

The Impact of Surgical Interventions on Quality of Life in Patients with Cryptoglandular Anal Fistula Using Quality of Life-Anal Fistula Questionnaire: A Pilot Cross-Sectional Study

Original Article

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ABSTRACT

Objective: This pilot cross-sectional study evaluates the impact of different surgical interventions on the quality of life (QoL) and continence in patients with cryptoglandular anal fistula (AF), using the QoL-AF questionnaire and Wexner and St Mark continence scores.

Patients and Methods: Sixteen patients, aged 18–65 years, with primary or recurrent cryptoglandular AF underwent surgical interventions, including fistulotomy, seton placement, and ligation of the intersphincteric fistula tract (LIFT). Preoperative and postoperative QoL and continence scores were collected at 1, 3, and 6 months postsurgery. Paired t tests and analysis of variance were used to assess the impact of surgical technique, fistula type, and presentation on outcomes.

Results: Significant improvements in QoL were observed at all postoperative time points, with fistulotomy and seton showing greater improvements (average QoL changes of 29.57 and 28.25, respectively) compared to LIFT (21.00). The intervention type had a significant impact on QoL ($P < 0.001$), while the type and presentation of the fistula had no significant effect. Postoperative continence scores also showed significant improvements, but weak correlations were found between continence and QoL scores.

Conclusion: Fistulotomy and seton are associated with better QoL outcomes than LIFT in the treatment of cryptoglandular AF. While fistula type and presentation did not affect outcomes, individualized treatment plans that prioritize patient QoL should guide clinical decision-making. Further studies with larger sample sizes are needed to confirm these findings.

Key Words: Anal fistula, continence, cryptoglandular, quality of life.

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INTRODUCTION

Anal fistulas (AF) are a debilitating condition that significantly affects patients' quality of life (QoL) and continence. The AF has different types of presentations including discharge, anal pain, swelling, and induration. These symptoms may impact the patient's life and have a tremendous impact on the patient's activities^[1].

Diagnosis of the AF can be clinically determined by DRE; however, further radiological evaluation is necessary to determine the types and complexity. Cryptoglandular

fistula affects the patients' physical activity and the Crhon's fistula does^[2].

Various surgical techniques have been developed to treat AF and the impact of the surgical interventions has been evaluated many times in the literature. Most of the methods used to assess the QoL changes in cryptoglandular fistula patients were by nonfistula disease-specific questionnaire^[3].

Recently, Ferrer-Marquez *et al.*^[4] developed a validated questionnaire for the assessment of the impact of the cryptoglandular AF on QOL.

AIM OF THE STUDY

This study aims to evaluate the impact of different surgical techniques on the QoL of cryptoglandular AF patients using a validated QoL-AF questionnaire.

PATIENTS AND METHODS

A pilot cross-sectional study was conducted at the Colorectal Surgery Unit of Mansura University Hospital between October 2021 and February 2022. The study included patients aged 18–65 years, of both sexes, with cryptoglandular AFs, either primary or recurrent. The exclusion criteria were patients with anorectal pathologies and fistula secondary to inflammatory bowel diseases, as well as those with medical or psychological conditions that could impact QoL reporting. Preoperative assessments included a detailed medical history, clinical examination, and continence evaluation using the Wexner Incontinence Score and St Mark's incontinence score. Additionally, the QoL was assessed using the QoL-AF-Q. Magnetic resonance fistulography was performed only in complex fistula for diagnostic purposes.

The choice of surgical technique was determined by the type of fistula, patient preference, and surgeon discretion. Techniques included fistulotomy, fistulectomy, seton placement, and ligation of the intersphincteric fistula tract (LIFT). Surgeons were blinded to preoperative and postoperative questionnaire assessments.

During follow-up visits, for the primary endpoint, postoperative QoL was assessed at 3 and 6 months using the QoL-AF-Q. The primary outcome was the impact of surgery on patient QoL, while secondary outcomes included the assessment of continence changes, success, and recurrence rates.

RESULTS

Demographic characteristics

The pilot study included 16 patients, with a mean age of 49.06 (SD=12.19). The majority of the patients were male (93.75%), and the most common type of fistula was transsphincteric (56.25%).

Table 1: Demographic data.

| Parameters | % |
|----------------------------|-------|
| Sex | |
| Male | 93.75 |
| Female | 6.25 |
| Type of fistula | |
| Transsphincteric fistula | 56.25 |
| Intersphincteric fistula | 31.25 |
| Suprasphincteric fistula | 6.25 |
| Submucous fistula | 6.25 |
| Type of intervention | |
| Seton (intervention) | 50.00 |
| Fistulotomy (intervention) | 43.75 |
| LIFT (intervention) | 6.25 |
| Type of presentation | |
| Primary presentation | 93.75 |
| Recurrent presentation | 6.25 |

Surgical interventions

The majority of patients underwent seton (50%) or fistulotomy (43.75%), with only 6.25% undergoing LIFT. Most cases were primary presentations (93.75%).

Table 2: Preoperative and postoperative incontinence scores and QoL scores (Mean±SD).

| Parameters | Mean | SD |
|------------------------------------|-------|-------|
| Age | 49.06 | 12.19 |
| Preoperative Wexner score | 1.88 | 0.50 |
| Preoperative St Mark score | 1.75 | 0.86 |
| Postoperative Wexner score | 2.25 | 0.77 |
| Postoperative St Mark score | 2.63 | 1.09 |
| Preoperative QoL score | 45.88 | 7.12 |
| Postoperative QoL score (1 months) | 16.31 | 5.53 |
| Postoperative QoL score (3 months) | 15.56 | 3.92 |
| Postoperative QoL score (6 months) | 14.88 | 3.12 |

Quality of life scores

A statistically significant improvement in QoL was observed at all postoperative time points (1, 3, and 6 months). Paired *t* tests revealed the following results:

Table 3: Comparison between preoperative and postoperative QoL scores

| Comparison | T statistic | P value |
|---------------------------------|-------------|------------------------|
| Preop vs. postop QoL (1 month) | 16.55 | 4.82×10 ⁻¹¹ |
| Preop vs. postop QoL (3 months) | 18.51 | 9.64×10 ⁻¹² |
| Preop vs. postop QoL (6 months) | 17.44 | 2.27×10 ⁻¹¹ |

Correlation between scores

We observed moderate correlations between St Mark and Wexner scores both preoperatively and postoperatively, while correlations between QoL scores and continence scores were weak.

Table 4: Comparison between the preoperative and postoperative incontinence scores

| Comparison | Correlation coefficient |
|--|-------------------------|
| Preoperative St Mark vs. Wexner | 0.70 |
| Postoperative St Mark vs. Wexner | 0.67 |
| Preoperative QoL vs. Wexner | 0.07 |
| Postoperative QoL vs. Wexner (1 month) | -0.09 |

Impact of intervention on quality of life and Wexner scores

Different surgical interventions had a significant impact on QoL, as shown by the analysis of variance (ANOVA) results.

Table 5: Impact of the intervention on the QoL score

| Comparisons | F statistic | P value |
|-------------------------------------|--------------------|-----------------------|
| Intervention on QoL score (1 month) | 52.36 | 6.03×10 ⁻⁷ |
| Intervention on Wexner score | 0.31 | 0.738 |
| Intervention type | Average QoL change | |
| Fistulotomy (F) | 29.57 | |
| LIFT | 21.00 | |
| Seton (S) | 28.25 | |

Both fistulotomy and seton resulted in greater QoL improvements compared to LIFT.

DISCUSSION

AF is one of the most common anal condition in which the patient persistently suffers from pain and perianal discharge which makes patient's QoL impaired. Different methods have evolved to describe this effect; however, most commonly used tools were nonspecific for AF. Ferrer-Marquez and colleagues developed an AF-specific questionnaire to assess the impact of AF. It is not surprising that, AF as a disease has an impact on QoL; furthermore, its surgery may improve or worsen this impact. Some authors correlated the QoL of the patient and incontinence, while others did not. This pilot cross-sectional study aimed to evaluate the impact of surgery for cryptoglandular AF on patients' QoL and continence, using the validated QoL-AF questionnaire and continence scores [5,6,10,11].

First, a significant improvement in QoL was observed postoperatively, with patients showing marked improvements at all follow-up points (1, 3, and 6 months). The paired *t* tests demonstrated highly statistically significant reductions in QoL scores, particularly after 1 month (*T*=16.55, *P*=4.82×10⁻¹¹) and for the next 5 months (*T*=17.44, *P*=2.27×10⁻¹¹). These results suggest that surgical interventions for cryptoglandular AF have a profound and sustained positive impact on patient QoL, highlighting the importance of timely and effective surgical treatment which coincides with the data reported by Kristo *et al.* [9] who reported significant improvement in the patients with loose seton and Litta *et al.* [10] who reported significant improvement of QoL after fistulotomy.

When comparing different surgical techniques, fistulotomy and seton were associated with greater improvements in QoL than LIFT. This is supported by the ANOVA analysis, which showed a significant effect of intervention type on QoL at 1 month postoperatively (*F*=52.36, *P*=6.03×10⁻⁷). Specifically, fistulotomy (average QoL improvement of 29.57) and seton (28.25) had higher improvement scores compared to LIFT (21.00), indicating that both procedures may be more effective in enhancing patient-reported outcomes. Interestingly, despite being less invasive, LIFT did not show as much improvement in QoL.

In contrast, the type of fistula (e.g. transsphincteric, intersphincteric) and whether the fistula was primary or recurrent did not significantly affect preoperative QoL score, postoperative outcomes, as demonstrated by the nonsignificant ANOVA results for both QoL and continence scores. In addition, there is a weak insignificant correlation between the preoperative QoL and the type of presentation, which contradicts the findings reported by Ferrer-Marquez

et al. [4] who reported that the primary fistula has more impact on the QoL than the recurrent fistula.

Continence scores, as measured by the Wexner and St Mark scales, also showed statistically significant improvements postoperatively, which may be related to the improvement of soiling and decrease numbers of pads which worsen the incontinence scores. The moderate correlations observed between preoperative and postoperative Wexner and St Mark scores ($r=0.70$ and 0.67 , respectively) suggest a consistent relationship between these measures of continence. However, weak correlations between continence scores and QoL scores imply that while continence is an important outcome, it may not be the sole determinant of patient-reported QoL. Other factors, such as pain, discomfort, and postoperative complications, may contribute more significantly to patients' perceptions of their health and recovery.

CONCLUSION

In conclusion, despite the impact of AF on patients' QoL, surgical interventions for cryptoglandular AF, particularly fistulotomy and seton, lead to significant improvements in QoL and continence. The choice of surgical technique appears to be a critical factor in optimizing patient outcomes, while the type and presentation of the fistula have less influence. These results support the continued use of fistulotomy and seton in the management of cryptoglandular AF and emphasize the need for individualized treatment plans that prioritize patient QoL. Further research with larger sample sizes is needed to validate these findings and explore the long-term outcomes of different surgical approaches.

LIMITATIONS OF THE STUDY

Fistulotomy and seton are more effective in improving QoL postoperatively compared to LIFT. Further studies with larger sample sizes, including larger numbers of patients who had LIFT procedures done, may be required to validate these findings, particularly concerning the impact of fistula type and presentation on long-term outcomes.

CONFLICTS OF INTEREST

None declared.

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