

ASSOCIATION OF PERIPHERAL RETINAL DEGENERATION WITH RETINAL DETACHMENT IN MYOPIA

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ABSTRACT

Background: Retinal degenerations occur commonly in the peripheral retina and are considered as risk factors for rhegmatogenous retinal detachment. Rhegmatogenous retinal detachment occurs when the liquified vitreous passes through the retinal breaks in the neurosensory retina separating it from retinal pigment epithelium. **Material & Methods:** In the present study cross sectional, observational study which was carried out at the Department of Ophthalmology in a tertiary health care centre in Southern Rajasthan from July 2017 to June 2019. The study was undertaken in 560 myopic eyes studied in three groups.. Clearance from hospital ethics committee was taken before start of study. Written informed consent was taken from each study participant. **Results:** Out of the total study participants majority of participants were in 2-3 decade of life in group I and majority of participants were in 4-5 decade of life in group II and III. On the basis of lattice degeneration 42 eyes were involved in group I, 45 in group II and 28 in group III. Most common site was Superotemporal quadrant (65%) among group I. Retinal Detachment (RD) was present as Superior RD in 25 patients among group II. Retinal holes were found in 37 eyes in group II and 30 eyes in group III. Horse shoe tears were found in 15 eyes among group II. C/O light flashes present in 10 eyes among group III. **Conclusion:** Increased association of retinal detachment with peripheral retinal degenerations mainly lattice degeneration steers our way towards thorough examination of peripheral retinal in myopic patients using indirect ophthalmoscopy.

Key words: Retinal degenerations, Retinal detachment, Lattice degeneration.

INTRODUCTION

Periphery of the retina is defined as an area which is located anterior to the equator of the eyeball. Retinal degenerations occur commonly in the peripheral retina and are considered as risk factors for rhegmatogenous retinal detachment. (1) Rhegmatogenous retinal detachment occurs when the liquified vitreous passes through the retinal breaks in the neurosensory retina separating it from retinal pigment epithelium. (2) Due to the association between peripheral retinal degenerations and rhegmatogenous retinal detachment prophylactic treatment (laser photocoagulation/cryotherapy) and timely diagnosis is of utmost importance in myopic eyes.(3) Thus patients with history of floaters,

flashes should be asked to report immediately to prevent impending retinal detachment.(4) We conduct the present study to assess the association of peripheral retinal degeneration with retinal detachment in myopia.

MATERIALS & METHODS

The present cross sectional, observational study was conducted at the Department of Ophthalmology in a tertiary health care centre in Southern Rajasthan from July 2017 to June 2019. The study was undertaken in 560 myopic eyes studied in three groups. Study was conducted at 95% confidence interval at 5% of maximum allowable error. Patients

who were diagnosed clinically were enrolled by simple random sampling and randomized for three groups. Clearance from hospital ethics committee was taken before start of study. Written informed consent was taken from each study participant.

All the data were recorded related to detailed clinical history, cause of admission and co-morbidities. Among group I 280 eyes of myopic patients who were selected randomly from refraction units without any symptoms related to other retinal diseases. The refractive error of these individuals varied from -0.75 D Sph to -5.0 D Sph. Among group II 168 eyes of myopic patients having peripheral retinal degenerations with rhegmatogenous retinal detachment. The refractive error varied from -2.00 D Sph to -18 D Sph. Among group III included 112 fellow eyes of those myopic patients who had rhegmatogenous retinal detachment. 40 fellow eyes could not be examined due to corneal opacity, cataract, non-dilating pupil and phthisis bulbi. The refractive error of the subjects varied from -2.00 D sph to -18.0 D sph.

Data analysis was carried out using SPSS v22. All tests were done at alpha (level significance) of 5%; means a significant association present if p value was less than 0.05.

RESULTS

The present study was undertaken in 560 myopic eyes studied in three groups. Out of the total study participants majority of participants were in 2-3 decade of life in group I and majority of participants were in 4-5 decade of life in group II and III. On the basis of lattice degeneration 42 eyes were involved in group I, 45 in group II and 28 in group III. Most common site was Superotemporal quadrant (65%) among group I. Retinal Detachment (RD) was present as Superior RD in 25 patients among group II. Retinal holes were found in 37 eyes in group II and 30 eyes in group III. Horse shoe tears were found in 15 eyes among group II. C/O light flashes present in 10 eyes among group III. (Table 1)

Table 1: Distribution of study participants according to Lattice degeneration.

Variables	Group I	Group II	Group III
Age	2-3 decade	4-5 decade	4-5 decade
Eyes involved	42	45	28
Most common	Superotemporal quadrant (65%)	-	-
Retinal Detachment (RD)	Not found	Superior RD in 25 patients	-
Retinal holes	-	37 eyes	30 eyes
Horse shoe tears	-	15eyes	-
C/O light flashes	-	-	10 eyes

Clinically, lattice degeneration was characterized by oval or straight patches of thinned retina, in some cases accompanied by pigment clumps and lattice pattern due to fibrosed vessels. Among Peripheral cystoid degeneration no age predilection was seen with 100% eyes involved. The degeneration was characterized by coarse or fine small cavities which appeared separate or sometimes confluent. No hole or tear was seen in the areas of cystoid cavities.

Peripheral cystoid degeneration was not associated with retinal detachment. All affected eyes with retinal breaks had myopia ranging from -10.00 D sph to - 18.00 D sph. Among Group II commonest type of retinal break causing retinal detachment was retinal holes in relation to lattice degeneration. Age decade includes 3-4 decade. Eyes involvement seen in 20 eyes (11.9%) and most commonly seen in upper temporal quadrant and associated with Retinal

detachment. Among Group III giant tears were associated with retinal detachment and seen in 5 patients.

White with pressure (WWP) seen in 2nd decade of age and eyes involvement seen in 31 eyes of group I. It is the phenomenon of opacification of retina after scleral indentation. Most commonly seen in suboral region > equatorial region. More common in temporal half of retina and associated with high degree of myopia. There was no association with retinal detachment. White without pressure (WWOP) seen in 22 eyes of group I. This lesion appeared as whitening of the retina without scleral indentation. It was more severe and common in patients with moderate to severe myopia. There was no association with retinal detachment. Among group III eyes involved were 11 eyes having myopia of -4.0 D sph to -18.0 D sph.

Paving stone degeneration seen in 58 (21%) eyes of group I with 3rd-4th decade of age. Seen as pale, discrete lesions of retinal thinning, 1 to 2 DD in size revealing underlying choroidal vessels. Most commonly observed in the suboral region of inferotemporal quadrant. There was no association with retinal detachment.

DISCUSSION

Peripheral retinal degenerations are common in myopic patients. Increased axial length in myopia leads to stretching of retina and choroid leading to tessellated fundus and peripheral retinal degenerations. (5) Lattice degeneration with holes (22%) was found to be the main reason for retinal detachment with increased predisposition in the superotemporal quadrant of the retina. However our study also revealed that the fellow eyes of already diagnosed retinal detachment myopic patients also showed lattice degeneration (26.7%). Clinically, lattice degeneration was characterized by oval or straight patches of thinned retina, in some cases accompanied by pigment clumps and lattice pattern due to fibrosed vessels. (6)

Among Peripheral cystoid degeneration no age predilection was seen with 100% eyes involved. The degeneration was characterized by coarse or fine small cavities which appeared separate or sometimes confluent. (7) No hole or tear was seen in the areas of cystoid cavities. Peripheral cystoid degeneration was not associated with retinal detachment. All affected eyes with retinal breaks had myopia ranging from -10.00 D sph to - 18.00 D sph. Gonzales et al studied the fellow eyes of patients with phakic

rhegmatogenous retinal detachment from atrophic holes of lattice degeneration and found that 63% of fellow eyes had peripheral retinal degeneration. (8)

In our study holes were found in 37 out of 115 (32%) eyes with lattice degeneration. In Byer's study 43% retinal holes were associated with lattice degeneration and retinal detachment occurred in 2% of the above lesions. (9) However in our study the incidence of retinal detachment in patients with lattice degeneration was 21.7%. Our study also highlights association of retinal detachment with retinal breaks (retinal holes and giant tears). White with pressure and white without pressure had increased incidence of vitreoretinal traction but no retinal detachment. White without pressure was seen in fellow 11 eyes of patients with pathological myopia with retinal detachment. (10)

CONCLUSION

Increased association of retinal detachment with peripheral retinal degenerations mainly lattice degeneration steers our way towards thorough examination of peripheral retina in myopic patients using indirect ophthalmoscopy. It should be a routine to do the above examination in both symptomatic and asymptomatic myopic patients. This is necessary so that prophylactic treatment like laser photocoagulation/ cryotherapy can be done timely to prevent retinal detachment and decrease morbidity considerably.

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