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Postoperative External Dacryocystorhinostomy Complications

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ABSTRACT

Aims: To describe postoperative external dacryocystorhinostomy complications at the military hospitals of Jordan. **Method:** A retrospective chart review of patients who underwent surgical external dacryocystorhinostomy for congenital or acquired naso-lacrimal duct obstruction between September 2010 and February 2013 at military hospitals of Jordan and developed postoperative complications was conducted. The following data were extracted: age, gender, indication for surgery, site of surgery, complications, follow-up duration. **Results:** Postoperative external dacryocystorhinostomy complications were encountered in 36(18.3%) patients out of 197 patients who had external DCR, 5(13.9%) males and 31(86.1%) females with a male to female ratio of 1:6. The mean age was 38 years with a range of 5-70 years. Recurrent epiphora (sump syndrome) was seen in 3(8.3%) Patients, primary epistaxis in 1(2.8%) patients, cosmetically unacceptable scar in 8(22.2%) patients, wound dehiscence in 1(2.8%) patients, transient lagophthalmos in 8(22.2%) patients, transient orbicularis hypotony in 10(27.8%) patients, cheese-wiring in 7(19.4%) patients, extruded silicone tube in 2(5.6%) patients, infection in 3(8.3%), bowstring skin fold in 2(5.6%), and retained cotton ball in the wound in 1(2.8%). The mean follow up period was 4.2 months (range 3- 6 months). **Conclusion:** postoperative external dacryocystorhinostomy were common, and some of these complications were underestimated before because of the spontaneous resolution. Recurrent epiphora was relatively rare and this may be due to the big osteotomy size that we adopt in our surgery. Other complications could be avoided by special attention to wound closure.

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1. Introduction

External dacryocystorhinostomy (DCR) was first described by Toti to bypass an obstructed nasolacrimal duct and is considered the standard treatment for nasolacrimal duct obstruction.⁽¹⁾ The surgery consists of skin incision to access the lacrimal sac and lacrimal fossa, osteotomy, mucosal flaps formation and suturing, stent placement, and the wound closure.⁽²⁾ Basically, this procedure is performed under general anaesthesia but with the advances in sedative techniques it is performed under local anaesthesia with intravenous sedation in the majority of cases. Although it is associated with very high success rate,⁽³⁾ but postoperative complications are still encountered in few cases. The knowledge of anatomy and meticulous surgical technique decrease the risk of postoperative complications. Modifications and advancement have been introduced to decrease the frequency of these complications as well.⁽⁴⁾

The most frequent postoperative complications is persistent or recurrent tearing and other less frequently reported complications are retro-bulbar orbital hemorrhage,⁽⁵⁾ incision necrosis,⁽⁶⁾ cutaneous scarring,⁽⁷⁾ wound infection and granuloma formation,^(8,9) corneal abrasion,⁽¹⁰⁾ cerebrospinal fluid leak,⁽¹¹⁾ retained stenting material,⁽¹²⁾ secondary hemorrhage,⁽¹³⁾ diffuse cervicofacial subcutaneous emphysema and pneumomediastinum,⁽¹⁴⁾ rhinolith formation,⁽¹⁵⁾ meningitis and pneumocephalus,⁽¹⁶⁾ retained gauze,⁽¹⁷⁾ orbital emphysema,⁽¹⁸⁾ and lagophthalmos and orbicularis oculi weakness.⁽¹⁹⁾

This study was conducted retrospectively to describe postoperative external dacryocystorhinostomy complications at the military hospitals of Jordan between September 2010 and February 2013.

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2. Methods

A retrospective chart review of patients who underwent surgical external dacryocystorhinostomy for congenital or acquired nasolacrimal duct obstruction between September 2010 and February 2013 at military hospitals of Jordan and developed postoperative complications was conducted. The following data were extracted: age, gender, indication for surgery, site of surgery, complications, follow-up duration.

Inclusion criteria included patients who developed clinical signs of postoperative complications.

The local ethical committee of the Royal Medical Services approved the study.

3. Results

Out of 197 patients who had external DCR, postoperative complications were encountered in 36(18.3%) patients, 5 (13.9%) males and 31(86.1%) females with a male to female ratio of 1:6. The mean age was 38 years with a range of 5- 70 years. The average age of males was 14 years and for females 42 years. The right side was involved in 20(55.6%) patients and 1 (2.8%) patient had bilateral external DCR. The main indication for surgery was acquired nasolacrimal duct obstruction with mucocele in 28(77.8%) patients followed by congenital nasolacrimal duct obstruction 8(22.2%) patients. Local anaesthesia with intravenous sedation was used in 19(53%) of patients. Straight Bodkin silicone stents was used in all cases. Diagonal skin incision was adopted in all patients starting halfway between the midline of the face and the medial canthus at the level of the medial canthus and directed downward toward the lateral end of the ala nasi. Table 1 shows the percentages of complications encountered postoperatively with the transient orbicularis hypotony, transient lagophthalmos, and hypertrophic scar being the most frequent complications. Rare complications such as subcutaneous emphysema, and retained cotton ball in the wound were encountered 2(5.6%) patients. The mean follow up period was 4.2 months (range 3- 6 months).

Table 1. Postoperative external dacryocystorhinostomy complications

	Male 5 (13.9%)	Female 31 (86.1%)	Total
Age range (average)	10-26 (14)	5-70 (42)	5-70 (38)
Recurrent epiphora	2 (5.6%)	1 (2.8%)	3 (8.3%)
Bleeding	0	1 (2.8%)	1 (2.8%)
Hypertrophic Scar	1 (2.8%)	7 (19.4%)	8 (22.2%)*
Infection	0	3 (8.3%)	3 (8.3%)*
Wound dehiscence	0	1 (2.8%)	1 (2.8%)
Transient lagophthalmos	2 (5.6%)	6 (16.7%)	8 (22.2%)*
Transient orbicularis hypotony	2 (5.6%)	8 (22.2%)	10 (27.8%)*
Cheese- wiring	1 (2.8%)	6 (16.7%)	7 (19.4%)*
Skin bowstring	0	2 (5.6%)	2 (5.6%)*
Subcutaneous emphysema	0	1 (2.8%)	1 (2.8%)
Silicone tube extrusion	0	2 (5.6%)	2 (5.6%)
Retained cotton ball in the wound	0	1 (2.8%)	1 (2.8%)
Tight tube	1 (2.8%)	4 (11.1%)	5 (13.9%)*

*Patients had more than one complication

Clbefore4 years of age provides better functional language performance than older age at implant. Considering significant correlation of PEACH scores with language ability measured using standardized language tools, it can be used to a population where standardized tools cannot be easily administered. Thus in an early period of life they are very useful tools for clinicians to obtain meaningful information regarding children's auditory performance in real life. In addition PEACH measure is also useful in evaluating functional language performance of children whose primary mode of communication is not English.

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Figure 1: Subcutaneous emphysema.



Figure 2: wound dehiscence.



Figure 3: bowstring skin fold.



Figure 4: extruded silicone tube.



Figure 5: cheese-wiring of upper and lower puncti.



4. Discussion:

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In most of cases local anesthesia with sedation was the favorable technique in external DCR (5). About half of our cases had local anesthesia with intravenous sedation and this was because our study included all age groups (5-70 years) where general anesthesia was used in young patients.

The commonest complications encountered in our study were hypometric blink with or without lagophthalmos (20, 21). These complications were first seen in 1994 when Fayet et al, (19) reported immediate temporary lagophthalmos after external DCR. In our study these were very common because we were specifically looking for these complications to rule out exposure keratopathy after the publication of facial nerve injury in 2009 by Vagefi et al. (22) These complications were transient and resolved within two weeks but lubricant should be used to prevent exposure keratopathy.

Recurrent epiphora was seen in 8.3% of patients and this was slightly less than previously reported studies were the failure rate ranged between 8 and 10% of cases. This lower rate of complications is due to large osteotomy that we do in all our cases and this was proved by Simon et al(23) who found that large osteotomy in DCR surgery is associated with high success rate.

In all cases the skin incision was done on the lateral wall of the nose where it is known to have good healing and acceptable scar. In our case hypertrophic scar was found in 22.2% and this was comparable to study done by Devoto et al (24) which showed 15 of 34 patients (44%) could not see their incision site (grade 0), 16 of 34 (47%) graded it as minimally visible, 3 of 34 patients (9%) graded it as moderately visible, and no patient graded it as very visible. All patients were satisfied with the appearance of their incision six months after surgery. Another study done by Sharma et al (7) showed 61 of 296 scars (20.6%) were felt to be visible by patients.

Postoperative DCR bleeding reported in our study in one patient (2.8%) and this was relatively similar to study done by Karim et al (10) who also report one case (1%) of postoperative DCR bleeding.

As we know the wound infection is seen in many surgeries, in our study the ratio of this complication was 8.3% (3 cases) which was slightly higher than that done by Besharati (25) who found 5.3% of wound infection.

Other rare complications were reported in our study such as: Subcutaneous emphysema (Fig. 1), retained cotton ball in the wound, wound dehiscence (Fig. 2), bowstring skin fold (Fig. 3) and extrusion of silicon tube (Fig. 4), cheese-wiring (Fig. 5).

In Conclusion:

Postoperative external dacryocystorhinostomy were common, and some of these complications were underestimated before because of the spontaneous resolution. Recurrent epiphora was relatively rare and this may be due to the big osteotomy size that we adopt in our surgery. Other complications could be avoided by special attention to wound closure.

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