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Incidence of peripheral retinal degenerations in myopic patients in our institution

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ABSTRACT

Objective

To determine the incidence of peripheral retinal degenerations in myopic patients in our community.

Design

Cross sectional study

Material and Methods

A sample of 224 eyes from 118 myopic patients were examined as out patients at our tertiary care hospital from April 2016 to September 2016. Axial length of the eyeball was measured using A scan ultrasonography and peripheral retina examined using indirect ophthalmoscopy and slit lamp microscopy.

Results

130 (58%) eyes were found to have posterior vitreous detachment. The peripheral retina showed the following types of retinal changes and degenerations: 76(34%) eyes had pigment clumps, 63(28%) eyes had paving stone degeneration, 27(12%) eyes had snow flake degenerations, 22(10%) eyes had lattice degeneration, 11(5%) eyes had peripheral cystoids degeneration, 4(2%) eyes had white without pressure degeneration and only 45 (20%) eyes had normal peripheral retina.

Conclusions

Myopia is a pathological condition associated with peripheral retinal lesions and it can also predispose to various retinal disorders like retinal detachment, so it important to screen and diagnose early and treat these patients so that future complications can be minimized.

keywords: Peripheral Retinal lesions, Paving stone degeneration, Snowflakes degenerations, Lattice degeneration

INTRODUCTION

Myopia may result from excessive refractive power (refractive myopia) or from expansion of the sclera shell resulting in axial elongation (axial myopia) that causes the retinal complications. The retinal changes of myopia do not strictly correlate with the degree of refractive error, but the likelihood of the appearance of pathologic changes

in the retina clearly increases in eyes with in or greater than -6 diopters of myopia which is termed "pathologic" or high myopia.

Extensive peripheral retinal changes are invariably present in pathologic myopia and increased axial length. Benign changes include "paving stone" degeneration, "white without pressure", peripheral cystoid degeneration, and snow flecks. Posterior vitreous detachment tends to

occur at an earlier age in myopia and there is a higher incidence of lattice degeneration, snail track degeneration and diffuse chorio-retinal atrophy with associated holes. The retina is relatively thin compared with the emmetrope. The risk of retinal tears and retinal detachment which is sometimes bilateral is significantly higher than in emmetropic persons. The importance of these peripheral retinal degenerations comes from the fact that some of them may predispose the myopic individual to retinal detachment and therefore their detection during ocular examination may warrant prophylactic treatment either by laser or less commonly by cryotherapy.

The aim of this study is to determine the incidence of peripheral retinal degenerations in highly myopic patients in our community.

MATERIALS & METHODS

This cross-sectional study was done on 118 myopic patients (224 eyes) in the outpatient clinic

of Saveetha Medical college in Chennai from April 2016 to October 2016. Age group was 10 – 40 years. There were 53 males and 65 females. We have excluded patients with severe media opacities, refractive myopia (normal axial length), myopes with previous retinal laser treatment, myopic patients with uveitis, previous trauma or surgery, other causes of visual loss and aphakic myopes.

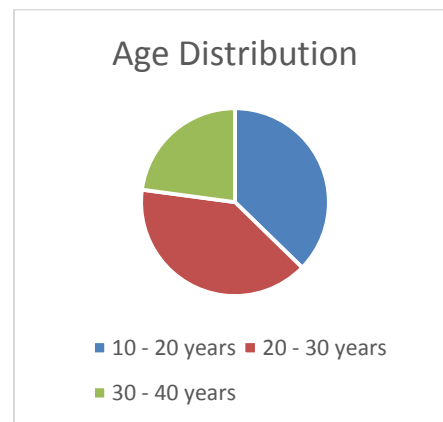
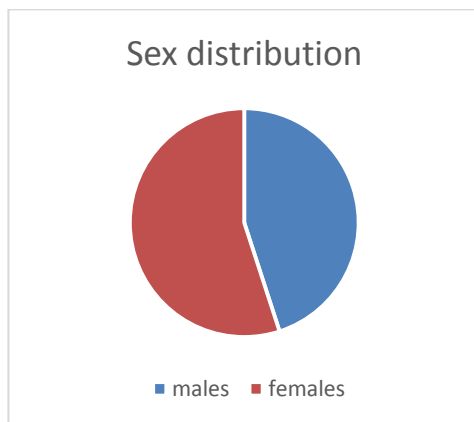
The patients were subjected to full examination including visual acuity test with Snellen chart, auto refractometry, cycloplegic refraction, detail fundus examination using indirect ophthalmoscope and 90D lens and A scan for axial length.

RESULTS

Of 118 patients examined, 53 were males and 65 were females. Age group was between 10 and 20 years, mean age being 28.35±5.5. (Table 1)

Table 1: Age and Distribution

Age group	Male		Female	
	Number	%	Number	%
10-20	19	36%	25	38%
20-30	21	39%	26	40%
30-40	13	25%	14	22%
Total	53	100	65	100



The myopic refractive error ranged from -0.5 diopters to – 18 diopters, mean refractive error is 9.22±4.43 D (Table2).

Table 2: Degree of refractive error

Refractive Error	Number	%
Up to -3D	81	36.2
-3D to -6D	64	28.5
-6D to -10D	57	25.5
-10D to -20D	22	9.8
Total	224	100

Examination with the indirect ophthalmoscope revealed that 130(58%) eyes examined had

posterior vitreous detachment (PVD) while PVD was absent in 94 eyes (42%) as shown in (Table-3).

Table 3:

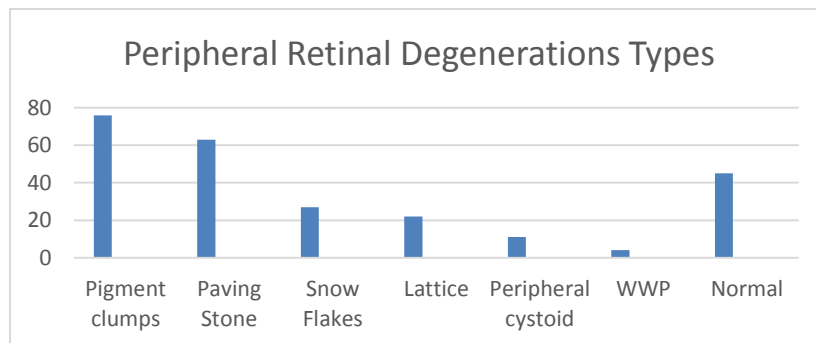
Age group	PVD		No PVD	
	Number	%	Number	%
10-20	8	6%	51	54%
20-30	47	36%	30	32%
30-40	75	58%	13	14%
Total	130	100	94	100

Examination of the peripheral retina revealed the following retinal changes: The peripheral retina showed benign changes including pigment clumps in 76 eyes (34%), paving stone degeneration in 63 eyes (28%), snow-flake degenerations were present in 27 eyes (12%), peripheral cystoid degeneration

in 11 eyes (5%) and white without pressure degeneration was found in 4 eyes (2%) of patients. While 22 eyes (10%) of patients had lattice degeneration, and only 45 (20%) patients had normal peripheral retina

Table 4: Types of peripheral retinal changes in the study group

Peripheral Retinal Changes	Number	%
Pigment Clumps	76	34
Paving Stone	63	28
Snow Flake	27	12
Lattice	22	10
Peripheral cystoid Degeneration	11	5
White without Pressure	4	2
Normal	45	20



Measurement of the axial length and its relation with peripheral retinal degenerations show an

increased incidence with increasing axial length as shown in Table 5.

Table 5: Axial length of eye and peripheral retinal degenerations

Axial Length	Normal Fundus %	Peripheral degenerations present %
24 – 25	99%	1%
25 – 27	10%	90%
≥ 27	1%	99%

DISCUSSION

Myopia is a commonly occurring refractive error. Management of myopia does not end with detection of error and correction of visual acuity using glasses. Fundus examination and detection of peripheral retinal degenerations plays an important role in treatment. Prophylactic barrage laser of lattice degeneration, retinal holes and retinal tears can prevent complication like retinal detachment.

In accordance with our study Bedi et al [5] and Ahmed M. Rasheed et al [15] found that prevalence of peripheral retinal degenerations were increased in association with high myopia and increased axial length. [5]

This study shows that 58% of patients had posterior vitreous detachment (PVD). This value is very close to that obtained by Ahmed M. Rasheed et al, in which it was 61%. [15]

Sixty-three (28%) in the current study had paving stone degeneration, which are benign yellowish, white area surrounded by hypertrophied retina, which is little higher than revealed by Rasheed et al, in which it was 22%. In this study, another type of degeneration that was found in (12%) of patients is snow-flakes which is an almost similar with our study (12%). In our study, prevalence of white without pressure (2%), is also near same as (3%) other international studies. [9, 10, 12]

In the current study, 22 patients (10%) had lattice degeneration which is in close accordance

with study of Lam et al in Hong Kong demonstrated that the prevalence of lattice degeneration is 12.2%. Normal peripheral retina is found in 20 % case, which was slightly higher than the study of Bedi et al [5]

This study was done for the first visit only. Some young myopes may progress and develop fresh peripheral retinal degenerations for which follow up is essential. Younger patients less than 20 years were asked to come for follow up every one year to recheck refraction and detail fundus examination.

Awareness of complications of myopia should be spread among the society. School health survey should be done regularly to detect refractive errors and prompt prophylactic measures undertaken to prevent complications like retinal detachment.

CONCLUSION

In summary, a substantial proportion of asymptomatic myopic subjects in this study were found to have peripheral retinal degenerative as well as posterior pole chorio-retinal lesions. As previous studies in myopic eyes have demonstrated these degenerative lesions might be associated with serious vision threatening complications, highly myopic patients should be educated about the symptoms of retinal complications such as retinal detachment and choroidal neovascularization, and advised to undergo barrage laser prophylaxis.

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