

# Lacrimal canaliculitis related to chronic rhinosinusitis with nasal polyps: Case report and literature review

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## Abstract

This paper reports an unusual case of recurrent canaliculitis who had a long history of chronic rhinosinusitis with nasal polyps. A 74-year-old woman complained of recurrent redness, purulent discharge, and occasional tearing of the left eye for 1 year. She has a 40-year untreated sinusitis history, with recurrent mucopurulent rhinorrhea, nasal obstruction and hyposmia, and loss of smell for 2 years. The patient's various symptoms, such as epiphora, purulent discharge, rhinorrhea, nasal obstruction, and anosmia, poorly responded to antibiotics and canaliculotomy. However, relief came from the unintentional usage of systemic corticosteroids. Canaliculitis is a rare form of inflammation involving the proximal lacrimal drainage system. Unfortunately, it is often misdiagnosed, has frequent recurrences, and fails to respond to therapy. This case highlights the importance of medical history, lacrimal examinations, and regular therapy in managing recurrent canaliculitis. For those canaliculitis patients with nasal symptoms, simultaneous treatment of nasal-related disorders should be considered.

## Keywords

recurrent canaliculitis, chronic rhinosinusitis with nasal polyps, canaliculotomy, corticosteroid

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## Introduction

Canaliculitis is a chronic infection of the canaliculus, presenting with epiphora, medial canthal swelling, recurrent conjunctivitis, a swollen pouting punctum, and, in some cases, yellowish or mucopurulent discharge.<sup>1,2</sup> Canaliculitis is typically managed with surgical intervention.<sup>3–5</sup> However, there is a high risk of relapse, and patients often endure extended conservative therapy with limited success.<sup>3,6,7</sup> As a result, persistent epiphora and recurrent canaliculitis following canaliculotomy are frequently reported.<sup>8</sup>

## Case presentation

A 74-year-old female presented at our facility with recurrent redness, purulent discharge, and occasional tearing of the left eye, persisting for 1 year. She had a history of bacterial conjunctivitis, which was unresponsive to levofloxacin eye drops. A slit-lamp examination revealed erythema and edema of the lower canaliculus and punctum. Firm compression of the lower canaliculus elicited purulent discharge from the lower punctum, with evidence of conjunctival congestion. Irrigation test revealed medium resistance upon fluid

injection into the upper and lower punctum. The patient reported a 40-year history of untreated sinusitis with recurrent mucopurulent rhinorrhea, nasal obstruction, and anosmia for the past 2 years. Using a computed tomography (CT) scan, bilateral paranasal sinusitis was identified, and nasal endoscopy showed evidence of nasal polyps (Figure 1). The patient sought treatment at the ENT clinic 3 days ago, where she was diagnosed with chronic rhinosinusitis with nasal polyps (CRSwNP), and conservative treatment with medication was indicated.

Canaliculotomy and curettage with bicanalicular silicone tube intubation were performed to address the patient's symptoms. In short, the canaliculus was opened, the pus was evacuated, and multiple red polyps and granulomas

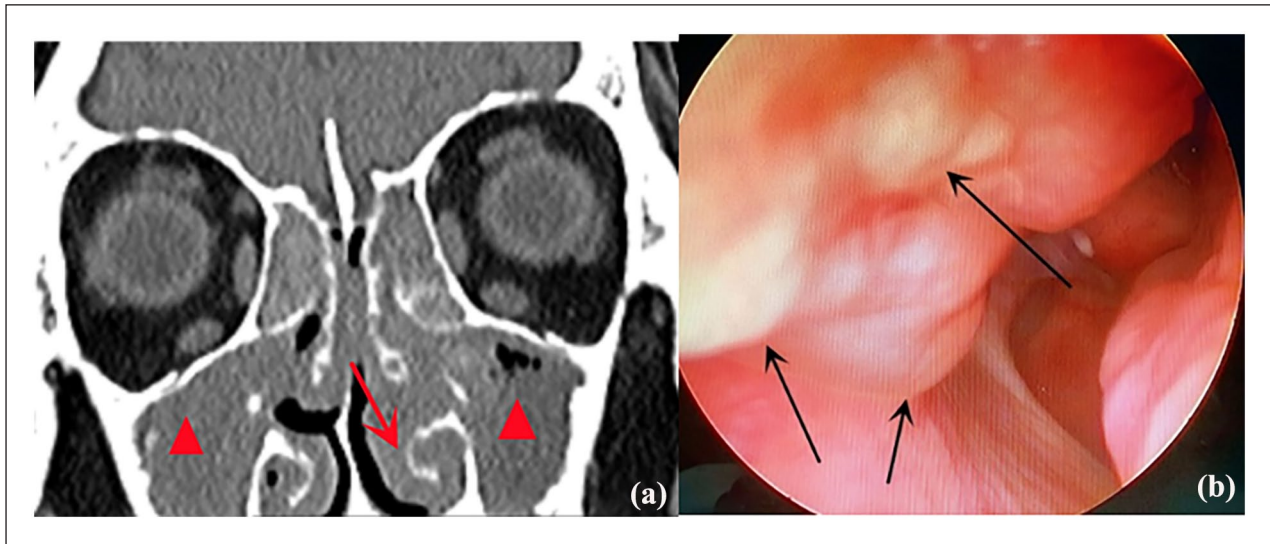
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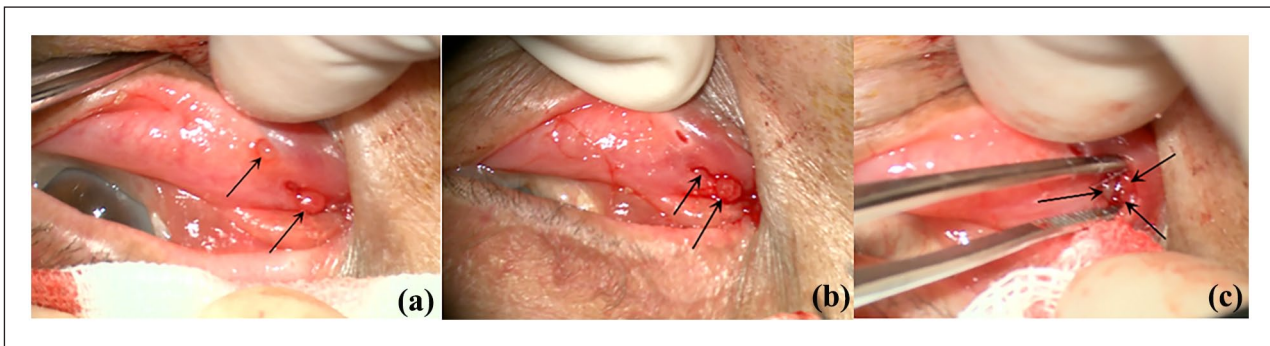
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**Figure 1.** Nasal data for CRSwNP diagnosis prior to canaliculotomy. (a) Sinus CT scan demonstrating bilateral rhinosinusitis (red triangles) and significantly hypertrophic inferior turbinate (red arrow). (b) Nasal polyps observed in the olfactory fissure area via endoscopy (black arrow).

CRSwNP: chronic rhinosinusitis with nasal polyps; CT: computed tomography.

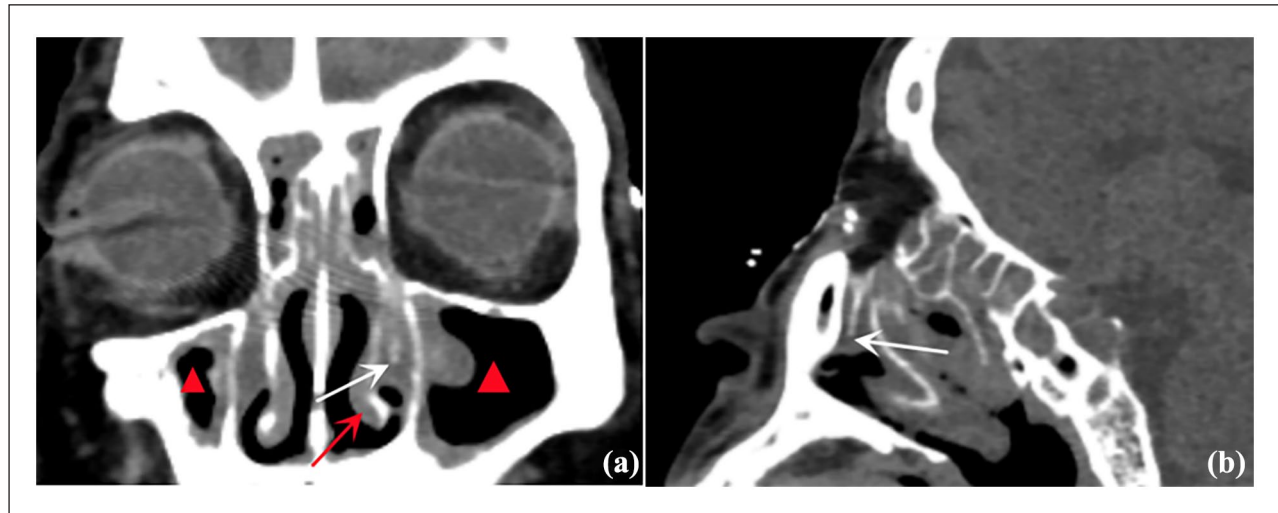


**Figure 2.** Red polyps observed during canaliculotomy. (a) Polyps (black arrow) identified in the inferior lacrimal punctum and the canaliculus incision. (b) Additional polyps (black arrow) emerging after curettage. (c) Multiple polyps and granulomas (black arrow) visible within the open lumen of the lacrimal canaliculus.

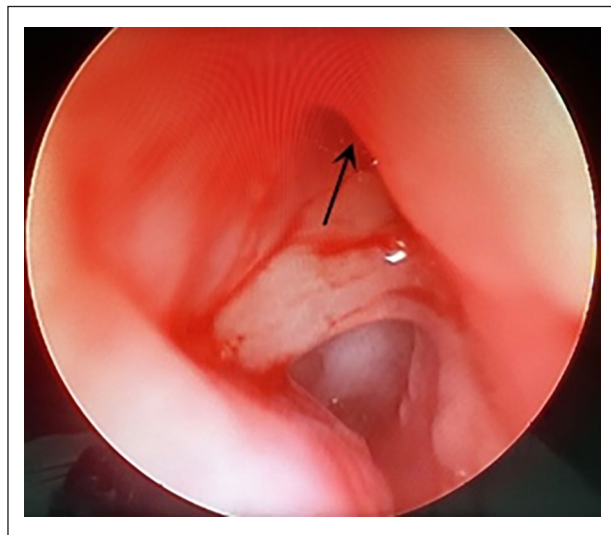
were observed (Figure 2), but no concretion was found. Following polyp clearance, a bicanalicular silicone tube was inserted into the nasal cavity through the inferior and superior puncta. A 48-h abscess bacterial cultivation came back negative. She received oral cefuroxime proxetil for 3 days, and a continuous dose of levofloxacin drops post-operation. At the 1-month follow-up (30 days post-operation), the silicone tube was removed due to the persistence of epiphora and purulent discharge. Meanwhile, although the canaliculus and lacrimal passage were irrigated with gentamicin and dexamethasone once every 2 weeks, and the space was packed with gatifloxacin gel, the tearing and pus remained recurrent.

At the 3-month follow-up, the patient reported complete resolution of epiphora, purulent discharge, rhinorrhea, nasal obstruction, and anosmia during hospitalization following a

thyroidectomy. Unfortunately, all aforementioned symptoms returned but eased upon hospital discharge. Upon review of the patient's thyroid surgery, we noted that the primary post-operative medication included intravenous Hydrocortisone Sodium Succinate infusion (200mg), which was administered once a day for 3 days with no antibiotics. Dacryocystography was performed in the fourth month of follow-up, 1 month after her thyroidectomy. According to the orbital CT, there was no absolute obstruction in the lacrimal system, as was evidenced by the weak signal from the contrast medium (Figure 3). The nasal turbinate volume and soft tissue density in the sinus cavity were significantly reduced (Figure 3) compared to the CT image taken 4 months ago (Figure 1). Then the mucosal edema was observed around the nasolacrimal duct opening in the inferior meatus under the nasal endoscopy (Figure 4). The patient expressed



**Figure 3.** Dacryocystography findings on orbital CT. (a) Weak contrast medium signal in the nasolacrimal duct (white arrow) alongside reduced nasal turbinate volume (red arrow) and soft tissue density in the sinus cavity (red triangle) compared to Figure 1. (b) Sagittal CT showing a linear high-density area in the nasolacrimal duct (white arrow).  
CT: computed tomography.



**Figure 4.** Endoscopic findings of mucosal edema. Mucosal edema (black arrow) observed around the lower end of the nasolacrimal duct in the inferior meatus under endoscopy.

satisfaction with the appearance of a normal eyelid and accepted occasional epiphora, discharge, rhinorrhea, and hyposmia while continuing nasal, topical corticosteroids (Mometasone Furoate Aqueous Nasal Spray 50  $\mu$ g), opting against endoscopic sinus surgery or dacryocystorhinostomy.

## Discussion

Canaliculitis is a rare disorder, accounting for 0.8% of all lacrimal drainage system infections.<sup>9</sup> Primary canaliculitis is commonly caused by proximal obstruction, often followed

by infections with *Streptococcus*, *Staphylococcus*, or *Actinomyces* species.<sup>2,10</sup> Secondary canaliculitis, on the other hand, is intricately associated with punctal or intracanalicular plug placement (86.72%), as well as silicone intubation, radiotherapy, tumor in the lacrimal drainage system, and eyelash plug.<sup>7</sup> Despite its well-defined clinical manifestations, the rarity of canaliculitis and complicating factors make it challenging to diagnose.<sup>10,11</sup> In this patient, recurrent erythema of the left lower eyelid, a pouting punctum with purulent discharge, and the lack of prior ocular treatment suggested infectious primary canaliculitis. The bacterial culture of the punctal discharge sample was negative, indicating the possibility of aseptic inflammation. However, this did not rule out interference with the preoperative levofloxacin usage.

Canaliculotomy, in combination with silicon intubation, significantly increases the accuracy of canalicular concretion removal and improves canaliculus patency, with an anatomical success rate of 92.7%–96.2% and functional success rate of 78.6%–94.3%.<sup>12–14</sup> A minimally invasive canaliculotomy involving curettage and bicanalicular silicone tube intubation was performed, as described by Wang et al.<sup>12</sup> All procedures were successfully completed, and the patient received regular oral cefuroxime proxetil for 3 days post-operation. In addition, patients received continuous doses of levofloxacin throughout the postoperative month to combat purulent discharge until tube removal. Gentamicin and dexamethasone were further employed for lacrimal system irrigation once every 2 weeks, and gatifloxacin gel was administered directly into the canaliculi. Unfortunately, the administered antibiotics failed to resolve the patient's purulent discharge.

Post-canaliculotomy canaliculitis recurrence can occur in up to 21% of canaliculotomy patients.<sup>10</sup> Most cases of recurrent canaliculitis are attributed to preexisting nasolacrimal duct



pathology, prior improper lacrimal sac irrigation procedures, or exacerbation of preexisting nasolacrimal duct obstruction following canaliculotomy.<sup>4</sup> The patient suspected the presence of fluid flow into the nasal and oral cavity during the irrigation examination. This may be because of the mucosal edema and reduced CRSwNP sensation.

CRSwNP generally manifests as nasal obstruction, diminished sense of smell, nasal discharge, and sleep disturbance, adversely affecting the quality of life.<sup>15</sup> Topical corticosteroids, recommended in most clinical guidelines, reduce nasal polyp size and relieve sinonasal symptoms.<sup>16</sup> Among patients with more severe symptoms, short-term systemic corticosteroid usage successfully alleviates clinical symptoms.<sup>17</sup> Corticosteroids are known to alleviate both ocular and nasal symptoms, suggesting a potential link between the patient's canaliculitis and CRSwNP. Studies show that canicular polyps rarely share etiopathological mechanisms with nasal polyps, as the latter are more strongly linked to systemic inflammatory pathways rather than localized lacrimal infections in existing reports.<sup>18</sup> The pathological examination of the extracted polyps during canaliculotomy was not performed, so a comparison between the canicular and nasal polyps could not be performed.

An unusual aspect of this case is unilateral canaliculitis despite the presence of bilateral CRSwNP. A review of the patient's CT scans revealed more significant hypertrophy of the left inferior turbinate compared to the right, along with greater soft tissue density in the left sinuses (Figure 1). Anterior rhinoscopy revealed a slightly greater number of polyps in the left olfactory fissure compared to the right. Alternatively, a congenital anatomical anomaly in the left canaliculus may have increased its susceptibility to inflammation, exacerbated by CRSwNP. This likely explains the occurrence of unilateral canaliculitis in the context of bilateral CRSwNP.

## Conclusions

This report highlights a rare case of recurrent canaliculitis associated with CRSwNP. Management of recurrent canaliculitis should involve a thorough medical history assessment, detailed lacrimal examinations, and routine therapy with antibiotics and corticosteroids. Simultaneous management of the underlying nasal disorder is recommended for canaliculitis patients presenting with nasal symptoms.

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## Ethical considerations

This study was conducted in accordance with the Declaration of Helsinki. This study was conducted with approval from the Ethics Committee of The First People's Hospital of Changzhou (Approval number/2023-28).

## Consent to participate

Written informed consent was obtained from the patient(s) for their anonymized information to be published in this article.

## Consent for publication

Written informed consent was obtained from the patient for publication of this Case report and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

## Authors contributions

CC and YB conceptualized and designed the study, drafted the initial manuscript, and reviewed and revised the manuscript. YS provided the nasal data from ENT clinic. CC, YY, and YG designed the data collection instruments, collected data, carried out the initial analyses, and reviewed and revised the manuscript. YB coordinated and supervised data collection and critically reviewed the manuscript for important intellectual content. All authors approved the final manuscript as submitted and agreed to be accountable for all aspects of the work.

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## Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## References

1. Briscoe D, Edelstein E, Zacharopoulos I, et al. Actinomyces canaliculitis: diagnosis of a masquerading disease. *Graefes Arch Clin Exp Ophthalmol* 2004; 242(8): 682–686.
2. Zaldívar RA and Bradley EA. Primary canaliculitis. *Ophthalmic Plast Reconstr Surg* 2009; 25(6): 481–484.
3. Vécsei VP, Huber-Spitzy V, Arocker-Mettinger E, et al. Canaliculitis: difficulties in diagnosis, differential diagnosis and comparison between conservative and surgical treatment. *Ophthalmologica* 1994; 208(6): 314–317.
4. Anand S, Hollingworth K, Kumar V, et al. Canaliculitis: the incidence of long-term epiphora following canaliculotomy. *Orbit* 2004; 23(1): 19–26.
5. Demant E and Hurwitz JJ. Canaliculitis: review of 12 cases. *Can J Ophthalmol* 1980; 15(2): 73–75.
6. Varma D, Chang B and Musaad S. A case series on chronic canaliculitis. *Orbit* 2005; 24(1): 11–14.
7. Pal SS and Alam MS. Lacrimal canaliculitis: a major review. *Semin Ophthalmol* 2024; 39(8): 586–594.
8. Freedman JR, Markert MS and Cohen AJ. Primary and secondary lacrimal canaliculitis: a review of literature. *Surv Ophthalmol* 2011; 56(4): 336–347.
9. Das AV, Rath S, Naik MN, et al. The incidence of lacrimal drainage disorders across a tertiary eye care network: customization of an indigenously developed electronic medical record

- system-eyeSmart. *Ophthalmic Plast Reconstr Surg* 2019; 35(4): 354–356.
10. Lin SC, Kao SC, Tsai CC, et al. Clinical characteristics and factors associated the outcome of lacrimal canaliculitis. *Acta Ophthalmol* 2011; 89(8): 759–763.
  11. Liyanage SE and Wearne M. Lacrimal canaliculitis as a cause of recurrent conjunctivitis. *Optometry* 2009; 80(9): 479–480.
  12. Wang M, Ma Y, Tu Y, et al. A prospective study comparing mini-invasive and conventional canaliculotomy of punctum-sparing canaliculotomy for primary canaliculitis treatment. *Eye (Lond)* 2023; 37(11): 2289–2293.
  13. Wang M, Cong R and Yu B. Outcomes of canaliculotomy with and without silicone tube intubation in management of primary canaliculitis. *Curr Eye Res* 2021; 46(12): 1812–1815.
  14. Su Y, Zhang L, Li L, et al. Surgical procedure of canaliculoplasty in the treatment of primary canaliculitis associated with canalicular dilatation. *BMC Ophthalmol* 2020; 20(1): 245.
  15. Hopkins C. Chronic rhinosinusitis with nasal polyps. *N Engl J Med* 2019; 381(1): 55–63.
  16. Stevens WW, Schleimer RP and Kern RC. Chronic rhinosinusitis with nasal polyps. *J Allergy Clin Immunol Pract* 2016; 4(4): 565–572.
  17. Head K, Chong LY, Hopkins C, et al. Short-course oral steroids alone for chronic rhinosinusitis. *Cochrane Database Syst Rev* 2016; 4(4): CD01199.
  18. Fokkens WJ, Lund VJ, Hopkins C, et al. European Position Paper on Rhinosinusitis and Nasal Polyps 2020. *Rhinology* 2020; 58(Suppl S29): 1–464.