

# Lacrimal Sac Tumour Presenting with Blood-Stained Ocular Discharge

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## ABSTRACT

**Malignant epithelial tumours of the lacrimal sac are uncommon. They can mimic chronic dacryocystitis or dacryostenosis to cause a delay in diagnosis. The presence of a medial canthal lump with blood-stained ocular discharge should arouse the suspicion of this diagnosis. The prognosis of lacrimal sac tumour is often guarded especially following tumour recurrence after incomplete resection. We report a patient with squamous cell carcinoma of the lacrimal sac to highlight its presentation and clinical course.**

**Keywords:** Bloodstained discharge, medial canthal lump, lacrimal sac tumour, squamous cell carcinoma

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## INTRODUCTION

Lacrimal sac tumours (LSTs) are rare<sup>(1-5)</sup> and may mimic chronic dacryocystitis with tearing. It is important to differentiate LSTs from the more common chronic inflammatory disorders of the lacrimal drainage system (LDS) because they are potentially life threatening.

We report a case of squamous cell carcinoma of the lacrimal sac to illustrate its presentation and clinical course.

## CASE REPORT

A 25-year-old Chinese women presented with a painless, right medial canthal lump and epiphora for six months (Fig. 1). She had no known history of trauma or medical illness. A provisional diagnosis of dacryocystitis was made. Her right lacrimal drainage system was however patent on irrigation. One month later, she developed bloody discharge from the right eye and epistaxis from the right nostril.

Her best-corrected visual acuity was 6/7.5 in both eyes. Ophthalmic examination disclosed a 5 x 10 mm non-tender firm mass above the medial canthal tendon. Reflux of stale blood from the lacrimal; puncta occurred with compression of the right lacrimal sac (Fig. 2). Otorhinolaryngologic examination did not reveal any abnormality.



Fig. 1 Right medial canthal lump seen at the initial presentation.



Fig. 2 Blood-stained discharge from the right eye following compression of the lacrimal sac.

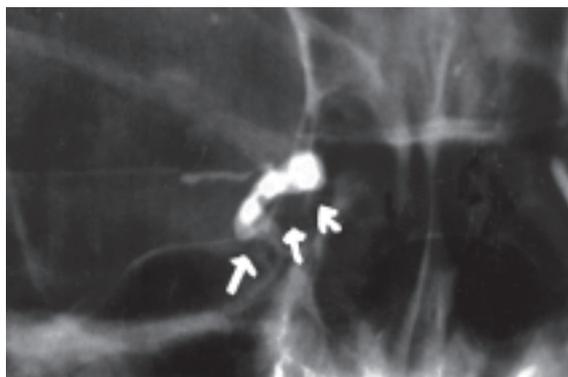


Fig. 3 Dacryocystogram shows a dilated right lacrimal sac (arrows) and proximal part of the nasolacrimal sac.

Dacryocystography showed a dilated right lacrimal sac (Fig. 3). The nasolacrimal duct was dilated and tortuous proximally but narrow and not well visualised distally. However, contrast medium was able to get through the right LDS into the inferior meatus. The left LDS was normal.

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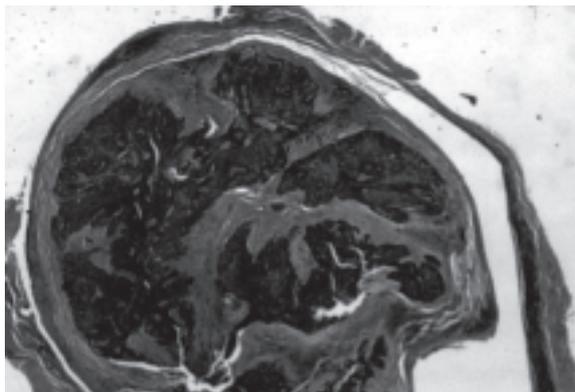
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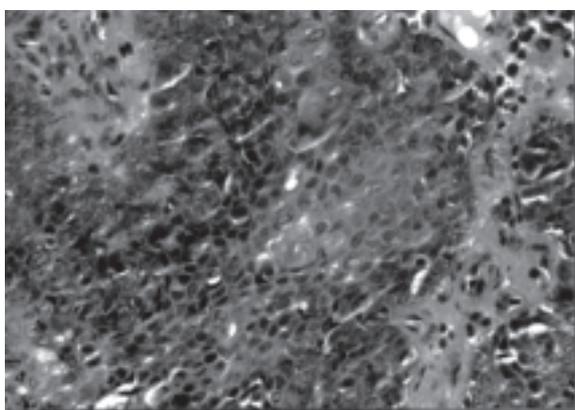
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**Fig. 4** Histological picture of the right lacrimal sac tumour showing islands of malignant cells.



**Fig. 5** High magnification of the resected lacrimal sac tumour showing poorly-differentiated squamous cell carcinoma with high nuclear cytoplasmic ratio, hyperchromasia and scanty cytoplasm.

She underwent right lacrimal sac exploration and incisional biopsy. Intra-operatively, tumourous tissue was noted on the luminal surface of the right lacrimal sac (Fig. 4). Frozen sections revealed poorly differentiated squamous cell carcinoma (Fig. 5). En bloc excision of the right lacrimal drainage system was performed. Routine histology confirmed malignant LST (Fig. 6) with invasion to the resection margin.

She subsequently underwent right medial maxillectomy and excisional biopsy of the jugulo-diaphragmatic lymph nodes, with clearance of the resection margins and the latter. Nonetheless, seven months later, she developed metastasis to the angle of the right mandible, evident on CT scan as an expansile mass in the mandibular medullary space with periosteal reaction. The diagnosis was confirmed with fine needle aspiration biopsy. She was treated with radiotherapy but the tumour did not respond well to it. She subsequently underwent a right mandibulectomy. Her clinical course continued to deteriorate with further metastases to her right cheek and skin. She finally succumbed to the disease about two and a half years following the onset of her symptoms.

## DISCUSSION

LSTs have been reported by Janin as early as 1700's<sup>(6)</sup>. Since then, approximately 200 cases of LSTs, mostly malignant, have been reported in the literature<sup>(1,3,5,7)</sup>.

The triad of a firm mass above the medial canthal tendon, "chronic dacryocystitis" that irrigates freely, and bloody reflux on irrigation should alert one to consider this diagnosis<sup>(1)</sup>. The LDS can be patent when the tumour is small and intra-mural. The suspicion of LST is even stronger if there is disproportionate bleeding or failure to freely irrigate in comparison to the ease of probing<sup>(8)</sup>.

Dacryocystography is a good diagnostic tool in the assessment of LSTs<sup>(1,3,5,6)</sup>. It is particularly useful in early cases when there is no palpable mass. The radiologic features of LSTs are often characteristic and distinct from other causes of epiphora<sup>(2)</sup>. These include partial filling of the lacrimal sac and distortion of the sac wall. Some contrast medium often enters the nasal cavity. This is in contrast to dacryocystitis, which often demonstrates complete obliteration at specific points in the LDS. In advanced cases, there may be bony erosions and extravasation of the contrast medium<sup>(2)</sup>. Computerised tomography is another helpful investigation<sup>(8,9)</sup> that delineates the extent of tumour involvement and is useful to monitor for recurrence after surgery. Nonetheless, a definitive diagnosis still necessitates histologic examination of the lacrimal sac lesion.

Lymphatic, vascular and local invasions are not uncommon even with early carcinoma of the lacrimal sac<sup>(2,4)</sup>. The squamous cell carcinoma of our patient's lacrimal sac had behaved in an aggressive fashion with direct invasion to the maxilla (medial aspect) and subsequent haematogenous spread to the right mandible, right cheek and skin. The latter occurred despite initial apparent histological clearance of the resection margins of the maxillectomy specimens and absence of cervical lymph node involvement. Micrometastasis via a haematogenous route had most likely occurred at the time of surgical resection and was not detectable histologically. Recurrence rate is as high as 50% in some reports<sup>(5,10,11)</sup> for epithelial carcinomas of the lacrimal sac. Five of the 12 patients in Stefanyzyn's series<sup>(12)</sup> with squamous cell carcinoma had one or more recurrences.

Many recurrences and therapeutic failures have been attributed to an unexpected extension of tumour tissue to the nasolacrimal duct<sup>(4,12)</sup>. Hence, otorhinolaryngologic assessment is an important component of the diagnostic work-up. Most authors favour a complete wide surgical excision of the lacrimal sac, canaliculi and surrounding periosteum<sup>(3,5,10)</sup> via a dacryocystorhinostomy incision, together with an examination of the resection margins.

The prognosis is grave once metastasis or recurrence occurs<sup>(1,2,10,11)</sup> with a mortality rate of about 50%<sup>(10,11)</sup>.

Radiotherapy has been recommended for LSTs<sup>(4,7)</sup> before and/or after surgery. Our patient, however, did not respond to post-operative radiotherapy. The poor cellular differentiation may have contributed to her poor outcome.

### CONCLUSION

LSTs are uncommon diseases with significant mortality. Early diagnosis is desirable to optimise survival outcome.

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