



DACRYOCYSTORHINOSTOMY (DCR) UNDER LOCAL ANESTHESIA (LA) WITH IV SEDATION VS UNDER GENERAL ANESTHESIA (GA)??

Ophthalmology

Dr Badrinath Talwar

Assistant Professor, Department of Ophthalmology, Kanachur Institute of Medical Sciences, Mangalore.

ABSTRACT

Background: Chronic dacryocystitis is a common ophthalmic problem almost always requiring surgery as the only definitive treatment. The study puts in a sincere effort to compare the peri-operative outcome of external DCR surgery under local anesthesia with sedation compared to General Anesthesia. Sixty consecutive patients with chronic dacryocystitis undergoing dacryocystorhinostomy (DCR) surgery were randomly divided into two groups. Group A underwent DCR under local anesthesia (LA) with sedation and group B under GA. The outcome parameters were intra-operative pain, surgeon's comfort, intra-operative complications and duration of surgery. The use of sedation with LA improves the perioperative outcome of DCR surgery and there is no significance of outcomes when compared to the General Anesthesia.

KEYWORDS

DCR, Local Anesthesia (LA), IV sedation, General Anesthesia (GA)

Introduction

Dacryocystitis can be acute or chronic and is an inflammation of the lacrimal sac secondary to obstruction of the naso-lacrimal duct (NLD)¹⁻⁵. The definitive treatment of chronic dacryocystitis due to NLD obstruction for duration greater than one year is dacryocystorhinostomy (DCR)⁶. The principle of DCR is anastomosing the lacrimal sac to the nasal mucosa of the middle nasal meatus⁷⁻¹³. Toti first described DCR¹⁴. The best known technique for DCR was described by Dutemps and Bourget in 1920.⁹ It can be performed with or without silastic tube intubation. The former has been reported to improve the success rate of the procedure⁸. The intra-nasal approach for DCR is also there⁵. Currently endoscopic intra-nasal DCR is available⁵. Description of successful intranasal DCR by using either the argon laser, potassium-titanyl-phosphate: YAG laser, or a CO2 laser for tissue removal has been successfully laid out after trial and testing¹¹. The overall success rate of external DCR is better than that of the endonasal DCR¹⁶. External DCR can be carried out under general anesthesia (GA) or local anesthesia (LA) with or without use of sedation. Literature points out that LA provides anesthesia and excellent hemostasis for the operation¹⁰. A number of sedatives can be used in conjunction with LA. The commonly used ones are pethidine (1-2 mg/kg body weight intramuscularly) and promethazine (1 mg/kg body weight intra-muscularly). Also, midazolam (1-2 mg) or droperidol (0.5 mg) intravenously, along with a modest dosage of alfentanil (125-250 microgram intra-venously), may be given¹⁰. Ketamine in a dose of 0.1-0.2 mg/kg combined with midazolam may also be given¹⁰. This combination produces excellent amnesia as well as analgesia. In the past, DCR used to be carried out under GA, but nowadays it is mostly done under LA except in children (<15 years of age). Many studies have compared the outcome of DCR under local anesthesia versus general anesthesia. No published report comparing the outcome of DCR surgery with or without the addition of sedatives is available. The study puts in a sincere effort to compare the peri-operative outcome of external DCR surgery under local anesthesia with sedation compared to General Anesthesia.

Aims and Objectives:

DCR under LA with IV sedation, well tolerated in comparison to GA.

Materials and Methods:

This study was done in Kanachur Institute of Medical Sciences, Deralakatte, Mangalore. This study was done from April 2016 to March 2017.

The study was done using two groups. The total number of subjects included was 60.

Sixty patients with chronic dacryocystitis undergoing dacryocystorhinostomy (DCR) surgery were randomly divided into two groups. Group A underwent DCR under local anesthesia (LA) with sedation and group B under GA.

Inclusion Criteria:

1. All patients with NLD obstruction with chronic dacryocystitis and above 15 years of age undergoing DCR surgery were included

Exclusion Criteria:

1. Failed DCR,
2. Canalicular block
3. Bleeding disorders

The operation was performed in the operation theatre with resuscitation facility, Ambu bag, oxygen supply and drugs required for cardiopulmonary resuscitation, with preparedness for possible problems occurring during the operation due to sedatives.

Preoperative blood pressure and pulse were measured. Intra-operatively, at least three readings were taken and postoperative vitals and blood pressure were taken before shifting the patient to the ward.

Postoperative evaluation Syringing was done on the first postoperative day after removal of the nasal pack. Systemic oral antibiotic was given starting from one day before surgery for 7 days and topical for two weeks. A nasal vaso-constrictor drug was given for two weeks. The patients were discharged on the second post-operative day.

Measurement of outcomes Pain score of the patients 0 No pain 0 - 3 Mild pain 4 - 6 Moderate pain 7 - 9 Severe pain 10 Maximum pain imaginable On completion of the surgery, the patient was asked to grade the severity of pain experienced during the surgery on a 0-10 numerical rating scale.

Surgeon's comfort score during surgery This was also done by the visual analogue scale. This is a 0-10 scale where 0 means no discomfort and 10 means maximum discomfort or surgery not possible without second analgesics.

The numerical rating of surgeon's discomfort was done as follows. 0 No discomfort 0 - 3 Minimal discomfort 4 - 6 Moderate discomfort 7 - 9 Severe discomfort 10 Surgery not possible In case the patient in group A had unbearable pain and the surgeon's discomfort was so severe that surgery could not be continued, intravenous sedatives were given and surgery continued. The duration of surgery from the beginning of cleaning and draping to the application of the eye pad and bandaging was noted.

Definition of successful surgery: A patent lacrimal passage on syringing and or the patient free of symptom was considered successful surgery.

Results:

Table 1: Age Distribution:

Group 1	Standard Deviation	Group 2	Standard Deviation
25.12 Years	6.55 years	19.11 Years	4.33 Years

Table 2: Gender Distribution:

Group 1	Group 2
M:F = 19: 11	M:F = 16: 14

Table 3: Vitals:

		Mean Systolic BP	Mean Diastolic BP	Mean Pulse Rate
Group 1	Pre-Operative	120.2 ± 13.7	78.63 ± 3.45	76.53 ± 6.32
	Intra-operative	128.4 ± 9.46	81.68 ± 7.75	77.63 ± 8.7
	Post-Operative	125.5 ± 7.74	80.73 ± 7.66	80.1 ± 6.4
Group 2	Pre-Operative	118.7 ± 5.57	77.74 ± 7.47	79.33 ± 3.4
	Intra-operative	120.34 ± 2.34	78.94 ± 2.1	79.22 ± 3.9
	Post-Operative	123.63 ± 7.34	81.6 ± 9.6	81.65 ± 9.2

Table 3: Grading of intra-operative pain

Groups	Number	Mild	Moderate	Severe	Maximum of pain imaginable
Group A	30	32%	34%	32%	2%
Group B	30	10%	68%	22%	Nil

Table 5: Surgeons Discomfort:

	Mild	Moderate	Severe
Group A	66.66	33.33	Nil
Group B	100%	Nil	Nil

Duration of surgery

Group 1	Group 2
82.68 ± 7.89 Minutes	77.74 ± 7.46 Minutes

The duration of surgery in group A was 82.5±6.2 minutes while in group B 77.5±5.9 minutes (p value=0.08).

Discussion:

Since tear secretion decreases with age, the actual prevalence of NLD blockade reported in older people may just be an underestimation. In a large series of normal subjects older than 40 years observed the incidence of NLD obstruction in males and females to be 9% and 10% respectively⁶. After 90 years of age, the prevalence was reported to be 35-40%. Other studies have supported this fact. In older age, the lacrimal system loses elasticity and fails to flush the debris which is collected through the complex and this might be one of the reasons for increased prevalence in these age groups. A study reported that 70.8% of the patients of chronic dacryocystitis were in the age group 31-50 years¹. Similarly, a study reported the highest disease prevalence in age group 30-60 years⁸. According to a study reported 80% of the patients with chronic dacryocystitis were in the age group 41-60 years¹⁶. According to the recent study in eastern Nepal, the mean age of patients with chronic dacryocystitis was 27.4±13.7 years (95% CI=26.34 to 28.46 years)². As expected, we also found similar results. Most of the authors have reported that the disease is more common in females. It has been suggested that females have a nasolacrimal duct of smaller length and size. Also, the angulation of the canal where obstruction is more likely is more in females. These anatomical factors might be a reason why this condition is more common in females. The association of chronic dacryocystitis with serious gynecological pathology or hysterectomy due to de-epithelization has been reported¹⁷. They reasoned it to be due to hormonal imbalance¹⁷. The fact that the disease is more prevalent in the younger age group contradicts this hypothesis³. The published study from this part of Nepal reported a higher incidence in patients coming from subtropical lowlands with monsoon climate³. The increase in intraoperative and postoperative blood pressure and pulse in group A compared to group 2 can be explained as the group 1 patients had more pain compared to group B. In group A, all patients complained of pain more than group 2 but it was not significantly different. The severity of pain was more in group A compared to group B. (p value <0.001). In group A, the surgeons rated moderate or more discomfort in 33.33 percent of cases while in group B, mild discomfort was rated only in all cases but not at all seen in other cases. Discomfort was significantly higher in group A, compared to group B (p value <0.001). The significant difference in pain and comfort can be explained by the fact that only local anesthesia was given in group A while in group B, general anesthesia was given. The amount of blood loss was more in group A compared to group B (p=0.015). The more hemorrhage in group A can be explained by the surgeon's discomfort and the intraoperative pain experienced by the patients. The duration of surgery in both groups was comparable (p value=0.08) According to Yazici and Meyer (2002), postoperative wound infection in DCR surgery can be controlled by selective use of antibiotics preoperatively and postoperatively¹⁵. All the patients were given pre- and post-operative antibiotics in our study. Poor personal hygiene and inadequate cleaning of the wound may be the cause of the wound infection

Conclusion

The demographic patterns and success rate of DCR surgery are similar to the other studies. The use of sedatives improves the outcome of DCR surgery in terms of patient's pain, surgeon's comfort and intraoperative complications and can be compared with the results obtained by General Anesthesia which is on the verge of being discontinued in surgery.

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