

# Diagnosis of Obstruction in Epiphora by Dacryocystography

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## Abstract

**Background:** To determine utility of radiology in localising the site of obstruction in epiphora.

**Methods:** The study was conducted in Lahore General Hospital, Lahore from 22nd January, 1988 to 23rd June, 1988. All thirty patients included had epiphora. Dacryocystography was done on these 30 patients, 14 males and 16 females who were aged from 6 to 75 years.

**Results:** There was complete obstruction in 28 cases, partial obstruction on 01 and no obstruction in 01 case. The sac duct junction was main site of obstruction in 11 patients followed by lower end of the duct and upper bony cana in 14 patients in each.

**Conclusion:** Dacryocystography is a simple, safe and standardized diagnostic procedure which easily and accurately defines these obstructions and is less time consuming and less annoying to the patients with practically no complications.

**Keywords:** Epiphora, Dacryocystography, Nasolacrimal passages

## Introduction

Epiphora is defined as watering eye due to inadequate drainage of normally produced tears. This may be due to partial or complete obstruction of nasolacrimal passages. The exact localization of site of obstruction is essential for proper surgical procedure to be adopted, without which the patient may be subjected to treatment which has no chance of relief of his symptom. This can best be achieved by dacryocystography.

The lacrimal drainage system is comprised of puncti, canaliculi, common canaliculus, lacrimal sac, nasolacrimal duct and lacrimal ostium. After secretion in upper temporal fornix, the tears spread along the upper lid margin to form the upper marginal strip and drain into the nose via palpaberal, canalicular and saccular pump. The obstruction may occur due to

various pathological factors like congenital anomalies, inflammatory processes, intraluminal proliferations, scar retraction, antiviral drugs, trauma, foreign bodies and neoplasms.

The aim of study was to determine utility of radiology in localising the site of obstruction in epiphora.

## Patients and Methods

The study was conducted in Lahore General Hospital, Lahore from 22nd January, 1988 to 23rd June, 1988. Thirty patients of epiphora from Lahore General Hospital OPD, referred from other hospitals of Lahore and general practitioners were included in this study.

Patients under 5 years of age, and those who had previous surgery of lacrimal passages, acute dacryocystitis, with nasal obstruction and suffering from ocular disease like keratitis and uveitis were excluded. Dacryocystography was done in all 30 patients.

Patients were examined properly with torch and slit lamp. Primary and secondary Jones dye tests were done on every patient to exclude partial obstruction, Schirmer test was done to exclude hypersecretions and every patient was examined by ENT surgeon to exclude nasal polyps and hypertrophic inferior turbinate. The syringing was done through both puncti to exclude obstruction and pump failure.

The most useful radiographic view to localize obstructions was oblique view i.e. 15 degrees from the horizontal with the obstructive side of face toward the table. A film was taken just before injection of dye to avoid artifacts in the area. Conray 420, an iodized 70 % watery contrast material was used as it does not stay in normal track for long and is immediately found in throat. It does not irritate conjunctiva and if accidental leak into subcutaneous tissue occurs it does not produce granuloma or necrosis of the tissue. The dye

was injected from either of the puncta with 2cc disposable syringe. In case of canalicular obstruction dye was injected through both puncti by a fine catheter.

## Results

Of the thirty patients under-going dacryocystography , 14 (47%) were male and 16(53%) female Majority of obstruction developed in the 25 to 40 year age group except the congenital type.

**Table. 1 Duration of Epiphora Symptoms**

Duration of epiphora	No. Of cases	Percentage
1 month – 1 year	15	50
1 year – 3 years	6	20
3 years – 5 years	5	17
5 years – 8 years	2	6.5
Over 8 years	2	6.5

**Table 2 Level of Obstruction**

Level of Obstruction	No. Of cases	Percentage
Common canaliculus	1	3.13
Sac-duct junction	11	33.33
Upper Bony canal	4	12.12
Middle of the duct	4	12.12
Lower end of the duct	7	21.12
Freely patent	2	6.06
Partial obstruction	4	12.12

Unilateral involvement was present in 27 (90%) patients while 3(10%) had bilateral

involvement . Thus a total of 33 eyes were studied. The duration of epiphora is shown in Table 1

The right eye was involved in 17(51%) patients and the left eye in 16(49%) . Regarding patency of passages , complete obstruction was present in 28(93%) patients while partial obstruction and no obstruction were noted in one patient each(3.5%each).

Regarding level of obstruction in the 33 eyes studied , obstruction at common canaliculus was seen in 3.13 % at sac duct junction in 33.33 % , at upper end of bony canal and middle of the duct both 12.12 % and at the lower end of the duct in 21.12 % . (Table 2)

## Discussion

Obstruction of the nasolacrimal drainage system is a common cause of epiphora. It may be partial or complete and can occur from puncta to lacrimal ostium. William<sup>1</sup>, divided the obstructions into high, mid and low level. The obstruction at the sac duct junction is most common usually comprising 3/4 of total.<sup>2</sup> The reasons are i) The lacrimal fascia which invests the sac and makes a constriction here ii) The presence of valve of krause, a frequent occurrence. iii) Change in the direction of nasolacrimal duct which runs downward and backwards. Halepota<sup>3</sup> showed high level obstruction in 22.16 % and mid level obstruction in 59 % of his patients.

In most cases the tearing is complicated by recurrent bouts of dacryocystitis. This cycle of watering, chronic irritation and infection is repeated several times, until a frank stenosis develops.<sup>4</sup>

Syringing may reveal the obstruction somewhere but may not be able to exactly localize the site of obstruction especially in upper passages. With completely obstructed lacrimal passages., D.C.G. provides virtually all the necessary information for proper management of cases. Functional tests add little to this.<sup>5</sup> In a study of 25 cases of symptomatic eyes the results of DCG and nuclear scan differed very much to localize the pre sac obstruction .<sup>6</sup>

The lacrimal scan is a physiological test but cannot reproduce the anatomy of the system especially with respect to canaliculi, as MDCG is able to do .<sup>7</sup> Sanford believed that there is feedback mechanism controlling lacrimal secretion and it can prevent tearing in such patients<sup>8</sup> . This explains the abnormal test results occurring in supposedly normal people.

In conclusion Dacryocystography is a simple, safe and standardized diagnostic procedure which easily and accurately defines these obstructions and is

less time consuming and less annoying to the patients with practically no complications.

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