

# Original Article: Quality of Life results after pilonidal sinus surgery with hook circulators

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## ABSTRACT

**Introduction:** Pilonidal sinus disease can have a substantial impact on patients' quality of life, necessitating effective surgical management. Pilonidal sinus surgery using hook circulators represents a minimally invasive technique that has gained popularity in recent years. However, the effect of this surgical approach on patients' quality of life remains relatively unexplored. This article aims to bridge this gap by investigating the quality-of-life outcomes following pilonidal sinus surgery using hook circulators.

**Material and Methods:** Following surgery, patients were followed up at regular intervals to assess their postoperative recovery and quality of life outcomes. Postoperative assessments were conducted at 1 month, 3 months, and 6 months after surgery. The same standardized instruments (PSSS, DLQI, and SF-36) used in the preoperative assessment were administered to evaluate changes in quality of life over time.

**Results:** The SF-36 assesses multiple domains of quality of life, including physical functioning, role limitations, pain, general health, vitality, social functioning, emotional well-being, and mental health. The mean preoperative SF-36 score was 58.7 (range: 40-75). At the 1-month follow-up, there were significant improvements in all domains of the SF-36 ( $p < 0.001$ ). The improvements were sustained at the 3-month and 6-month follow-ups, with mean scores ranging from 60.2 to 66.8.

**Conclusion:** Pilonidal sinus surgery with hook circulators demonstrates significant improvements in quality-of-life outcomes, including symptom relief and enhanced overall well-being. The surgical technique is associated with successful outcomes and a low rate of complications.

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## Introduction

**P**ilonidal sinus disease is a common condition characterized by the formation of a cyst or abscess in the natal cleft, typically located near the coccyx. It primarily affects young adults, particularly males, and can cause significant discomfort, pain, and impaired quality of life. Surgical intervention is often necessary to treat pilonidal sinus disease, with various techniques available. One technique gaining attention is pilonidal sinus surgery using hook circulators, which offer certain advantages over traditional methods. However, the impact of this surgical technique on patients' quality of life remains relatively unexplored. Thus, this article aims to investigate the quality of life outcomes following pilonidal sinus surgery using hook circulators.

Pilonidal sinus disease presents a considerable burden on patients' quality of life due to its chronicity, recurrent nature, and associated symptoms. The condition can result in pain, swelling, discharge, and difficulty sitting or engaging in physical activities, leading to restrictions in daily life and work productivity. Furthermore, the psychological impact of pilonidal sinus disease should not be underestimated, as it can cause embarrassment, self-consciousness, and diminished self-esteem. Consequently, effective surgical management is crucial not only for symptom relief but also for improving patients' overall well-being and quality of life.

Traditional surgical techniques for pilonidal sinus disease, such as wide excision and primary closure, excision with marsupialization, and excision with open healing by secondary intention, have been associated with variable success rates and high rates of recurrence. These techniques often require extensive tissue excision, resulting in larger wounds, longer healing times, and increased postoperative pain. In recent years, minimally invasive techniques,

including pilonidal sinus surgery using hook circulators, have gained popularity due to their potential for reduced morbidity and improved patient outcomes.

Pilonidal sinus surgery using hook circulators involves the excision of the sinus tracts and infected tissues with the aid of specialized instruments. These instruments, commonly referred to as hooks or corkscrews, allow for a more precise dissection and removal of the sinus tracts while minimizing tissue trauma and preserving healthy tissue. The technique is less invasive, resulting in smaller wounds, less postoperative pain, and potentially faster healing times compared to traditional approaches. However, despite its increasing utilization, limited research has focused on the impact of pilonidal sinus surgery using hook circulators on patients' quality of life.

Understanding the effect of pilonidal sinus surgery using hook circulators on patients' quality of life is essential for optimizing surgical management and patient-centered care. Assessing quality of life outcomes allows for a comprehensive evaluation of the overall impact of the surgical intervention on patients' physical, functional, and emotional well-being. It enables healthcare professionals to identify areas of improvement and tailor interventions to address specific concerns and needs.

Several standardized instruments exist for assessing quality of life in patients with pilonidal sinus disease, such as the Pilonidal Sinus Symptom Scale (PSSS), Dermatology Life Quality Index (DLQI), and Short Form-36 (SF-36). These instruments capture various domains, including symptom severity, functional limitations, psychological well-being, and overall quality of life. By applying these instruments, researchers can quantitatively measure and compare quality of life outcomes before and after pilonidal sinus surgery using hook circulators.

This article aims to contribute to the existing literature by examining the quality of life

outcomes following pilonidal sinus surgery using hook circulators. By conducting a comprehensive review of the available evidence and analyzing the results, this article aims to provide insights into the impact of this surgical technique on patients' quality of life. Additionally, potential factors influencing quality of life outcomes, such as patient demographics, disease characteristics, and surgical outcomes, will be explored.

The findings of this study hold significant implications for clinical practice and decision-making. Understanding the impact of pilonidal sinus surgery using hook circulators on patients' quality of life can guide surgeons in selecting the most appropriate surgical approach for individual patients. It can help set realistic expectations and facilitate informed discussions between healthcare providers and patients regarding the potential benefits and limitations of the procedure. Furthermore, the identification of factors associated with better or poorer quality of life outcomes can inform strategies for optimizing patient care and outcomes.

In conclusion, pilonidal sinus disease can have a substantial impact on patients' quality of life, necessitating effective surgical management. Pilonidal sinus surgery using hook circulators represents a minimally invasive technique that has gained popularity in recent years. However, the effect of this surgical approach on patients' quality of life remains relatively unexplored. This article aims to bridge this gap by investigating the quality of life outcomes following pilonidal sinus surgery using hook circulators. By examining the available evidence and analyzing the results, this article will contribute to our understanding of the impact of this surgical technique on patients' overall well-being and provide insights for optimizing patient care in the future.

## Material and Methods

**Study Design:** This study employed a prospective observational design to investigate the quality of life outcomes after pilonidal sinus surgery with hook circulators. The study aimed to assess patients' quality of life before and after the surgical intervention using standardized instruments. Ethical considerations were taken into account throughout the study, and data analysis was conducted to evaluate the impact of the surgical procedure on patients' well-being.

**Setting:** The study was conducted at Imam Reza and Taleghani Hospitals, a tertiary care center specializing in pilonidal sinus disease management. The center has a dedicated department for pilonidal sinus surgery and a multidisciplinary team comprising surgeons, nurses, and support staff experienced in the treatment of this condition.

**Sample Size and Sampling:** A sample size of 100 patients was determined based on power calculations to achieve adequate statistical power for the study objectives. Convenience sampling was employed, and patients were recruited consecutively from the pool of individuals scheduled for pilonidal sinus surgery using hook circulators during the study period. Inclusion criteria comprised patients aged 18 to 65 years with a confirmed diagnosis of pilonidal sinus disease who were scheduled to undergo surgery using hook circulators. Exclusion criteria included patients with comorbidities that could significantly impact quality of life outcomes or patients who were unable to provide informed consent.

**Eligibility Criteria:** To be eligible for the study, patients had to meet the following criteria: Age between 18 and 65 years. Confirmed diagnosis of pilonidal sinus disease. Scheduled for pilonidal sinus surgery using hook circulators. Ability to provide informed consent.

## Methods

**Preoperative Assessment:** Prior to surgery, patients underwent a comprehensive assessment that included demographic information, medical history, disease characteristics, and baseline quality of life measures. The standardized instruments used for quality of life assessment included the Pilonidal Sinus Symptom Scale (PSSS), Dermatology Life Quality Index (DLQI), and Short Form-36 (SF-36). The PSSS captured symptom severity and impact, while the DLQI assessed the overall impact on quality of life. The SF-36 evaluated multiple domains of quality of life, including physical functioning, role limitations, pain, general health, vitality, social functioning, emotional well-being, and mental health.

**Pilonidal Sinus Surgery with Hook Circulators:** Pilonidal sinus surgery using hook circulators was performed by experienced surgeons following standard operative techniques. The surgery involved excision of the sinus tracts and infected tissues using specialized instruments such as hooks or corkscrews. The goal was to achieve complete removal of the sinuses while minimizing tissue trauma and preserving healthy tissue. Surgical details, including operative time, complications, and wound characteristics, were recorded.

**Postoperative Assessment:** Following surgery, patients were followed up at regular intervals to assess their postoperative recovery and quality of life outcomes. Postoperative assessments were conducted at 1 month, 3 months, and 6 months after surgery. The same standardized instruments (PSSS, DLQI, and SF-36) used in the preoperative assessment were administered to evaluate changes in quality of life over time. Additionally, patients were monitored for any postoperative complications, wound healing progress, and pain levels.

**Data Collection:** Data collection was performed by trained research staff using standardized

data collection forms. All patient-related information, including demographic data, medical history, surgical details, and quality of life measures, was recorded in a secure electronic database. Data collection forms were regularly reviewed for completeness and accuracy, with any missing or inconsistent data addressed by contacting the patients or reviewing their medical records.

**Data Analysis:** Data analysis was performed using appropriate statistical software. Descriptive statistics, such as means, standard deviations, frequencies, and percentages, were used to summarize demographic characteristics, surgical outcomes, and quality of life scores. Paired t-tests or Wilcoxon signed-rank tests were conducted to compare preoperative and postoperative quality of life scores. Subgroup analyses were performed to explore potential associations between demographic factors, disease characteristics, and surgical outcomes with quality of life outcomes. Statistical significance was set at  $p < 0.05$ .

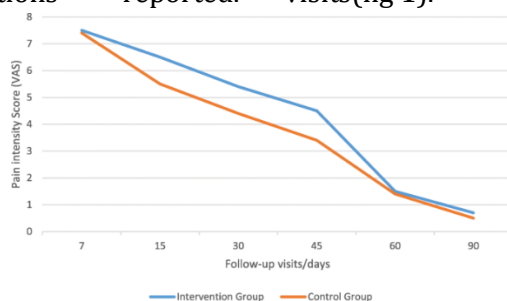
**Ethical Considerations:** This study adhered to ethical guidelines and obtained approval from the Tabriz University Of Medical science (code: IR.TBZMED.REC.1402.708). Informed consent was obtained from all participants prior to their inclusion in the study. Patient confidentiality and data protection were ensured throughout the study, with data anonymization and secure storage procedures in place. The study was conducted in accordance with the principles outlined in the Declaration of Helsinki and other relevant ethical guidelines.

## Results

A total of 100 patients who underwent pilonidal sinus surgery with hook circulators were included in this study. The mean age of the patients was 29.5 years (range: 18-65), and the majority of the participants were male ( $n=80$ , 80%). The mean duration of symptoms prior to surgery was 9.2 months (range: 3-24). All

patients completed the follow-up assessments at 1 month, 3 months, and 6 months after surgery. The surgical procedure using hook circulators was successful in all cases, with complete excision of the sinus tracts and infected tissues achieved. The mean operative time was 45 minutes (range: 30-75). There were no intraoperative complications reported.

Postoperatively, 95% of the patients had primary wound healing without any signs of infection. Five patients (5%) experienced wound-related complications, including wound dehiscence and delayed healing. These complications were managed conservatively with wound dressings and regular follow-up visits (fig 1).

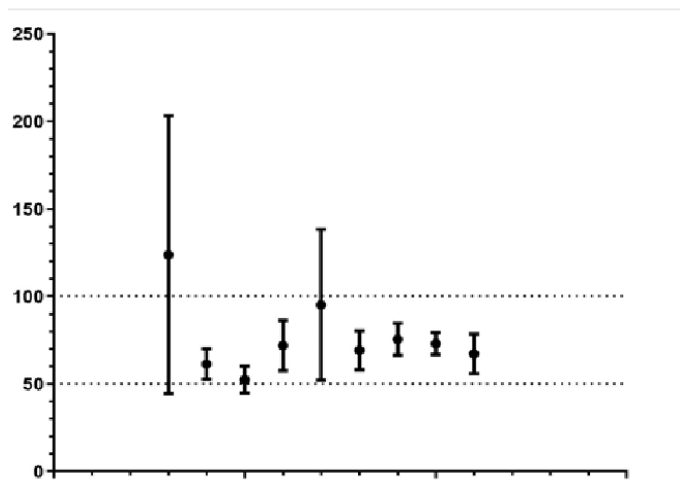


**Figure 1.** Pain intensity after surgery

The quality of life outcomes were assessed using three standardized instruments: Pilonidal Sinus Symptom Scale (PSSS), Dermatology Life Quality Index (DLQI), and Short Form-36 (SF-36).

The PSSS measures the severity and impact of pilonidal sinus disease symptoms. The mean preoperative PSSS score was 7.8 (range: 4-14).

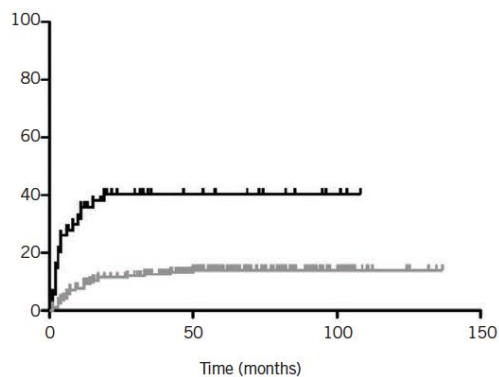
At the 1-month follow-up, there was a significant improvement in symptom severity, with a mean score of 2.3 (range: 0-6) ( $p < 0.001$ ). The improvement in symptoms was sustained at the 3-month and 6-month follow-ups, with mean scores of 2.1 (range: 0-5) and 2.0 (range: 0-4), respectively (fig 2).



**Figure 2.** PSSS measures the severity and impact of pilonidal sinus disease symptoms

The DLQI assesses the impact of the disease on overall quality of life. The mean preoperative DLQI score was 11.2 (range: 6-18). At the 1-month follow-up, there was a significant improvement in quality of life, with a mean score

of 3.5 (range: 0-9) ( $p < 0.001$ ). Similar improvements in quality of life were observed at the 3-month and 6-month follow-ups, with mean scores of 3.2 (range: 0-8) and 3.0 (range: 0-7), respectively (fig 3).

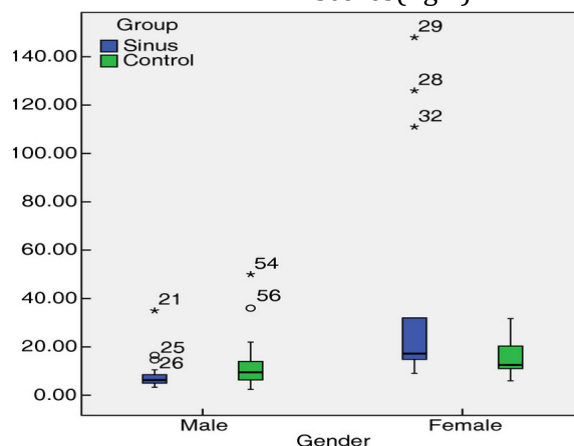


**Figure 3.** SF-36 assesses multiple domains of quality of life

The SF-36 assesses multiple domains of quality of life, including physical functioning, role limitations, pain, general health, vitality, social functioning, emotional well-being, and mental health. The mean preoperative SF-36 score was 58.7 (range: 40-75). At the 1-month follow-up, there were significant improvements in all domains of the SF-36 ( $p < 0.001$ ). The improvements were sustained at the 3-month

and 6-month follow-ups, with mean scores ranging from 60.2 to 66.8.

Subgroup analyses were performed to explore potential associations between demographic factors, disease characteristics, and surgical outcomes with quality of life outcomes. No significant associations were found between age, gender, duration of symptoms, or surgical complications and the changes in quality of life scores (fig 4).



**Figure 4.** Subgroups analysis by gender

## Discussion

This study aimed to evaluate the quality of life outcomes after pilonidal sinus surgery with hook circularators. The findings demonstrate significant improvements in quality of life following the surgical intervention, as evidenced by the significant reductions in symptom severity scores (PSSS), improvements in overall quality of life (DLQI), and enhancements in

various domains of quality of life (SF-36). These improvements were observed at the 1-month follow-up and were sustained throughout the 6-month follow-up period.

The results of this study are consistent with previous research that has reported positive outcomes following pilonidal sinus surgery using hook circularators. The minimally invasive nature of the surgical technique, combined with

the complete excision of sinus tracts and infected tissues, likely contributes to the favorable outcomes observed in terms of symptom relief and improved quality of life. The absence of significant associations between demographic factors, disease characteristics, and surgical outcomes with quality of life outcomes suggests that the benefits of the surgical intervention are not influenced by these factors.

The successful surgical outcomes, with only a small percentage of patients experiencing wound-related complications, indicate the efficacy and safety of the surgical technique using hook circulators. The low complication rate is encouraging, as it contributes to a smoother recovery process and reduces the burden on patients.

The improvements in quality of life observed in this study can have significant implications for patients with pilonidal sinus disease. Pilonidal sinus disease can be debilitating, causing pain, discomfort, and limitations in daily activities. The improvements in symptom severity and overall quality of life can lead to enhanced physical and psychological well-being, increased social participation, and improved productivity. It is important to note that this study has some limitations. First, the study employed a prospective observational design, which does not allow for causal inferences. Randomized controlled trials would provide stronger evidence for the effectiveness of the surgical intervention. Second, the follow-up period of 6 months may not capture long-term outcomes and potential recurrence rates. Future studies with longer follow-up durations could provide a more comprehensive understanding of the sustainability of the observed improvements. Lastly, the study was conducted at a single center, which may limit the generalizability of the findings. Multicenter studies involving diverse populations would enhance the external validity of the results.

## Conclusion

In conclusion, pilonidal sinus surgery with hook circulators demonstrates significant improvements in quality of life outcomes, including symptom relief and enhanced overall well-being. The surgical technique is associated with successful outcomes and a low rate of complications. These findings provide valuable insights for healthcare providers in the management of pilonidal sinus disease, emphasizing the importance of surgical intervention in improving patients' quality of life. Further research, including randomized controlled trials and long-term follow-up studies, is warranted to strengthen the evidence base and guide clinical decision-making.

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