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The incidence and awareness of Rhegmatogenous retinal detachment in Pakistani population

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Abstract: Retinal detachment (RD) describes the separation of neurosensory retina from the underlying pigment epithelium. There are various methods of treating RD but in many cases, an unusual delay between occurrence of retinal detachment and surgery has been observed. This study was conducted to find the extent of factors involved in delay in surgery. This cross sectional study was carried out at LRBT Eye Hospital, Lahore for 6 months. The non-probability, consecutive sampling technique was used. The demographic information was recorded. The patients were asked for causes of delay in retinal detachment surgery and all factors were measured. Data was analyzed by SPSS version 21. The mean age of patients was 52±9.86 years; the male to female ratio was 1.5:1. About 9.3% patients said that they do not know where to go, 30% patients thought that it was not a severe condition,36.4% patients thought that it would self-heal,17.1% patients didn't go to the doctor due to financial constraints whereas 7.1% patients did not have VR ophthalmologist near their residence. Statistically significant difference was found between the factors and education level of the patients i.e. p-value<0.05. Our study results concluded that people needed to be educated regarding the importance of retinal detachment and surgical procedures and complications associated with it.

Keywords: Delay in surgery, factors, ophthalmologist, retinal detachment.

INTRODUCTION

The separation of retina which is a neurosensory part of eye from its pigmented epithelium is referred to as Retinal detachment (RD) (Patel *et al*., 2021). The most common type of RD is known as rhegmatogenous retinal detachment (RRD). In this type of RD there is a retinal break present which leads to defect in the neurosensory retina (Prabhu and Vallon, 2015). Literature studies have shown that RRD is more common in people aged above 50 years (Hajari *et al*., 2014). It has also been reported recently that RRD is more prevalent in males (1.3 times) as compared to females in different populations in the developed countries (Li *et al*., 2019). The early symptoms include flashing of light referred to as photopsia accompanied by shower of floaters and loss of vision which might be irregular, curtain like and cloudy (Arden *et al*., 1962; Thompson and Liasis, 2016). If the patient ignores the initial symptons the shadow in the peripheral visual field may progress and within a few days the entire visual field might be compromised (Chen *et al*., 2016). Retinal tear is usually suspected when patient complains of flashing lights and new onset of floaters are also present (Rubsamen *et al.,* 1991; Du *et al*., 2016). Posterior vitreous detachment usually occurs post retinal detachment and its symptoms includes photopsia, feeling of heaviness in the eye, floaters (sudden increase in number), skull side (temporal side) of central vision has ring of floaters (Kimura *et al*., 1959; Sun and Ji, 2020).

The trend of diabetic population is increasing in Pakistan. Diabetic retinopathy is one of the complication of diabetes (Calderon *et al.,* 2017). Retinal blindness has been thought to increase in the following years in Pakistan, especially Diabetic Retinopathy. There is high need for establishing human resources, easily available and comprehensive eye care services that are also affordable to the patients. Besides that awareness regarding screening of the disease needs to be focused on (Khan *et al*., 2011).

The common risk factors for reticular degeneration include intraocular surgery, trauma and lattice degeneration in myopia. The patients at increased risk need to be monitored by fundus examination with indentation indirect ophthalmoscopy by trained professionals (Jamil *et al.,* 2012).

In an ideal situation as soon as there is suspicion of retinal detachment the patient should be referred to a vitreo-retina specialist. However mostly patients are not aware regarding the significance of early and immediate diagnosis of their visual impairment hence delay is observed in seeking of specialized and appropriate ophthalmic care. One of the main factors of poor visual outcome and blindness is delayed presentation to eye care specialists (Adegbehingbe, 2008).

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In conclusion, the most common complication of RD is loss of acuity and blindness. According to literature studies poverty and delay in presentation are two of the major reasons. In order to reduce the increase incidence of blindness in the population due to RD there is a basic requirement to establish easily accessible vitro-retinal center's that have trained specialist and can be easily afforded by the patients too (Goezinne *et al.,* 2009).

So rationale of this study was to find the common factors causing delay in retinal detachment surgery in patients presenting in a tertiary care hospital. In literature, it has been proposed that there are certain factors which cause delay in RD surgery and lead to permanent loss of vision. There is very little work that has been done in literature internationally. There is no local evidence of the main causes and factors of delay in RD treatment. So through this study the most common factors which cause delay in presentation of RD patients for treatment were highlighted. Hence, in future management plans can be made which are more effective. Besides that seminars and workshops can be held to improve the awareness in RD patients.

MATERIALS AND METHODS

Study Design: Cross sectional study
Setting: LRBT Eye Hospital, Lahore.
Duration: The data was collected for 6 month.
Sample Size: Sample size of 140 cases was calculated with 95% confidence level, 5% margin of error and taking expected percentage of did not know where to go i.e. 10% as a cause of delay in retinal detachment surgery in patients presenting in a tertiary care hospital.

Sampling Technique:
Non-probability, consecutive sampling

Sample Selection:
Inclusion criteria
- Patients of age 20-70 years of either gender
- Patients presenting with retinal detachment (as per operational definition) present after 4 weeks of start of blurring of vision.

Exclusion criteria
- Patients with blunt or previous ocular trauma (on history).
- Previous rhegmatogenous retinal detachment surgery
- Did not give informed consent
- Unable to give answer of question (dumb or neurological problem, as on clinical examination)

Data Collection Procedure
140 patients fulfilling the inclusion criteria were registered through OPD of LRBT Eye Hospital, Lahore. Informed consent was taken. The demographic information like name, age, gender, duration of problem and address was recorded. The patients were asked for causes of delay in retinal detachment surgery like do not know where to go, not a severe condition, would heal it self, do not have money or do not have ophthalmologist nearby residence. All factors were measured (as per operational definition). Interviews were done by researcher himself. All the information was collected on a performa.

Ethical approval
The study was approved by College of Physicians and Surgeons Pakistan and given reference number CPSP/REU/OPL-2012-067-1471.

STATISTICAL ANALYSIS

Data was analyzed by SPSS (Statistical Package for Social Sciences) version 21. The quantitative variables like age and duration of problem were presented as mean and standard deviation. The qualitative variables like gender and factors like did not know where to go, think that it is not a severe condition, think that it would heal itself, do not have money to go to doctor and do not have ophthalmologist nearby residence were presented as frequency and percentage. Data was stratified for age, gender, education level and socioeconomic status. Chi-square was applied to compare stratified groups taking p-value≤0.05 as significant.

RESULTS

In the current study the number of enrolled patients were one hundred and forty. The maximum age of the patients was 70 years whereas the minimum age observed was 34 years, mean age of the patients was 52±9.86 years as shown in table 1. The percentage of male patients was more i.e 60% whereas female patients were only 40%. The male to female ratio of the patients was 1.5:1. (fig. 1).

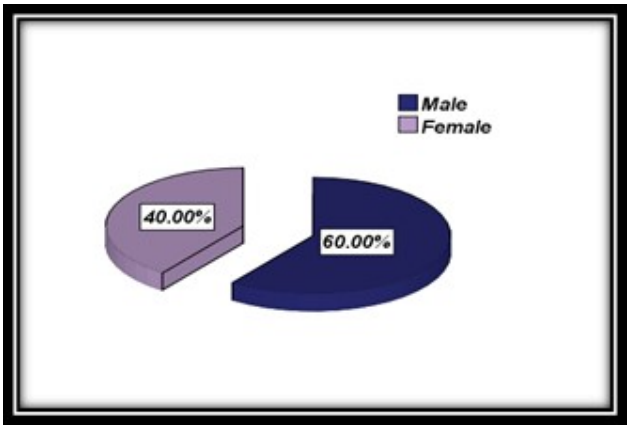

Fig. 1: Frequency distribution of gender

The study results showed that the mean duration of problem of the patients was 22.08±4.707 days with minimum and maximum values of 12 & 30 days

respectively. table 1 also showed that 78(55.7%) patients belonged to lower class, 39(27.9%) patients were of middle class and 23(16.4%) patients appeared with higher class. 83(59.29%) patients were illiterate, 25(17.86%) patients had middle education and 32(22.86%) patients had matric or above education level (fig. 2).

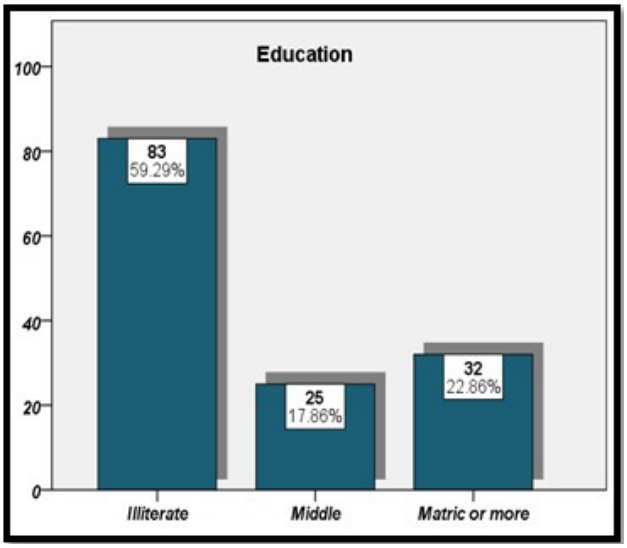

Fig. 2: Frequency distribution of education status

In our study 13 (9.3%) patients appeared with factor that they do not know where to go, 42 (30%) patients appeared with factor that they thought that it was not a severe condition, 51 (36.4%) patients appeared with the factor that it would heal itself, 24 (17.1%) patients appeared with the factor that they did not have money to go to the doctor and 10 (7.1%) patients appeared with the factor that they do not have VR ophthalmologist nearby residence (table 1). table 2 showed that there was statistically insignificant difference between the factors and age in categories of the patients. i.e. p-value=0.617.

Similarly chi square test was applied and table 3 displayed that there was statistically insignificant difference between the factors and gender of the patients. i.e. p-value=0.188. Table 4 showed that there was a statistically significant difference between the factors and SES of the patients. i.e., p-value=0.046. Statistically significant difference was observed between the factors and education level of the patients. i.e., p-value=0.010 (table 5).

DISCUSSION

This present cross sectional study was conducted at LRBT Eye Hospital, Lahore to determine the frequency of factors causing delay in retinal detachment surgery in patients presenting in a tertiary care hospital. Complete blindness can occur due to retinal detachment. The choroid supplies nutrition and oxygen to the outer segments of the photoreceptors. Hence failure of photoreceptors can occur if the choroid gets detached from the retina (Subhadra, 2015).

Retinal detachment occurs when the retina becomes separated from its underlying support tissue called the choroid, resulting in visual impairment depending on the affected region (Ambiya *et al.*, 2018). In this study, the treatment delay of patients with retinal detachment undergoing surgery were quantified, and causes for this delay were evaluated.

Literature study has described delay as one of the important factors which leads to deferment in the treatment. A study has stated that greater than 50% of patients due to ignorance delayed the treatment protocol (Quinn *et al*., 2004). Critical importance is usually given with respect to time interval i.e., the time the patient first notices the symptoms to the time surgery is performed on the patient. Our aim was to investigate the reasons for treatment delay.

According to our study 9.3% patients appeared with factor that they do not know where to go, 30% thought that it was not a severe condition, 36.4% patients believed that it would heal itself, 17.1% patients had financial constraints and avoided going to the doctor whereas 7.1% patients appeared with the factor that they did not have a VR ophthalmologist near their residence. Some of the studies discussed below showed the results in favor of our study.

One study by Goezinne *et al* (2009) concluded that lack of knowledge, unfamiliarity and obliviousness are few of the main parameters for patient delay with a RDD. Education and awareness of both the general physician and patient is hence necessary and should be considered as the key goal to mend functional outcome after RRD surgery.

Another literature study used qualitative research method for assessing the recommendation process of RRD patients from primary set to tertiary ophthalmic departmental setup. According to their results significant population faced delay due to ignorance factor (more than 50%); the rest of the patients (around two thirds) were referred by optometrists and GPs (Quinn *et al*., 2004).

In a study conducted in Brazil, it was observed that there were different factors which caused delay in retinal detachment surgery. These factors included; did not know where to go (10%), thought that it is not a severe condition (70%), thought that it would heal itself (56%), did not have money (16%) and did not have ophthalmologist nearby residence (24%) (Carricondo *et al.,* 2014).

Table 1: Descriptive statistics of demographics and factors

Age (years)	n	140
	Mean ± SD	52.00± 9.86
	Minimum	34
	Maximum	70
Duration (days)	Mean ± SD	22.08± 4.71
	Minimum	12
	Maximum	30
Socioeconomic Status	Frequency	Percent (%)
Low	78	55.7
Middle	39	27.9
High	23	16.4
Total	140	100.0
Factors	Frequency	Percent (%)
Do not know where to go	13	9.3
Think that it is not a severe condition	42	30.0
Think that it would heal itself	51	36.4
Financial Constraints	24	17.1
Do not have VR ophthalmologist nearby residence	10	7.1
Total	140	100.0

Table 2: Comparison of factors and age of the patients

Factors	Age		Total	Chi value & P value
	< 50	≥ 50		
Do not know where to go	5	8	13	2.65 (0.617) ns
Think that it is not a severe condition	22	20	42	
Think that it would heal itself	24	27	51	
Do not have money to go to doctor (Financial Constraints)	8	16	24	
Do not have VR ophthalmologist nearby residence	4	6	10	
Total	63	77	140	

Where ns shows non-significant relationship

Table 3: Comparison of factors and sex of the patients

Factors	Sex		Total	Chi value & P value
	Male	Female		
Do not know where to go	10	3	13	6.15 (0.188) ns
Think that it is not a severe condition	22	20	42	
Think that it would heal itself	35	16	51	
Do not have money to go to doctor (Financial Constraints)	11	13	24	
Do not have VR ophthalmologist nearby residence	6	4	10	
Total	84	56	140	

Table 4: Comparison of factors and SES of the patients

Factors	SES			Total	Chi value & P value
	Low	Middle	High		
Do not know where to go	7	3	3	13	15.76 (0.046)*
Think that it is not a severe condition	23	10	9	42	
Think that it would heal itself	25	16	10	51	
Do not have money to go to doctor (Financial Constraints)	20	4	0	24	
Do not have VR ophthalmologist nearby residence	3	6	1	10	
Total	78	39	23	140	

Where * shows p≤ 0.05

Table 5: Comparison of factors and education level of the patients

Factors	Education			Total	Chi value & P value
	Illiterate	Middle	Matric or more		
Do not know where to go	8	2	3	13	20.106 (0.010)*
Think that it is not a severe condition	25	8	9	42	
Think that it would heal itself	22	12	17	51	
Do not have money to go to doctor (Financial Constraints)	23	0	1	24	
Do not have VR ophthalmologist nearby residence	5	3	2	10	
Total	83	25	32	140	

Where * shows p≤ 0.05

There seemed to be a trend towards delayed presentation of retinal detachments to retina specialists in the third world countries (Yorston and Jalali, 2002). Lack of education and limited clinical resources were the likely contributory factors. Average presentation time in these patients was 97.24 ± 16.95 days (James *et al.,* 2007).

Data from a study also showed that as such there was no difference in delay between patients with or without flashes, or between the patients with or without floaters. Nevertheless, PVD is associated with an increased risk of developing retinal tears (Van Overdam *et al*., 2001). In our study 60% patients were males and 40% patients were females. The male to female ratio of the patients was 1.5:1. A study by Goezinne *et al.* (2009) showed male to female ratio of 134 men to 71 women (2:1), their pseudophakic male to female ratio was 51 to 18 (3:1), which closely matched the ratio reported in a study by Sheu *et al* (2007). Up till now not many studies are published on this topic, so further studies are recommended to evaluate the results of our study.

CONCLUSION

Our study results concluded that the most common factor responsible for delay in retinal detachment surgery in patients presenting in a tertiary care hospital was that majority of the cases thought that the condition would heal itself. Hence awareness needs to be created among the mass population regarding it.

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