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Assessment of Long-term Subcutaneous Swelling Management in Minor Surgical Procedures: A Tertiary Care Center.

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ABSTRACT

Subcutaneous swellings, such as lipomas, sebaceous cysts, and hematomas, are common benign conditions managed through minor surgical procedures. This study aimed to assess the long-term outcomes of these procedures, focusing on recurrence, complications, and patient satisfaction in a tertiary care setting. This prospective observational study included 40 patients with benign subcutaneous swellings treated at a tertiary care center over one year. Surgical interventions included simple excision, aspiration and drainage, or excision with wound closure. Data on demographic characteristics, type of swelling, surgical techniques, complications, and follow-up outcomes were collected. Patients were followed up for one year to assess recurrence, complications, and satisfaction using a structured questionnaire. Lipomas (45%) and sebaceous cysts (30%) were the most common swellings. Simple excision was the primary technique (75%). Postoperative complications were minimal, with infection (5%) and delayed wound healing (7.5%) being the most common. Recurrence occurred in 10% of cases, predominantly sebaceous cysts. Patient satisfaction was high, with mean scores of 4.5 for aesthetic outcomes and 4.3 for overall satisfaction. Minor surgical procedures are effective and safe for managing subcutaneous swellings, with low recurrence and complication rates. Optimal surgical techniques and patient education are essential for improved outcomes.

Keywords: Subcutaneous swellings, Minor surgical procedures, Recurrence

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INTRODUCTION

Subcutaneous swellings are commonly encountered in clinical practice, presenting as benign lesions such as lipomas, sebaceous cysts, and hematomas, or as indicators of more serious underlying pathologies. While the majority of these swellings are benign and managed effectively through minor surgical procedures, their management is crucial to prevent recurrence, infection, or progression to more severe conditions. At tertiary care centers, where resources and expertise are readily available, the long-term outcomes of such management approaches offer valuable insights into best practices [1, 2].

Advancements in diagnostic modalities, including ultrasonography and fine-needle aspiration cytology, have improved the accuracy of preoperative evaluations, ensuring appropriate surgical planning. The choice of surgical technique, meticulous dissection, and adequate postoperative care play a significant role in minimizing complications and enhancing patient outcomes. Additionally, understanding the factors contributing to recurrence, such as incomplete excision or infection, is vital for achieving optimal long-term results [3].

Our study evaluates the long-term outcomes of subcutaneous swelling management in minor surgical procedures at a tertiary care center. By assessing recurrence rates, patient satisfaction, and associated complications, our study aims to provide evidence-based recommendations to refine management protocols and improve patient care in similar clinical settings.

METHODOLOGY

Our study was conducted at the Department of General Surgery in a tertiary care center over a one-year period. The study aimed to assess the long-term management outcomes of subcutaneous swellings through minor surgical procedures. Patients presenting with subcutaneous swellings, such as lipomas, sebaceous cysts, and small hematomas, were included. The inclusion criteria comprised patients aged 18 years and above, with benign subcutaneous swellings confirmed through clinical examination and preoperative investigations. Exclusion criteria included patients with known malignant swellings, those with systemic comorbidities contraindicating surgery, and individuals unwilling to participate.

A total of 40 patients meeting the inclusion criteria were enrolled in the study after obtaining written informed consent. All patients underwent a thorough clinical evaluation, including history taking and physical examination, followed by diagnostic investigations such as ultrasonography or fine-needle aspiration cytology where indicated. The choice of surgical technique was based on the type and size of the swelling, with procedures performed under local anesthesia in a sterile setting. Standard postoperative care, including wound monitoring and infection prevention protocols, was provided to all patients.

Data collection included demographic information, clinical presentation, type of swelling, surgical technique used, and intraoperative findings. Follow-up was conducted at regular intervals over six months and one year postoperatively to monitor recurrence, complications, and patient satisfaction. Complications such as infection, hematoma, and delayed wound healing were recorded, along with recurrence rates and the need for further interventions. Patients were also asked to rate their satisfaction with the outcome using a structured questionnaire.

The collected data were analyzed using descriptive and inferential statistical methods. Continuous variables were expressed as means and standard deviations, while categorical variables were presented as frequencies and percentages. Statistical significance was determined to evaluate associations between clinical characteristics and outcomes, providing insights into the effectiveness of minor surgical procedures for the long-term management of subcutaneous swellings.

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RESULTS

Table 1: Demographic Characteristics of the Study Population (n=40).

Variable	Frequency (n)	Percentage (%)
Age (Years)		
18–30	10	25%
31–50	20	50%
>50	10	25%
Gender		
Male	22	55%
Female	18	45%

Table 2: Distribution of Subcutaneous Swellings by Type.

Type of Swelling	Frequency (n)	Percentage (%)
Lipoma	18	45%
Sebaceous Cyst	12	30%
Hematoma	6	15%
Others	4	10%

Table 3: Surgical Techniques and Outcomes.

Surgical Technique	Frequency (n)	Percentage (%)	Mean Operating Time (Minutes)
Simple Excision	30	75%	20
Aspiration and Drainage	6	15%	10
Excision with Wound Closure	4	10%	25

Table 4: Postoperative Complications (n=40).

Complication	Frequency (n)	Percentage (%)
Infection	2	5%
Hematoma	1	2.5%
Delayed Wound Healing	3	7.5%
Recurrence	4	10%
No Complications	30	75%

Table 5: Patient Satisfaction and Follow-Up Outcomes.

Parameter	Mean Score (1-5)	Satisfaction Level (%)
Satisfaction with Aesthetic Outcome	4.5	90%
Satisfaction with Pain Relief	4.2	85%
Satisfaction with Overall Outcome	4.3	88%
Recurrence at 1-Year Follow-Up	4 Patients (10%)	-

DISCUSSION

The present study aimed to assess the long-term management outcomes of subcutaneous swellings treated through minor surgical procedures at a tertiary care center. Subcutaneous swellings, including lipomas, sebaceous cysts, hematomas, and other benign conditions, are commonly encountered in surgical practice. Proper management of these lesions is essential to prevent recurrence, minimize complications, and improve patient satisfaction. This study provides a detailed evaluation of patient demographics, surgical techniques, complications, and satisfaction, contributing to an evidence-based approach to managing these conditions [4].

Demographic Characteristics

The study population comprised 40 patients, with an almost balanced gender distribution (55% males and 45% females). The age distribution revealed that the majority of patients (50%) belonged to the 31–50 years age group, followed by 25% each in the 18–30 and >50 years age groups. These findings suggest that subcutaneous swellings are most prevalent in middle-aged individuals, possibly due to the cumulative effects of lifestyle and occupational factors that predispose this demographic to benign growths. The nearly equal gender representation aligns with existing literature, indicating no significant gender predisposition for such conditions.

Distribution of Subcutaneous Swellings

The most common type of swelling observed was lipomas, accounting for 45% of cases, followed by sebaceous cysts (30%), hematomas (15%), and other types (10%). Lipomas being the most prevalent aligns with their known status as the most common benign mesenchymal tumors. Sebaceous cysts were also significant, likely due to their frequent occurrence in patients with poor hygiene or sebaceous gland hyperactivity. Hematomas constituted a smaller percentage, as these are often linked to trauma or anticoagulant use, which were less prevalent in the study population. The "others" category included rare conditions, highlighting the need for accurate preoperative diagnosis and tailored management.

Surgical Techniques and Outcomes

The study employed three primary surgical techniques: simple excision (75%), aspiration and drainage (15%), and excision with wound closure (10%). Simple excision emerged as the most commonly utilized method, particularly for lipomas and sebaceous cysts. This technique's high frequency is attributable to its simplicity, cost-effectiveness, and suitability for removing localized swellings. Aspiration and drainage were preferred for managing hematomas and fluid collections, reflecting its minimally invasive nature and short operative time. Excision with wound closure, while less common, was used for cases requiring meticulous reconstruction to ensure aesthetic and functional outcomes.

The mean operating time varied with the procedure, ranging from 10 minutes for aspiration and drainage to 25 minutes for excision with wound closure. These findings underscore the efficiency of minor surgical procedures in managing subcutaneous swellings, particularly in resource-constrained settings [5, 6].

Postoperative Complications

The overall complication rate was low, with 25% of patients experiencing minor issues. The most common complication was delayed wound healing (7.5%), followed by infection (5%) and hematoma formation (2.5%). These complications are consistent with other studies on minor surgical procedures and reflect the importance of adherence to aseptic techniques and proper postoperative care. Recurrence occurred in 10% of cases, predominantly in patients with sebaceous cysts. Incomplete excision and inadequate wound care likely contributed to these recurrences, highlighting the need for meticulous surgical technique and patient education.

The majority of patients (75%) experienced no complications, demonstrating the safety and efficacy of minor surgical procedures in managing subcutaneous swellings. The low incidence of complications reflects the expertise of the surgical team and the adequacy of the care provided.

Patient Satisfaction and Long-Term Outcomes

Patient satisfaction with the surgical outcomes was high, with mean scores of 4.5 for aesthetic results, 4.2 for pain relief, and 4.3 for overall satisfaction. These findings indicate that the procedures effectively addressed both functional and cosmetic concerns. High satisfaction rates are critical in benign conditions, where patients often seek resolution of symptoms with minimal disruption to their daily lives [7].

Recurrence rates were low, with only 10% of patients reporting recurrent swellings at the one-year follow-up. This outcome suggests that minor surgical procedures, when performed with appropriate

preoperative planning and technique, provide durable solutions for subcutaneous swellings. Recurrence was more common in sebaceous cysts, likely due to the challenges in achieving complete excision of the cyst wall, which is critical to preventing recurrence. This finding underscores the importance of preoperative imaging and surgical precision in managing cystic lesions.

Comparison with Literature

The results of this study align with existing literature on the management of subcutaneous swellings. The prevalence of lipomas and sebaceous cysts as the most common lesions is consistent with other reports. Similarly, the low complication and recurrence rates observed in this study mirror findings from previous research, emphasizing the efficacy of minor surgical procedures in managing benign swellings. However, the recurrence rate for sebaceous cysts was slightly higher than reported in some studies, possibly due to differences in patient demographics, surgical expertise, or follow-up duration [7, 8].

A major strength of this study is its focus on long-term outcomes, providing valuable insights into the effectiveness and durability of minor surgical procedures for subcutaneous swellings. The prospective design and structured follow-up ensure the reliability of the findings. However, the study's limitations include a small sample size and its single-center design, which may limit the generalizability of the results. Future studies with larger sample sizes and multi-center participation could provide a more comprehensive understanding of the management of subcutaneous swellings.

This study highlights the importance of proper preoperative evaluation, meticulous surgical technique, and comprehensive postoperative care in achieving favorable outcomes for subcutaneous swellings. The findings support the use of simple excision as the primary approach for most lesions, with modifications tailored to specific types of swellings. The low complication rates and high patient satisfaction underscore the efficacy of these procedures, reinforcing their role as a cornerstone of surgical practice in tertiary care settings.

CONCLUSION

The management of subcutaneous swellings through minor surgical procedures is effective, safe, and associated with high patient satisfaction. While recurrence rates are generally low, specific measures such as precise excision techniques and patient education can further enhance outcomes. This study contributes to the growing body of evidence supporting evidence-based practices in managing benign subcutaneous swellings and provides a foundation for future research in this area.

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