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Navigating Diagnostic Challenges in Dacryocystitis with medial canthal lesion: A Complex Case Report

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Abstract:

Rationale: This case report highlights the complexities involved in diagnosing and managing a lesion in the medial canthal region, particularly when complicated by dacryocystitis and nasolacrimal duct obstruction (NLDO). The case underscores the importance of a multidisciplinary approach and surgical intervention in restoring lacrimal function and improving patient quality of life. **Patient Concerns:** A 27-year-old female presented with a persistent ulcerative lesion on the medial aspect of her left upper eyelid, associated with dacryocystitis and epiphora. The patient had a history of similar symptoms and underwent prior surgical excision and cataract surgery, which did not resolve her condition. **Diagnosis:** Clinical examination revealed a pustulous lesion adjacent to the medial canthus, with imaging studies (CT and USG) suggesting a neoplastic or granulomatous etiology. A final diagnosis of a neoplastic/granulomatous lesion was made, complicating dacryocystitis. **Interventions:** The patient underwent surgical excision of the lesion, dacryocystorhinostomy (DCR), and medial canthoplasty using a palmaris longus tendon graft. The surgery aimed to address both the structural and infectious components of the pathology. **Outcomes:** The surgical intervention successfully restored the lacrimal system function, alleviated symptoms, and achieved satisfactory cosmetic results. A three-week follow-up showed good healing and resolution of the patient's complaints. **Lessons:** This case emphasizes the need for a comprehensive diagnostic approach, combining clinical evaluation with advanced imaging. It also highlights the critical role of surgical procedures like DCR and medial canthoplasty in managing complex lacrimal and periocular conditions, ensuring favorable patient outcomes.

Keywords: Nasolacrimal duct obstruction, Lacrimal stent, Dacryocystitis, Epiphora, Medial Canthal Lesion, Palmaris Tendon

1. Introduction

Nasolacrimal duct obstruction (NLDO) commonly manifests as epiphora (excessive tearing) and dacryocystitis (inflammation of the lacrimal sac). It is frequently encountered by ophthalmologists and oculoplastic surgeons and occasionally by oral and maxillofacial surgeons. Dacryocystitis often results from acquired stenosis of the nasolacrimal duct, which leads to outflow obstruction and subsequent infection and inflammation due to the retention of stagnant contents within the lacrimal sac. While the etiology of most dacryostenosis cases remains idiopathic, it is hypothesized to arise secondarily from ascending inflammation of the nose and sinuses.

Epiphora, characterized by watery eyes, is a common reason for referrals to oculoplastic clinics[1]. The causes of tearing can be categorized into reflex tearing and reduced tear outflow. Reduced tear outflow is often attributed to NLDO, which can be primary or secondary. Secondary NLDO may result from midface trauma, dacryoliths, nasal or sinus inflammation, nasal surgery, or neoplasms.

The initial treatment of acute dacryocystitis typically involves topical and systemic antibiotics, along with potential incision and drainage of the lacrimal sac. This approach aims to relieve pressure and discomfort in the lacrimal sac, evacuate the abscess cavity, and obtain material for microbiological culture and sensitivity testing[2].

Dacryocystorhinostomy (DCR), introduced by Toti in 1904, is one of the most common oculoplastic surgeries. It can be performed through either an external or endoscopic approach, with success rates ranging from 69.9% to 100%, depending on various factors. Given its considerable success rate, both external and endoscopic DCR are viable treatment options for dacryocystitis and epiphora.

In this report, we discuss the case of a 27-year-old female who presented with a lesion over the medial canthal area, accompanied by dacryocystitis and epiphora as her primary complaints. Necessary informed consent was obtained regarding the publication.

2.Case Report

A 27-year-old female presented to our Department with a complaint of an ulcer on the left upper eyelid at the medial aspect of the eye, persisting for one year. The patient had a history of a similar issue a year ago, which led to her admission to another institution. She recounted that the swelling on the medial aspect of the upper eyelid had an insidious onset and was gradually progressive. Initially, the swelling was pea-sized and painless, but it increased in size over time and became painful.

Following the progression of symptoms, the patient sought treatment at a higher center in Davangere, where the lesion was excised. Post-excision, she experienced excessive watering of the left eye. Subsequently, she was advised to undergo cataract surgery at another hospital. After the cataract surgery, the patient reported for further evaluation.

On examination, the lesion was elevated with a pustulous area over the left naso-orbito junction, measuring approximately 1x1 cm, adjacent to the medial canthus. It was reddish-pink in color and measured about 10mm x 8mm in size (Figure.1).

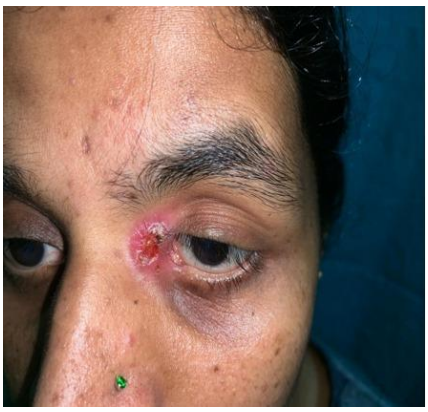

Figure 1. Showing a reddish, elevated pustulous lesion seen over the left naso-orbital junction

The extraocular movements were normal. Palpation revealed that the growth was hard, non-tender, and mobile. A provisional diagnosis of a pustulous lesion over the left naso-orbital junction was made.

A CT scan revealed no bony involvement of the lesion. Ultrasound (USG) suggested a mixed echoic lesion measuring approximately 8mm x 5mm in the medial canthus of the left eye, with internal vascularity, indicating a potential neoplastic or granulomatous etiology. Consequently, a final diagnosis of a neoplastic/granulomatous lesion was made.

2.1 Procedure

The patient was painted and draped under all aseptic conditions, and the procedure was performed under general anesthesia (GA). The excision site was infiltrated with local anesthesia containing adrenaline, followed by wide excision of the lesion. Nasal packing was done using gauze soaked in lignocaine. The lesion was explored via a curvilinear incision approximately 10-12 mm in length, 3-4 mm from the medial canthus along the anterior lacrimal crest (Figure 2 and 3).

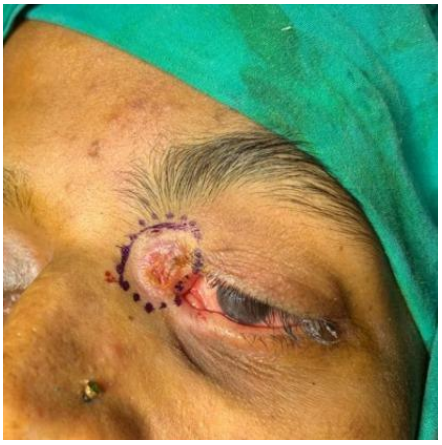

Figure 2. Markings made

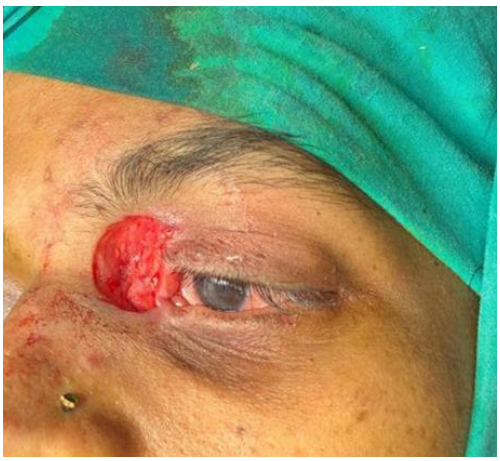

Figure 3. Wide excision

Blunt dissection of the orbicularis oculi muscle was performed to reach the periosteum. The medial canthal tendon was released, and the periosteum was incised. Using a Freer's elevator, the periosteum was separated from the bone and reflected laterally along with the lacrimal sac to expose the lacrimal fossa. Bone punching was then performed using a Kerrison bone punch to gently separate the bone from the nasal mucosa and sequentially enlarge the ostium while keeping the nasal mucosa intact.

A Bowman's probe was passed through the lower punctum and bent to tent the sac posteriorly, facilitating the creation of a large anterior and small posterior flap. Using the probe as a guide, an 'H' shaped incision was made with a number 11 blade across the sac from the fundus to the nasolacrimal duct. A stent was passed through the nasolacrimal duct to maintain the patency of the newly created nasolacrimal opening. The posterior smaller flap was excised, and an incision was placed over the nasal mucosa. The residual nasal mucosal flap was trimmed, and the anterior lacrimal sac flap was sutured to the nasal mucosal flap using 6-0 vicryl. A paramedian flap was then designed to fill the defect (Figure 4).

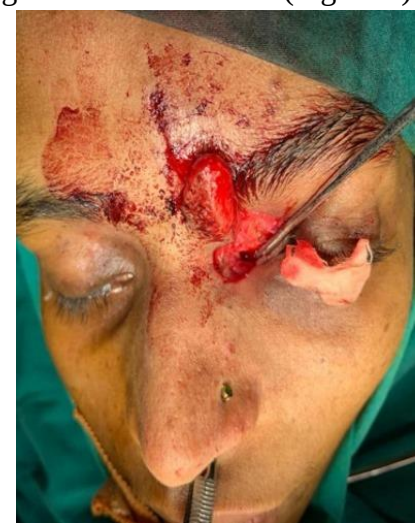

Figure 4. Paramedian flap

A small horizontal incision was made at the proximal wrist flexion crease, approximately 1 cm proximal to the distal flexion crease. Blunt dissection was carried out to reach the palmaris longus tendon, which lies just superficial to the fascia. Once the palmaris longus tendon was identified, a small transverse incision was made in the forearm at the required length

proximally, and the tendon was incised at the musculo-tendinous junction. It was then pulled out through the distal incision with traction on the distal tendon (Figure 5).

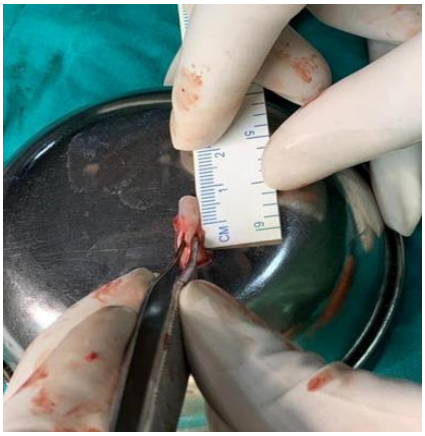

Figure 5. Palmar Longus Tendon Graft after harvesting from the donor site.

The tendon harvest site was closed using 3-0 vicryl sutures, and skin closure was achieved with 2-0 ethilon sutures in layers (Figure 6).

Figure 6. Final layered closure done for PFF and curvilinear incision for Dacrocystorhinostomy using 6-0 ethilon and neonatal orogastric tube in situ.

From the existing curvilinear incision, medial canthoplasty was performed using the palmaris longus graft. The orbicularis oculi was sutured using 6-0 vicryl. A neonatal orogastric tube was passed through the canaliculi and the nasal mucosa to maintain patency of the new pathway. The paramedian flap was positioned to cover the defect at the excision site, and skin closure was completed using 6-0 ethilon.

The excised lesion was sent for histopathological investigation. On 3 weeks followup, the healing was satisfactory (Figure 7).

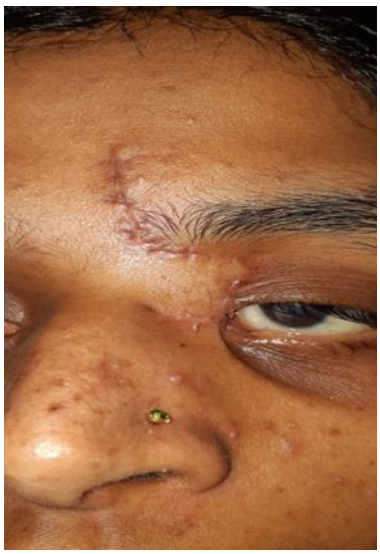

Figure 7. Healing after 3 weeks.

3. Discussion

Dacryocystitis, an infection or inflammation of the lacrimal sac, typically presents with epiphora and localized tenderness over the medial canthal region. However, when coupled with a concurrent lesion in this area, diagnostic clarity can become ambiguous, necessitating a meticulous approach to management. Diagnosing dacryocystitis with a medial canthal lesion presents several challenges. Firstly, the clinical presentation can be ambiguous, as symptoms such as swelling, redness, and pain in the medial canthal region may mimic other conditions like orbital cellulitis, basal cell carcinoma, or fungal infections [3]. Distinguishing dacryocystitis from these conditions requires careful clinical evaluation and often imaging studies such as CT or MRI to assess the extent and nature of the lesion[4]. Additionally, underlying causes such as nasolacrimal duct obstruction or dacryoliths need to be identified, which might necessitate dacryocystography. A medial canthal lesion complicates the physical examination, making it difficult to ascertain whether the lesion is a primary or secondary manifestation of the underlying infection.

In the case presented, the patient initially sought medical attention with complaints of persistent tearing and swelling over her left medial canthus. Clinical examination revealed localized erythema and tenderness, raising concerns of dacryocystitis compounded by an adjacent lesion. Imaging studies, including CT scan and USG, were performed to characterize the lesion further.

Upon confirming the diagnosis of dacryocystitis with an associated medial canthal lesion, the authors opted for surgical excision coupled with paramedian flap reconstruction and Palmar Longus Tendon Graft for canthoplasty. This decision was driven by the need to effectively address the pathology's infectious and structural components.

Treatment modalities for dacryocystitis include both medical and surgical approaches. Initially, conservative management with warm compresses and topical antibiotics for milder cases. Systemic antibiotics are essential to control the infection, typically using broad-spectrum antibiotics until culture results specify the causative organism. Warm compresses and analgesics can alleviate symptoms. If abscess formation occurs, incision and drainage might be necessary. Chronic or recurrent cases often require surgical intervention, with procedures

such as dacryocystorhinostomy (DCR) to bypass the obstructed nasolacrimal duct and restore normal tear drainage. Surgical interventions like Balloon dacryoplasty, a minimally invasive procedure to dilate the nasolacrimal duct can also be a treatment modality. Endoscopic DCR is a minimally invasive alternative with a favorable success rate. Addressing any contributory factors, like nasal or sinus disease, is also crucial for successful treatment and preventing recurrence[4,5].

Graft and reconstruction options for dacryocystitis with concurrent medial canthal lesions include Full-thickness skin grafts (FTSG) which can be helpful for defects restricted to the anterior lamella of the eyelid. Tarsoconjunctival grafts that can be used to reconstruct the posterior lamella of the eyelid. Glabellar flaps which is a transposition flap that can be used to reconstruct medial canthal defects. Bilobed glabellar-palpebral flap which is an extended version of the glabellar flap that can be used for larger defects in the medial canthal region [6,7]. Finger transposition flap can be employed for medial canthal reconstruction. Potential complications of these surgical interventions include Intranasal ostial closure leading to failed lacrimal passage reconstruction, common canaliculus obstruction, lacrimal sac fibrosis and granulation, slight laceration of the inferior puncta [8].

The case report highlights the importance of a thorough clinical evaluation, advanced imaging modalities, and a multidisciplinary treatment approach in managing complex cases of dacryocystitis with concurrent medial canthal lesions. The successful surgical intervention, with excellent cosmetic outcomes and sustained resolution of symptoms, underscores the expertise required in managing such intricate presentations.

4. Conclusion

In conclusion, the integration of diagnostic precision, surgical expertise, and patient-centered care proved instrumental in navigating the complexities of this case. As we advance in understanding and treating such challenging conditions, effective diagnosis and treatment planning remains paramount in delivering optimal care and achieving favorable patient outcomes like the one presented here.

References

1) Li J, Wang J, Sun C. Early Endonasal Dacryocystorhinostomy for Acute Dacryocystitis: A Systematic Review and Meta-Analysis. American Journal of Rhinology & Allergy. 2024;38(3):185-191. doi:10.1177/19458924241237009
2) Pietris, J., Tong, J. Y., & Selva, D. (2024). Primary Dacryocystorhinostomy for Acute Dacryocystitis: A Systematic Review. *Seminars in Ophthalmology*, 1–9. https://doi.org/10.1080/08820538.2024.2344714
3) Adel Alsuhaibani MD, Mohammad Al Barqi. Dacryocystitis - EyeWiki [Internet]. Aao.org. 2020. Available from: https://eyewiki.aao.org/Dacryocystitis.
4) Liu S, Zhang H, Zhang YR, Chen LJ, Yu XY. The efficacy of endoscopic dacryocystorhinostomy in the treatment of dacryocystitis: A systematic review and meta-analysis. Medicine. 2024 Mar 15;103(11):e37312.
5) Locatello LG, De Zan ER, Tarantini A, Lanzetta P, Miani C. External dacryocystorhinostomy: A critical overview of the current evidence. European Journal of Ophthalmology. 2024;0(0). doi:10.1177/11206721241249214

6) Abdellaoui T, Hamama J, Sebbata S, Fiqhi A, Mouzari Y, Oubaaz A. Basal cell carcinoma of the medial canthus: resection and reconstruction by glabellar flap. Ophthalmology Journal. 2023;8:1-4.
7) Yu B, Tu YH, Zhou GM, Shi JL, Wu ED, Wu WC. Management of chronic dacryocystitis cases after failed external dacryocystorhinostomy using endoscopic technique with a novel lacrimal ostium stent. International Journal of Ophthalmology. 2022;15(3):413.
8) Fatani D, AlSuhaibani A. Dacryocystitis in a Patent Nasolacrimal Drainage System: A Literature Review. InSeminars in Ophthalmology 2024 Jun 26 (pp. 1-4). Taylor & Francis.