

## Unveiling a Case of Sebaceous Cyst in the Cheek Region: An In-depth Exploration of Literature

### Abstract:

Sebaceous cysts are common in head and neck region including scalp. Usually they are asymptomatic and slow-growing in nature but may become metastatic or infected. They need to be treated with caution because their presence may hinder aesthetics. In this article, we are going to discuss a unique case of sebaceous cyst on the left cheek region in a 23 year old female patient who was anxious about the swelling and had aesthetic concerns. We had operated it with minimal invasive approach for cosmetic purpose and went forward with enucleation. We have tried to put forth a comprehensive review of literature about sebaceous cyst.

**Key-words:** Sebaceous Cyst; Epidermoid Cyst; Steatocystoma; Aesthetic Surgery.

### Introduction:

A sebaceous cyst, also known as an epidermoid cyst[1], is a non-cancerous, closed sac under the skin that typically contains a thick, yellowish, oily substance called sebum.[2] They usually manifest as firm to fluctuant during palpation, with a dome shaped appearance, slow growing in nature. These cysts develop from hair follicles or skin glands.[3] Typically found on the face, neck, and upper body, sebaceous cysts manifest as firm, mobile nodules, often marked by a discernible central punctum, lending them a distinctive appearance. Adults and middle-aged people are generally affected. In this case, our goal is to treat the sebaceous cyst by complete removal approach and gaining the most suitable cosmetic outcome, which means negligible amount of scar. This case report highlights a unique presentation of a sebaceous cyst in the cheek region, with the primary objective of achieving its complete excision while meticulously ensuring an optimal cosmetic outcome.

### Case Report:

A 23-year-old female came to the Department of Oral and Maxillofacial Surgery with a chief complaint of a painless swelling in the left cheek region, persisting for the past four

months. The swelling had gradually increased in size over this period. The patient reported no history of systemic diseases.

Initially, a small swelling had developed, accompanied by a visible overlying skin punctum. Clinical examination revealed a non-tender, firm, mobile, and slightly compressible nodule measuring approximately 10 x 10 mm<sup>2</sup>, with a distinct overlying skin punctum (Fig. 1). Based on the clinical findings, a diagnostic hypothesis of a sebaceous cyst in the cheek region was proposed. A provisional diagnosis of a

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**Received :** 18 Nov., 2024, **Published :** 31 March, 2025

Access this article online	
Website: www.ujds.in	Quick Response Code
DOI: <a href="https://doi.org/10.21276/ujds.2025.11.1.13">https://doi.org/10.21276/ujds.2025.11.1.13</a>	

**How to cite this article:** Jha, A. K., Das, D. S., Ganguly, D. A., Ansari, D. A. H., Kumar, D., & Egbal, D. S. (2025). Unveiling a Case of Sebaceous Cyst in the Cheek Region: An In-depth Exploration of Literature. UNIVERSITY JOURNAL OF DENTAL SCIENCES, 11(1).

sebaceous cyst was established, supported by its clinical presentation. However, differential diagnoses were considered, including lipoma, dermoid cyst, and fibrous tissue tumor, to ensure comprehensive evaluation and management. Excision of the lesion was planned under local anesthesia. An incision of about 8 mm was given over the lesion following the RSTL to reach upto the depth of subcutaneous tissue. Undermining was done to remove the lesion intoto and sent for histopathological examination (Fig.2). Closure was done by 5-0 prolene using subcuticular suturing technique. The histopathological examination confirmed the diagnosis of sebaceous cyst (Fig.3).

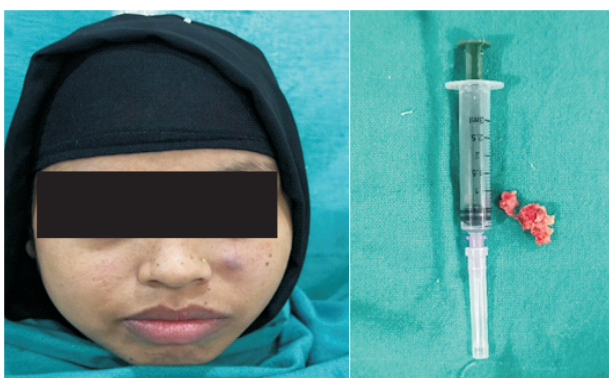


Fig. 1. Pre-operative photograph of patient with a non-tender, Fig. 2. Specimen removed intoto slightly compressible firm nodule with respect to cheek region

Postoperatively, no complications were observed, and the patient was advised on proper wound care and hygiene techniques. The wound healed uneventfully, with sutures removed after 7 days. At the 30-day follow-up, the site demonstrated excellent healing, and no cosmetic issues were noted, ensuring a satisfactory aesthetic outcome (Fig.4).

### Discussion:

The other name of sebaceous cyst is Steatocystoma. Rudolf Virchow first suggested the term "sebaceous cyst." It commonly occurs in areas such as the head, neck, scalp, scrotum, earlobe, and breast, with a particularly high incidence in the head and neck region.[4] According to Nicollas et al. (2000), the most commonly affected head and neck regions for cutaneous cysts include the scalp (34%), neck (18%), periorbital area (17%), cheeks and lips (16%), periauricular region (9%), and nasal area, including the forehead (6%).[5] Pushker N et al. has observed 71 % periorbital and superficial, whereas 29% were deep and orbital epidermoid & dermoid cysts among 280 cases.[6]

Some dermoid cysts in the head region often misdiagnosed with epidermoid cyst and attempted removal of dermoid cyst may develop a wound with intracranial communication.[1] These cysts usually have 1-5 cm in diameter but some literature suggests that rarely they can have dimensions  $\geq 5$  cm which were termed giant cysts. It is observed that the cysts with a diameter larger than 5 cm have a tendency for recurrence after being excised. The likelihood of cancer development is higher in giant epidermal cysts, although these are rare occurrences.[4] In our case, the cyst was observed in the cheek region, which is relatively infrequent, with the lesion measuring approximately 1 cm in size.

The role of sebaceous gland is to produce sebum, which makes a layer on skin and hair. Usually sebaceous cysts formed by blockage or destruction of sebaceous gland. The cystic lumen has been described to contain dense keratin and lipid content in addition to possibly containing some mitotic figures, nuclear atypia and dyskeratotic cells. Immuno his to chemistry study indicates positively presence for certain cell-cycle regulatory proteins for example, p27kip1, MMP9, LAT, BCL-10. It is believed that there is an imbalance between dermal fibroblast and matrix metal loproteinase which explains the enlargement of the cyst.[7]

Major causes of sebaceous cysts are blocked hair follicles which causes accumulation of sebum and form a cyst. Trauma to the skin can lead to the formation of a cyst, Some individuals may be genetically predisposed to developing sebaceous cysts, People with severe acne may be at higher risk of developing these cysts. Conditions like basal cell nevus syndrome, Gardner Syndrome can increase susceptibility. Sebaceous cyst is a slow-growing, painless lump beneath the skin, with a small, round, and firm texture, with punctum. Punctum is a blackish discoloured region of skin over the cyst which is composed of necrosed materials and connects the underlying cyst. If infected, the cyst may become red, painful, and filled with pus, which may rupture & leading to pus or foul-smelling discharge.[8] Approximately 80% of these cases present as solitary, painless cysts that remain benign and typically cause minimal discomfort. But in about 20% of cases, they turned painful, the pain was due to secondary bacterial infections resulting in inflammation and recurrent infections may lead to fibrosis, resulting in the cysts becoming fixed or less mobile due to the formation of surrounding scar tissue. This is due to the low level of inflammation resulting from either a chronic infection or the body's natural immune response to keratin or sebum in the dermis, which causes local macrophage and neutrophil accumulation and triggers an inflammatory response

characterized by pain, swelling, redness, pus discharge.[2] In our case, the patient came with a diffuse swelling of 10 x 10 mm dimension on the left cheek, having a centrally located punctum with clinically no infection and no nodal involvement. This ruled out all infective diseases and benign and neoplastic conditions.

In some literature, it was stated that the recurrence rate of sebaceous cysts treated by conventional excision was 0.66% as reported by Klin and Ashenazi.[9] According to a randomized controlled trial conducted by Lee et al, comparative analysis of elliptical excision and punch incision technique was performed on more and less than 2 cm diameter cystic lesions has shown that the punch incision technique was produced a cosmetic scar. According to Mehrabi et al, sebaceous cysts operated by punch incision technique has a recurrence rate of 3.36%.[10]

Lesions whose clinical characteristics closely resemble those of a pilomatrixoma have been detected in this facial zone, but this diagnosis is uncommon and poorly documented in the existing literature, so it might be viewed as one of the differential diagnoses. The accurate diagnosis of a sebaceous cyst is of paramount importance. A thorough physical examination serves as the initial step in identifying the lesion. To differentiate it from other pathological conditions, additional diagnostic tools such as ultrasound and MRI may be employed. While FNAC often provides a definitive diagnosis, MRI proves to be a valuable adjunct for confirming the diagnosis and ensuring precise evaluation.[4] Bishop et al. recorded the highest incidence rate at 9.2% among 119 cases, with several studies in the literature documenting the malignant transformation of sebaceous and epidermoid cysts into squamous cell carcinoma.[11] In our case, additional clinical and ultrasound tests ruled out lipoma and other salivary vascular lesions. Ultrasound showed a small, well-demarcated, heterogenous hypoechoic lesion on the left cheek region.

Though sebaceous cysts are typically harmless, they can cause discomfort or cosmetic concerns. Surgical removal is usually the most effective treatment to ensure the cyst doesn't return. The primary goal of surgical management is to completely excise the cyst, including the cyst wall or sac to prevent recurrence. There are several steps involved in the surgical procedure for the removal of a sebaceous cyst.[3] It is suggested by some authors that the blepharoplasty approach has been used to eliminate dermoid cysts of eye brow and a rhytidectomy approach taken to excise multiple cheek cysts.[12] In our case, we did a subdermal 1-2 cm incision on the lesion followed by excision of the whole cyst including the cystic sac. It was removed in toto and sent for histopathological examination.

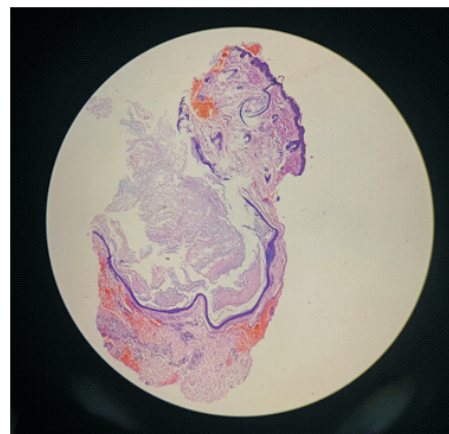


Fig. 3. The histopathological section revealed keratinized stratified squamous epithelium. The underlying stroma displayed a cyst lined by keratinized stratified squamous epithelium with a prominent granular layer. The cyst lumen was filled with numerous keratin flakes (H&E, 4X).



Fig. 4. Post-operative photograph showing the surgical site was healing satisfactory with a slightly perceptible scar line within the infraorbital skin crease when compared with the contralateral side.

Precautions against cyst rupture should be taken as the contents are irritative in nature and cause inflammatory reaction postoperatively.[13] The risks of injury to the facial nerve branches are always present in this approach that's why specialized equipment and training is required to perform this type of surgery. In our case we checked the facial nerve activity during post-operative follow up. Some common complications associated with this type of surgery are recurrent infections, large or painful cysts, cosmetic concerns, failure of conservative treatments, suspected malignancy, hematoma or seroma depending on multiple conditions.

While surgical excision remains the gold standard for sebaceous cyst removal, there are some alternative techniques



that may be used in certain cases, removal of the cyst by a carbon dioxide (CO<sub>2</sub>) laser may be used, though this method is not suitable for larger cysts and may not provide complete excision of the cyst wall. Ronnen M, Suster S and Klin B was advised to inject phenol or Solcoderm.[14] In case of management for unfavourable location for surgical excision of the cyst, some authors suggests application of Socoderm (copper ions 15 ppm, oxalic acid 40 mg/ml, lactic acid 3 mg/ml, nitrate 410 mg/ml, acetic acid 40 mg/ml into the lining of the cyst for fixing the cystic epithelium after giving the incision on the cystic capsule.[14]

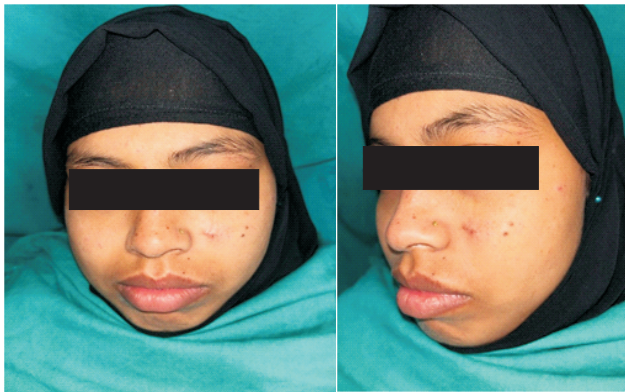


Fig. 5. Post-operative photograph after 2 weeks showing the surgical site was healed satisfactory with a very negligible scar when compared with the contralateral side.

### Conclusion:

Surgical management of sebaceous cysts is a well-established procedure that effectively removes the cyst and prevents recurrence when performed correctly. It involves careful excision of the cyst wall, proper wound closure, and postoperative care to ensure good cosmetic results and minimize complications. Although the procedure is generally safe, patients should be informed of potential risks and the importance of postoperative care to ensure optimal healing and prevent recurrence. The case described above is a unique case of sebaceous cyst in the cheek region. Based on our experience, we strongly recommend including this lesion in the differential diagnosis whenever a punctum is observed on the overlying skin.

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