

## Prevalence of stromal corneal dystrophies in Lahore

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### Abstract

To determine the prevalence of Stromal Corneal Dystrophies (SCDs) in patient from Lahore hospitals. The study was performed between November, 2014 to July 2015 at the Layton Rahmatullah Benevolent Trust Hospital, Mughal Hospital, Mayo Hospital and General Hospital, Lahore. For the clinical evaluation of SCD by ophthalmologists examination of cornea was done by biomicroscopy, specular microscopy, topography, keratometry, orbscan and far visual acuity. Fifty cases of SCDs were recognized from Lahore, matching to hospital prevalence of 0.4%. The variables examined were age, gender, main complaint, corneal thickness, intraocular pressure and far visual acuity. SCDs are predominant in age group of 40-50 years. SCDs are more in male (n=30) as compared to females (n=20). Careful clinical evaluation, genotyping, governmental approval and subsequent development of human clinical trials of possible therapies and treatments should be taken to continue making improvement and effective control of SCDs.

**Keywords:** MSCD=Macular Stromal Corneal Dystrophy, LSCD=Lattice Stromal Corneal Dystrophy, CSCD=Congenital Stromal Corneal Dystrophy, SSCD=Schnyder Stromal Corneal Dystrophy, LRBT=Layton Rahmatullah benevolent Trust, CD=Corneal Dystrophy.

### Introduction

Corneal dystrophies are a group of rare hereditary disorders identified by bilateral abnormal deposition of substances in the front transparent part of the eye called cornea.

Most type of CDs are inherited as autosomal dominant traits, a few are inherited as autosomal recessive trait, X-linked recessive, mitochondrial recessive traits and spodiadic.

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Stromal corneal dystrophies (SCDs) affect the stromal or central layer of the cornea. Among the SCDs, Granular corneal dystrophy and Macular corneal dystrophy are more frequent as compared to other stromal dystrophies.<sup>1</sup>

A retrospective analysis was performed between November 2014 and July 2015 on all SCD patients visiting LRBT, General Hospital and Mughal Eye Hospital from Lahore during their ophthalmic consultation. The aim of this research was to determine the prevalence of SCDs.

### Case Series

The subjects (n=12500) were selected by visiting different hospitals i.e. LRBT, General Hospital, Mayo Hospital and Mughal Eye Hospital. Permission was taken to evaluate the record of patients in the hospital. Cases diagnosed by ophthalmologists with Stromal corneal dystrophies were selected. Age, gender, far visual acuity, corneal thickness, main complaint, intraocular pressure and family history of the disease (if any) of the selected patients were evaluated.

Of the 12500 cases screened, 50 patients were found to be suffering from SCDs. Of these, 20 (40%) were females and 30 (60%) were males. The average age was  $36.80 \pm 4.598$  with a range of 5-67 years. The most represented age group was 40-50 which included 15 (30%) patients, followed by 11 (22%) patients aged 20-30 years. There were 7 (14%) patients in the age group of 30-40 years, in age range 10-20 years and 6 (12%) in the age range 50-60 years, 4 (8%) in age range 60-70 years and 1 (2%) in >10 years. Main complaint was drop in visual acuity which was found in all patients (100%).

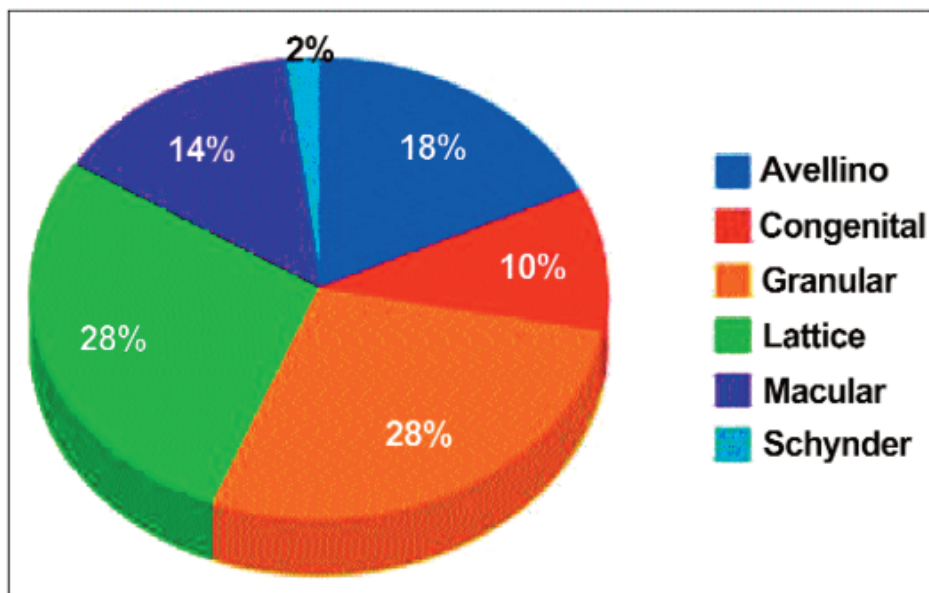
In our cases, on 98 eyes of SCD patients normal intraocular pressure 10-15 mmHg were present in 48(49%), 15-20 mmHg in 20(20.4%), high IOP 20-25 mmHg was present in 26(26.5%) and extremely high IOP 25-30mmHg was found in 4 (4.1%). Prevalence of different types of SCDs is shown in (Figure).

A comparison between the different age groups showed a significantly larger number of patients in the age range 40-50 years ( $p \leq 0.05$ ). The other variables analyzed were

**Table-1:** Age distribution of patients of SCDs by gender.

Age distribution	F	%	M	%	N	%
0 -10	0	0	1	3.3	1	2
10 -20	3	15	3	10	6	12
20 -30	3	15	8	26.7	11	22
30 -40	3	15	4	13.3	7	14
40 -50	7	35	8	26.7	15	30
50 -60	1	5	5	16.7	6	12
60 -70	3	15	1	3.3	4	8
Total	20	100	30	100	50	100

F= no. of females  
 M= no. of male  
 N= total no. of patients.



**Figure:** Prevalence of SCDs in patients among 50 cases.

age, gender, main complaint, intraocular pressure, corneal thickness and far visual acuity. No association was found among any of these variables.

**Discussion**

In this retrospective study we focused on the prevalence of stromal corneal dystrophies which are a group of inherited disorders of the cornea caused by progressive accumulation of deposits within the stroma.<sup>2</sup> There were 50 cases of stromal dystrophies of which 22% of patients were in age range of 20-30 years. The major corneal dystrophies reported in this study were lattice, granular, macular and Avellino and similar types also reported by Keefe et al.<sup>3</sup>

In our study 5 out of 50 corneal dystrophies were isolated

or unilateral and the remaining 45 were bilateral. In literature also mostly reported corneal dystrophies are bilateral.<sup>4</sup> According to the French National Waiting List, dystrophies were the third most common indication for penetrating keratoplasty (PKP) and were divided into Fuchs dystrophy (65%), Lattice dystrophy (10%), Granular dystrophy (4%), Macular dystrophy (2%), and others (20%).<sup>5</sup>

The thickness of the cornea is normally thought to have an impact on the measurement of the intraocular pressure<sup>6</sup> as high IOP 20-25 mmHg were present in 26.5% and extremely high IOP 25-30mmHg accounts for 4.1% in SCD patients in the current study.

Limitations of this study include inadequate technical expertise in hospital ophthalmology unit. Despite of this, hospital based studies are not enough to get unbiased results. A more detailed research should be carried out considering the entire population of the areas.

**Conclusion**

The prevalence of SCD in our study is 0.4% and it is more widespread in age group 40-50 years.

**Disclaimer:** None to declare.

**Conflict of Interest:** None to declare.

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