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Primary Solitary Fibrous Tumor of the Lacrimal Sac Mimicking Lymphoma: A Case Report

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Case Report

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Abstract

Background: Primary solitary fibrous tumor (SFT) of the lacrimal sac is among the rarest presentations of this mesenchymal neoplasm. We report a patient in whom the mass was initially dismissed as chronic dacryocystitis during three months of conservative therapy, and an outside magnetic resonance imaging (MRI) report suggested lymphoma. The diagnosis was ultimately resolved by signal transducer and activator of transcription 6 (STAT6) immunohistochemistry performed on the resected tissue.

Case presentation: A 50-year-old Chinese man was referred with a two-year history of a painless, slowly growing right medial canthal mass. After three months of unsuccessful antibiotic and warm-compress therapy for presumed chronic dacryocystitis at another hospital, imaging raised concern for lymphoma. We performed complete excision via an external approach together with bicanalicular intubation. Histology revealed a spindle-cell tumor with alternating cellularity. Diffuse nuclear STAT6 positivity confirmed SFT. At one month, the lacrimal drainage system was patent without evidence of recurrence.

Conclusions: Lacrimal sac SFT closely mimics both chronic dacryocystitis clinically and lymphoma radiologically. When antibiotics and warm compresses fail to shrink a medial canthal mass, early biopsy rather than observation is warranted. In our practice, STAT6 staining has become the most reliable way to distinguish SFT from tumors that look identical under the microscope. Complete local excision with concurrent bicanalicular intubation can remove the tumor and restore drainage in a single procedure.

Background

Klemperer and Rabin first described SFT as a pleural-based spindle-cell tumor in 1931. Since then, pathologists have recognized morphologically identical neoplasms in virtually every body site [1]. Orbital and periocular involvement is uncommon [2, 3], and the lacrimal sac represents one of the least frequent locations—our review of the English literature yielded fewer than ten documented cases [1, 2].

Because the presentation is so mundane, months of antibiotic drops and warm compresses often go by before anyone thinks of cancer [4–6]. Imaging is equally unhelpful: lacrimal sac lymphoma and melanoma can yield computed tomography (CT) and MRI appearances that overlap with SFT [4, 5]. In the end, only microscopic and immunohistochemical examination settles the diagnosis. Our patient was treated as dacryocystitis for three months; an outside MRI report subsequently raised concern for lymphoma, yet microscopic analysis of the excised specimen established SFT.

Case presentation

A 50-year-old man was referred to our department with a two-year history of a gradually enlarging, painless mass at the right medial canthus. Three months before referral, another hospital had diagnosed presumed chronic dacryocystitis and prescribed topical levofloxacin 0.5% four times daily together with warm compresses. The swelling persisted without improvement. He denied prior eye trauma, surgery,

fever, weight loss, or night sweats. His medical history was negative for hypertension, diabetes, autoimmune disease, and familial malignancy. A timeline of the clinical events is summarized in Table 1.

On examination, best-corrected visual acuity was 1.0 (decimal scale) in both eyes. A localized skin elevation measuring approximately 2.2 × 1.8 cm was present at the right lower eyelid medial canthus. The overlying skin was intact without erythema or ulceration. The mass was soft and cystic, non-tender, and immobile. Lacrimal irrigation of the right eye demonstrated patency with minimal purulent reflux; the left system irrigated freely. Intraocular examination was unremarkable.

Table 1
Timeline of clinical events

Date / Timepoint	Event
2 years prior to presentation	The patient first noticed a slowly growing, painless right medial canthal mass
3 months prior to presentation	Presumed chronic dacryocystitis diagnosed at an outside hospital; conservative treatment unsuccessful
Day 0 (Admission)	MRI and CT identified a right lacrimal sac mass; lymphoma suspected on outside imaging
Day 1	Complete excision with bicanalicular intubation and bilateral silicone stent intubation under local anesthesia
Postoperative Day 10	Uneventful recovery; patient discharged
1-month follow-up	Silicone stents retained; lacrimal irrigation patent without reflux; no recurrence detected

Outside MRI revealed a homogeneous, mildly hypointense mass centered on the right lacrimal sac. Margins were relatively discrete, yet the lesion lacked the marked hypointensity and washout kinetics described in orbital SFT (Fig. 1). The outside radiologist favored lymphoma. CT confirmed a soft-tissue density lesion extending from the medial canthus to the bony nasolacrimal duct ostium.

We operated under local anesthesia, placing a curvilinear incision at the medial canthal tendon. Blunt dissection exposed a well-circumscribed, grayish-white, rubbery mass measuring 2.0 cm, arising from the lacrimal sac (Fig. 3a). The tumor was excised in toto with a 2-mm margin of grossly normal sac wall (Fig. 3b). Concurrent external bicanalicular intubation was performed. Silicone bicanalicular stents were inserted through the upper and lower canaliculi and secured in the nasal vestibule. Blood loss was minimal (< 10 mL), and no intraoperative complications occurred.

Figure 3 *should be placed here, immediately after this paragraph, at its first citation in the text.*

Gross examination revealed an irregular, grayish-white to grayish-red tissue fragment measuring 2.0 × 1.5 × 0.8 cm. Histopathology showed a spindle cell tumor with alternating hypercellular and hypocellular areas arranged in a patternless pattern, with branching hemangiopericytoma-like vessels (Fig. 2a).

Tumor cells had bland oval nuclei and eosinophilic cytoplasm; mitotic figures were rare (Fig. 2b). Immunohistochemistry demonstrated diffuse strong nuclear positivity for STAT6 (Fig. 2c), diffuse positivity for CD34 and BCL-2, and focal weak positivity for smooth muscle actin (SMA). CD117, S-100, desmin, SOX-10, DOG1, and β-catenin were negative. The Ki-67 index was approximately 1%.

The patient was discharged on day 10. At the one-month visit, the silicone stents were still in place, the skin incision had healed without complication, and lacrimal irrigation was patent without reflux. There was no sign of recurrence. We scheduled follow-up at three-month intervals for the first year, six-month intervals for the second year, and annually thereafter, because late recurrence has been reported even after complete excision.

Discussion

Two years passed before anyone identified this mass correctly. The reason is almost embarrassing: it looked so ordinary. A soft, cystic medial canthal swelling accompanied by tearing is clinically indistinguishable from chronic dacryocystitis, which was the working diagnosis maintained for three months at the referring hospital [1, 4, 5]. The possibility of neoplasia was raised only after antibiotics and warm compresses produced no improvement.

Radiologic findings deepened the diagnostic uncertainty. Textbook descriptions of orbital SFT emphasize a well-circumscribed, intensely enhancing mass with low T2 signal and washout kinetics [7, 8]. Our patient's MRI displayed none of these characteristics; rather, the homogeneous intermediate T1 signal steered the outside radiologist toward lymphoma. Lacrimal sac SFT masquerading as lymphoma on imaging has been reported previously [2, 9], and this diagnostic trap is likely to be encountered again. We would caution against managing any lacrimal sac mass with atypical MRI features on radiologic grounds alone.

The diagnosis was ultimately established by microscopic examination. Alternating hypercellular and hypocellular areas, patternless architecture, and branching vessels are characteristic of SFT [3], but these findings are not pathognomonic. Hemangiopericytoma, fibrous histiocytoma, and even schwannoma may produce similar morphology. Among the spindle-cell tumors that enter the differential, only SFT carries the NAB2-STAT6 fusion. This molecular event leaves a detectable signature—strong nuclear STAT6 labeling—that is both sensitive (97.5%) and specific (96.7%) in large validation studies [10, 11]. Yoshida et al. observed nuclear STAT6 positivity in 100% of SFTs, compared with only 2.5% of 159 non-SFT tumors [11]. In our case, the diffuse strong nuclear STAT6 signal, together with CD34 and BCL-2 positivity, confirmed the diagnosis unequivocally. With a Ki-67 index around 1%, the lesion was clearly indolent; we felt comfortable that complete local excision would be enough.

With the pathologic diagnosis in hand, surgical management was uncomplicated. We excised the tumor with a 2-mm margin and performed bicanalicular intubation in the same session. SFT is usually indolent [12, 13], so combining tumor excision with drainage reconstruction in a single procedure did not seem to

jeopardize oncologic control. The patient left the operating room with a patent drainage system and no need for a second operation.

We are under no illusion that one patient can establish incidence or predict recurrence. A single case cannot yield recurrence rates or long-term prognosis. Our one-month follow-up demonstrates early patency, yet this interval is too brief to exclude late recurrence; meningeal and orbital SFTs have been documented to recur up to eight years after complete excision [14]. We have therefore placed this patient on a structured surveillance program. Larger case series and molecular characterization of NAB2-STAT6 fusion variants in lacrimal sac SFT will be required before definitive management guidelines can be formulated.

Conclusions

A lacrimal sac mass that looks like dacryocystitis on examination and like lymphoma on MRI may turn out to be SFT. We have learned to biopsy early when conservative therapy fails, rather than waiting for the mass to enlarge. STAT6 immunohistochemistry offers a definitive diagnostic tool, and complete excision can be combined with lacrimal drainage reconstruction in a single operative setting.

Abbreviations

SFT: Solitary fibrous tumor

MRI: Magnetic resonance imaging

CT: Computed tomography

STAT6: Signal transducer and activator of transcription 6

SMA: Smooth muscle actin

Declarations

Patient perspective

I had been bothered by the lump near my right eye for almost two years. At first, I thought it was just an infection. The other hospital told me it was dacryocystitis and gave me eye drops, but the swelling never got smaller. I worried when it slowly grew bigger, especially after the doctor there said the scan looked abnormal and I might need surgery. When I came to this hospital, Dr. Wang explained everything clearly. I am relieved that the tumor was completely removed, and grateful that my eye still looks and functions normally.

Ethics approval and consent to participate

This study was conducted in accordance with the Declaration of Helsinki. This study protocol was reviewed and approved by the Ethics Committee of Beijing Hospital of Integrated Traditional Chinese and Western Medicine, approval number ZXYEC-LW-2026-17.

Consent for publication

Written informed consent was obtained from the patient for publication of the details of his medical case and any accompanying images.

Availability of data and materials

The datasets supporting the conclusions of this article are included within the article and its additional file. Further inquiries can be directed to the corresponding author.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

XM: Writing – original draft. LW: Writing – review & editing. All authors read and approved the final manuscript.

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Figures

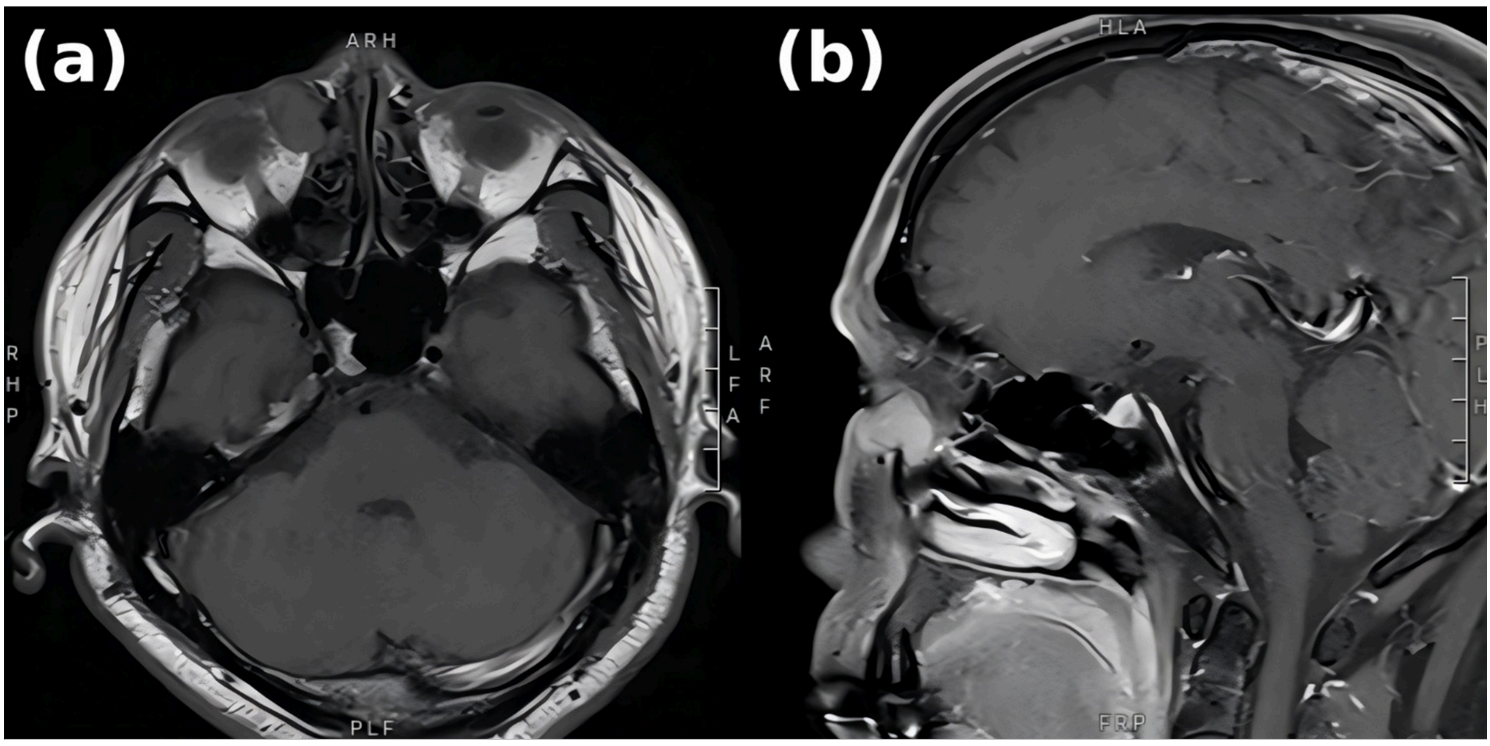

Figure 1

Preoperative magnetic resonance imaging of the right orbit. (a) Axial T1-weighted image demonstrating a mildly hypointense, relatively well-defined mass in the right lacrimal sac region. (b) Sagittal T1-weighted fat-suppressed image showing the mass with intermediate, relatively homogeneous signal intensity.

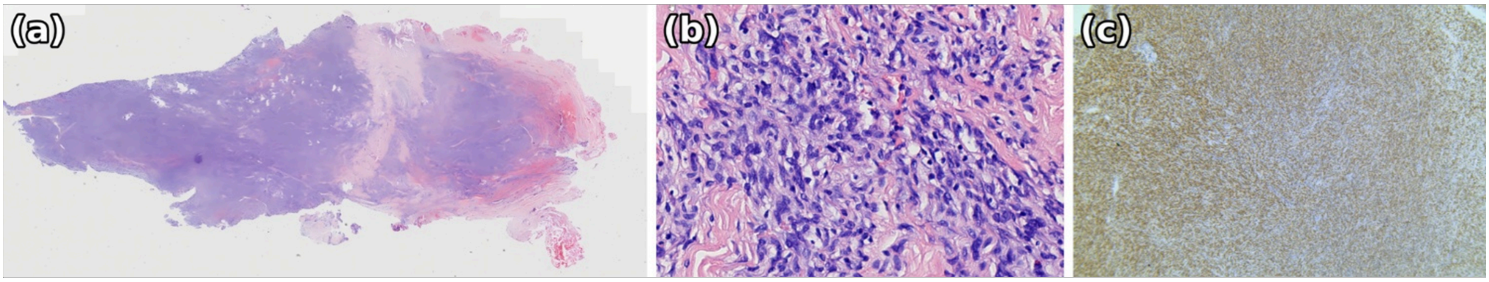

Figure 2

Histopathological and immunohistochemical findings. (a) Low-power view showing a spindle cell neoplasm with alternating hypercellular and hypocellular areas, patternless architecture, and branching vessels (hematoxylin and eosin, ×40). (b) High-power view demonstrating spindle cells with bland oval nuclei and eosinophilic cytoplasm; mitotic figures are rare (hematoxylin and eosin, ×200). (c) Immunohistochemistry showing diffuse strong nuclear positivity for STAT6 (×40).

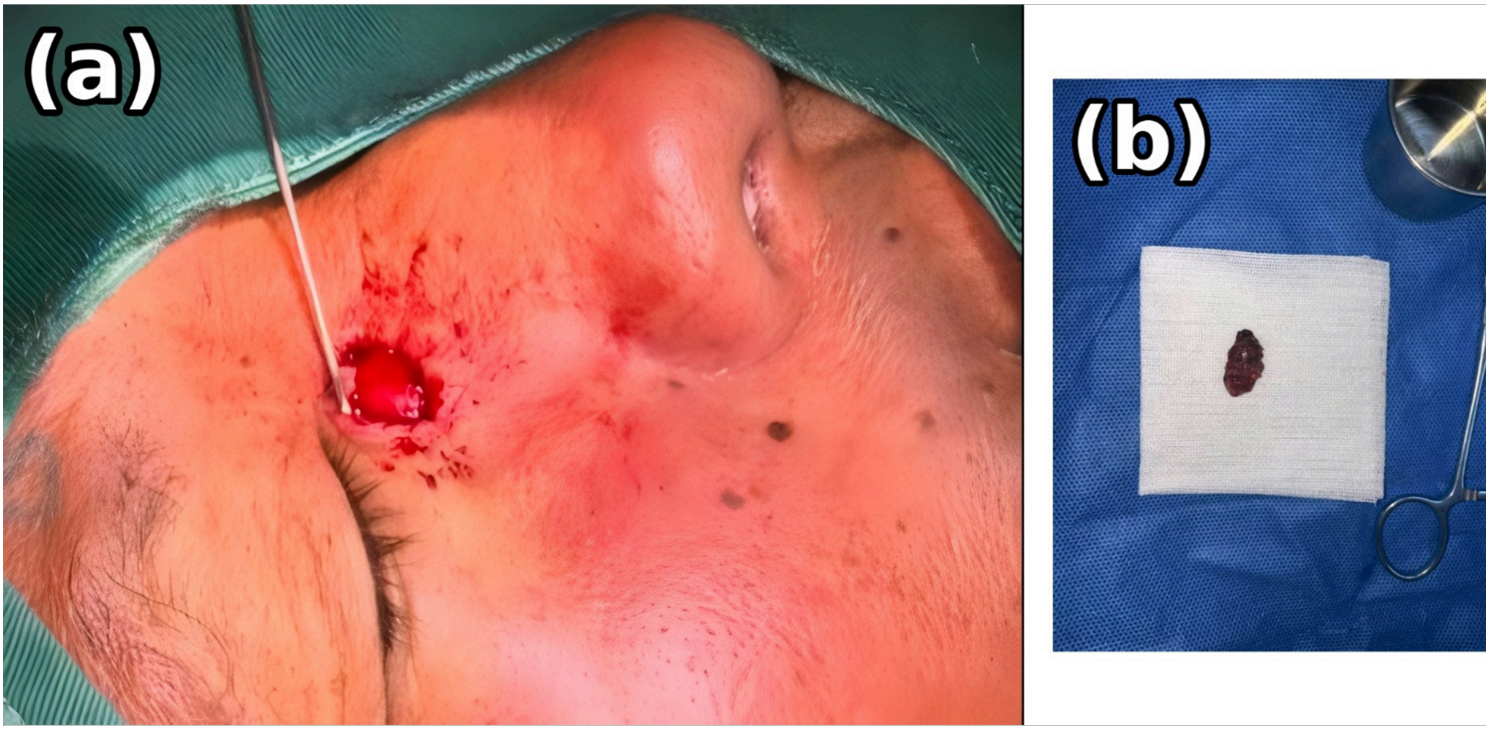

Figure 3

Intraoperative photographs. (a) A well-circumscribed, grayish-white mass exposed at the right lacrimal sac region. (b) The completely excised tumor specimen.

Supplementary Files

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