Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

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Incidental Detection of Poorly Differentiated Carcinoma of the Left Lacrimal Sac During Dacryocystorhinostomy: A Case Report

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DOI: https://doi.org/10.36347/sjmcr.2025.v13i07.038 | **Received:** 08.05.2025 | **Accepted:** 14.07.2025 | **Published:** 18.07.2025

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Abstract | **Case Report**

Background: Tumors of the lacrimal sac are rare and often mimic benign inflammatory conditions such as chronic dacryocystitis. Malignant lesions may remain undiagnosed until advanced stages. ***Case Presentation:*** We report the case of a 67-year-old female with no significant medical history, who presented with chronic left-sided epiphora since December 2022, associated with episodes of secondary infection. In 2023, probing of the lacrimal system revealed complete obstruction of the left lacrimal drainage pathway. A CT-dacryocystography confirmed the absence of opacification of the left lacrimal sac and nasolacrimal duct. A dacryocystorhinostomy was performed with BIKA stent placement. Systematic intraoperative biopsies unexpectedly revealed a poorly differentiated carcinoma of the lacrimal sac. ***Conclusion:*** This case underscores the value of routine biopsy during DCR, particularly in chronic or atypical cases. Early diagnosis of rare but aggressive tumors can significantly impact patient management and prognosis.

Keywords: Lacrimal sac tumor; Poorly differentiated carcinoma; Dacryocystorhinostomy; Epiphora; Systematic biopsy.

INTRODUCTION

Lacrimal sac tumors are uncommon and often present with nonspecific symptoms such as chronic epiphora, recurrent dacryocystitis, or medial canthal swelling. These signs frequently lead to a misdiagnosis of benign obstruction or infection. However, up to 55% of lacrimal sac tumors are malignant, with squamous cell carcinoma being the most common histological subtype. Systematic biopsy of the lacrimal sac during dacryocystorhinostomy (DCR) is not routinely performed but may play a crucial role in identifying occult malignancies, especially when imaging or clinical features are atypical. We report a rare case of poorly differentiated carcinoma of the left lacrimal sac, incidentally discovered during routine biopsy performed at the time of DCR.

CASE PRESENTATION

A 67-year-old woman with no significant medical history presented with persistent left-sided epiphora and tearing, which began in December 2022. She experienced occasional episodes of superinfection, managed with antibiotherapy. In August 2023, she consulted for persistent symptoms and underwent probing of the lacrimal system, which revealed a complete obstruction of the left nasolacrimal duct.

A CT-dacryocystography was subsequently performed. It demonstrated a normal appearance and contrast filling of the right lacrimal drainage system. On the left side, there was an absence of opacification of both the lacrimal sac and the nasolacrimal duct, without visible mass or bone destruction.

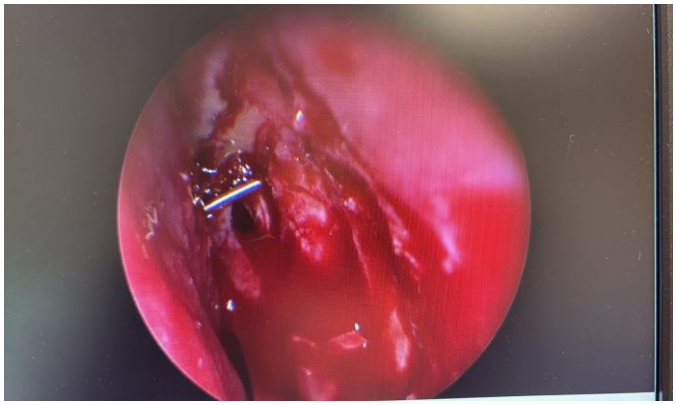
Given the clinical presentation, the patient underwent an endonasal dacryocystorhinostomy (DCR) under general anesthesia, with BIKA stent placement. A systematic biopsy of the left nasolacrimal mucosa was performed during the procedure. Postoperative recovery was uneventful.

Histopathological examination of the biopsy revealed a poorly differentiated carcinoma, and the diagnosis was confirmed by expert histopathological review. The patient subsequently underwent a full staging workup, including cervicofacial MRI, head and neck CT scan, and thoracoabdominopelvic CT. These examinations revealed no evidence of a primary tumor

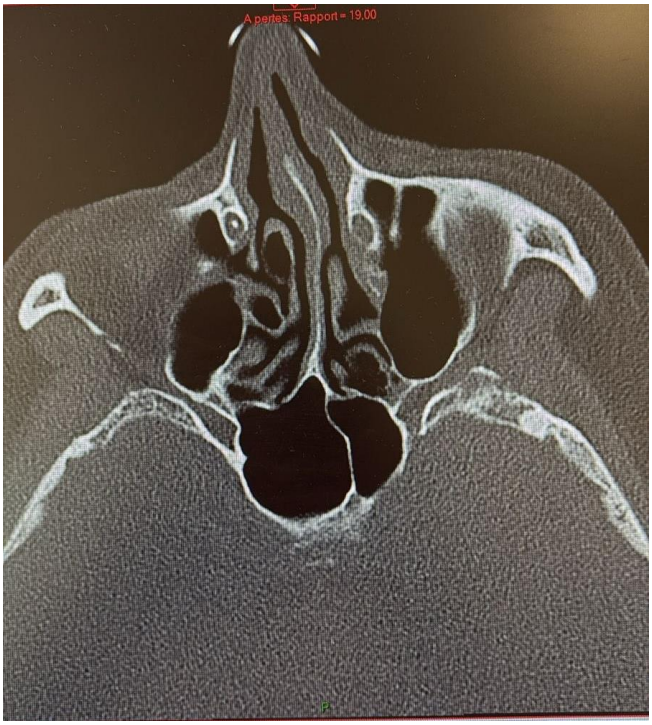
elsewhere or any metastatic lesions. The tumor was classified as cT1N0M0.

The case was discussed at a multidisciplinary tumor board (MDT) in May 2024. Considering the localized nature of the tumor and the absence of metastasis, the team recommended exclusive external radiotherapy as the primary treatment. The patient received a total dose ranging from 46 to 60 Gy, administered in fractions of 2 Gy, five sessions per week, targeting the operative bed.

Follow-up in March 2025 revealed no evidence of recurrence. Clinical and endoscopic examinations were unremarkable, and MRI imaging showed no residual or recurrent tumor. The patient remains under regular surveillance.



Endoscopic view of the left nasal cavity, showing the BIKA stent positioned at the level of the nasolacrimal sac.



Axial CT dacryocystography: Absence of contrast opacification in the left lacrimal sac and nasolacrimal duct

DISCUSSION

Primary malignancies of the lacrimal sac are rare, accounting for fewer than 1% of all tumors in the orbit and periorbital region [1]. Due to their anatomic location and nonspecific presentation, they are frequently misdiagnosed as benign conditions such as chronic dacryocystitis or nasolacrimal duct obstruction [2]. The classic symptoms: epiphora, intermittent discharge, and medial canthal swelling, can persist for months or even years before the correct diagnosis is established, often delaying appropriate treatment.

The most common histological types of malignant lacrimal sac tumors are squamous cell carcinoma and transitional cell carcinoma, though adenocarcinomas, lymphomas, and poorly differentiated carcinomas have also been reported [3,4]. Poorly differentiated carcinomas are particularly aggressive and are associated with a poor prognosis due to their high

potential for local invasion and distant metastasis [5]. Imaging findings may not always suggest a tumor, particularly in early stages, which further complicates the diagnosis. Our patient's imaging showed no mass or bony erosion, underscoring the value of systematic biopsy in chronic or atypical cases.

Routine biopsy during dacryocystorhinostomy is not standard practice in many centers. However, several authors have advocated for systematic sampling, particularly in patients with atypical presentations, long-standing symptoms, or imaging findings that suggest mucosal irregularity or mass-like lesions [6]. In our patient, the absence of classic tumor features on imaging and intraoperative findings underscores the importance of adopting a low threshold for biopsy, especially in elderly individuals with unilateral symptoms and fibrosis.

Treatment strategies for malignant lacrimal sac tumors typically include wide surgical excision, often with medial maxillectomy or orbital exenteration, combined with radiotherapy or chemoradiotherapy depending on histological type and staging [7]. In our case, due to the absence of metastasis and patient-related factors, the multidisciplinary team opted for primary radiotherapy without surgery.The tumor was successfully managed with radiotherapy alone, with no evidence of recurrence at 10-month follow-up. This approach, although less commonly employed, may be considered in select cases with contraindications to aggressive surgery or patient preference, though long-term outcomes remain uncertain [8].

CONCLUSION

This case highlights the diagnostic challenge posed by primary malignancies of the lacrimal sac, which often present with symptoms indistinguishable from benign inflammatory conditions. Routine intraoperative biopsy during dacryocystorhinostomy, especially in chronic or atypical presentations, can allow for early detection of rare but aggressive neoplasms. Multidisciplinary evaluation remains essential for optimal treatment planning, and individualized therapeutic decisions should consider both oncological efficacy and patient-centered factors.

Funding Statement: This work received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflict of Interest Statement: The authors declare no conflicts of interest related to this case report.

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