

Epidemiology of chronic dacryocystitis with special reference to socioeconomic status: A rural hospital study

Surendra P. Wadgaonkar^{1,*}, Preeti A. Patil², Dhiraj B. Nikumbh³, Sonam S. Rathod⁴,
Chetan M. Sawat⁵

¹Associate Professor, ²Assistant Professor, ⁴Junior Resident, Dept. of Ophthalmology
³Associate Professor, Dept. of Pathology, ⁵Intern, JMF's ACPM Medical College,
Dhule, Maharashtra, India

*Corresponding Author

E-mail: surendrawadgaonkar@gmail.com

Abstract

Background: Dacryocystitis is an infection and inflammation of the lacrimal sac and most common cause of ocular morbidity in India. It's accounting for 87.1% of epiphora and causes social discomfort due to continuous watering from the eyes. It is more common in Whites than in Negros and more common in India as being tropical country. It has higher incidence among lower socioeconomic status.

Objective: To find out occurrence of Dacryocystitis in patients belonging to various socio-economic groups and to correlate Dacryocystitis with socioeconomical status.

Material & Methods: The present study is a cross-sectional hospital based study which performed during the months of June and September, 2014 in the department of Ophthalmology of ACPM Medical College, Dhule, and Maharashtra, India.

Results: Maximum number of cases of chronic Dacryocystitis belongs to the seventh decade of life. Chronic Dacryocystitis affected females predominantly. Chronic Dacryocystitis were observed in majority of patients belongs to class V & III socioeconomic status of modified B.G. Prasad Classification, and observed more in wage traders followed by farmers.

Conclusion: Most of the people consider watering from eyes as minor discomfort and avoid themselves from presenting to ophthalmologist as they are unaware of the deleterious complication. So the present study was taken up in Dhule district to create awareness of morbid condition. It's early diagnosis and treatment is always warranted to avoid complication and need for surgical intervention.

Keywords: Chronic Dacryocystitis, Epidemiology, Socioeconomical.

Access this article online	
Quick Response Code:	Website: www.innovativepublication.com
	DOI: 10.5958/2395-1451.2016.00009.3

Introduction

Dacryocystitis is an inflammation and infection of lacrimal sac located between the medial canthus of the eye and nose. It is an important cause of ocular morbidity in India¹. Both eyes may be affected. The disease occurs as an isolated incident (acute) or ongoing (chronic) form².

Chronic Dacryocystitis is commonly encountered by an ophthalmologist accounting for 87.1% of epiphora, which causes social embarrassment due to chronic watering from eyes^{2,3}. It commonly affects females over 40 years of age with peak incidence in 60 to 70 years⁴. It is more common in Whites than in Negros and more common in India as being tropical country. It has higher incidence among people of lower socioeconomic status⁴.

It is usually caused by partial or complete obstruction in lacrimal sac or within nasolacrimal duct. The causes of acquired obstruction are infection,

inflammation, neoplasms and trauma⁵. Patient with chronic Dacryocystitis may remain asymptomatic or have watering, discharge from the eye and swelling at lacrimal region.⁵

Untreated Dacryocystitis never undergoes spontaneous resolution. It tends to progress as wall of the sac become atonic and contents can be evacuated only by the external pressure⁶. Acute Dacryocystitis may lead to lacrimal abscess. If untreated it may causes unilateral chronic conjunctivitis, corneal ulcer, lacrimal abscess, fistula and panophthalmitis may occur if any intra ocular surgery is performed in presence of unrecognized Dacryocystitis⁴. Other complications are orbital cellulitis; cavernous sinus thrombosis and orbital thrombophlebitis⁴. Most of the people consider watering from eyes as minor discomfort and avoid themselves from presenting to ophthalmologist as they are unaware of the deleterious complications.

With the extensive search in literature, we haven't found any study of Dacryocystitis correlated with socioeconomic status. The goal of the present study was to create awareness of chronic Dacryocystitis in view of morbid condition and to correlate it with socioeconomic status. It's early diagnosis and treatment is always warranted to avoid complications and need for surgical intervention.

Material and Methods

The present study is a cross-sectional hospital based study approved by the ethical committee which performed during the months of June and September, 2014 with written informed consent of the 28 patients in the department of Ophthalmology in a rural tertiary care centre, Dhule, Maharashtra, India.

All patients complaining of watering or discharge through the eyes were included in the study. All patients who had undergone any surgical intervention in the past like dacryocystorhinostomy, and congenital dacryocystitis were excluded from the study.

The patients presenting to outpatient department of ophthalmology belonging to inclusion criteria are interrogated for the following details.

1. Demographic profile (Name, Age, Sex, Occupation and Address) --All the patients falling under our inclusion criteria were enrolled for the study. Their name, age, sex, residence and occupation were recorded.
2. Socioeconomic status (according to Modified B.G. Prasad's classification)⁷

Table 1. B.G. Prasad classification and Modified B.G. Prasad's Classification of socioeconomic status⁷

Socioeconomic Class	B.G. Prasad's Classification of 1961	Modified B.G. Prasad's Classification of 2013
I	Rs 100 above	Rs 5156 & above
II	Rs 50-99	Rs 2578-5155
III	Rs 30-49	Rs 1547-2577
IV	Rs 15-29	Rs 773-1546
V	Below Rs 15	Below Rs.773

The advantage with Prasad's classification is that it takes into consideration only the income as a variable and it is simple to calculate. This can be applied to assess the socioeconomic status in both rural and urban areas.

3. Chief Complaints, medical history, treatment history and surgical history were recorded. A detailed present and past medical history was taken which elaborated and helped towards the diagnosis. All the patients were asked and examined for any surgical history in the past.
4. Examination of eyes and adnexa with:
 1. Torch light
 2. Slit lamp

Thorough detailed examination of eyes and adnexa was performed using diffuse torch light and slit lamp.

5. Regurgitation test and sac syringing
 1. **Regurgitation Test:** In chronic Dacryocystitis the contents of the sac shall regurgitate through the lower or lower and upper punctum both. In chronic Dacryocystitis with functional block, i.e. pump failure the contents of the sac shall empty in the nose. In chronic Dacryocystitis with encysted mucocele, there is no regurgitation of the contents.
 2. **Sac Syringing:** This method of exploration was first advocated by Dominique Angel (1716) and then popularized by Bowman in 1857. Thomas R. et al (1997) stressed upon the importance of ROPLAS (Regurgitation on pressure over the lacrimal sac), sac syringing in the diagnosis of chronic Dacryocystitis prior to cataract surgery.

These details were collected prospectively and analyzed retrospectively using SPSS software and conclusion was derived based on observations.

Results

In the present study, majority of cases of chronic Dacryocystitis belongs to the seventh decade of life between age group of 60-70 years (50%). (Table 2)

Table 2: Incidence of Dacryocystitis among the age groups

Age Groups	Frequency	Percentage (%)
20-30	01	3.57
31-40	01	3.57
41-50	03	10.72
51-60	07	25.00
61-70	14	50.00
71-80	02	7.14
Total	28	100.00

In our study, chronic Dacryocystitis affected more in females than males (F:M ratio is 2.1:1) as in Table 3.

Table 3: Gender distribution of Dacryocystitis

Sex	Frequency	Percentage
Female	19	67.86%
Male	9	32.14%
Total	28	100.00%

Chronic Dacryocystitis was observed in majority of patients who belong to class V & III socioeconomic status of Modified B.G. Prasad classification⁷, observed more in wage laborer followed by farmers (Table 4)

Table 4: Occupation and socioeconomic status of the study population

Social Status Occupation	Social Status				Total	Percentage
	II	III	IV	V		
Farmer	0	0	3	6	9	32.14%
Petty trader	0	1	1	0	2	7.14%
Service Private	1	1	0	0	2	7.14%
Unemployed	0	3	0	2	5	17.86%
Wage Laborer	0	4	0	6	10	35.72%
Total	1	9	4	14	28	100%

Majority of the Dacryocystitis patients belongs to Class V of socioeconomic status with per capita income below 773, as per Modified B.G. Prasad classification⁷ (Table 5).

Table 5: Showing per capita income and socioeconomic status according to Modified B.G. Prasad's classification

Per capita income	Socioeconomic status	Frequency
2578-5155	II	1
1547- 2577	III	9
774- 1546	IV	4
Below 773	V	14
Total		28

Discussion

Chronic Dacryocystitis though a common problem of lacrimal drainage system, treated much efficiently in recent years with advances in investigative operational technique pertaining to solve the problems associated with it². Epiphora is the most annoying symptom in about 87% cases, followed by discharge, swelling, pain and conjunctivitis².

In present study of 28 cases, various modes of presentation of chronic Dacryocystitis cases presented at our institute were taken up for this study during the month of June and September 2014. Patients of chronic Dacryocystitis with respect to their age, sex, occupation and socioeconomic status were studied. The following observations were noted during the course of study with relevant results. These are discussed in comparison with the studies published previously.

Jacobs BH² in his study found the maximum incidence of this condition between 40-55 years of age. Sarda et al¹⁰ noted maximum incidence of chronic Dacryocystitis in the third and fourth decade of life. R.

Dalgleish⁸ stated that 35-40 years was the earliest expected age of onset of acquired idiopathic nasolacrimal duct obstruction. Saxena R.C. and Garg KC¹¹ quoted a maximum age incidence in the fourth decade. Duke Elder S¹² states that the disease preferentially affects adults over middle age being relatively rare in children and adolescents. The highest incidence quoted by him was in the fourth decade of life.

Our results show 50% of the patient belongs to seventh decade of life that is between 60- 70 years of age.

Jacobs HB² found a female to male ratio of 3:1 in his series of patients. The reason for females were more affected by chronic Dacryocystitis is due to higher vascular congestive factor and a narrower bony nasolacrimal canal. Our findings were comparable with Jacobs HB². R. Dalgleish reported a percentage of 54% amongst females⁸. Saxena R.C. has an incidence of 84.6%¹¹. Duke Elder states that while the disease in the newborn affects both the sexes equally, its occurrence among adults is in the ratio of 75- 80% females to 25-30% male¹².

Pawar and Patil¹³ had an incidence of 56% of females in their series of 150 cases of chronic Dacryocystitis. Predilection for the female is due to narrower lumen of the bony lacrimal canal according to Santos Fernandez (1903-21), Heinoneu(1920) Meller (1929), Ruiz Barreranco and Martinoz Roman (1966)¹⁴. Dacryocystitis is more common in temperate climate by True (1900 -1926)¹⁴. Anatomical factor is one of most common etiological factor of Dacryocystitis as described by Schaeffer (1920). Granstrom (1938) Sonderman (1923) has shown in their studies that constriction of lacrimal duct 40%, moderate 29% and 31% had normal lumen¹⁴. Others Zabel (1900), Onodi (1913), whith all (1912), Heninomen (1920) found that narrowing tends to occur in flat nose and narrow face⁴. Harmer (1915), Bilancioni (1921) stressed on mechanical obstruction which plays important role in Dacryocystitis. Klofler (1919 -1930), Stenger (1920) described in their studies that septal deviation leads to infection of the lacrimal sac¹⁴.

In our study we found 67% cases amongst females 33% cases amongst males with F: M ratio is 2.1:1. In our series of study majority of the wage laborers (35.71%) were effected followed by farmers (32.14%). The incidence of 7.14% of the cases belonged to the petty traders and 17.85% were unemployed, which shows that majority of the patients belonged to poor and low middle class families who lack in their cleanliness and scrupulousness in maintaining their eyes clean. Chronic Dacryocystitis is less common among people of urban areas with middle class to rich class who take maximum hygienic measures to maintain their eyes clean.

It is imperative to understand the socioeconomic status (SES) of the community in order to correlate its impact on health quality of living standard. Socioeconomic stratification is the key parameter for proper understanding of the affordability of the community of health services, amenities and their purchasing capacity. When it is taken as a summation of education, occupation and income, it reflects the value system expected for that level⁹.

The important determinant of the standard of living is socioeconomic status of the individual/ community. SES influences on the incidence and prevalence of various health related conditions. Socioeconomic status also influences social security in terms of the accessibility, affordability, acceptability and actual utilization of various health facilities. The advantage with B.G. Prasad's classification is that it takes into consideration only the income as a variable and it is simple to calculate. This can be applied to assess the socioeconomic status in both rural and urban areas⁷.

We haven't find any study regarding relationship of socioeconomic status with Dacryocystitis by extensive review of literature. In our series, we followed Modified B.G. Prasad classification for categorizing socioeconomic status of the patients, according to which 14 (50%) patients belongs to class V, 9 (32.14%) to the

class III, 4 (14.28%) to class IV and only 1 (3.5%) patient belongs to class II. No patient was belonging to class I.

As per our study, Dacryocystitis was more common in class V & III of socioeconomic status. This might be due to poor hygiene and low living standard of particular socioeconomic class.

Conclusion

Dacryocystitis is common eye disease in ophthalmology practice. It is an important cause of ocular morbidity in India. The main cause for chronic Dacryocystitis is obstruction which leads to stasis and altered environment within the lacrimal sac. Most of the people consider watering from eyes as minor discomfort and avoid themselves from presenting to ophthalmologist as they are unaware of further deleterious complications.

With the extensive search in literature, we haven't found any study of correlation between dacryocystitis with SES. Therefore this subject needs an extensive study and awareness to solve the enigma of chronic Dacryocystitis in the people of low socioeconomic group with poor hygiene and low standard of living.

Conflict of Interest: None

Source of Support: Nil

Bibliography

1. Shah CP, Shantani D.A comparative bacteriological profile and antibiogram of Dacryocystitis. *Nepal Jr of Ophthalmology*. 2011;3(6):134-139.
2. Jacobs, H.G. Symptomatic epiphora. *Brit. J. Ophth*. 1959;43:415.
3. Mal R, Banerjee AR, Biswas MC, Mondal A, Kundu PK, Sasmal NK. Clinico-bacteriological study of chronic Dacryocystitis in adults. *J Indian Med Assoc*. 2008;106(5):296-98.
4. Gillil G.D. Texas Ophthalmic Plastic, Reconstructive Orbital Surgery Associates eMed Space, ophthal lacrimal August 18,2009.
5. MyrenYanoff, Jay S. Duker. The lacrimal drainage system, Chapter-98, In: *Ophthalmology*, 2nd Edn. Mosby Publication. Pp.761-769 *J Community Med*. 2008 January;33(1):50-51.
6. Sihota R, Ton R. Disease of the lacrimal apparatus Parson's Disease of eye 20th ed, New Delhi-Elsevier 2007;Pp447.
7. An Updated Prasad's Socio Economic Status Classification for 2013. Shankar Reddy Dudala et al., Updated Prasad SES Classification, cited from www.ijrdh.com on 24/2/16.
8. Dalgleish R. Idiopathic acquired lacrimal drainage obstruction. *Br J Ophthalmology*, 1967;51:463.
9. Ravi Kumar BP, Shankar Reddy Dudala, Rao AR. *Int J Res Dev Health*. 2013;1(1):2-4.
10. Sarda, R. P. Dacryocystorhinostomy. *Brit. J. Ophth*.1961;45:138-143.
11. Saxena, R. C. Garg, K. C.: Scope of Dacryocystorhinostomy, *J. of All-India Ophthal. Soc.*,17,55-58.(1969).
12. Duke Elders S. Disease of lacrimal passages; system of ophthalmology. Vol. XIII part-II, Mosby Publication, 1974,675-724pp.
13. Pawar MD, Patil SN. A new approach to stent dacryocystorhinostomy in cases with blockage of the lacrimal

- drainage system. Proceedings of the XXVth International Congress of Ophthalmology; May 1986; Milan, Italy: Kugler & Ghedini;1987;1882-1892.
14. Arun Ghosh, Dokania, Vedprakash and Surendraprasad. Bacteriological study of Chronic Dacrocystitis in adults. Int. J. Curr. Microbiol. App. Sci .2015;4(10):750-56.