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Case Report

Surgical Intervention to Prevent Congenital Dacryocystocele Recurrence

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Received: October 18, 2023; **Published:** November 08, 2023

Abstract

Purpose: To discusses new surgical approach to treat dacryocystocele and prevent it recurrence.

Participant: A 5-week-old girl with a history of right medial canthal mass.

Intervention: Clinical evaluation, culture of mucopurulent discharge, surgical procedures involving endoscopic dacryocystorhinostomy with marsupialization of the cyst, probing, stenting, and complete removal of the cystic wall.

Results: The procedure successfully resolved the swelling and bluish discoloration, and the patient remained symptom-free during follow-up.

Conclusion: Marsupialization of dacryocystocele with total cystic wall removal achieved a favorable outcome and prevents recurrence of congenital dacryocystocele.

Keywords: *Congenital Dacryocystocele; Lacrimal Duct Obstruction; Dacryocystitis; Intranasal Cysts Endoscopic Dacryocystorhinostomy; Marsupialization*

Introduction

Congenital dacryocystocele is a rare condition that is caused by an obstruction of the lacrimal drainage system which gives rise to the cystic dilatation of the lacrimal sac. Dacryocystocele presents as a bluish mass in the medial canthal region. It is usually unilateral and it is common in females. Dacryocystocele usually resolves spontaneously in the first months of life with conservative management. However, if it persist surgical intervention is considered. In this article, we present a case that was managed surgically, specifically in a way to prevent recurrence.

Case Report

A 5-week-old Emirati girl was brought to the emergency service with a history of swelling in the right nasolacrimal area since birth, associated with upward displacement of the medial canthus that was diagnosed clinically as congenital dacryocystocele. It was erythematous cystic swelling with central bluish discoloration associated with mild yellowish discharge (Figure 1). Otherwise, she was healthy and there were no respiratory symptoms. In regards to perinatal history, no complications during and after the pregnancy except for the occurrence of mild jaundice. She was delivered by normal vaginal delivery, 37 weeks of gestation, her weight was 2.6 kg. The maternal GBS status and maternal history of STDs were negative. A physical exam revealed the presence of a bluish firm mass and swelling

in the medial canthus that was displaced superiorly and associated with epiphora. On inspection of the eyelids, the right eye showed an erythematous eyelid, and normal left eyelid. the fixation was central, steady and maintained. The intraocular pressures, pupillary examination, and ocular motility, and red reflex were all normal in both eyes. The anterior segment and fundus exam were normal. Also, gentle pressure over the mass produced mucopurulent discharge from the puncta. A culture of the discharge showed moderate growth of Haemophilus influenza. Topical and systemic antibiotics including (Amoxicillin/Clavulanic acid and Moxifloxacin) and digital massage were prescribed and did not result in any improvement. Due to the lack of resolution, surgical treatment was considered by endoscopic dacryocystorhinostomy under general anesthesia with otolaryngologist assistance. During this procedure, a large dacryocystocele was seen in the right inferior meatus, crutiate marsupialization of the cyst was done and mucopurulent material was drained by external squeezing (Figure 2). A 0 probe passed through the nasolacrimal canal inside the nasal cavity which was then replaced by a 30 mm Masterka stent (Figure 2). In addition to syringing and probing, the cystic wall of the inferior meatus was totally removed in the operation to prevent recurrence (Figure 2). A complete resolution of the swelling and bluish discoloration was noted immediately after the surgery (Figure 3). No complications were noted in the procedure. Postoperatively, the patient was continued on tobradex eye drops (QID for one week). No recurrence of symptoms was found on follow-up after two weeks.

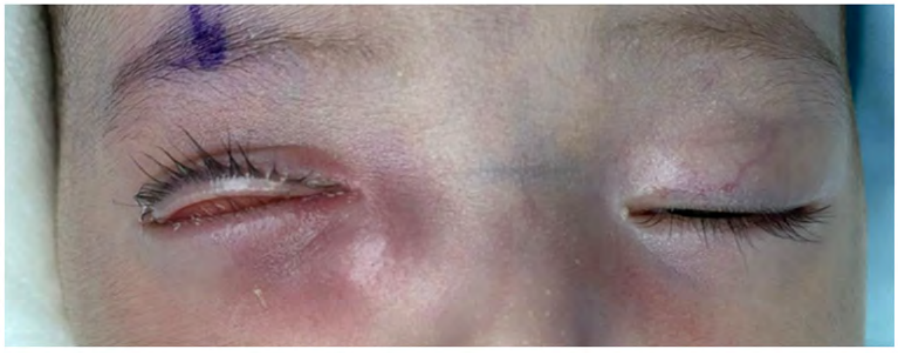

Figure 1: *A neonate with reddish swelling below the medial canthal area.*

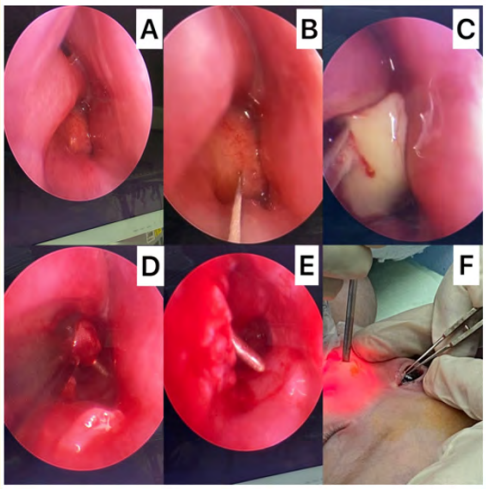

Figure 2: *Intra-operative pictures. (A) cystic swelling in the right inferior meatus. (B) Cruciate marsupialization of the cyst. (C) Mucopurulent material came out of the mass. (D) Total removal of the cystic wall of the inferior meatus. (E) A probe passed through the nasolacrimal canal inside the nasal cavity (F) Masterka stent was then inserted.*

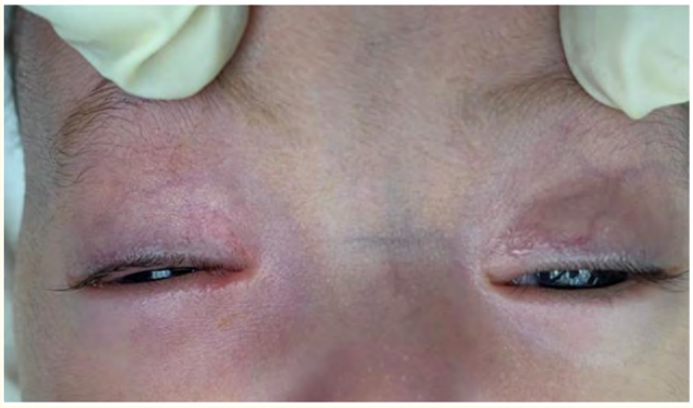

Figure 3: *Complete resolution of the swelling and bluish discoloration directly after the surgery.*

Discussion

Congenital dacryocystocele is a rare condition caused by obstruction of the nasolacrimal system valves (Valve of Rosenmuller and Valve of Hasner) [1]. There is an obstruction of the valve of Rosenmuller tears, amniotic fluid, or mucus can not be drained superiorly through the valve of Rosenmuller due to its collapse, and it can not be drained inferiorly in the nasal cavity because of the anatomical barrier caused by the valve of Hasner, causing a destination of the sac [2]. Congenital dacryocystocele is most commonly present as unilateral in approximately 90% of the cases and it occurs predominantly in females in approximately 70% of cases [3]. Congenital dacryocystocele presents as a blue-grey mass that is located below the medial canthal tendon in the area of the nasolacrimal sac, epiphora, and high tear meniscus height [3]. The differential diagnosis of congenital dacryocystocele includes hemangioma, dermoid cyst, solid dermoid, encephalocele, meningo-encephalocele, nasal glioma, lymphangioma, and heterotopic brain [3,4]. Neonates are considered obligate nose breathers, therefore during feeding and sleeping they can get respiratory distress, and in cases of bilateral dacryocystocele, the neonate may need emergency airway management [4,5]. Management of dacryocystocele is controversial, some recommend conservative management through massage and topical antibiotics [7]. Surgical treatment is preferred after non-resolution of the cyst in the first months of life [5] and other articles recommend early surgical treatment due to the high risk of developing dacryocystitis [6,9]. Surgical management is indicated in case of cellulitis, dacryocystitis, large cysts causing respiratory difficulty, astigmatism, and narrowing of the palpebral fissure, also, it is indicated in the absence of resolution of the dacryocystocele after a short period of conservative treatment [7]. Many surgical options exist for dacryocystocele management by opening both the valves of Rosenmuller and the valve of Hasner, including simple probing, nasal endoscopy with marsupialization, or endoscopy combined with lacrimal duct probing [8]. Recurrence in simple probing cases has been documented and it could be due to insufficient opening by the probe, failure to advance the probe, and re-closure of the nasolacrimal duct opening [9]. Cruciate marsupialization of intranasal cysts, followed by punctum probing ensure adequate opening and thus higher success rates [9]. Total removal of the cystic wall in the operation was done to prevent recurrence [10].

Conclusion

Despite initial conservative management, surgical intervention was pursued due to lack of resolution. The surgical procedure involved endoscopic dacryocystorhinostomy with cruciate marsupialization of the cyst, probing, stenting, and complete removal of the cystic wall. The procedure successfully resolved the swelling and bluish discoloration, and the patient remained symptom-free during follow-up.

Acknowledgements

The patient's parents signed their informed consents according to the policies of department of health, "SEHA".

Disclosures and Conflict of Interest

None of the investigators have financial interests in any companies or products described in this study. The author receive no funding for this study.

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Volume 14 Issue 11 November 2023
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