Original Article

Topographic correspondence of peripheral retinal lesions between the fellow eyes of patients with rhegmatogenous retinal detachment and retinal break

Kaveh Fadakar [1], Elaheh Havashki [1], Zohre Ebrahimi [1], Hanieh Niktinat [1], Mohammad Zarei [1], Raziyeh Mahmoudzadeh [2], Ehsan Najibzadeh [1] and Nazanin Ebrahimiadib [1,3]

[1] *Farabi Eye Hospital, Tehran University of Medical Sciences, Tehran, Iran*
[2] *Wills Eye Hospital, Mid Atlantic Retina, Thomas Jefferson University, Philadelphia, PA, USA*
[3] *Department of Ophthalmology, University of Florida, Gainesville, FL, USA*

ABSTRACT

Background: In rhegmatogenous retinal detachment (RRD), the risk of fellow eye involvement varies from 5% to 34% according to the follow-up duration and criteria used for patient selection. The aim of the present study was to investigate the frequency, characteristics, and predisposing factors for symmetric lesions in the fellow eyes of patients with RRD or retinal breaks.

Methods: This case series included consecutive patients with recent-onset RRDs or retinal breaks. Eyes with traumatic breaks or RRD, grade C proliferative vitreoretinopathy, extensive (more than 6 h) lattice degeneration, a history of RRD surgery or pars plana vitrectomy in the fellow eye, or concomitant retinal pathologies, such as diabetic retinopathy, macular neovascularization, uveitis, or glaucoma, were excluded. Demographic data, best-corrected distance visual acuity, refraction, break characteristics, and expansion of the retinal detachment were recorded.

Results: Of the 68 participants, with a mean (standard deviation) age of 48 (12.1) years, 54 (79.4%) were men, and 14 (20.6%) were women. Of the 68 primary eyes, 60 (88.2%) had RRDs, and eight (11.8%) had retinal breaks. Horseshoe tears were the main lesion in 41 (68.3 %) primary eyes with RRD. Symmetric lesions were observed in 37 (54.4%) fellow eyes, including retinal breaks in 16 (43.2%) and lattice degeneration without breaks in 21 (56.8%) eyes. Lattice degeneration and multiple breaks were observed in 15 of 28 (53.6%) primary eyes with a lattice, whereas only seven of 40 (17.5%) lattice-free primary eyes had multiple breaks ($P = 0.002$). A multiple logistic regression model revealed that the presence of lattice degeneration in the primary eye (odds ratio, 26.91; 95% confidence interval, 4.18 – 173.20; $P < 0.001$) was the only factor predicting symmetricity in the fellow eye.

Conclusions: More than half of the patients with RRD or retinal breaks in the primary eye harbored symmetrical retinal lesions in their fellow eyes. This emphasizes the importance of regular examination of the fellow eyes with a greater focus on symmetric positions in the fellow eye. The presence of a lattice in the primary eye was the only predictor of symmetry in the contralateral eye. Further longitudinal studies with larger populations are required to determine the significance of these symmetric lesions in the fellow eyes of patients with RRD and the value of prophylactic treatment.

KEYWORDS

rhegmatogenous retinal detachment, retinal detachments, retinal break, retinal hole, retinal tear, preventive therapy, odds ratios

Correspondence: Nazanin Ebrahimiadib, Department of Ophthalmology, Univer-sity of Florida, FL, USA. Email: nazanin.ebrahimiadib@gmail.com. ORCID iD: https://orcid.org/0000-0002-2058-9225

How to cite this article: Fadakar K, Havashki E, Ebrahimi Z, Niktinat H, Zarei M, Mahmoudzadeh R, Najibzadeh E, Ebrahimiadib N. Topographic correspondence of peripheral retinal lesions between the fellow eyes of patients with rhegmatogenous retinal detachment and retinal break. Med Hypothesis Discov Innov Optom. 2023 Summer; 4(2): 57-62. DOI: https://doi.org/10.51329/mehdioptometry174

Received: 10 April 2023; Accepted: 12 June 2023

INTRODUCTION

Rhegmatogenous retinal detachment (RRD) is the most common form of retinal detachment (RD) with an approximate annual incidence of 13 per 100 000 population [1]. It has a strong tendency to affect both eyes [2]. The risk of fellow eye involvement varies from 5% to 34% according to the follow-up duration and criteria used for patient selection [3, 4].

Thus, risk evaluation and prevention of RRD in the fellow eyes would be an effective practice to save the better-seeing eyes in these patients [4]. Identifying retinal breaks is essential to prevent RRD [5]. Therefore, understanding the more probable location of a retinal break in the fellow eye is valuable [6, 7]. Prophylactic treatment of the contralateral eye significantly reduces the incidence of RRD [6].

A similar tendency toward symmetric pathologies between the eyes has been observed in astigmatism [8], corneal pachymetry [9], and topography [10]. Corneal enantiomorphism is a condition in which a mirror image of astigmatism can be seen between both eyes [11]. For example, when the axis of astigmatism of one eye is 10°, it is usually 170° in the other eye [12]. Similarly, Everett coined the term "fellow eye syndrome" to describe the significantly increased risks of RD and degenerative changes in the symmetric location of the other eye [3]. Recently, studies have been conducted on corneal enantiomorphism [12, 13]; however, data regarding the role of symmetric lesions and their characteristics in the odds of fellow-eye RRD remain unknown.

The aim of the present study was to investigate the frequency, characteristics, and predisposing factors of symmetric lesions in the fellow eyes of patients with RRD or retinal breaks.

METHODS

In this case series, we recruited all consecutive patients with recent-onset RRDs or retinal breaks who had been referred to the retinal clinic of the Farabi Eye Hospital, Tehran, Iran, between January 2020 and April 2021. The study questionnaire and methodology were approved by the Institutional Review Board at Tehran University of Medical Sciences, Tehran, Iran. The study adhered to the tenets of the Declaration of Helsinki and was designed to comply with Health Insurance Portability and Accountability Act regulations. Written informed consent was obtained from all participants. The patients signed an informed consent form to publish their data.

We enrolled the eyes with recent RRDs or retinal breaks. For patients who reported a history of RRD surgery in the primary eye, documents were reviewed to examine the presence of symmetry between the old lesion in that eye and the present lesion in the fellow eye. Eyes with traumatic breaks or RRD, grade C proliferative vitreoretinopathy, extensive (more than 6 h) lattice degeneration, a history of RRD surgery or pars plana vitrectomy in the fellow eye, or concomitant retinal pathologies, such as diabetic retinopathy, macular neovascularization, uveitis, or glaucoma, were excluded.

Collected data included sex; age; medical and ocular surgical histories; best-corrected distance visual acuity (using Nidek automatic chart projector CP 670; Nidek Co., Ltd., Gamagori, Japan) in the logarithm of the minimum angle of resolution (logMAR) notation; objective refraction (using Tonoref II Auto Ref/Kerato/Tonometer, Nidek Co. Ltd., Gamagori, Japan) refined using a retinoscope (Heine, Beta 200, Heine Optotechnik, Herrsching, Germany), and spherical equivalent in diopters (D) calculated as the sum of the spherical component of refraction with half of the cylindrical component of refraction [14]; location (superior, temporal, inferior, or nasal quadrant), type (horseshoe tear [HST] or other types), and number of breaks (multiple or single); presence of lattice degeneration; expansion of RD; and status of the macula.

A detailed anterior-segment examination was performed using a slit lamp (Haag-Streit, Mason, OH, USA). Dilated fundus examinations using a slit lamp and three-mirror lens (Volk Optical Inc., Mentor, OH, USA) or indirect ophthalmoscopy (Keeler Instrument Inc., Philadelphia, PA, USA) and a +20 D noncontact lens (Volk Optical Inc., Mentor, OH, USA) with peripheral indentations were performed for both eyes of each patient. RRD was diagnosed based on the observation of full-thickness neurosensory retinal breaks with subretinal fluid extending more than two disc diameters [15, 16].

Data were collected and analyzed using SPSS Statistics for Windows version 18 (SPSS Inc., Chicago, Ill., USA). The normality of data distribution was assessed using the Shapiro – Wilk test. Quantitative data are expressed as mean (standard deviation [SD]), and qualitative data are expressed as frequency (percentage). A logistic regression analysis was performed to determine risk factors for symmetric lesions. We first evaluated the association with each variable and symmetry using a univariate logistic analysis. Variables with a *P*-value of < 0.2 in the univariate outcome were incorporated in the multiple logistic regression analysis. Associations with categorical variables were evaluated using the chi-squared test. A *P*-value < 0.05 was considered to indicate statistical significance.

RESULTS

Clinical records of 68 primary eyes with recent RRD or retinal breaks were reviewed. In addition, the fellow eyes were evaluated for the presence of peripheral retinal breaks or lattice degeneration. Of the 68 participants, with a mean (SD) age of 48 (12.1) years, 54 (79.4%) were men, and 14 (20.6%) were women. The mean (SD) BCDVA values in the primary eyes with RRD (n = 60 eyes), primary eyes with retinal breaks (n = 8 eyes), and fellow eyes (n = 68 eyes) were 1.78 (0.89), 0.25 (0.15), and 0.25 (0.36) logMAR, respectively. The mean (SD) spherical equivalent of 68 primary eyes was - 2.58 (5.34) D; 50 (73.5%) were phakic, and the rest were pseudophakic (n = 18, 26.5%).

Of the 68 primary eyes, 60 (88.2%) eyes had RRD, and eight (11.8%) eyes had retinal breaks. The break was located in the superior quadrant in 34 (50.0%) eyes, temporal quadrant in 15 (22.1%) eyes, inferior quadrant in nine (13.2%) eyes, and nasal quadrant in 10 (14.7%) eyes. Among the primary eyes with RRD (n = 60), HST was the most frequent type of break observed in 41 (68.3%) eyes, followed by operculated holes in two (3.3%) eyes and atrophic holes in 17 (28.3%) eyes. All eight primary eyes with retinal breaks had HST. Of the 68 primary eyes, 22 (32.4 %) had multiple retinal breaks. Lattice degeneration was observed in 28 (41.2%) of 68 primary eyes (26 eyes with RRD and two eyes with retinal break), with bilateral presentation in 19 (27.9%) patients. HST adjacent to lattice degeneration was observed in 12 (17.6%) of the 68 primary eyes.

Symmetric lesions with the fellow eyes were observed in 37 (54.4%) eyes. Of the 37 fellow eyes with symmetric lesions, 16 (43.2%) had a retinal break in symmetric positions, and 21 (56.8%) had lattice degeneration without retinal breaks. In all 37 patients, the symmetry was mirror type (91.9%). Table 1 summarizes lesions in the primary and fellow eyes.

Table 2 shows the risk factors associated with symmetric lesions. In the univariate analysis, the presence of multiple breaks (odds ratio [OR], 3.18; 95% confidence interval [CI], 1.05 – 9.56; $P = 0.040$), and lattice degeneration (OR, 12.46; 95% CI, 3.57 – 43.42; $P < 0.001$) in the primary eye increased odds of symmetric lattice lesions in the fellow eye. In the multivariate analysis, the presence of lattice degeneration (OR, 26.91; 95%

Table 1. Peripheral retinal pathologies in the primary and fellow eyes of study participants

Laterality	Total	Eyes with RRD	Eyes with retinal break	Eyes with lattice degeneration
Primary eyes, n (%)	68 (100)	60 (88.2)	8 (11.8)*	28 (41.2)
Fellow eyes with symmetric lesions, n (%)	37 (54.4)	0 (0.0)	16 (43.2)	21 (56.8)

Abbreviations: RRD, rhegmatogenous retinal detachment; n, number of eyes; %, percentage; Note:*, a single asterisk indicates that all eight primary eyes with retinal breaks had Horseshoe tear.

Table 2. Risk factors associated with symmetric lesions in the fellow eye of patients with rhegmatogenous retinal detachments

Variable		Symmetric		Univariate logistic regression		Multivariate logistic regression	
		Yes	No	OR (95%CI)	*P*-value	OR (95%CI)	*P*-value
Age (y), Mean ± SD		47.5 ± 10.9	48.6 ± 13.2	1.01 (0.97 – 1.05)	0.712	-	-
Sex (Female / Male), n (%)		5 (35.7) / 31 (57.4)	9 (64.3) / 23 (42.6)	2.43 (0.72 – 8.21)	0.154	5.55 (0.74 – 41.8)	0.096
Location of break, n (%)	**Superior**	21 (56.8)	13 (41.9)	*ref**	-	-	-
	Temporal	9 (24.3)	6 (19.4)	1.08 (0.31 – 3.80)	0.901	1.83 (0.36 – 9.25)	0.464
	Nasal	1 (2.7)	9 (29.0)	1.44 (0.30 – 6.87)	0.644	2.44 (0.34 – 17.51)	0.375
	Inferior	6 (16.2)	3 (9.7)	0.08 (0.01 – 1.71)	0.065	0.05 (0.00 – 1.13)	0.087
Number of break, n (%)	**Multiple**	16 (72.7)	6 (27.3)	**3.18 (1.05 – 9.56)**	**0.040**	1.18 (0.22 – 6.27)	0.848
	Single	21 (45.7)	25 (54.3)	*ref**	-	-	-
Lattice degeneration, n (%)	**Present**	24 (85.7)	4 (14.3)	**12.46 (3.57 – 43.42)**	**< 0.001**	**26.91 (4.18 – 173.20)**	**< 0.001**
	Absent	13 (32.5)	27 (67.5)	*ref**	-	-	-
Type of break, n (%)	**HST**	28 (57.1)	21 (42.9)	0.32 (0.60 – 4.90)	0.317	-	-
	Other	9 (42.9)	12 (57.1)	*ref**	-	-	-
SEQ (D), Mean ± SD		- 1.30 ± 4.88	- 2.42 ± 6.04	1.04 (0.92 – 1.17)	0.530	-	-

Abbreviations: OR, odds ratio; CI, confidence interval; y, years; SD, standard deviation; n, number; %, percentage; HST, Horseshoe tear; SEQ, Spherical equivalent of refraction in the primary eye calculated as a sum of the spherical component with half cylindrical component of refraction; D, diopters. Note: *P*-values < 0.05 are shown in bold; *ref, *reference.**

CI, 4.18 – 173.2; $P < 0.001$) in the primary eye remained the only significant independent factor that predicts the presence of symmetric lattice in the fellow eye. The coexistence of lattice degeneration and multiple retinal breaks was significantly higher in the primary eyes and observed in 15 of the 28 (53.6%) primary eyes with lattice degeneration, whereas only seven of the 40 (17.5%) lattice-free primary eyes had multiple breaks ($P = 0.002$).

DISCUSSION

More than half of the patients with RRD or retinal breaks harbored symmetrical retinal lesions in their fellow eyes. Lattice degeneration was the only significant independent factor that predicted the presence of a symmetrical lattice in the fellow eye, with an OR of 26.91.

RRD in the primary eye is a risk factor for retinal breaks or detachment in the fellow eye [3, 4]. The prevalence of retinal pathologies with a potential risk of inducing subsequent RRD in the fellow eye is higher in patients with primary RRD than in the normal population [3, 17-19]. Gupta and Benson in a review reported symmetric degenerative changes in the fellow eyes, ranging from 63% to 90%, in patients with unilateral RRD [3]. The prevalence of lattice degeneration, the most common predisposing lesion to RRD, has been reported to range from 9.2% to 35% in the fellow eyes in a review by Lewis [20]; this rate was 30.9% (21 of 68 fellow eyes) in the present study. We observed symmetric lesions in 37 (54.4%) fellow eyes, of which 16 (43.2%) had breaks, and 21 (56.7%) had lattice degeneration. The present study included primary eyes with RRD or retinal breaks.

In the present study, more than half of the patients with RRD or retinal break in the primary eye harbored a retinal lesion, including a break or lattice degeneration, at a symmetrical position in the fellow eye. Knowing the possible location of the pathology in the peripheral retina can make the search for a treatable lesion in the fellow eye easier [18, 21, 22]. Usually, the fellow eye is the better-seeing eye because the structure and function of the eye that underwent RRD surgery are damaged [23]. Therefore, applying a prophylactic barrier laser to such susceptible areas could be recommended to prevent subsequent detachments in the fellow eyes [24-26]. However, the value of prophylactic treatment remains unclear. Wilkinson, in two review papers on the value of prophylactic treatment for asymptomatic retinal breaks and retinal lattice degeneration, concluded that the risk of RRD persists even after preventive treatment [27, 28]. Thus, further randomized clinical trials with long follow-up periods are warranted to reach conclusive results for the prophylactic treatment of symmetric lesions in the fellow eyes of patients with RRD. Overall, this controversy underscore the importance of longitudinal follow-ups even in absence of breaks in the first examination of the fellow eye.

The present analysis showed that lattice degeneration was the only significant independent predictive factor for symmetric lesions in the fellow eye. The odds of symmetric lattice lesions in the fellow eye in the presence of lattice degeneration in the primary eye were more than 26 times those in the absence of lattice degeneration. Lattice degeneration is the most important peripheral retinal lesion that predisposes to RRD [20]. This finding may be due to the higher chance of developing an adjacent HST after acute posterior vitreous detachment (PVD) [29] or emerging atrophic hole(s) in the absence of PVD [20, 21].

Previous studies have reported an increase in the occurrence of bilateral lattice RRD over time. The risk of RRD secondary to the lattice was 5.1% over a mean follow-up period of 8 years, increasing to 15% at 10 years [3]. The reason for the increased chance of RRD over time may be the evolution of new holes in the area of lattice degeneration or an increase in the number of existing holes [30]. Additionally, acute PVD may cause a new break at this pathologically predisposing location [31]. These findings underscore the importance of longitudinal follow-ups even if no breaks are found in the first examination of the fellow eye [3]. We observed a high frequency of symmetric lesions in the fellow eye, and more than half of them exhibited lattice degeneration. Future longitudinal studies should investigate the likelihood of RRD in the fellow eyes with symmetrical lesions.

This case series revealed that lattice degeneration increased the odds of symmetric lattices in the fellow eye by 26.91 times. A limitation of this study is its relatively small sample size. Additionally, this was a consecutive case series of a single surgeon practicing in a tertiary referral center, which may predispose the patient to a selection bias. The lack of follow-ups is another limitation of this study. Additionally, a prospective study with a long-term follow-up is required to determine the risk of progression of symmetric retinal lesions to RRD in the fellow eye to help stratify retinal lesions for prophylactic treatment.

CONCLUSIONS

The present study indicates that in the primary eyes with RRD or retinal breaks, symmetric lesions are commonly found in the fellow eyes. Lattice degeneration is associated with multiple breaks in the same eye and symmetric lesions, mainly another lattice in the fellow eye. Lattice degeneration in the primary eye significantly increased the odds of symmetric lattice in the fellow eye. Further longitudinal studies with larger populations are required to determine the significance of these symmetric lesions in the fellow eyes of patients with RRD and the value of prophylactic treatment.

ETHICAL DECLARATIONS

Ethical approval: The study questionnaire and methodology were approved by the Institutional Review Board at Tehran University of Medical Sciences, Tehran, Iran. The study adhered to the tenets of the Declaration of Helsinki and was designed to comply with Health Insurance Portability and Accountability Act regulations. Written informed consent was obtained from all participants. The patients signed an informed consent form to publish their data.
Conflict of interest: None.

FUNDING

None.

ACKNOWLEDGMENTS

None.

REFERENCES

1. Nielsen BR, Alberti M, Bjerrum SS, la Cour M. The incidence of rhegmatogenous retinal detachment is increasing. Acta Ophthalmol. 2020;98(6):603-606. doi: 10.1111/aos.14380 pmid: 32086859
2. Mitry D, Charteris DG, Yorston D, Siddiqui MA, Campbell H, Murphy AL, et al; Scottish RD Study Group. The epidemiology and socioeconomic associations of retinal detachment in Scotland: a two-year prospective population-based study. Invest Ophthalmol Vis Sci. 2010;51(10):4963-8. doi: 10.1167/iovs.10-5400 pmid: 20554615
3. Gupta OP, Benson WE. The risk of fellow eyes in patients with rhegmatogenous retinal detachment. Curr Opin Ophthalmol. 2005;16(3):175-8. doi: 10.1097/01.icu.0000162377.55415.f3 pmid: 15870575
4. Hajari JN, Bjerrum SS, Christensen U, Kiilgaard JF, Bek T, la Cour M. A nationwide study on the incidence of rhegmatogenous retinal detachment in Denmark, with emphasis on the risk of the fellow eye. Retina. 2014;34(8):1658-65. doi: 10.1097/IAE.0000000000000104 pmid: 24978666
5. Gupta D, Ching J, Tornambe PE. Clinically undetected retinal breaks causing retinal detachment: A review of options for management. Surv Ophthalmol. 2018;63(4):579-588. doi: 10.1016/j.survophthal.2017.08.002 pmid: 28807798
6. Verhoekx JSN, van Etten PG, Wubbels RJ, van Meurs JC, van Overdam KA. Prophylactic Laser Treatment to Decrease the Incidence of Retinal Detachment in Fellow Eyes Of Idiopathic Giant Retinal Tears. Retina. 2020;40(6):1094-1097. doi: 10.1097/IAE.0000000000002494 pmid: 30865062
7. Govers BM, van Huet RAC, Roosing S, Keijser S, Los LI, den Hollander AI, et al. The genetics and disease mechanisms of rhegmatogenous retinal detachment. Prog Retin Eye Res. 2023:101158. doi: 10.1016/j.preteyeres.2022.101158 pmid: 36621380
8. Touzeau O, Scheer SE, Allouch C, Kopito R, Borderie VM, Laroche L. Quantification of Enantiomorphism of Astigmatism. Investigative Ophthalmology & Visual Science. 2003;44(13):2544-. Link
9. Borderie V, Beauruel J, Cuyaubère R, Georgeon C, Memmi B, Sandali O. Comprehensive Assessment of Corvis ST Biomechanical Indices in Normal and Keratoconus Corneas with Reference to Corneal Enantiomorphism. J Clin Med. 2023;12(2):690. doi: 10.3390/jcm12020690 pmid: 36675618
10. Ghemame M, Charpentier P, Mouriaux F. Corneal topography in clinical practice. J Fr Ophtalmol. 2019 Dec;42(10):e439-e451. doi: 10.1016/j.jfo.2019.09.001 pmid: 31727328
11. Durr GM, Auvinet E, Ong JA, Gilca M, Choronzey ME, Meunier J, et al. Enantiomorphism Of The Human Cornea Based On Corneal Topography 3D Atlas Analysis. Investigative Ophthalmology & Visual Science. 2012;53(14):5569-. Link
12. Hashemi H, Asharlous A, Yekta A, Ostadimoghaddam H, Mohebi M, Aghamirsalim M, et al. Enantiomorphism and rule similarity in the astigmatism axes of fellow eyes: A population-based study. J Optom. 2019;12(1):44-54. doi: 10.1016/j.optom.2017.12.002 pmid: 29625892
13. Bhayana AA, Prasad P, Gupta A. Enantiomorphism - Cornea for a cornea, eye for an eye. Indian J Ophthalmol. 2020;68(6):1181. doi: 10.4103/ijo.IJO_1785_19 pmid: 32461470
14. Guzowski M, Wang JJ, Rochtchina E, Rose KA, Mitchell P. Five-year refractive changes in an older population: the Blue Mountains Eye Study. Ophthalmology. 2003;110(7):1364-70. doi: 10.1016/S0161-6420(03)00465-2 pmid: 12867393
15. Li YM, Fang W, Jin XH, Li JK, Zhai J, Feng LG. Risk factors related to chronic rhegmatogenous retinal detachment. Int J Ophthalmol. 2012;5(1):92-6. doi: 10.3980/j.issn.2222-3959.2012.01.19 pmid: 22553763
16. Ibrar A, Panayiotis M, Mohamed EA. Recognising and managing retinal detachments. Br J Hosp Med (Lond). 2021;82(10):1-11. doi: 10.12968/hmed.2021.0145 pmid: 34726948
17. Mitry D, Singh J, Yorston D, Siddiqui MA, Murphy AL, Wright AF, et al. The fellow eye in retinal detachment: findings from the Scottish Retinal Detachment Study. Br J Ophthalmol. 2012;96(1):110-3. doi: 10.1136/bjo.2010.194852 pmid: 21378003
18. Sultan ZN, Agorogiannis EI, Iannetta D, Steel D, Sandinha T. Rhegmatogenous retinal detachment: a review of current practice in diagnosis and management. BMJ Open Ophthalmol. 2020;5(1):e000474. doi: 10.1136/bmjophth-2020-000474. Erratum in: BMJ Open Ophthalmol. 2021;6(1):e000474corr1 pmid: 33083551
19. Fajgenbaum MAP, Wong RS, Laidlaw DAH, Williamson TH. Vitreoretinal surgery on the fellow eye: A retrospective analysis of 18 years of surgical data from a tertiary center in England. Indian J Ophthalmol. 2018;66(5):681-686. doi: 10.4103/ijo.IJO_1176_17 pmid: 29676315

20. Lewis H. Peripheral retinal degenerations and the risk of retinal detachment. Am J Ophthalmol. 2003;136(1):155-60. doi: 10.1016/s0002-9394(03)00144-2 pmid: 12834683
21. Gonzales CR, Gupta A, Schwartz SD, Kreiger AE. The fellow eye of patients with phakic rhegmatogenous retinal detachment from atrophic holes of lattice degeneration without posterior vitreous detachment. Br J Ophthalmol. 2004;88(11):1400-2. doi: 10.1136/bjo.2004.043240 pmid: 15489481
22. Hajari JN. Optimizing the treatment of rhegmatogenous retinal detachment. Acta Ophthalmol. 2016;94(6):628. doi: 10.1111/aos.13206 pmid: 27572467
23. Noda H, Kimura S, Hosokawa MM, Shiode Y, Doi S, Takahashi K, et al. Effect of rhegmatogenous retinal detachment on preoperative and postoperative retinal sensitivities. Sci Rep. 2020;10(1):21497. doi: 10.1038/s41598-020-78693-5 pmid: 33299123
24. Garoon RB, Smiddy WE, Flynn HW Jr. Treated retinal breaks: clinical course and outcomes. Graefes Arch Clin Exp Ophthalmol. 2018;256(6):1053-1057. doi: 10.1007/s00417-018-3950-8 pmid: 29523992
25. Levin M, Naseri A, Stewart JM. Resident-performed prophylactic retinopexy and the risk of retinal detachment. Ophthalmic Surg Lasers Imaging. 2009;40(2):120-6. doi: 10.3928/15428877-20090301-14 pmid: 19320300
26. Avitabile T, Bonfiglio V, Reibaldi M, Torrisi B, Reibaldi A. Prophylactic treatment of the fellow eye of patients with retinal detachment: a retrospective study. Graefes Arch Clin Exp Ophthalmol. 2004;242(3):191-6. doi: 10.1007/s00417-003-0783-9 pmid: 14770315
27. Wilkinson CP. Interventions for asymptomatic retinal breaks and lattice degeneration for preventing retinal detachment. Cochrane Database Syst Rev. 2014;2014(9):CD003170. doi: 10.1002/14651858.CD003170.pub4 pmid: 25191970
28. Wilkinson CP. Evidence-based analysis of prophylactic treatment of asymptomatic retinal breaks and lattice degeneration. Ophthalmology. 2000;107(1):12-5; discussion 15-8. doi: 10.1016/s0161-6420(99)00049-4 pmid: 10647712
29. Flaxel CJ, Adelman RA, Bailey ST, Fawzi A, Lim JI, Vemulakonda GA, et al. Posterior Vitreous Detachment, Retinal Breaks, and Lattice Degeneration Preferred Practice Pattern®. Ophthalmology. 2020;127(1):P146-P181. doi: 10.1016/j.ophtha.2019.09.027. Erratum in: Ophthalmology. 2020;127(9):1279. pmid: 31757500
30. Gonzales CR, Gupta A, Schwartz SD, Kreiger AE. The fellow eye of patients with rhegmatogenous retinal detachment. Ophthalmology. 2004;111(3):518-21. doi: 10.1016/j.ophtha.2003.06.011 pmid: 15019329
31. Patel PR, Minkowski J, Dajani O, Weber J, Boucher N, MacCumber MW. Analysis of Posterior Vitreous Detachment and Development of Complications Using a Large Database of Retina Specialists. Ophthalmol Retina. 2023;7(3):203-214. doi: 10.1016/j.oret.2022.11.009 pmid: 36423892