

Ablution exercise – may prevent dacryocystitis

Pandey J.¹, Ranjan A.², Gupta R.C.³, Khan P.⁴

¹Dr. Jayati Pandey, Senior Resident, ²Dr. Alok Ranjan, Senior Resident, ³Dr. Ramesh Chandra Gupta, Principal, LLRM Medical College, Meerut. Ex-HOD Department of Ophthalmology, ⁴Dr. Perwez Khan, Professor & Head; all authors are affiliated with Department of Ophthalmology, G.S.V.M Medical College, Kanpur, Uttar Pradesh, India.

Corresponding Author: Dr. Jayati Pandey, Senior Resident, Department of Ophthalmology, G.S.V.M Medical College, Kanpur, Uttar Pradesh, India. Email: jayati_pandey@outlook.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 India as being tropical country. It has higher incidence among lower socioeconomic status. Hygiene plays an important role in its aetiology. **Objective:** This study was aimed to survey the demographic characteristics of patients received external dacryocystorhinostomy (DCR) surgery to correlate with religious aspect of the patients. **Material & Methods:** The present study is a retrospective study conducted at Ophthalmology Department from the hospital records of patients who underwent external DCR for epiphora from January 2013 to December 2017. **Results:** Out of 305 cases underwent DCR (n=305), maximum (n=179, 58.69%) were above the age of 40 years out of which maximum were in age group of 41-50 years (n=78, 24.57%), majority of them were females 70.49% (n=215) with males being only 29.51% (n=90). Out of 305 cases majority were Hindus (n=236, 77.38%) with Muslims being only 14.43%(n=44) while 8.19% included Christians, Sikhs, Jains and other religions. **Conclusion:** Overall finding showed in comparisons of men with the females of middle age and above and Muslims despite contributing to major population had less rate of DCR surgery than Hindus. This led to our view that some practices in Muslims might be preventing dacryocystitis in Muslims where ablution exercise might be one of them.

Keywords: Chronic Dacryocystitis, Dacryocystorhinostomy (DCR), Epidemiology, Religion

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 India [1]. Both eyes may be affected. The disease occurs as an isolated incident (acute) or ongoing (chronic) form [2]. 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 years [4].

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 status [4]. 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 trauma [5]. Bartley modified the Linberg and McCormick etiologic classification system for

“primary acquired nasolacrimal duct obstruction” (PANDO), and published an expanded classification for “secondary acquired lacrimal drainage obstruction” (SALDO). The aetiologies of SALDO were divided into five categories: infectious, inflammatory, neoplastic, traumatic, and mechanical [6]. 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 pressure [7]. Acute Dacryocystitis may lead to lacrimal abscess. If untreated it may cause unilateral chronic conjunctivitis, corneal ulcer, lacrimal abscess, fistula and panophthalmitis may occur if any intra ocular surgery is performed in presence of unrecognized dacryocystitis [4]. Other complications are orbital cellulitis; cavernous sinus thrombosis and orbital thrombophlebitis [4]. 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. A

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dacryocystorhinostomy (DCR) is the treatment of choice for most patients with acquired NLDO for managing epiphora due to NLDO. It is a procedure that creates an anastomosis between the lacrimal sac and nasal mucosa through a bony ostium [8].

Surgical indications include recurrent dacryocystitis, chronic mucoid reflux, painful distension of the lacrimal sac, and bothersome epiphora.

Causes of Secondary acquired NLDO

1. Neoplastic
 - a. Primary
 - b. Secondary
 - c. Metastasis
2. Inflammations
 - a. Endogenous
 - b. Exogenous
3. Infections
 - a. Bacterial
 - b. Viral
 - c. Fungal
 - d. Parasitic
4. Traumatic
 - a. Iatrogenic
 - b. Non iatrogenic
5. Mechanical
 - a. Internal
 - i. Dacryolith
 - ii. Migrated or retained medical device
 - iii. Pellet
 - iv. Canalicular cyst
 - v. Blood

Result

The results of the age-wise distribution of patients underwent DCR are presented in Table 1. Out of 305 cases underwent DCR (n=305), maximum (n=179, 58.69 %) were above the age of 40 years out of which maximum were in age group of 41-50 years (n=78, 24.57%).

Table-1: Age wise distribution of DCR Surgery

Age (in years)	Total	Percentage
11-20	21	6.89%
21-30	42	13.77%
31-40	63	20.66%
41-50	78	25.57%
51-60	67	21.97%
>60	34	11.15%
Total	305	100%

Table 2 signified the sex distribution of the patients underwent DCR (n=305), majority 70.49% (n=215) were females with males being only 29.51% (n=90).

- b. External
 - i. Kissing puncta
 - ii. Conjunctivochalasis
 - iii. Mucocele
 - iv. Nasal polyp
 - v. Intranasal tumours

With the extensive search in literature, the present study didn't find any study of Dacryocystitis correlated with religion of the patients. The present study was undertaken to understand the various epidemiological parameters relevant to chronic dacryocystitis amendable to dacryocystorhinostomy and is first in its kind where religion aspect is also evaluated in patients undergoing DCR surgery.

Materials and Methods

Type of study: It was a Retrospective study was conducted at Ophthalmology Department of LLR Hospital, Kanpur (UP) from the hospital records of patients who underwent external DCR for epiphora from January 2013 to December 2017.

Duration of Study: 5 years.

Sampling: A total of 305 cases of DCR were done which were analysed for various epidemiological parameters like age, sex, and religion.

Inclusion criteria

Only those cases that underwent surgery for nasolacrimal duct obstruction were included in the study.

Exclusion criteria

Cases whose religion was not known Dacryocystectomy cases who previously had failed DCR.

Table-2: Sex wise distribution of DCR Surgery

Sex	Frequency	Percentage
Male	90	29.51%
Female	215	70.49%
Total	305	100%

Table 3 represented religion wise distribution of patients underwent DCR (n=305), majority were Hindus (n=236, 77.38%) with Muslims being only 14.43 % (n=44) while 8.19% included Christians, Sikhs, Jains and other religions which is clearly depicted in Table-3.

Table-3: Religion wise distribution of DCR surgery.

Religion	Frequency	Percentage
Hindu	236	77.38%
Muslim	44	14.43%
Christians	06	1.97%
Sikh	03	0.98%
Jain	02	0.66%
Budhists	00	0.00%
Others	14	4.59%
Total	305	100%

Discussion

In the present study, out of the 305 patients, 58.69% were above the age of 40 years with maximum number (n=78) in the age group of 41-50 years as shown in Table 1. Prahlad Duggal in his study showed out of 74 patients 51.69% were above the age of 40 years and 87.8% were females [9]. In a study conducted by Badhu et.al in Nepal showed out of 662 patients, 67.6% were females. The mean age of the patients was 27.4±13.7 years (SE = 0.53, 95% CI = 26.34–28.46) [10]. NLDO is more common in middle aged and elderly females. It has been suggested that the menstrual and hormonal fluctuations and a heightened immune status as factors that may contribute to the disease process [11].

These may explain the prevalence in the middle-aged and elderly females. Hormonal changes that bring about a generalized de-epithelisation in the body may cause the same within the lacrimal sac & duct. An already narrow lacrimal fossa in women predisposes them to obstruction by the sloughed off debris [12]. The present study showed that 70.49 % of the patients undergoing DCR were females with males were only 29.51%, which is a significant difference as shown in Table 2. Similar reports have been given by other authors giving a significantly higher proportion of females undergoing DCR than males.

Yung & Hardman-lea in their study of 170 patients undergoing DCR found 68% being females & 32% males [13]. Sharma et al in their study of 263 patients undergoing DCR found 72% being females & 28% males [14]. Of the 143 patients undergoing DCR in a study by Ben Simon et

al, 95 were females & 48 were males [15]. Various authors in their studies have pointed to various factors for higher incidence of DCR in females compared to males ranging from socio-economic factors to anatomical factors. Females were affected more than males, may be due to the inferior sex status of females in our country leading to poor hygiene. Groessl S A et al in their study of axial maxillo-facial CT scans showed women having a smaller bony diameter at the level of lower fossa and middle naso-lacrimal duct compared to men.

The adult inferior bony fossa increased in size with age in both men and women, while middle naso-lacrimal duct increased in size in men only [12]. Jansen A G et al used axial CT to measure the minimum diameter of bony naso-lacrimal canal and found a significant difference between mean diameter in males & females (3.70 mm in males compared to 3.35 mm in females). [16] In the present study as seen in Table 3 out of 305 patients 236 patients i.e. 77.38% were Hindus whereas Muslims were only 44 i.e. 14.43% which is a significant difference. It may be due to low Muslim population in the city where Hindus contribute to 78.03% of population and Muslims are 19.85% [17].

The other reason can be due to act of ablution where the Muslims clear their lacrimal passage through nostrils five times a day and hence make it less prone to infections. The lacrimal excretory system is prone to infection and inflammation for various reasons. This mucus membrane-lined tract is contagious with two surfaces (conjunctival and

nasal mucosal) that are normally colonized with bacteria. Obstruction of the nasolacrimal duct from whatever source results in stasis with the accumulation of tears, desquamated cells, and mucoid secretions superior to the obstruction. This creates a fertile environment for secondary bacterial infection [18]. Hence hygiene status also plays key role in prevalence of dacryocystitis. Significantly low DCR rate was seen in Christians, Sikhs and Jains which may be due to their low population in the city. Further detailed studies are needed to reach to any concrete conclusion.

Limitations

Since it was a retrospective study any anatomical difference among the groups were not taken in to account. Effect of ablation on anatomy of lacrimal passage were also not evaluated.

Conclusion

Dacryocystorhinostomy is performed in patients with epiphora with females out-numbering the males and middle-age and elderly group forming the majority of patients undergoing DCR for naso-lacrimal duct obstruction. The higher incidence of females undergoing DCR has been attributed to the social, hormonal as well as anatomical factors. It is more common in Hindus than Muslims which may be due to hygiene status of the nasolacrimal duct which is continuously washed by ablation in Muslim patients.

This ablation exercise prevents colonisation of NLD by infectious organisms. In the present study, the low prevalence of DCR in males and Muslims point toward a common factor that is the hygiene status which prevents colonisation by infectious organisms. With the extensive search in literature, the present study didn't find any study of correlation between dacryocystitis with religion of the patients.

Therefore, this subject needs an extensive study and awareness to solve the enigma of chronic Dacryocystitis in the people of different religions and factors associated with dacryocystitis in different religions.

What the study adds to existing knowledge?

The present study enlightens a different preventive measure which can affect the course or prevent dacryocystitis. It also highlights the fact that hygiene is an important causative factor of dacryocystitis in our region.

Author's Contribution

Dr. Jayati Pandey: Data collection, analysis and manuscript preparation

Dr. Alok Ranjan: Manuscript preparation

Dr. Ramesh Chandra Gupta: Concept and study design

Dr. Perwez Khan: Concept and statistical analysis

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