ORIGINAL RESEARCH PAPER
Volume - 15 | Issue - 07 | July - 2026 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

PERIPHERAL RETINAL DEGENERATION IN MYOPIC PATIENTS AND THEIR ASSOCIATION WITH RETINAL DETACHMENT RISK FACTORS : A HOSPITAL-BASED STUDY AT A TERTIARY CARE CENTRE

Ophthalomology

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ABSTRACT

Background: Myopia is a global epidemic with rising prevalence, particularly among children and young adults. Progressive axial elongation in myopic eyes predisposes the peripheral retina to degenerative changes including lattice degeneration, snail track degeneration, and white without pressure-conditions that are directly associated with retinal breaks and rhegmatogenous retinal detachment. Early identification of these peripheral lesions is critical for prophylactic intervention. **Aims and Objectives:** To determine the prevalence and distribution of peripheral retinal degenerations in myopic patients; to assess their association with degree of myopia, axial length, age, and gender; and to identify high-risk cases for retinal detachment.**Materials and Methods:** A prospective observational hospital-based study was conducted over 25 months (October 2023–October 2025) at the Department of Ophthalmology, Government Medical College, Jalaun (Orai), UP. A total of 323 myopic patients aged ≥10 years were enrolled. Detailed dilated fundus examination using indirect ophthalmoscopy was performed. Peripheral retinal lesions-lattice degeneration, snail track degeneration, and white without pressure-were documented separately for each eye. Associations with age group (<20, 20–40, >40 years), gender, degree of myopia (low/moderate/high), and axial length category (22–24, 24–26, 26–28, 28–30 mm) were analyzed using Chi-square test ($p<0.05$ considered significant).**Results:** Peripheral retinal degenerations were identified in 130 of 323 patients (40.25%). Lattice degeneration was the most common peripheral lesion (69 patients; 21.36%), followed by white without pressure (53 patients; 16.41%), and snail track degeneration (8 patients; 2.48%). Lattice degeneration showed highly significant associations with degree of myopia ($\chi^2=54.505$, $p<0.001$) and axial length ($\chi^2=51.790$, $p<0.001$), with prevalence reaching 39.02% in high myopia and 45.00% in axial length 28–30 mm. White without pressure was similarly associated with degree of myopia ($\chi^2=38.015$, $p<0.001$) and axial length ($\chi^2=30.715$, $p<0.001$). Snail track degeneration showed significant association with gender ($p=0.021$, exclusively in females) and degree of myopia ($\chi^2=6.141$, $p=0.046$). Age was not statistically associated with any peripheral lesion (all $p>0.05$).**Conclusion:** Peripheral retinal degenerations are prevalent in 40.25% of myopic patients attending a tertiary care centre, with lattice degeneration being the most common and clinically significant lesion. Degree of myopia and axial length are the principal risk factors. Systematic peripheral fundus examination using indirect ophthalmoscopy is mandatory in all moderate-to-high myopes, especially those with axial length ≥26 mm, for early detection and prophylactic laser photocoagulation to prevent retinal detachment.

KEYWORDS

Peripheral Retinal Degeneration; Lattice Degeneration; Myopia; Retinal Detachment; Axial Length; Snail Track Degeneration; White Without Pressure; Prophylactic Photocoagulation

INTRODUCTION

Myopia is one of the most prevalent refractive conditions worldwide and is emerging as a significant public health concern due to its rapidly increasing global prevalence. Globally, myopia affects approximately 30% of the world's population, with projections suggesting that nearly 50% will be affected by 2050. In Asian countries including India, the prevalence has risen dramatically, particularly among children and young adults in urban settings, attributable to increased near-work activity, reduced outdoor time, and changing lifestyles.

Myopia is not merely a refractive inconvenience-it is increasingly recognized as a structural disease of the globe. As the degree of myopia increases, axial elongation of the eyeball leads to progressive thinning and stretching of the sclera, choroid, and retinal layers, creating conditions favorable for a spectrum of degenerative changes. While posterior segment manifestations such as myopic maculopathy and choroidal neovascularization have received considerable attention, peripheral retinal degenerations are equally important yet often underappreciated in clinical practice.

Peripheral retinal degenerations - particularly lattice degeneration, snail track degeneration, and white without pressure - occur disproportionately in myopic eyes. These lesions arise from vitreoretinal interface abnormalities, retinal thinning, and tractional forces that increase in proportion to axial elongation. Their clinical importance lies in their well-established association with retinal breaks and rhegmatogenous retinal detachment, a vision-threatening complication that is more prevalent in myopic individuals.

Rhegmatogenous retinal detachment is the most sight-threatening complication of peripheral retinal degeneration in myopia. The lifetime risk of retinal detachment is estimated at 0.3–0.7% in the general population but rises substantially to 1–3% in moderate myopes and up to 9% in high myopes. Lattice degeneration, identified in approximately 8–10% of the general population, is found in 40–55% of eyes with retinal detachment, underscoring its role as a major predisposing factor.11

Despite the high prevalence of myopia in India and the documented association between peripheral retinal degeneration and retinal detachment, data from tertiary care centres in North India remain limited. Most existing Indian studies have focused on posterior segment myopic complications, with few systematically evaluating peripheral retinal lesions in relation to axial length and degree of myopia. The present study was undertaken to address this gap by evaluating the prevalence and pattern of peripheral retinal degenerations in a hospital-based myopic cohort and to determine their association with key clinical and biometric parameters.

AIM AND OBJECTIVES

Primary Aim:

To determine the prevalence, pattern, and clinical distribution of peripheral retinal degenerations in myopic patients attending the Ophthalmology OPD at a tertiary care centre, and to analyse their association with retinal detachment risk factors.

Specific Objectives:

(i) To estimate the prevalence of peripheral retinal degenerations - lattice degeneration, snail track degeneration, and white without pressure - in myopic patients.
(ii) To determine the association of peripheral retinal degenerations with age, gender, degree of myopia, and axial length.
(iii) To identify subgroups of myopic patients at highest risk for retinal detachment based on the pattern and distribution of peripheral

lesions.

(iv) To provide evidence-based recommendations for screening protocols and prophylactic management in high-risk myopic patients.

REVIEW OF LITERATURE

The relationship between myopia, peripheral retinal degeneration, and retinal detachment has been studied extensively in international literature, though Indian hospital-based data remain limited.

Epidemiology of Peripheral Retinal Degenerations in Myopia

Lattice degeneration is the most clinically important peripheral retinal degeneration and is recognized as a major risk factor for rhegmatogenous retinal detachment. Byer (1989), in a landmark long-term observational study, reported lattice degeneration in approximately 6–8% of the general population, with significantly higher rates (up to 40–50%) among myopic individuals. The lesion is characterized by circumferentially oriented areas of peripheral retinal thinning with overlying vitreous liquefaction and adherent peripheral vitreous cortex, creating the biomechanical substrate for retinal tears.

Celorio and Pruett (1991) demonstrated that in eyes with axial length >26.5 mm, the prevalence of lattice degeneration approached 34%. This landmark study established axial length - rather than refractive error alone - as the critical determinant of peripheral retinal vulnerability.

Khatwani et al. (2022), in a North Indian hospital-based study of 300 myopic individuals aged 10–40 years, reported peripheral retinal degenerations in 53% of participants. Lattice degeneration was detected in 20% (n=60), with a mean axial length of 27.00±2.17 mm ($p<0.001$). White without pressure was found in a significant proportion, with mean axial length of 26.15±2.13 mm ($p=0.001$). This study provides directly comparable Indian data and demonstrates statistically significant structural associations with axial elongation.

Dhakal et al. (2018), in a large retrospective analysis of 29,592 myopic patients at a major Indian tertiary institute, reported lattice degeneration as the most common posterior segment complication at 2.65%, followed by white without pressure at 1.17%. These population-wide estimates are lower than hospital-based myopia-focused cohorts, reflecting different denominators.

Pathophysiology of Peripheral Retinal Degeneration

The peripheral retina of myopic eyes is subjected to progressive mechanical stretching as the globe elongates. This elongation leads to thinning of the peripheral retina and vitreous base, altering the vitreoretinal interface. Lattice degeneration develops at areas of maximal vitreoretinal traction, typically in the equatorial region, where overlying vitreous liquefaction over the lesion coexists with strong peripheral vitreous cortex adhesion11. During posterior vitreous detachment - an event that occurs earlier and more frequently in myopic eyes - these areas of strong vitreoretinal adhesion are subjected to traction that can produce full-thickness retinal tears.

Snail track degeneration represents a variant of lattice degeneration with glistening white frost-like deposits reflecting advanced vitreoretinal adhesion. White without pressure is thought to reflect abnormal light refraction at the vitreoretinal interface in areas of altered attachment, particularly in young myopes with optically dense vitreous. Although typically benign, breaks at the posterior margin of white without pressure areas have been reported.

Association with Retinal Detachment

Haarman et al. (2020), in a comprehensive meta-analysis, quantified the risk of retinal detachment by degree of myopia. Compared to emmetropes, individuals with low myopia had 3-fold greater risk, moderate myopes had 6-fold greater risk, and high myopes had 22-fold greater risk of retinal detachment. The association between peripheral retinal degeneration - particularly lattice - and retinal detachment is well established. Lattice degeneration with atrophic holes accounts for approximately 20% of retinal detachments, while tractional tears at the posterior margin of lattice lesions account for another 30–40%.

Wilkinson (2000), in an evidence-based analysis, examined the role of prophylactic treatment for peripheral retinal lesions and concluded that while treatment of asymptomatic lattice is generally not required in the general population, high-risk subgroups - including high myopes with fellow-eye retinal detachment, lattice with retinal breaks, and symptomatic tears - benefit significantly from prophylactic laser photocoagulation.

MATERIALS AND METHODS

Study Design and Setting

A prospective observational cross-sectional hospital-based study was conducted at the Department of Ophthalmology, Government Medical College (Rajkiya Medical College), Jalaun (Orai), Uttar Pradesh, over a period of 25 months from October 2023 to October 2025. Ethical approval was obtained from the Institutional Ethics Committee (Reference No. 12/Ethics/RMC Jalaun/2024 Dated 05/06/2024). All procedures adhered to the Declaration of Helsinki.

Sample Size Calculation

Sample size was calculated using the formula for prevalence studies: $n = Z^2pq/d^2$, where $Z = 1.96$ (95% confidence level), $p = 0.30$ (assumed prevalence of myopic degeneration based on published data), $q = 0.70$, and $d = 0.05$ (allowable error). The calculated minimum sample size was 323 patients.

Inclusion and Exclusion Criteria

Inclusion Criteria:

Patients aged ≥10 years with confirmed myopia (low, moderate, or high) by objective and subjective refraction; willingness to provide written informed consent; adequate ocular media clarity for fundus evaluation; reliable axial length measurement.

Exclusion Criteria:

Patients with retinal diseases unrelated to myopia (diabetic retinopathy, hypertensive retinopathy, uveitis, vascular occlusions); history of intraocular surgery within six months; ocular trauma; dense media opacity; systemic conditions independently associated with chorioretinal degeneration; incomplete clinical data.

Ocular Evaluation Protocol

Each patient underwent a standardized, systematic evaluation including: (i) uncorrected and best-corrected visual acuity using Snellen's chart (converted to LogMAR); (ii) objective and subjective refraction for degree of myopia classification; (iii) axial length measurement using calibrated optical biometry; (iv) intraocular pressure assessment by Goldmann applanation tonometry; (v) anterior segment evaluation by slit lamp; and (vi) dilated fundus examination using direct and indirect ophthalmoscopy under full mydriasis.

Peripheral fundus evaluation was performed using indirect ophthalmoscopy with a 20-diopter condensing lens, with systematic 360° examination of the peripheral retina including the vitreous base region. Peripheral retinal lesions were documented separately for right and left eyes.

Classification of Myopia

Category	Spherical Equivalent	Clinical Significance
Low Myopia	< −3.00 D	Minimal peripheral changes
Moderate Myopia	−3.00 to −6.00 D	Early peripheral lesions possible
High Myopia	> −6.00 D	Significant peripheral degeneration risk

Peripheral Lesion Definitions

Lattice degeneration: Circumferentially oriented, elongated areas of peripheral retinal thinning with overlying vitreous liquefaction, associated with white criss-cross lines of sclerosed vessels and vitreoretinal adhesion at lesion margins.

Snail track degeneration: Glistening, frost-like peripheral retinal lesions representing a variant of lattice degeneration with dense vitreoretinal adhesion and prominent retinal thinning.

White without pressure: Translucent, geographic whitish areas of peripheral retina visible without scleral indentation, related to vitreoretinal interface changes.

Statistical Analysis

Data were entered in Microsoft Excel and analyzed using SPSS version 21.0. Categorical variables were expressed as frequencies and percentages. Chi-square test was used to assess associations between peripheral lesions and demographic/biometric variables. A p-value <0.05 was considered statistically significant.

a) Large pale optic disc with Peripapillary Atrophy
b) Lattice degeneration
c) Diffuse Tessellations

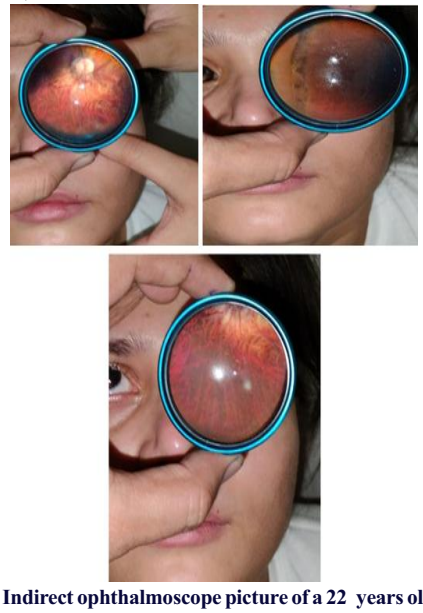

Figure 1: Indirect ophthalmoscope picture of a 22 years old female - fundus photo (+ 20 D Lens) of left eye showing (Consent Taken)

RESULTS

Demographic Profile

A total of 323 myopic patients were enrolled. The study cohort comprised 173 females (53.56%) and 150 males (46.44%). The mean age was distributed across three groups: <20 years (n=46; 14.24%), 20–40 years (n=120; 37.15%), and >40 years (n=157; 48.61%). By degree of myopia: low myopia (n=121; 37.46%), moderate myopia (n=120; 37.15%), and high myopia (n=82; 25.39%). Axial length distribution: 22–24 mm (n=101; 31.27%), 24–26 mm (n=123; 38.08%), 26–28 mm (n=59; 18.27%), and 28–30 mm (n=40; 12.38%).

Overall Prevalence of Peripheral Retinal Degenerations

Peripheral retinal degenerations (one or more lesions) were detected in 130 out of 323 patients (40.25%). Among all fundus findings in the study, peripheral retinal lesions collectively formed a major component alongside posterior changes. The following table summarizes peripheral lesion prevalence:

Peripheral Lesion	Positive (n)	Total (n)	Prevalence (%)	Laterality
Lattice Degeneration	69	323	21.36%	Unilateral: 52 | Bilateral: 17
White Without Pressure	53	323	16.41%	Unilateral: 46 | Bilateral: 7
Snail Track Degeneration	8	323	2.48%	Unilateral: 2 | Bilateral: 6

Lattice Degeneration - Detailed Analysis

Lattice degeneration was the most common peripheral retinal lesion, observed in 69 of 323 patients (21.36%). Unilateral involvement was noted in 52 patients and bilateral involvement in 17 patients, indicating that the structural predisposition for lattice formation tends to be bilateral in a subset of high-risk myopes.

Lattice Degeneration vs. Age Group

Age Group	Positive (n)	Total (n)	Prevalence (%)
< 20 years	7	46	15.22
20–40 years	20	120	16.67
> 40 years	42	157	26.75
Total	69	323	21.36

Chi-square analysis: χ^2=5.323, df=2, p=0.0698. The prevalence of lattice degeneration increased with age (15.22% in <20 years to 26.75% in >40 years), however this trend did not reach statistical significance (p=0.0698), likely reflecting the moderate sample size in the oldest group.

Lattice Degeneration vs. Gender

Chi-square analysis: χ^2=0.000, df=1, p=1.0000. Lattice degeneration prevalence was virtually identical between females (21.39%) and males (21.33%), with no statistically significant gender difference, indicating that the structural vulnerability to lattice formation is determined by biometric rather than sex-related factors.

Gender	Positive (n)	Total (n)	Prevalence (%)
Female	37	173	21.39
Male	32	150	21.33

Lattice Degeneration vs. Degree of Myopia

Degree of Myopia	Positive (n)	Total (n)	Prevalence (%)
Low (< −3.00 D)	0	121	0.00
Moderate (-3.00 to -6.00 D)	37	120	30.83
High (> −6.00 D)	32	82	39.02

Chi-square analysis: χ^2=54.505, df=2, p<0.001. A highly significant association was observed between lattice degeneration and degree of myopia. Absence in low myopia (0%) with sharp escalation in moderate (30.83%) and further rise in high myopia (39.02%) suggests a threshold effect linked to axial elongation. The high prevalence in moderate myopia is clinically important, indicating that peripheral screening should begin at moderate rather than high myopia.

Lattice Degeneration vs. Axial Length Category

Axial Length Category	Positive (n)	Total (n)	Prevalence (%)
22–24 mm	0	101	0.00
24–26 mm	28	123	22.76
26–28 mm	23	59	38.98
28–30 mm	18	40	45.00

Chi-square analysis: χ^2=51.790, df=3, p<0.001. A strong dose-response relationship was demonstrated between axial length and lattice degeneration prevalence. Complete absence below 24 mm contrasts with a prevalence of 45% at 28–30 mm axial length, confirming that axial elongation is the primary structural driver of peripheral retinal vulnerability.

White Without Pressure - Detailed Analysis

White without pressure was detected in 53 of 323 patients (16.41%), representing the second most prevalent peripheral lesion. Unilateral involvement was more common (46 patients) than bilateral (7 patients).

White Without Pressure vs. Age Group

Age Group	Positive (n)	Total (n)	Prevalence (%)
< 20 years	8	46	17.39
20–40 years	17	120	14.17
> 40 years	28	157	17.83

Chi-square analysis: χ^2=0.705, df=2, p=0.703. No statistically significant association was found between age and white without pressure, with relatively uniform distribution across all age groups (14.17–17.83%).

White Without Pressure vs. Gender

Gender	Positive (n)	Total (n)	Prevalence (%)
Female	31	173	17.92
Male	22	150	14.67

Chi-square analysis: χ^2=0.405, df=1, p=0.524. Gender showed no statistically significant association with white without pressure.

White Without Pressure vs. Degree of Myopia

Degree of Myopia	Positive (n)	Total (n)	Prevalence (%)
Low (< −3.00 D)	0	121	0.00
Moderate (-3.00 to -6.00 D)	31	120	25.83
High (> −6.00 D)	22	82	26.83

Chi-square analysis: χ^2=38.015, df=2, p<0.001. As with lattice degeneration, white without pressure was entirely absent in low myopia and showed a sharp threshold transition at moderate myopia (25.83%), with similar prevalence in high myopia (26.83%), suggesting that once the structural threshold of moderate myopia is crossed, the risk plateau may reflect a ceiling effect at higher degrees.

White Without Pressure vs. Axial Length Category

Axial Length Category	Positive (n)	Total (n)	Prevalence (%)
22–24 mm	0	101	0.00
24–26 mm	26	123	21.14
26–28 mm	15	59	25.42
28–30 mm	12	40	30.00

Chi-square analysis: $\chi^2=30.715$, df=3, $p<0.001$. A stepwise increase in white without pressure prevalence with increasing axial length was observed, paralleling the lattice degeneration pattern.

Snail Track Degeneration - Detailed Analysis

Snail track degeneration was the least common peripheral lesion, detected in 8 of 323 patients (2.48%). A notable finding was that all cases occurred exclusively in females (8/173, 4.62%), with zero cases in male patients. Bilateral involvement was more common than unilateral (6 bilateral, 2 unilateral).

Snail Track Degeneration vs. Gender

Gender	Positive (n)	Total (n)	Prevalence (%)
Female	8	173	4.62
Male	0	150	0.00

Fisher's exact test: p=0.0082. Exclusive female predominance in snail track degeneration is a notable finding that warrants further investigation. Possible explanations include hormonal influences on vitreoretinal interface composition and adhesion, differences in vitreous structure, or inherent biomechanical differences in scleral architecture between sexes.

Snail Track Degeneration vs. Degree of Myopia

Degree of Myopia	Positive (n)	Total (n)	Prevalence (%)
Low (< −3.00 D)	1	121	0.83
Moderate (-3.00 to -6.00 D)	2	120	1.67
High (> −6.00 D)	5	82	6.10

Chi-square analysis: $\chi^2=6.141$, df=2, p=0.046. Snail track degeneration showed a statistically significant though modest increase with higher degree of myopia. Unlike lattice degeneration, occasional cases occurred even in low myopia, reflecting that snail track lesions may arise from vitreoretinal interface factors independent of extreme axial elongation.

Snail Track Degeneration vs. Axial Length Category

Axial Length Category	Positive (n)	Total (n)	Prevalence (%)
22–24 mm	1	101	0.99
24–26 mm	2	123	1.63
26–28 mm	3	59	5.08
28–30 mm	2	40	5.00

Chi-square analysis: $\chi^2=4.008$, df=3, p=0.261. Axial length did not show statistically significant association with snail track degeneration, unlike the other peripheral lesions. This suggests that the pathogenesis of snail track lesions may involve vitreoretinal interface properties independent of pure axial elongation.

DISCUSSION

Overall Prevalence and Clinical Context

The present study found peripheral retinal degenerations in 40.25% of myopic patients attending a tertiary care centre, a figure consistent with hospital-based studies that enrich for moderate and high myopes. This compares favourably with the 53% reported by Khatwani et al. (2022) from North India in a younger cohort (10–40 years), and is higher than the population-based estimates of Dhakal et al. (2018), which reported lower rates due to dilution by the general population denominator.

The clinical significance of this finding cannot be overstated. With over 40% of attending myopic patients harbouring peripheral lesions - many of whom may be asymptomatic - the study reinforces that peripheral fundus examination cannot be reserved for symptomatic cases. Systematic indirect ophthalmoscopic examination must be a routine component of every myopic patient's evaluation, particularly in resource-limited tertiary care settings where patients present late.

Lattice Degeneration - The Dominant Peripheral Risk Factor

Lattice degeneration was detected in 21.36% of the study cohort, a prevalence consistent with published ranges of 12–35% in myopic hospital-based studies. The current study demonstrates a sharp threshold effect at moderate myopia, with zero prevalence in low myopes escalating to 30.83% in moderate and 39.02% in high myopia. This non-linear relationship challenges the assumption that peripheral lesion screening should be reserved for high myopes alone.

The axial length data further strengthen this finding: with 22.76% prevalence at 24–26 mm, the lesion is already clinically relevant before reaching the traditional 'high myopia' axial length threshold of 26 mm. This supports the argument that axial length measurement should be used as the primary stratification tool rather than refractive degree alone.

The bilateral involvement in 17 of 69 lattice patients (24.6%) has important management implications. In the context of any retinal detachment in one eye, the fellow eye must be examined with particular care for lattice lesions that may warrant prophylactic treatment.

White Without Pressure - Underappreciated but Prevalent

White without pressure was identified in 16.41% of patients, making it the second most prevalent peripheral lesion. The uniform prevalence across age groups (14–18%) contrasts with the strong associations with myopic degree and axial length, suggesting that vitreoretinal interface changes in myopia - rather than age-related vitreous syneresis - are the primary driver.

Although considered a generally benign finding, white without pressure at the posterior margin can produce retinal breaks during posterior vitreous detachment. Given its substantial prevalence in this cohort, patients should be counselled about the warning symptoms of retinal tears (floaters, flashes, curtain loss of vision) regardless of whether their white without pressure lesions are isolated or co-exist with lattice degeneration.

6.4 Snail Track Degeneration - A Female-Predominant Lesion

The exclusive female predominance of snail track degeneration (4.62% in females vs. 0% in males; p=0.008) is an intriguing finding that has not been consistently reported in prior literature. The lack of significant axial length association (p=0.261) further distinguishes snail track from lattice degeneration, suggesting a different pathogenic mechanism - possibly related to vitreous composition, collagen architecture, or hormonal influences on the vitreoretinal interface.

This observation warrants prospective evaluation in larger cohorts. If confirmed, female sex may constitute an independent risk factor for snail track degeneration and should prompt preferential peripheral evaluation in female myopic patients.

Retinal Detachment Risk Stratification

The combination of findings from the present study allows construction of a practical risk stratification framework. Patients with high myopia (>−6.00 D) and axial length ≥26 mm face a substantially elevated risk profile, with lattice prevalence approaching 40–45%. Patients with bilateral lattice, lattice with associated retinal breaks, or snail track degeneration in the context of high axial length represent the highest-risk subgroup.

Early detection of these lesions enables: (i) patient education about warning symptoms; (ii) more frequent follow-up intervals; (iii) targeted prophylactic laser photocoagulation in selected high-risk cases; and (iv) early evaluation of the fellow eye when one eye develops retinal detachment.

CONCLUSION AND RECOMMENDATIONS

Conclusions

The present hospital-based study of 323 myopic patients at a tertiary care centre in North India yielded the following key conclusions:

1. Peripheral retinal degenerations were identified in 40.25% of myopic patients, indicating high prevalence in tertiary care myopic cohorts.

2. Lattice degeneration (21.36%) was the most common peripheral lesion, followed by white without pressure (16.41%) and snail track degeneration (2.48%).

3. Both lattice degeneration and white without pressure showed highly significant associations with degree of myopia ($p<0.001$) and axial length category ($p<0.001$), being absent in low myopia and increasing sharply from moderate myopia onwards.

4. Axial length ≥24 mm marks the clinical threshold for peripheral lesion onset, with prevalence rising steeply at ≥26 mm and reaching 45% for lattice at 28–30 mm.

5. Snail track degeneration showed exclusive occurrence in females (p=0.008) and significant association with degree of myopia (p=0.046) but not with axial length, suggesting distinct

pathophysiology.

6. Age and gender were not significant predictors for lattice degeneration or white without pressure; axial elongation and degree of myopia are the primary structural determinants.

Recommendations

Based on the study findings, the following evidence-based recommendations are proposed:

1. Peripheral fundus examination using binocular indirect ophthalmoscopy should be mandatory for all myopic patients presenting to ophthalmology outpatient departments, not restricted to symptomatic patients.

2. Axial length measurement should be a routine investigation in all myopic patients, as it provides a more direct and reproducible measure of peripheral retinal risk than refractive error alone.

3. Patients with axial length ≥26 mm and those with moderate-to-high myopia (≥−3.00 D) should undergo systematic peripheral retinal examination with particular attention to the inferior temporal and superior temporal quadrants where lattice degeneration most commonly occurs.

4. All patients with detected peripheral lesions should receive structured patient education on symptoms of retinal breaks (floaters, photopsia) and retinal detachment (curtain loss of vision), with a clear instruction to seek immediate evaluation if any such symptoms arise.

5. Prophylactic laser photocoagulation should be considered in selected high-risk cases: symptomatic lattice with breaks, lattice in fellow eye of retinal detachment, and high-grade lesions in high axial length eyes, in accordance with standard guidelines.

6. Female myopic patients, particularly those with moderate-to-high myopia, warrant specific evaluation for snail track degeneration given its gender-specific occurrence pattern observed in this study.

7. Longitudinal follow-up studies are recommended to evaluate progression of peripheral lesions and incidence of retinal detachment in this population.

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