


# External Dacryocystorhinostomy: 4 Years' Experience from CHU-IOTA in Mali

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## Abstract

**Aim:** To analyze the clinical characteristics and the surgical outcomes of external dacryocystorhinostomy (DCR) in patients with nasolacrimal duct obstruction (NLDO). **Methods:** We retrospectively reviewed the clinical record of 62 patients who underwent external DCR for NLDO between November 2015 and November 2019 at CHU-IOTA in Mali. The preoperative clinical findings and the postoperative outcomes after a minimum follow up of 3 months were analyzed. **Results:** epiphora, discharges and canthal swelling were main symptoms of the 62 patients (68% women, 32% men), with the mean age of 47 years (10 - 76). Among them, 36 had chronic dacryocystitis, 12 had a traumatic NLDO and 8 followed a septal deviation. The majority (77%) were operated on under local anesthesia with sedation. Bicanalicular intubation was performed in 29% of patients. After postoperative follow up of at least 3 months, only 8 patients had persistent watering, thus a subjective functional success of 87%. **Conclusion:** In the nasolacrimal duct obstruction, most often secondary to chronic dacryocystitis, external dacryocystorhinostomy remains a technique of choice with very good success.

## Keywords

Dacryocystorhinostomy, Dacryocystitis, Epiphora, Silicone

## 1. Introduction

Dacryocystorhinostomy (DCR) is the standard treatment technique for nasola-

crimal duct obstruction [1]. It consists of creating an anastomosis between the lacrimal sac and the adjacent nasal cavity through a bony ostium. It was first described by Toti in 1904 [1] [2] and since then this technique has undergone several changes [3] [4] [5] [6] [7]. The external technique and the endonasal technique of DCR have shown similar results in several studies [8]. For a shorter surgical time and greater patient satisfaction, the endonasal technique is the most practiced in several developed countries [9]. Our choice for external DCR is explained by the fact that it is the standard technique for treating the obstruction of the nasolacrimal duct with an accessible technology platform for developing countries, but also because it offers better visualization of anatomical features [1]. Its main indication is the obstruction of the lacrimal drainage system or the nasal lacrimal duct [1].

The aim of this work was to analyze the clinical characteristics and surgical results of external dacryocystorhinostomy in patients with nasolacrimal duct obstruction.

## 2. Methods

We retrospectively reviewed the clinical records of 62 patients operated by external dacryocystorhinostomy for complete nasolacrimal duct obstruction on syringing between November 2015 and November 2019 at the CHU-IOTA in Bamako/Mali. Patients with complete postoperative follow-up of at least 3 months were included. Patients who had a functional obstruction, and those with insufficient follow-up were excluded. Patients were hospitalized the day before the day of surgery and are discharged the day after. Preoperative clinical data and postoperative results after a minimum monitoring of 3 months were analyzed. Success was the subjective absence of lacrimation observed by the patient and clinically by the permeability to canalicular irrigation.

Surgical technique: DCR is performed after general anesthesia or local anesthesia plus sedation.

After incision of the skin and orbicularis muscle, the periosteum is separated from the bone using the periosteal elevator to expose the anterior lacrimal crest (**Figure 1**).

An osteotomy of approximately 10 - 15 mm is created using the Kerrison rongeur (**Figure 2**).

The lacrimal points are dilated, the sac is located using a Bowman-type canalicular probe, then opened, using a U-shaped incision, followed by the opening of the nasal mucosa. This is followed by an anastomosis of the nasal and lacrimal mucous membranes (**Figure 3(a)**).

A bicanalicular nasal intubation (**Figure 3(b)**) is performed before suturing the skin (**Figure 3(c)**). Extubating is done after one month in simple cases and after 3 months in complicated cases (mainly post-traumatic and septal deviations).

Statistical analysis was done using SPSS 22.0 (IBM Corp., Armonk, NY, USA).



**Figure 1.** Incision and exposure of the anterior lacrimal crest.



**Figure 2.** Osteotomy using the Kerrison rongeur.



**Figure 3.** Anastomosis of the nasal and lacrimal mucous membranes (a), bicanalicular nasal intubation (b) suture of the skin (c).

### 3. Results

The left eye was predominant (55%). Epiphora associated or not with secretions and canthal swelling were the reasons for consultation of 62 patients (68% women, 32% men), with an average age of 47 years (10 - 76). Among them, 36 had a chronic dacryocystitis, 12 had a nasolacrimal obstruction of traumatic origin and 8 had a septal deviation. The pressure next to the sac caused muco-purulent reflux in 57% of cases. Demographic and clinical characteristics are grouped in the table. The majority 77% (48/62) were operated on under local anesthesia plus sedation. The hemodynamic constants remained stable per and postoperatively. Bicanalicular intubation was performed in 29% of patients. Abundant bleeding

was the only intraoperative complication (10/62) and the average bleeding was 15 ml  $\pm$  3.08. The average surgery time was 47  $\pm$  12 minutes. After postoperative monitoring of at least 3 months, only 8 patients, or 13%, had persistent lacrimation, thus a functional success rate of 87% (**Table 1**). One in three patients (38%) had a visible skin scar. The satisfaction of the surgeon, the anesthesiologist and the patient were excellent.

#### 4. Discussion

Epiphora is the main functional sign motivating the consultation with chronic dacryocystitis as a corollary [1] [10] [11]. Our study, as in several others, finds a higher frequency of dacryocystitis in the elderly female population [1] [11]. The two eyes can be affected in a quasi-similar way, Rabina [12] as in our study found a left predominance. Our average age of 47 years is similarly found in several studies [11] [13]; but the peak is after the sixties [10] [14]. We intubated with a silicone tube about 1/3 of the patients. Mjarkesh [14] found that canalicular intubation or non-intubation gave similar results. Some authors have found an improvement in the result with the use of a silicone tube [15] [16] [17]. External dacryocystorhinostomy is simple, reproducible, and effective technique with a success rate most often greater than 80% [1] [3] [7] [18] [19] [20].

In recent years endonasal and laser dacryocystorhinostomies have become very popular [16] [17]. Their advantages are numerous, as the absence of skin scars. In our study, as in that of Mjarkesh [14], one out of three patients had a visible skin scar.

**Table 1.** Clinical and surgical data.

<i>Age: average 47 ans</i>	
10 - 19	10 (16%)
20 - 29	4 (6%)
30 - 39	0
40 - 49	10 (16%)
50 - 59	6 (10%)
60 and over	32 (52%)
<i>Etiologies</i>	
Chronic dacryocystitis	36 (58%)
Traumatism	12 (19%)
Idiopathic	4 (6%)
Nasolacrimal duct Lithiasis	2 (3%)
Septal deviation	8 (13%)
<i>Type of anesthesia</i>	
General	14 (23%)
Local + Sedation	48 (77%)
<i>Silicone tube</i>	18 (29%)
<i>Absence of epiphora/permeability to irrigation</i>	54 (87%)
Persistent epiphora (Failure)	8 (13%)

## 5. Conclusion

In nasolacrimal duct obstruction, most often secondary to chronic dacryocystitis, external dacryocystorhinostomy remains a technique of choice with favorable results.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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