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Incidence Rate and Types of Retinal Pathologies in Patients Who Were Seeking Refractive Surgery

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The aim of this study is to evaluate incidence rate and types of retinal pathologies in patients who were seeking refractive surgery and the necessity of preparative eye examination. In this observational case series study, 139 patients, in a 3 months period, who came for refractive surgery in a private clinic, examined by a retinal specialist and the findings was reported. Mean age of patients was 29.2±6.6 years. From the studied patients: 52.5% (73 patients) were male and 47.5% (66 patients) were female, 25.9% (36 patients) had a retinal pathology at least in one eye. Three patients (2.1%) needed surgery for retinal problems, 5% (7 patients) needed laser therapy prior to refractive surgery. Retinal pathologies is frequent in patients with myopia over 4 diopter in comparison to patients with myopia under 4 diopter (32 vs. 9%). Retinal pathologies, with lattice degeneration as highest, frequently seen in myopic patients who seeking refractive surgery. Complete retinal examination, especially in higher myopic patients is recommended before refractive surgery.

Key words: Retinal pathology, refractive surgery, myopia, LASIK

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INTRODUCTION

Laser Assisted *in situ* Keratomileusis (LASIK) has become the most popular option worldwide for the correction of low to moderate myopia (Arevalo *et al*., 2001). The prevalence of myopes in US, ranges from 25 to 46.4% of the adult population (McCarty *et al*., 1997). No report is present about prevalence of myopia in Iran, it is likely that in Asian populations the proportion of myopia is much higher.

The incidence of Retinal Detachment (RD) in myopes is 1 to 3% (Arevalo *et al*., 2001). There are evidence that complications such as RD may occur after LASIK in myopic eyes (Feki *et al*., 2005; Lamparter *et al*., 2007). However, this complications may be related to the risk from myopia before surgery or may be induced by LASIK surgery itself. So it should be investigated if complete eye examination including, examination with dilated pupil, indirect fundoscopy with scleral indentation is compulsory for preoperative detection of peripheral retinal pathologies. In this study, we report the incidence and types of retinal pathologies in patients who came for refractive surgery in a private clinic and the necessity of preoperative examination.

MATERIALS AND METHODS

In this observational case series study, in a three months period, all Patients who came for refractive surgery in a private clinic in Tabriz, Iran, for a three months period during 2006, for correction of myopia and was not aware of having any eye problem, included in the study. Patients who knew that have retinal disease, in addition to refractive error, excluded from the study. All patients underwent complete eye examination including Best Spectacle Corrected Visual Acuity (BSCVA), manifest and cycloplagic refraction, slit lamp examination, tonometry and dilated pupil fundus examination was done by retinal specialist using indirect ophthalmoscope with scleral indentation. The findings for each patient was registered and used for percentation.

RESULTS AND DISCUSSION

In the study period, 139 myopic patients came for refractive surgery. Mean age of patients was 29.2±6.6 years (19-50 years). From the studied patients, 52.5% (73 patients) have university education and 47.5% (66 patients) have not higher education. BSCVA in this series of patients was 0.1±0.3 (20/25) Log Mar in right eyes and 0.1±0.3 (20/25) Log Mar in left eyes. Cycloplagic refraction in this series of patients was -5.3±2.77 (-1.25 to -20) in right eyes and -5.34±2.32 (-1.25 to -12) in left eyes.

Table 1: Types of retinal pathologies in attendants for refractive surgery

Retinal pathology	No.	Percent
Lattice degeneration	22	15.8
Atrophic hole	5	3.6
White with out pressure	4	2.9
Meridional fold	3	2.2
Horse shoe tear	2	1.4
Retinal detachment	2	1.4
Paving stone degeneration	2	1.4
Retnitis pigmentosa	1	0.7
Macular cloboma	1	0.7
Cystic tuft	1	0.7

In this series of patients 25.9% (36 patients) had a retinal pathology at least in one eye. In general, retinal pathologies are frequent in patients with myopia over 4 diopter than under 4 diopter, i.e., 32 vs 9% (Table 1).

Three patients (2.1% of patients) had retinal detachment not involving macula and needed scleral buckling surgery. Thirteen eyes from 7 patients (5% of patients) needed preoperative laser therapy prior to refractive surgery.

Refractive surgery, generally, aims at a myopic population that have a high probability of developing retinal detachment. Although there is no direct cause effect relationship between LASIK and RD (Arevalo *et al*., 2001), several studies have reported RD after LASIK (Feki *et al*., 2005; Farah *et al*., 2000; Aras *et al*., 2000; Ruze *et al*., 2000) and other complications (Lamparter *et al*., 2007). So the patients should be informed about the possibility of developing RD.

In this study, one patient with macular cloboma and the other patient with retinitis pigmentosa were searching for a better vision with aid of refractive surgery. The patients were informed that refractive surgery could only correct the refractive error but not the other pathologic conditions which may be present in myopic eyes.

Several retinal pathologies were found in our patients seeking for refractive surgery, lattice degeneration affecting 15.8% of patients was the highest among them. While, our finding is comparable with other findings (Lam *et al*., 2005; Byer, 2001), has reported prevalence of lattice degeneration is 10% in myopic patients.

Serious retinal complications after LASIK are infrequent (Arevalo *et al*., 2001), it is theoretically possible that LASIK could aggravate viteroretinal pathologies but no evidence exists that prophylactic therapy of lattice or related pathologies is indicated in routine practice (Wilkinson, 2000). However, in this study 13 eyes needed preoperative laser therapy. In line with present finding, in another study shown that 88% of post LASIK retinal complications developed adjacent to pre LASIK lesions (Chan *et al*., 2005). Therefore, pre LASIK

retinal periphery examination with dilated pupil is important for detection of retinal lesions and also especial attentions to these lesions in post LASIK follow up are necessary.

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