AN EPIDEMIOLOGICAL STUDY ON PATIENTS UNDERGOING DACRYOCYSTORHINOSTOMY

Prahlad Duggal,* S Chakravorty,** Ramesh K Azad,*** Chander Mohan****

Abstract: Dacryocystorhinostomy is performed in patients with naso-lacrimal duct obstruction to bypass the site of obstruction so as to relieve the patient of the irritating and socially embarrassing symptoms of epiphora. We discuss the various epidemiological aspects especially the vast difference by which the females out-number the males in patients undergoing DCR and the likely explanations for this difference in our study on 74 patients which underwent DCR in our institute.

Keywords: Dacryocystorhinostomy, epidemiological factors, naso-lacrimal duct

INTRODUCTION:

Obstruction of naso-lacrimal duct causes the obstruction to flow of tears from the eye to the nose leading to the bothersome symptoms of epiphora. Epiphora is defined as the outflow of tears. The clinical spectrum of epiphora ranges from the occasionally bothersome trickle to the chronically irritating overflow. Epiphora is caused by a disruption in the balance between tear production and drainage. Those cases with obstruction to the outflow are amendable to an operation introduced in 1904 by a French Ophthalmologist Adeo Toti known as ‘dacryocystorhinostomy’ (DCR).1

Abnormalities of tear drainage may be sub-divided into functional and anatomical. Functional failure is related to poor lacrimal pump function, which may be due to a displaced punctum, eyelid laxity, weak orbicularis or cranial nerve (7th) palsy. Anatomical obstruction may occur at any point along the lacrimal drainage pathway and may be congenital or acquired. Naso-lacrimal duct obstruction is of two types: primary or secondary. In 1986, Linberg and McCormick coined the term -primary acquired naso-lacrimal duct obstruction (PANDO) to describe a naso-lacrimal duct obstruction caused by inflammation of unknown cause that eventually leads to occlusive fibrosis. ² Bartley proposed an obstruction, secondary acquired lacrimal duct obstruction (SALDO) based on the published cases. Secondary acquired lacrimal drainage obstruction may result from a wide variety of infectious, inflammatory, neoplastic, traumatic or mechanical causes. Bacteria, viruses, fungi and parasites have been implicated as the causes of infectious lacrimal drainage obstruction. Inflammation may be either endogenous like Wegener’s granulomatosis, sarcoidosis and scleroderma or exogenous like eye drops, radiation, systemic chemotherapy and bone marrow transplant. Neoplasms may be primary growth, secondary spread or metastatic spread. Trauma may be iatrogenic or accidental. Mechanical lacrimal drainage obstruction may be due to intraluminal foreign bodies like dacryoliths or casts. ³,⁴,⁵

The present study was undertaken to understand the various epidemiological parameters relevant to chronic dacryocystitis amendable to DCR and is the first study of its kind from the hilly state of Himachal Pradesh involving patients who underwent dacryocystorhinostomy (DCR) for naso-lacrimal duct obstruction.

MATERIAL & METHODS:

A retrospective study was conducted at ENT Department of Dr. Rajinder Prasad Govt. Medical College, Tanda, Kangra (HP) from the hospital records of patients who underwent DCR for epiphora from April 2003 to July 2005. A total of 74 cases of DCR were done which were analyzed for various epidemiological parameters like age, sex, socio-economic status and rural-urban distribution. Only those cases with primary naso-lacrimal duct obstruction were taken as study group and those with obstruction at or prior to common canaliculus (based on pre-operative clinical assessment and dacryocystography), noticeable lid-laxity, suspicion of malignancy, radiation therapy, bony or soft-tissue trauma were excluded from study.

RESULTS:

The results of the age-wise distribution of patients undergoing DCR are presented in Table I. Out of 74 cases undergoing DCR (n=74), maximum (n=51, 68.9 %) were above the age of 40 years. Table II shows the sex distribution of the patients undergoing DCR (n=74), majority 87.8 % (n=65) were females with males being only 12.1 % (n=9). 63.5 % of the patients were from low socio-economic status (n=47) while 31.1 % (n=23) were from middle class. Higher class constituted only 5.4 % (n=4) (Table III). Table IV shows the rural-urban distribution with majority, 86.5 % (n=64) being of rural background.

DISCUSSION:

Naso-lacrimal duct obstruction causes hindrance to the normal out flow of tears from the eye to the nose via naso-lacrimal passage thereby causing the overflow of tears (epiphora). In the present study, out of the 74 patients, 68.9 % were above the age of 40 years with maximum number (n=23) in the age group of 51-60 years. 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. 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. The present study
showed that 87.8% of the patients undergoing DCR were
females with males forming a merge 12.1%, which is a
significant difference. 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. Sharma et al in their study of 263
patients undergoing DCR found 72% being females & 28% males. Of
the 143 patients undergoing DCR in a study by Ben Simon et
al, 95 were females & 48 were males.

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. 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) 11. Rural-urban difference can be because of our institute having
a vast rural population as its patient population & also because
of the low general socio-economic condition of the rural
population in the area.

CONCLUSIONS:
Dacryocystorhinostomy is performed in patients with epiphora
with females out-numbering the males & 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 as well as anatomical factors as
anatomical studies of the naso-lacrimal system by radiological
means have shown that the dimensions of the naso-lacrimal
system are smaller in females than males.

REFERENCES:
1. Toti A : Nuovo metodo conservative di cara radicale delle
supporazioni chronicle del sacco lacrimale clin Mod Firenze. 1904;
2. Linberg J V, McCormick S A: Primary acquired nasolacrimal
duct obstruction: a clinicopathologic report and biopsy technique.
3. Bartley G B: Acquired lacrimal drainage obstruction: an etiological
classification system, case reports and a review of literature. Part
4. Bartley G B: Acquired lacrimal drainage obstruction: an etiological
classification system, case reports and a review of literature. Part
5. Bartley G B: Acquired lacrimal drainage obstruction: an etiological
6. Roussos J, Bouzas A : Attempted explanation with hormonal factors
of the greater occurrence of chronic dacryocystitis in women than
7. Groessl S A, Sires B N : An anatomical basis for primary acquired
11-26.

Table I : showing age-wise distribution of patients undergoing
DCR

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Age-group in years</th>
<th>No. of cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 - 10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>11 - 20</td>
<td>01</td>
<td>1.3</td>
</tr>
<tr>
<td>3</td>
<td>21 - 30</td>
<td>07</td>
<td>9.4</td>
</tr>
<tr>
<td>4</td>
<td>31 - 40</td>
<td>15</td>
<td>20.3</td>
</tr>
<tr>
<td>5</td>
<td>41 - 50</td>
<td>18</td>
<td>24.3</td>
</tr>
<tr>
<td>6</td>
<td>51 - 60</td>
<td>23</td>
<td>31.0</td>
</tr>
<tr>
<td>7</td>
<td>61 &amp; above</td>
<td>10</td>
<td>13.9</td>
</tr>
</tbody>
</table>

Total 74 100

Table II : showing sex-wise distribution of patients undergoing
DCR

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Sex</th>
<th>No. of cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Male</td>
<td>09</td>
<td>12.1</td>
</tr>
<tr>
<td>2</td>
<td>Female</td>
<td>65</td>
<td>87.8</td>
</tr>
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</table>

Total 74 100

Table III : showing socio-economic status of the patients
undergoing DCR

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Socio-economic status</th>
<th>No. of cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
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<td>1</td>
<td>Lower</td>
<td>47</td>
<td>63.5</td>
</tr>
<tr>
<td>2</td>
<td>Middle</td>
<td>23</td>
<td>31.1</td>
</tr>
<tr>
<td>3</td>
<td>Upper</td>
<td>04</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Total 74 100

Table IV : showing rural-urban distribution of patients
undergoing DCR

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Rural/Urban</th>
<th>No. of cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rural</td>
<td>64</td>
<td>86.5</td>
</tr>
<tr>
<td>2</td>
<td>Urban</td>
<td>10</td>
<td>13.5</td>
</tr>
</tbody>
</table>

Total 74 100