis; Diabetes Mellitus; Vitreous

INTRODUCTION

Asteroid hyalosis (AH) is a benign condition characterized by small white or yellow-white spherical or disc shaped opacities throughout the vitreous. The frequency of this condition in the general population is about 0.042 to 0.5% affecting all races with a male to female ratio of 2:1[1]. Asteroid hyalosis is unilateral in 75% cases[1]. The aetiology of asteroid hyalosis is not clearly understood. The association of asteroid hyalosis and diabetes mellitus has been a debatable issue in ophthalmology. There have been reports[2-5] which suggest an association between the two conditions while others[6-8] dispute any such association. We carried out a study at the Eye Department, Military Hospital Rawalpindi, to determine any relationship between asteroid hyalosis and diabetes mellitus, by calculating frequency of diabetes in patients of asteroid hyalosis.

MATERIALS AND METHOD

This study was carried out in the Department of Ophthalmology, Military Hospital, Rawalpindi from May 2001 to September 2002. All subjects reporting to the outdoor section of the Department with ocular examination findings suggestive of asteroid hyalosis were taken up in the study, excluding cases with a history of trauma to the eyes.

A detailed history was taken and subjects were specifically asked about the presence of cardiovascular disease, cigarette smoking, physical activity, refractive error, hypertension and diabetes. A thorough ocular examination was done to look for any refractive error, corneal or lenticular pathology, intraocular pressure and detailed fundus analysis by non-contact fundus lenses.

The study population comprised of all cases of asteroid hyalosis picked up during routine examination.

Blood glucose fasting and 2-hours post prandial were done in patients who were not known diabetic but had asteroid hyalosis to confirm the presence of diabetes. The frequencies of results were calculated using SPSS version 10.0.

RESULTS

Total number of cases detected was ninety-six. The median age was 55.68 years (range 40–71). Asteroid hyalosis was bilateral in 36 cases (37.5%). Frequency increased insignificantly (p>0.05) with age from 37.5% in subjects between 40–55 years to 62.5% in subjects between 56–71 years. After adjusting for age, men were more likely (72.91%) to have asteroid hyalosis than women (27.08%). Among the unilateral cases, it was more common on the right side (70%) than on the left (30%). Twenty-eight (29.16%) patients were recorded to be diabetic. The detailed results are given in Table-1.

A comparison of diabetics and non-diabetics in study population is given in Figure-1.

Table-1: Findings at the end of the study (n=96)

Findings	No of cases with findings	Percentage
Bilateral Asteroid Hyalosis	36	37.5
Unilateral AH (Rt)	42	43.75
Unilateral AH (Lt)	18	18.75
Diabetics with AH	28	29.16
Male population	70	72.91
Female population	26	30.20

Figure-1: Comparison of Diabetics and Non- Diabetics in study population (n=96)

DISCUSSION

The controversy regarding an association between asteroid hyalosis and diabetes mellitus has been one of the longest disputes in ophthalmic literature. Multiple studies are present either indicating[2-5] definite association between the two conditions or no association at all[6-8].

In our study out of ninety-six patients who were diagnosed as having asteroid hyalosis, twenty-eight patients (29.16%) had established diabetes mellitus. This frequency is very similar to other reports in the ophthalmic literature; Zinn[9] reports 27% patients with asteroid hyalosis are diabetic, while Bergren[10] reports that 29% of his asteroid hyalosis patients were also diabetic. Bilateral asteroid hyalosis was found in 37.5% of our patients. There are various and differing reports regarding involvement of both eyes. Moss[11] report approximately 9% bilateral cases of AH, whereas according to Zinn[9] it was 25%. Jones[12] has also documented a patient with acquired asteroid hyalosis in a case of early diagnosed diabetes mellitus which strongly supports association between the two conditions.

Asteroid hyalosis has been described in association with other systemic diseases such as systemic arterial hypertension and atherosclerotic vascular disease[5], but we did not add these to our study design. Owing to association with systemic conditions, it has been suggested that asteroid hyalosis may be secondary to some form of vasculopathy in many frequencies and that diabetes mellitus is one of the conditions that may be associated with formation of asteroid hyalosis.

CONCLUSION

There appears to be a significant association between asteroid hyalosis and diabetes mellitus. It is recommended that patients who are observed to have asteroid hyalosis as an incidental finding should be screened for diabetes mellitus.

REFERENCES

1. Sebag J. The vitreous. In: Moses AR, Hart WM eds. Adler's physiology of the eye. St Louis: CV Mosby Company 1992: 308-12.
2. Bard LA. Asteroid hyalosis: Relationship to diabetes and hypercholesterolemia. Am J Ophthalmol 1964;58:239-41.
3. Cockburn DM. Are vitreous asteroid bodies associated with diabetes mellitus. Am J Optom Physiol Opt 1985;62:40-3.
4. Sebag J, Albert DM, Craft JS. The alstrom syndrome: Ocular histopathology and retinal ultrastructure. Br J Ophthalmol 1984;68:494-6.
5. Smith HL. Asteroid hyalites: Incidence of diabetes mellitus and hypercholesterolemia. JAMA 1958;168:891-4.
6. Hatfield RE, Gastineau CF, Ruke CW. Asteroid bodies in the vitreous: Relationship to diabetes and hypercholesterolemia. Mayo Clin Proc 1962;37:513-6.
7. Kearns TP. Discussion of asteroid hyalitis and diabetes mellitus. Trans Am Acad Ophthalmol Otolaryngol 1965;69:277-81.
8. Luxenberg M, Sime D. Relationships of asteroid hyalosis to diabetes mellitus and plasma lipid levels. Am J Ophthalmol 1969;73:406-9.
9. Zin KM. Asteroid hyalosis. In: Verlag S ed. Clinical Atlas of Peripheral retinal disorders. New York: Churchill Livingstone Publishers, 1988:74-9.
10. Bergren RL, Brown GC, Ducker JS. Prevalence and association of asteroid hyalosis with systemic diseases. Am J Ophthalmol 1991;111(3):289-93.
11. Moss SE, Klein R, Klein BE. Asteroid hyalosis in a population: The Beaver Dam Eye Study. Am J Ophthalmol 2001;132(1):70-7.
12. Jones WL, Twamley CR. Documented acquired asteroid hyalosis in a case of early-diagnosed diabetes mellitus. Optometry 2001;72(5):315-21.

Address for correspondence:
Maj Amjad Akram, Classified Eye Specialist, Military Hospital, Rawalpindi. Tel: +92 51 561-34344.
E-mail: khizar_aleem@yahoo.com