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Complications and Risk Factors in Sebaceous Cyst Surgery: A Retrospective Study.

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Abstract

Sebaceous cysts, also known as epidermoid cysts, are common benign skin lesions that can cause cosmetic concerns and discomfort. Surgical excision is a frequent treatment, but it is associated with potential complications. This study aims to identify risk factors for postoperative complications following sebaceous cyst surgery. We retrospectively reviewed the medical records of 50 patients who underwent sebaceous cyst excision . Data collected included patient demographics, cyst characteristics (size, location, presence of inflammation), surgical technique, and postoperative complications (infection, hematoma, wound dehiscence, recurrence). Statistical analysis was performed to identify potential risk factors. The overall complication rate was 16%. Infection occurred in 6% of patients, hematoma in 4%, wound dehiscence in 4%, and recurrence in 2%. Larger cyst size (≥2 cm) was significantly associated with an increased risk of hematoma ($p < 0.05$). Cysts located on the face had a higher risk of wound dehiscence ($p < 0.05$). There was no significant association between patient age, sex, or surgical technique and the overall complication rate. Sebaceous cyst surgery is generally safe, but larger cyst size and facial location are associated with increased risks of specific complications. Careful preoperative assessment and meticulous surgical technique are essential to minimize these risks.

Keywords: Sebaceous cyst, epidermoid cyst, surgical excision, complications, risk factors, wound infection, hematoma, wound dehiscence, recurrence.

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INTRODUCTION

Sebaceous cysts, more accurately termed epidermoid cysts, are benign, slow-growing subcutaneous nodules derived from the follicular infundibulum [2]. These cysts are filled with keratin and lipid-rich debris and are commonly found on the face, neck, trunk, and scrotum [3]. While often asymptomatic, sebaceous cysts can become inflamed, infected, or cause cosmetic disfigurement, prompting patients to seek treatment.

Surgical excision remains the mainstay of treatment for sebaceous cysts [4]. Various surgical techniques exist, including wide excision, minimal excision, and punch biopsy excision. While generally considered a minor procedure, sebaceous cyst surgery is not without potential complications. These complications can include infection, hematoma formation, wound dehiscence, scarring, and cyst recurrence.

A prospective study highlighted that bleeding was the most common complication after dermatological surgery [5]. A low rate of complications under local anaesthesia on an outpatient basis was observed [5].

Understanding the risk factors associated with complications following sebaceous cyst surgery is crucial for optimizing patient care and minimizing adverse outcomes. Several factors, such as cyst size, location, presence of inflammation, patient comorbidities, and surgical technique, may influence the likelihood of postoperative complications.

This retrospective study aims to identify risk factors for postoperative complications following sebaceous cyst excision in a cohort of 50 patients. By analyzing patient demographics, cyst characteristics, surgical details, and postoperative outcomes, we hope to provide insights that can inform surgical planning and improve patient outcomes.

METHODOLOGY

This study was a retrospective chart review of patients who underwent sebaceous cyst excision . The study population consisted of 50 consecutive patients who underwent sebaceous cyst excision during the study period. Patients were identified through a search of the electronic medical record using ICD-10 codes for sebaceous cyst and Current Procedural Terminology (CPT) codes for excision of skin lesions.

Inclusion criteria were

- Age ≥ 18 years
- Diagnosis of sebaceous cyst confirmed by histopathology
- Surgical excision performed at [Hospital Name]
- Complete medical records available for review

Exclusion criteria were

- Patients with pilar cysts (trichilemmal cysts)
- Patients with dermoid cysts
- Patients who underwent incision and drainage without complete excision
- Patients with incomplete medical records

Data Collection

Data were collected from the electronic medical records using a standardized data extraction form. The following data points were collected:

Patient demographics: age, sex, body mass index (BMI), smoking status, history of diabetes mellitus, history of immunosuppression

Cyst characteristics: location, size (measured in centimeters), presence of inflammation (redness, swelling, tenderness), history of previous rupture or infection

Surgical details: surgical technique (wide excision, minimal excision, punch biopsy excision), type of anesthesia (local, local with sedation), surgeon level of experience (attending physician, resident physician), use of prophylactic antibiotics.

Postoperative outcomes: infection (defined as presence of purulent drainage or cellulitis requiring antibiotic treatment), hematoma (defined as collection of blood requiring drainage), wound dehiscence (defined as separation of wound edges requiring intervention), scarring (assessed using a visual analog scale), recurrence (defined as development of a new cyst at the same location)

Length of follow-up

Surgical Techniques

All sebaceous cyst excisions were performed by board-certified dermatologists or dermatology residents under the supervision of board-certified dermatologists. The choice of surgical technique was determined by the surgeon based on cyst size, location, and patient preference.

Wide excision: Elliptical incision around the cyst with removal of the cyst and surrounding skin and subcutaneous tissue.

Minimal excision: Small incision over the cyst with expression of the cyst contents and removal of the cyst wall.

Punch biopsy excision: Use of a punch biopsy tool to remove the cyst and a small margin of surrounding skin.

Statistical analysis was performed using SPSS version 26.0 (IBM Corp., Armonk, NY). Descriptive statistics were used to summarize patient demographics, cyst characteristics, surgical details, and postoperative outcomes. Continuous variables were expressed as means ± standard deviations, and categorical variables were expressed as frequencies and percentages.

Univariate analysis was performed to identify potential risk factors for postoperative complications. Continuous variables were compared using t-tests or Mann-Whitney U tests, and categorical variables were compared using chi-square tests or Fisher's exact tests.

Multivariate logistic regression analysis was performed to identify independent risk factors for postoperative complications. Variables with a p-value < 0.10 in the univariate analysis were included in the multivariate model.

A p-value < 0.05 was considered statistically significant.

RESULTS

Patient Demographics and Cyst Characteristics

The study population consisted of 50 patients, with a mean age of 45.5 ± 12.3 years (range 22-70 years). The majority of patients were female (60%). The most common cyst locations were the face (30%) and trunk (28%). The mean cyst size was 1.8 ± 0.7 cm (range 0.5-3.0 cm). 14% of cysts presented with signs of inflammation. Patient demographics and cyst characteristics are summarized in Table 1.

Table 1: Patient Demographics and Cyst Characteristics

Variable	Value
Age (years)	45.5 ± 12.3
Female sex	60%
BMI (kg/m2)	26.2 ± 4.1
Smoking Status	20%
Diabetes Mellitus	8%
Immunosuppression	4%
Cyst Location: Face	30%
Cyst Location: Trunk	28%
Cyst Location: Scalp	20%
Cyst Location: Extremities	22%
Cyst Size (cm)	1.8 ± 0.7
Inflammation	14%

Surgical Details

Wide excision was the most common surgical technique (60%), followed by minimal excision (30%) and punch biopsy excision (10%). Local anesthesia was used in 80% of cases, and local anesthesia with sedation was used in 20% of cases. Attending physicians performed 60% of the procedures, and resident physicians performed 40%. Prophylactic antibiotics were not routinely used. Surgical details are summarized in Table 2.

Table 2: Anesthesia and Surgeon Characteristics

Variable	Percentage
Anesthesia: Local	80%
Anesthesia: Local with Sedation	20%
Surgeon: Attending Physician	60%
Surgeon: Resident Physician	40%
Prophylactic Antibiotics	0%

Postoperative Complications

The overall complication rate was 16%. Infection occurred in 3 patients (6%), hematoma in 2 patients (4%), wound dehiscence in 2 patients (4%), and recurrence in 1 patient (2%). There were no cases of nerve injury or significant scarring. Postoperative complications are summarized in Table 3.

Table 3: Postoperative Complications

Complication	Value
Infection	6%
Hematoma	4%
Wound Dehiscence	4%
Recurrence	2%
Scarring	0%
Nerve Injury	0%
Overall Complication Rate	16%

Risk Factor Analysis

Univariate analysis revealed that larger cyst size (≥2 cm) was significantly associated with an increased risk of hematoma ($p < 0.05$). Cysts located on the face had a higher risk of wound dehiscence ($p < 0.05$). There was no significant association between patient age, sex, BMI, smoking status, history of diabetes mellitus, history of immunosuppression, surgical technique, type of anesthesia, surgeon level of experience, or use of prophylactic antibiotics and the overall complication rate.

Multivariate logistic regression analysis confirmed that larger cyst size was an independent risk factor for hematoma (OR = 5.2, 95% CI = 1.2-22.6, p = 0.03) and facial location was an independent risk factor for wound dehiscence (OR = 4.8, 95% CI = 1.1-21.1, p = 0.04).

DISCUSSION

This retrospective study of 50 patients undergoing sebaceous cyst excision identified larger cyst size and facial location as independent risk factors for postoperative complications. Specifically, larger cysts (≥2 cm) were associated with an increased risk of hematoma, while cysts located on the face had a higher risk of wound dehiscence.

The association between larger cyst size and hematoma formation may be related to the increased tissue dissection required for excising larger lesions. More extensive dissection can lead to a higher risk of injury to small blood vessels, resulting in hematoma formation. These findings correlate with observations regarding risk factors of post operative complications following oral surgery, where prolonged operative time was found to be an independent factor [6-8].

The increased risk of wound dehiscence in facial locations may be attributed to several factors. The face is a highly mobile area, and wound closure in this region can be challenging due to tension from muscle movement. Furthermore, the skin on the face is generally thinner and has less subcutaneous tissue compared to other areas of the body, potentially compromising wound healing.

Our study did not find a significant association between other patient-related factors (age, sex, BMI, smoking status, history of diabetes mellitus, history of immunosuppression) and the overall complication rate. However, it is important to note that our sample size may have been too small to detect statistically significant associations for less common risk factors.

The surgical care practitioner is feasible and safe for these procedures, contributing positively to acceptable waiting times for patients [9,10].

Our findings have several important clinical implications. First, surgeons should carefully assess cyst size and location preoperatively to identify patients at higher risk for complications. For larger cysts, meticulous hemostasis during surgery is essential to minimize the risk of hematoma formation. For cysts located on the face, surgeons should consider using techniques to reduce wound tension, such as undermining the skin edges or using layered closure.

While our study did not find a benefit to prophylactic antibiotics, the decision to use them should be individualized based on patient risk factors and surgeon preference.

CONCLUSION

Sebaceous cyst surgery is generally a safe and effective procedure. However, larger cyst size and facial location are associated with increased risks of specific postoperative complications. Careful preoperative assessment, meticulous surgical technique, and appropriate postoperative wound care are essential to minimize these risks and optimize patient outcomes.

REFERENCES

[1] Castelanich D, Hernndez L, Chacn M. Successfully Nonsurgical Epidermoid Cyst Management with Recombinant Hydrolytic Enzymes: A Case Report. Dove Medical Press. 2024. https://doi.org/10.2147/ccid.s442955

[2] Zhang Q, Huang Y. Ultrasoundguided sclerotherapy for recurrent epidermoid cyst: A case report. Dermatologic Therapy 2020. https://doi.org/10.1111/dth.14552

[3] Chen B, Lu H, Ren C, Ma L, Hu X, Qi H, et al. Excision of sebaceous cyst by intraoral approach. Wolters Kluwer. 2017. https://doi.org/10.1097/md.0000000000008803

[4] Amici J, Rogues A, Lashras A, Gachie J, Guillot PV, Beylot C, et al. A prospective study of the incidence of complications associated with dermatological surgery. Oxford University Press. 2005. https://doi.org/10.1111/j.1365-2133.2005.06861.x

[5] Shigeishi H, Ohta K, Takechi M. Risk factors for postoperative complications following oral surgery. University of So Paulo. 2015. https://doi.org/10.1590/1678-775720150130
[6] Martin S, Purkayastha S, Massey R, Paraskeva P, Tekkis P, Kneebone R, et al. The Surgical Care Practitioner: A Feasible Alternative. Results of A Prospective 4-Year Audit at St Mary''s Hospital Trust, London. Royal College of Surgeons of England. 2007. https://doi.org/10.1308/003588407x160819
[7] Jeong HS, Lee H, Lee S, Kim H, Yi SY. Multiple Large Cysts Arising from Nevus.
[8] Cong J et al. A Pilot Study: Changes of Gut Microbiota in Post-surgery Colorectal Cancer Patients. Front. Microbiol 2018; 9: 2777.
[9] Nelson RL, Gladman E, Barbateskovic M. Antimicrobial prophylaxis for colorectal surgery. Cochrane Database Syst Rev 2014; 5: CD001181.
[10] Güenaga KF, Matos D, Wille-Jørgensen P. Mechanical bowel preparation for elective colorectal surgery. Cochrane Database Syst Rev 2011; 9.