

Skin Surgery Procedures and Management in a Secondary-Level Hospital in Semarang: A Study from 2023 to 2025

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Abstract: Skin surgery procedures are common medical interventions used to treat various skin conditions, both benign and malignant. Increased public awareness of skin health and accessibility to dermatology services have driven the trend of rising numbers of skin surgery procedures in secondary hospitals. This study aims to analyze the incidence of skin surgical procedures at Semarang Secondary Hospital from 2023 to 2025 and identify the most commonly treated skin conditions. The research method used a retrospective descriptive design with medical records of 38 patients who underwent excision or electrocautery. The results showed that excision was more commonly performed (63.2%) than electrocautery (36.8%), with epidermoid cysts being the most frequent diagnosis (41.7%) for excision and skin tags (42.9%) for electrocautery. Most patients were aged 40–60 years, with more women (57.9%) than men. There was an increase in the number of procedures from 2023 to 2024, indicating increased awareness and accessibility of services. The implications of this study are as a basis for the development of surgical dermatology services, particularly in patient education and the optimization of diagnosis and management of skin lesions in secondary hospitals. lesions

Keywords: skin surgery, excision, electrocautery, incidence, secondary hospital skin.

INTRODUCTION

Cutaneous surgery is a common medical procedure performed in various healthcare facilities to address a wide range of skin disorders, both benign and malignant. This procedure not only aims to remove pathological lesions that may compromise patient health but also to preserve skin function and aesthetic appearance. In dermatology practice and minor surgery, cutaneous surgery plays a crucial role in the prevention and treatment of various dermatological conditions, ranging from benign tumors to skin malignancies. Advances in medical technology and growing public awareness of skin health have contributed to an increasing demand for cutaneous surgery in recent years (Hosseini et al., 2021; Wong et al., 2020; Lee et al., 2022).

In secondary hospitals in the city of Semarang, the trend of increasing cutaneous surgical procedures has become more apparent, in line with improved accessibility to healthcare services and greater public education regarding the importance of early detection of skin diseases. Skin conditions requiring surgical intervention in these secondary hospitals are diverse, including epidermoid cysts, nevi, basal cell carcinoma, skin tags, and seborrheic keratoses. Each of these conditions has distinct clinical characteristics, and therefore, the surgical approach is tailored to the type, location, size, and malignancy potential of the lesion. For example, excision is often performed to remove tumorous lesions or those at risk of malignant transformation, while electrocauterization is commonly used for superficial, benign lesions such as skin tags and seborrheic keratoses (Chou et al., 2020; Gupta et al., 2021; Shimozuma et al., 2022).

Excision is one of the most frequently performed surgical methods for treating skin lesions that require complete removal. This procedure involves cutting out the lesion along with a margin of healthy surrounding tissue to ensure no pathological tissue remains. Excision is commonly applied in cases such as epidermoid cysts, nevi with potential for malignant transformation, and basal cell carcinoma, which is the most prevalent type of skin cancer. One of the advantages of excision is its ability to provide more definitive outcomes, especially when combined with histopathological examination to ensure a more accurate diagnosis (Harlim & Setiawan, 2020; Panjaitan & Yulisna, 2024; Sadeli et al., 2021). Meanwhile, electrocauterization is a procedure that uses electric current to burn abnormal tissue. This technique is more frequently used for small, superficial, and benign lesions such as skin tags and seborrheic keratoses. One of the benefits of electrocauterization is that it is faster, causes minimal bleeding, and involves a shorter recovery period compared to excision. However, this technique is limited in its ability to treat deeper lesions or those with malignant potential (Amukty et al., 2024; Juliyanti, 2023; Mawu, 2016).

The rising incidence of cutaneous surgical procedures in secondary hospitals in Semarang can be attributed

to several factors, including increased public awareness about the importance of early dermatological consultation, improved access to healthcare services, and advancements in diagnostic and therapeutic techniques in dermatology. In addition, a growing number of patients undergoing routine check-ups with dermatologists has contributed to earlier detection and more optimal treatment of cases. This trend reflects a shift in skin health management patterns in the community, with more individuals recognizing the importance of prevention and early detection of various skin disorders (Suryani et al., 2021; Widodo & Putra, 2020; Nabila & Sutrisno, 2021).

This study aims to analyze the incidence of cutaneous surgical procedures in secondary hospitals in Semarang during the period from 2023 to 2025 by reviewing patient data who underwent excision and electrocauterization procedures. Furthermore, the study seeks to identify the most common diseases treated using each surgical method. By understanding the trends and patterns of cutaneous surgical procedures in secondary hospitals in Semarang, healthcare professionals can design more effective service strategies and improve the quality of care for patients with various skin disorders (Fajri et al., 2020; Nanda et al., 2021; Junaedi, 2020). The findings of this study are expected to provide a more comprehensive overview of the distribution of cutaneous surgery cases and serve as a foundation for developing better dermatological policies and services in the future.

Skin surgery is a critical medical intervention for managing both benign and malignant dermatological conditions, with excision and electrocautery being among the most commonly performed procedures. Recent studies highlight the increasing prevalence of skin lesions requiring surgical intervention, particularly in aging populations and regions with high sun exposure (Lee et al., 2023). For instance, epidemiological data from Southeast Asia indicate a rising incidence of epidermal cysts and actinic keratosis, underscoring the need for efficient surgical management (Wong et al., 2022). Despite this, there remains a gap in localized data, particularly from secondary-level hospitals, which often serve as the first point of care for many patients (Rochman & Kurniawan, 2021; Hidayat et al., 2020).

Previous research has extensively documented the clinical outcomes of skin surgeries in tertiary hospitals, but few studies focus on secondary healthcare facilities, where resource constraints and patient demographics may differ significantly (Smith et al., 2021). For example, a study in Malaysia revealed that secondary hospitals often face challenges in early diagnosis and follow-up care for skin lesions, leading to delayed interventions (Tan et al., 2023). This gap highlights the urgency of understanding procedural trends and diagnostic patterns in these settings to optimize resource allocation and improve patient outcomes. The present study fills this void by offering a detailed analysis of skin surgery procedures performed in a Semarang secondary hospital, thereby contributing to the limited literature on dermatological care in resource-limited contexts (Suriadi & Sulisty, 2021; Hidayat & Prabowo, 2022).

The urgency of this research is further emphasized by the growing burden of skin diseases in Indonesia, where public awareness and healthcare access remain uneven. A 2023 report by the Indonesian Ministry of Health noted a 20% annual increase in dermatological consultations, with benign lesions like epidermal cysts and skin tags accounting for a significant proportion (Kemenkes RI, 2023). However, no studies have yet examined how these trends translate into surgical demand at the secondary hospital level. By documenting the incidence and types of skin surgeries performed from 2023 to 2025, this study provides timely data to guide policy decisions and clinical training programs aimed at enhancing dermatological services in similar settings.

The novelty of this study lies in its focus on a secondary hospital, a rarely studied setting, and its combination of procedural and demographic analyses. While existing research often prioritizes tertiary centers or specific conditions like skin cancers, this study offers a comprehensive overview of both benign and malignant lesions treated surgically. Additionally, it explores gender and age disparities in surgical access, a dimension overlooked in many prior studies (Garcia et al., 2022). By integrating these elements, the study not only maps procedural trends but also identifies demographic factors influencing skin surgery utilization, providing a foundation for targeted public health interventions.

The objectives of this study are threefold: (1) to determine the incidence of excision and electrocautery procedures in a Semarang secondary hospital, (2) to identify the most frequently treated skin conditions, and (3) to analyze demographic trends among patients. The findings are expected to contribute to the optimization of dermatological services by highlighting high-demand procedures and underserved patient groups. Moreover, the study's implications extend to healthcare policy, suggesting the need for increased training in skin surgery techniques for secondary hospital staff and public education campaigns to promote early lesion detection (Jones et al., 2023). By bridging data and practice gaps, this research supports the broader goal of equitable, efficient dermatological care in Indonesia and similar regions.

MATERIALS AND METHODS

This study is a retrospective descriptive study using medical record data of patients who underwent cutaneous surgical procedures at secondary hospitals in the city of Semarang during the period from January 2023 to March 2025, involving a total of 38 patients. The collected data included age, sex, disease diagnosis, type of surgical procedure performed, as well as the month and year the procedure was conducted.

The inclusion criteria for this study were patients who underwent excision or electrocauterization for clinically diagnosed skin conditions at secondary hospitals in Semarang. Conversely, patients with incomplete data or who underwent procedures other than excision or electrocauterization were excluded from the study.

Analysis was conducted by calculating the number of cases based on the category of surgical procedure and disease diagnosis, as well as the distribution of patients by age and sex. The results are presented in the form of tables and percentages to provide a clearer overview of the patterns of cutaneous surgical procedures in secondary hospitals in the city of Semarang.

RESULTS AND DISCUSSION

Distribution of Patients Based on Cutaneous Surgical Procedures

During the period from 2023 to 2025, a total of 38 patients underwent cutaneous surgical procedures at secondary hospitals in the city of Semarang. Of these, 24 patients (63.2%) underwent excision, while 14 patients (36.8%) underwent electrocauterization. Excision was performed more frequently than electrocauterization, as it is typically indicated for larger lesions or those with more serious pathological concerns.

Table 1. Distribution of Patients Based on Surgical Procedure

Procedure	Number of Patients	Percentage (%)
Excision	24	63.2
Electrocauterization	14	36.8
Total	38	100

Distribution of Patients by Age and Sex

Patients who underwent cutaneous surgical procedures ranged in age from 18 to 72 years, with a mean age of 45.3 years. The age group with the highest number of procedures was the 40 – 60 year range, reflecting increased awareness of skin health among middle-aged individuals. Based on sex, female patients outnumbered male patients, with 22 females (57.9%) compared to 16 males (42.1%). This may be attributed to a tendency among women to pay more attention to skin health and the aesthetics of the face and body.

Table 2. Distribution of Patients by Age and Sex

Category	Number of Patients	Percentage (%)
Female	22	57.9
Male	16	42.1
Total	38	100

Distribution of Excision Procedures by Diagnosis

A total of 24 patients underwent excision to remove various types of skin lesions. The most common diagnosis requiring excision was epidermoid cyst, found in 10 patients (41.7%). These cysts were often located on the face and neck and were typically excised due to progressive growth or pain caused by secondary infection. Other diagnoses requiring excision included nevi (7 cases, 29.2%), some of which showed suspected morphological changes necessitating further histopathological examination. Basal cell carcinoma was also an indication for excision, with 4 cases (16.7%). These cases were generally located on the face and required complete excision to prevent lesion spread. Lipoma, a benign tumor of adipose tissue, was identified in 3 patients (12.5%) and was excised primarily due to increasing size or discomfort.

Table 3. Distribution of Excision Procedures by Diagnosis

Diagnosis	Number of Patients	Percentage (%)
Epidermoid Cyst	10	41.7
Nevus	7	29.2
Basal Cell Carcinoma	4	16.7
Lipoma	3	12.5
Total	24	100

Distribution of Electrocauterization Procedures by Diagnosis

A total of 14 patients underwent electrocauterization, most of which were performed on benign superficial lesions. The most commonly treated lesion using this method was skin tags, found in 6 patients (42.9%). Skin tags are typically located in skin folds such as the neck and axilla, and may cause irritation due to friction with clothing. The second most frequent diagnosis treated with electrocauterization was seborrheic keratosis (5 cases, 35.7%), commonly found on the face and back. Meanwhile, actinic hyperkeratosis, associated with chronic sun exposure,

was found in 3 patients (21.4%) and required electrocauterization to remove the excess tissue.

Table 4. Distribution of Electrocauterization Procedures by Diagnosis

Diagnosis	Number of Patients	Percentage (%)
Skin Tag	6	42.9
Saborrheic Keratosis	5	35.7
Actinic Hyperkeratosis	3	21.4
Total	14	100

Distribution of Procedures by Year and Month

Over the three-year study period (2023–2025), the number of cutaneous surgical procedures increased. In 2023, there were 12 patients who underwent cutaneous surgery, with 8 undergoing excision and 4 undergoing electrocauterization. In 2024, the number of patients increased to 18, with 11 undergoing excision and 7 undergoing electrocauterization. This increase may be linked to improved accessibility to dermatology services and better education regarding the importance of early detection of skin lesions. In early 2025 through March, 8 patients had undergone procedures, with 5 excisions and 3 electrocauterizations. If the upward trend in dermatological services continues, the number of patients in 2025 is expected to rise further.

Table 5. Distribution of Cutaneous Surgical Procedures by Year

Year	Total Patients	Excision	Electrocauterization
2023	12	8	4
2024	18	11	7
2025	8	5	3
Total	38	24	14

Analysis of the Increase in Procedure Numbers

The year-to-year increase in the number of patients undergoing cutaneous surgical procedures reflects a shift in public health-seeking behavior. Several factors may contribute to this trend, including:

- Increasing public awareness of the importance of early examination of suspicious skin lesions.
- The growing development of dermatology services in secondary hospitals in Semarang City, enabling more patients to receive appropriate treatment.
- More modern and efficient surgical methods are attracting more patients to undergo dermatological procedures.

Based on the collected data, it can be concluded that excision procedures were performed more frequently than electrocauterization, with epidermoid cysts and skin tags being the most common diagnoses. Continued monitoring is needed to evaluate trends in cutaneous surgical procedures in secondary hospitals in Semarang City in the coming years.

The results of this study indicate that excision is the most dominant cutaneous surgical procedure performed at secondary hospitals in Semarang City from 2023 to 2025, with epidermoid cysts being the most common diagnosis. These findings align with previous studies showing that epidermoid cysts are among the most frequently encountered benign lesions in the general population. These cysts are usually asymptomatic but may become inflamed, infected, or increase in size significantly, thus requiring excision as a definitive therapeutic intervention.

Excision was also performed on nevi, particularly pigmented nevi that show suspicious morphological changes. The decision to excise a nevus is generally based on clinical criteria such as changes in color, size, or shape that may indicate dysplasia or malignant transformation, such as melanoma. Therefore, excision plays an important role in both the diagnosis and treatment of skin lesions that have the potential to undergo malignant changes.

On the other hand, electrocauterization is an ablative technique commonly used in the treatment of superficial skin lesions. In this study, this procedure was most frequently used for skin tags and seborrheic keratosis. Skin tags are benign lesions commonly found in skin folds such as the neck and axilla, and although harmless, they often cause aesthetic discomfort or irritation due to repeated friction. Electrocauterization is the preferred method for treating skin tags because it is minimally invasive, has a low risk of bleeding, and can be performed quickly in an outpatient setting.

Seborrheic keratosis, which was also treated with electrocauterization, is a common skin lesion found in the elderly population. This benign lesion often attracts patient attention due to its color and texture changes, which may resemble malignant lesions. Therefore, many patients choose to undergo electrocauterization for aesthetic reasons or to avoid irritation caused by the growth of protruding lesions.

Analysis of the Increase in Cutaneous Surgical Procedures

The trend of increasing cases of cutaneous surgical procedures from 2023 to 2024 indicates factors that contribute to the rise in the number of patients undergoing these procedures. One main factor related to this increase is the improved accessibility to dermatology services, both through primary healthcare facilities and referrals to secondary-level hospitals. Additionally, public awareness of the importance of early examination of skin lesions also plays a role in the increased number of procedures. Health campaigns about the risk of malignant transformation in certain skin lesions have encouraged patients to be more proactive in seeking medical care. This is reflected in the increase in the number of patients undergoing excision for suspected morphologically changing pigmented nevi. Specifically, the increase in patients undergoing excision and electrocauterization can also be linked to advancements in medical technology and easier access to cutaneous surgical procedures that are low-risk and have relatively short recovery times (Harlim T Setiawan S., 2020; Mawu, 2016; Sadeli MS Windari M Rahmawati A., 2021; Ulya RR Husniyawati YR., 2022; Wahyuni N Asmat Burhan., 2023).

Distribution by Age and Gender

In this study, the age range of patients undergoing cutaneous surgical procedures varied from 18 to 72 years, with an average age of 45.3 years. The age group of 40–60 years dominated the number of patients undergoing these procedures, which can be associated with the increasing incidence of degenerative skin lesions such as seborrheic keratosis and actinic hyperkeratosis in this age group. In terms of gender distribution, more female patients were observed compared to male patients, with percentages of 57.9% and 42.1%, respectively. The predominance of female patients in this study aligns with various epidemiological studies that show that women are more likely to seek dermatology services compared to men, both for aesthetic reasons and general skin health. Women also tend to have higher awareness of skin changes, which results in more female patients undergoing excision and electrocauterization procedures. This study shows that excision and electrocauterization are the two most commonly performed cutaneous surgical procedures at secondary hospitals in Semarang City, with the distribution of diagnoses reflecting the common prevalence of benign skin lesions in the population. The increase in the number of procedures year after year signals improved access to medical services and growing public awareness of the importance of early detection of skin lesions.

Table 6. Distribution of Cutaneous Surgical Procedures by Diagnosis

Diagnosis	Number of Cases (Excision)	Number of Cases (Electrocauterization)
Epidermoid Cyst	10 (41.7%)	-
Nevus	7 (29.2%)	-
Basal Cell Carcinoma	4 (16.7%)	-
Lipoma	3 (12.5%)	-
Skin Tag	-	6 (42.9%)
Seborrheic Keratosis	-	5 (35.7%)
Actinic Keratosis	-	3 (21.4%)

Thus, this study provides an overview of the pattern of skin surgery procedures at secondary hospitals in Semarang, which can serve as a foundation for the further development of dermatology services to enhance diagnostic and therapeutic efficiency for patients with skin lesions.

CONCLUSION

This study shows that the most common skin surgery procedures performed at secondary hospitals in Semarang from 2023 to 2025 were excision and electrocauterization. Excision was most commonly used to treat epidermoid cysts (41.7%), while electrocauterization was most frequently used for treating skin tags (42.9%). The majority of patients who underwent skin surgery were in the 40–60 age range, with more women than men. The increase in the number of skin surgeries from 2023 to 2024 indicates a rise in awareness and accessibility to dermatology services. The results of this study can serve as a foundation for the development of surgical dermatology services at secondary hospitals in Semarang, particularly in patient education and the optimization of diagnostic and therapeutic procedures for various skin lesions.

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