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Case report

# Sebaceous hyperplasia of the eyelid: A comprehensive case report and literature review

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ABSTRACT

*Introduction:* Sebaceous gland hyperplasia of the eyelids, known as adenomatoid or pseudoadenomatous hyperplasia, is a rare benign condition. Optimal management strategies for this specific type of eyelid tumor require further investigation.

*Case presentation:* The patient presented with a 21-year history of a progressively enlarged mass in the right lower eyelid. Previous treatments, including laser photocoagulation and surgical excision, have failed to prevent recurrence. The mass, characterized by a firm texture and low mobility, has raised concerns regarding malignancy. However, histopathological examination following surgical excision identified the mass as sebaceous gland hyperplasia. The patient's medical history was notable for benign gastrointestinal and intestinal polyps with no evidence of malignancy.

*Conclusions:* A final diagnosis of eyelid sebaceous gland hyperplasia was established after surgical excision and comprehensive histopathological analyses. The patient's successful recovery without recurrence over a three-month follow-up period post-surgery highlights the efficacy of the surgical approach and the use of intraoperative frozen section pathological examination.

## 1. Introduction

Eyelid tumors are among the most common neoplasms encountered in ophthalmic clinical practice. Sebaceous gland hyperplasia, also referred to as adenomatoid or pseudo adenomatous hyperplasia, is a relatively rare, benign condition that affects the sebaceous glands. The occurrence of sebaceous gland hyperplasia increases with advancing age and mainly affects middle-aged or older male adults, comprising approximately 1% of the healthy population [1]. It represents a mere 0.4% of primary eyelid tumors, as observed over 19 years in Turkey [2]. Owing to its rarity, the optimal diagnosis and management strategies for this condition warrant further investigation. Herein, we present a rare case of a patient with a long recurring history of sebaceous gland hyperplasia at the same spot that required intraoperative pathological examination along with excision surgery for complete eradication.

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## 2. Case/case series presentation

A 52-year-old Chinese male presented with a gradually enlarging mass on the lower eyelid of the right eye, with a history of 21 years. The patient underwent laser photocoagulation treatment and excision surgery without pathological examination at another hospital 5 years and 3 years ago respectively, but the mass recurred within a week post-surgery. Over the past 6 months, the mass on the lower eyelid of the right eye gradually enlarged, but there were no symptoms of ocular surface congestion, pain, or vision loss. The mass was not soft to the touch, had low mobility, and had a firm texture, closely resembling the characteristics of meibomian gland carcinoma (Fig. 1). Histopathological examination was performed to rule out the possibility of malignancy, and the patient underwent surgical treatment.

The patient's overall health has been good since disease onset. During a routine physical examination 2 years ago, the patient underwent gastrointestinal endoscopy, during which one gastric polyp and four intestinal polyps were removed, all of which were reported to be benign after pathological examination. The patient also underwent a full-body imaging examination, and no malignant lesions were found in any other organ. Considering the long duration, slow growth, and recurrent but not rapidly progressing nature of the lesion on the right lower eyelid, it was presumed to be benign. However, owing to its similar appearance to that of meibomian gland carcinoma, surgical excision was planned for diagnostic and treatment purposes. Under general anesthesia, the lesion was completely excised, and an intraoperative frozen section examination of the margins was conducted until it was confirmed that no residual lesion tissue remained and the procedure was smooth.

Postoperative histopathological examination of the mass revealed tumorous hyperplasia of the sebaceous glands, and the final diagnosis was hyperplasia of the sebaceous glands of the right lower eyelid (Fig. 2).

The patient was followed up for 3 months postoperatively, during which time he recovered well with no recurrence or other complications (Fig. 3). The patient was satisfied with the outcome of this surgical treatment and felt that the recurrence of the tumor in his eye had a continuous negative impact on his life and mental health over the past 21 years. Although the postoperative pathological examination revealed a benign tumor, the patient hoped to undergo intraoperative pathology-guided surgical resection at an early stage to avoid tumor recurrence.

## 3. Discussion

Hyperplasia is not rare in newborns due to exposure to maternal hormones, but the incidence of this lesion in the skin decreases significantly with age [1,3]. Hyperplasia of the eyelid sebaceous glands is an extremely rare benign lesion that is often misdiagnosed and mistreated in clinical practice due to its rarity [4–6]. In the differential diagnosis of sebaceous tumors, multiple conditions exhibit overlapping histological features, each with unique diagnostic characteristics (Table 1) [2,7,8]. There have been no reports indicating that sebaceous hyperplasia and sebaceous adenoma pose a life-threatening risk to patients. However, mortality rates from sebaceous

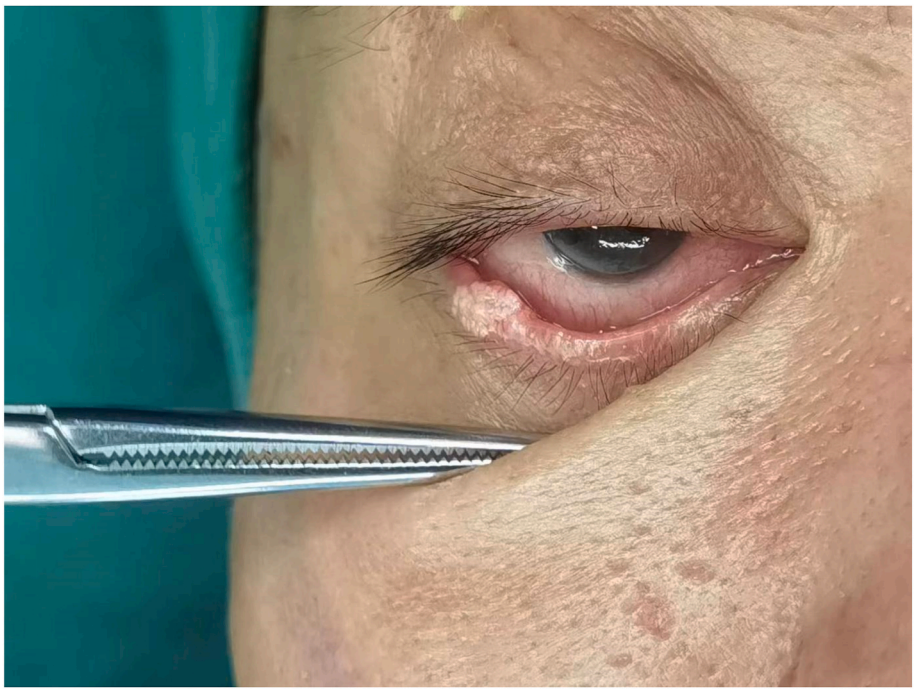

**Fig. 1.** Through physical examination the mass had a size of approximately 0.6 × 0.5 × 0.4 cm with a granular appearance, rough surface, and clear boundaries.

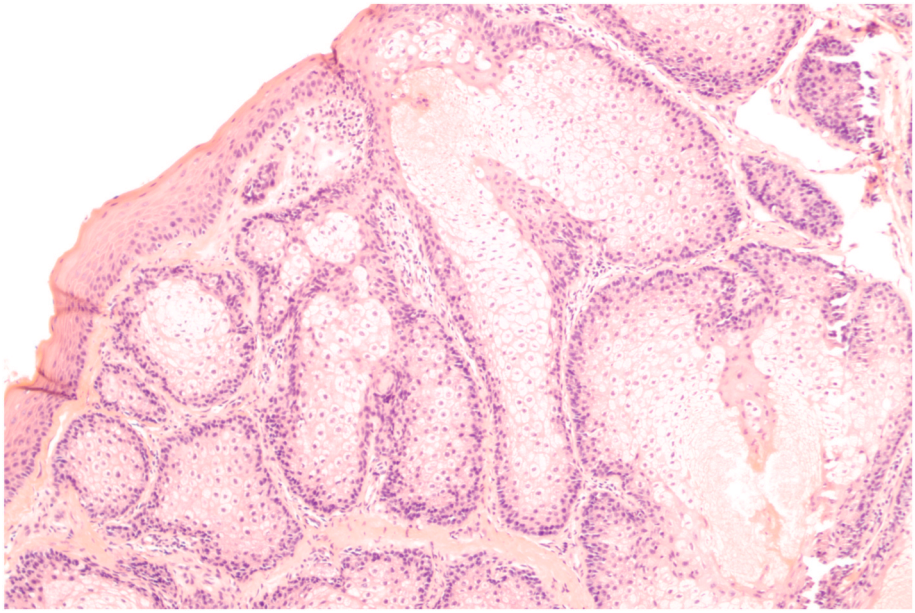

**Fig. 2.** The histopathological characteristics of the tissue sample showed lobular hyperplasia of the sebaceous glands. Immunohistochemistry results indicated wild-type P53, primarily basal Ki67 positivity, positive CK5/6, and partial positivity for androgen receptor.

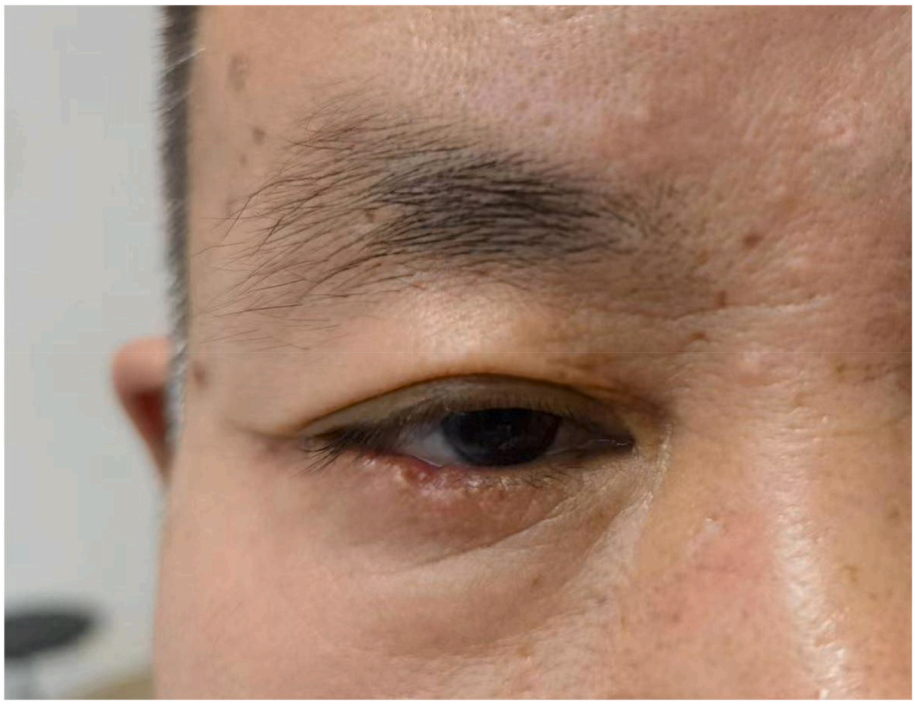

**Fig. 3.** One month after the surgery, there was no recurrence of the mass on the lower right eyelid following surgical removal.

gland carcinoma of the eyelid range between 3% and 41% [9–15]. Furthermore, sebaceous gland carcinoma may progress to invade ocular surface tissues and intraocular structures, necessitating the surgical removal of the eye affected [7]. If systemic metastasis occurs, it can pose a life-threatening risk. In a retrospective study of 2228 cases of eyelid tumors, hyperplasia of the eyelid sebaceous glands accounted for only 0.3% of eyelid tumors [8]. In the presented case, the patient exhibited clinical manifestations closely resembling sebaceous adenocarcinoma, a malignant neoplasm, coupled with a history of rapid recurrence. Accurate diagnosis in such cases requires additional histopathological examination, which was omitted in the patient's previous treatment for this condition.

**Table 1**
Comparative overview of sebaceous tumors on the eyelid: hyperplasia, sebaceous adenoma, and sebaceous gland carcinoma.

| | Sebaceous Hyperplasia | Sebaceous Adenoma | Sebaceous Gland Carcinoma |
|---|---|---|---|
| Nature | Benign tumor | Benign tumor | Malignant tumor |
| Appearance | Slow-growing painless yellow nodular lesion | Tan, pink, or yellow nodules or papules, usually approximately 5 mm in the largest size | Nodular lesion that can be ulcerated or bleeding; often appears as a hard, irregular mass |
| Mean Age | 52 | 62 | 60 |
| Symptoms | Generally asymptomatic | Generally asymptomatic | May be painful or bleed; potential for rapid growth |
| Incidence of eyelid tumors | 0.3%–0.4% | 0.1%–0.7% | 1%–5.5% |

Sebaceous hyperplasia is characterized by the proliferation of lobules that are elevated within the dermis compared to normal sebaceous glands. These lobules, which are typically smaller than those observed in sebaceous adenomas, are arranged concentrically around the central duct and exhibit either adenomatoid or pseudoadenomatous hyperplasia [5]. In contrast, sebaceous adenoma retains a lobular and organoid structure [5,16]. It is distinguished by pseudo-encapsulated lobules of varying sizes and shapes, comprising mature central sebocytes encircled by a pronounced rim of germinal basaloid cells. Compared to sebaceous gland hyperplasia, sebaceous adenoma shows variably expanded basaloid cells with more than the normal two-cell layers seen in normal sebaceous glands and sebaceous hyperplasia, and over 50% basaloid cell content is seen in sebaceoma [1,16,17]. Sebaceomas or epitheliomas present as linear arrays of bland basaloid cells interspersed with microcystic ductules. Its histological signature includes sporadically distributed sebaceous cells that exhibit varying degrees of vacuolation and provide a distinctive histopathological profile [17]. Sebaceous adenocarcinomas demonstrate a more aggressive histological pattern. It is characterized by basaloid cells and atypically enlarged epithelial cells with hyperchromatic nuclei [13,18,19]. Distinctive features include pagetoid intraepithelial spread and extensive adnexal infiltration and destruction, serving as key differentiators from more benign counterparts [16,20]. Finally, basal cell carcinoma with sebaceous differentiation can be identified by peripheral palisading of basaloid cells, retraction artifacts, and haphazardly arranged sebaceous cell clusters [16,21,22].

The necessity for accurately separating sebaceous adenomatoid hyperplasia from a sebaceous adenoma is that the former usually lacks association with an internal visceral malignancy manifested in the Muir-Torre syndrome, a known disease that may manifest as skin lesions and specific malignant tumors [5,23,24]. Skin lesions may appear before, during, or after the development of malignant tumors and are often the first symptoms noticed. Other cancers may not immediately cause symptoms. Patients with sebaceous adenomas, sebaceous carcinomas, and similar conditions must undergo screening for gastrointestinal (47%), genitourinary (21%), and breast (12%) cancers [23,25]. In the case of a patient diagnosed with eyelid sebaceous gland hyperplasia, given that all five polyps found on gastrointestinal examination 2 years ago were benign, it is not possible to diagnose Muir-Torre syndrome; however, we will continue to monitor the patient's health condition and conduct genetic testing of pathological tissue and blood samples when necessary.

Various treatments for sebaceous hyperplasia have been documented, including electrodesiccation, cryotherapy, oral isotretinoin, laser treatment, and topical photodynamic therapy [26,27]. Nonetheless, for eyelid lesions, we advocate surgical intervention complemented by intraoperative frozen section pathology to minimize the risk of injury to the conjunctiva and other ocular structures, while ensuring complete removal of the lesion. Given the patient's history of two recurrences following treatment and the similar appearance of sebaceous hyperplasia and sebaceous gland carcinoma on the eyelids, coupled with the absence of histopathological examination, we had to consider the possibility of a malignant tumor. Therefore, we opted to perform surgery under general anesthesia. This approach spared the patient the discomfort of waiting for intraoperative histopathological examination results during surgery under local anesthesia. If intraoperative histopathological examination suggested the possibility of a malignant tumor, we extended the excision margin and performed reconstructive surgery simultaneously to ensure both the patient's safety and aesthetic appearance. In the present case, we performed meticulous surgical excision and histopathological evaluation to confirm the nature of the lesion. We believe that this approach is currently the most effective for treating eyelid sebaceous gland hyperplasia; however, further, studies are needed to confirm this hypothesis. It not only yields histopathological specimens for definitive diagnosis but also serves as a therapeutic measure. To prevent recurrence, it is crucial to conduct an intraoperative frozen section examination to ascertain the total excision of the lesion. The absence of intraoperative frozen section examination for the previous two treatments possibly contributed to the incomplete resection which led to subsequent short-term recurrence in our patient. In our surgical procedure with intraoperative frozen section examination, no recurrence was observed during the three-month follow-up. Our case highlights the importance of distinguishing sebaceous gland hyperplasia from other diseases, especially malignancies, to provide the most appropriate treatment. This underscores the significance of complete surgical excision and histopathological examination for the accurate diagnosis and treatment of such rare lesions. Long-term follow-up is essential for these patients to monitor recurrence or potential development of other related syndromes.

## 4. Conclusion

Eyelid sebaceous gland hyperplasia, a notably rare benign lesion, often presents diagnostic challenges in clinical practice owing to its infrequent occurrence and the potential for misdiagnosis and mistreatment. The distinction between eyelid sebaceous gland hyperplasia is particularly important in the context of Muir-Torre syndrome, where an accurate diagnosis affects patient management,

including screening for associated malignancies. Our patient had eyelid sebaceous gland hyperplasia and a history of benign gastrointestinal polyps, illustrating the need for vigilant monitoring and genetic testing. The present case, which mimicked sebaceous adenocarcinoma with a history of rapid recurrence, illustrates the necessity of considering a malignant neoplasm and underscores the complexity of an accurate diagnosis, which relies heavily on histopathological examination. Treatment modalities for sebaceous hyperplasia vary; however, in the case of eyelid involvement, surgical intervention with intraoperative frozen section pathology is recommended to ensure complete lesion removal while protecting the delicate ocular structures. This case highlights the importance of distinguishing between sebaceous gland hyperplasia and malignancy for appropriate treatment. This highlights the critical role of complete surgical excision, histopathological examination, and long-term follow-up in managing such rare lesions and monitoring for recurrence or related syndromes.

## Ethics statement

This study was reviewed and approved by Beijing Tongren Hospital, Capital Medical University (approval number: TREC2023-KY061). The patients provided informed consent to participate in the study. The patient provided informed consent for the publication of the anonymized case details and images.

## Data availability statement

All data generated or analyzed in this study are included in the published article. Histopathological images and patient clinical data supporting the conclusions of this study have been included in this article. Further inquiries can be directed to the corresponding authors.

## CRediT authorship contribution statement

**Mingshen Ma:** Methodology, Data curation, Conceptualization. **Rui Liu:** Data curation. **Jing Li:** Investigation. **Hang Yang:** Conceptualization. **Runzi Yang:** Methodology. **Jianmin Ma:** Writing – review & editing, Supervision, Resources, Project administration, Conceptualization.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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