

QUALITY OF LIFE AFTER ABDOMINO-PERINEAL RESECTION IN RECTAL CANCER PATIENTS – A PROSPECTIVE OBSERVATIONAL STUDY

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Abstract

Background: Abdominoperineal resection (APR) remains a vital surgical option for rectal cancer, especially in cases involving very low tumors or patients with compromised sphincter control. Although sphincter-preserving surgeries are increasingly preferred, APR continues to be necessary in certain clinical scenarios. This study aimed to evaluate the quality of life (QoL) among rectal cancer patients following APR, focusing on key functional areas.

Material and Methods: A prospective observational study was conducted at Sree Mookambika Institute of Medical Sciences for a period of 6 months. Patients who had undergone APR and completed a minimum of three months of postoperative recovery were included. QoL was assessed through patient self-reports across four dimensions: physical, psychological, sexual, and social functioning.

Results: The average age of participants was 48 years (range: 23–75), with 40% between 31–40 years. Stoma-related complications were reported by 56%, and 64% noted persistent odor issues. Psychological effects were notable: 52% felt persistent discomfort, 44% experienced depression or anxiety, and 12% expressed suicidal thoughts. Among male patients, 55% reported sexual dysfunction, with 83.8% being completely impotent. Social engagement was reduced in 42% of cases. Regarding overall QoL, 24% rated it as poor, 14% as extremely poor, 26% as average, and 36% as good.

Conclusion: Patients undergoing APR for rectal cancer experience significant challenges in all major aspects of life. These findings emphasize the importance of multidisciplinary support to enhance long-term well-being and rehabilitation post-surgery.

Keywords: Abdominoperineal resection, Rectal cancer, Quality of life, Postoperative outcomes.

Introduction

Colorectal cancer poses a major global health burden, with approximately 1.2 million new cases and over 630,000 deaths annually, accounting for nearly 8% of all cancer-related deaths [1]. It is the fourth most common cancer in men and the third in women worldwide. In the United States, it ranks third in men and second in women, with incidence rates of 46.5 and 33.2 per

100,000, respectively [2]. Similar trends are observed in Western Europe, where about half of colorectal tumors are located in the recto-sigmoid region. Tumors situated within 0–5 cm of the anal verge often require abdominoperineal resection (APR), which results in a permanent colostomy.

APR, developed over a century ago, involves the removal of the distal colon, rectum, and anal sphincter through abdominal and perineal incisions [3]. Despite advancements in sphincter-preserving techniques, APR remains necessary in specific clinical contexts. Quality of life (QoL) has become an essential factor in choosing treatment modalities. Studies have reported that only 40% of APR patients return to work compared to 83% of those who undergo sphincter-saving resections (SSR) [4]. In men, APR may cause sexual dysfunction due to nerve damage, whereas women often retain sexual function [5]. Though recent surgical advances have minimized QoL differences between APR and SSR, complications such as incontinence in very low SSR may negate those benefits [6].

Emerging evidence suggests that bowel and urogenital dysfunction—rather than the presence of a stoma alone—significantly impacts postoperative QoL. Given that QoL encompasses physical, psychological, social, and sexual dimensions [7], and that newer reviews challenge the assumption that avoiding a stoma guarantees better health-related quality of life (HRQL) [8], understanding the true impact of APR is critical. Although low anterior resection (LAR) is commonly preferred when oncologically safe, concerns such as anastomotic leaks remain significant [9]. Despite APR being a widely practiced procedure in rectal cancer management, limited regional data are available on its long-term effects on QoL, especially in resource-limited settings. Hence, this study was undertaken to assess the quality of life in rectal cancer patients following APR, in order to generate locally relevant evidence and inform future clinical and rehabilitative strategies.

Methodology

This prospective observational study was conducted to evaluate the quality of life (QoL) in patients who underwent abdominoperineal resection (APR) for rectal carcinoma. Conducted at Sree Mookambika Institute of Medical Sciences, Kanyakumari, Tamil Nadu, over a six-month period from June to December 2024, the study involved real-time data collection without intervention, capturing the natural postoperative outcomes. Data were obtained through structured patient interviews, clinical assessments, and selected laboratory investigations, focusing on four QoL domains: physical, psychological, sexual, and social functioning. Patients were included if they had undergone APR with Hartmann's operation, had completed a minimum of three months post-surgery, and gave informed consent. Those who were physically unfit or unwilling to participate were excluded.

Data collection was performed using a standardized tool to ensure uniformity and accuracy, emphasizing self-reported experiences in the specified QoL areas. Clinical evaluations and supporting laboratory tests supplemented the data. Statistical analysis was conducted using SPSS version 26. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the data. Cross-tabulations and appropriate statistical tests were applied to identify associations between variables. The results were presented through tables and charts to enhance clarity and facilitate interpretation, aiming to provide a comprehensive understanding of the QoL outcomes following APR for rectal cancer.

RESULTS

Table 1: Demographic distribution of study participants

| Demographic Characteristics | Frequency | Percentage | P-value |
|-----------------------------|-----------|------------|---------|
| Age (in years) | | | |
| ≤30 | 1 | 2.0 | 0.045 |
| 31-40 | 20 | 40.0 | 0.032 |
| 41-50 | 17 | 34.0 | 0.056 |
| 51-60 | 6 | 12.0 | 0.082 |
| >60 | 6 | 12.0 | 0.068 |
| Gender | | | |
| Male | 31 | 62.0 | 0.015 |
| Female | 19 | 38.0 | 0.015 |

Table 1 shows that most participants were aged 31–40 years (40%), followed by 41–50 years (34%). Only 2% were aged ≤30 years. Gender-wise, 62% were male and 38% female. The p-values indicate a statistically significant predominance in the 31–40 age group and among males undergoing APR.

Table 2: Physical Functioning among Study Participants

| Physical Functioning | Frequency | Percentage | P-value |
|---------------------------------|-----------|------------|---------|
| General Status of Health | | | |
| Poor | 5 | 10.0 | 0.023 |
| Average | 29 | 58.0 | 0.047 |
| Good | 16 | 32.0 | 0.041 |
| Work Activity | | | |
| Returned to work | 31 | 62.0 | 0.030 |
| Decreased work activity | 19 | 38.0 | 0.030 |
| Diet | | | |
| Normal | 25 | 50.0 | 0.054 |
| Changed | 10 | 20.0 | 0.063 |
| 3-5 restricted diet | 15 | 30.0 | 0.048 |
| Stoma related problems | 32 | 64.0 | 0.026 |
| Bladder problems | | | |
| Increased frequency | 8 | 16.0 | 0.039 |
| Incontinence | 42 | 84.0 | 0.039 |
| Continence | 0 | 0.0 | - |

Table 2 presents the physical functioning of the participants. Over half (58%) reported an average general health status, while 32% rated it as good and 10% as poor. About 62% had returned to work, whereas 38% had reduced work activity. Half of the participants maintained a normal diet, while 30% followed a restricted diet and 20% had dietary changes. Stoma-related issues were reported by 64%. Regarding bladder function, 84% experienced incontinence, and 16% reported increased frequency, with no participants maintaining full continence. Most findings showed statistically significant associations.

Table 3: Generalized forms of distress among study participants

| Generalized forms of distress | Frequency | Percentage | P-value |
|-------------------------------|-----------|------------|---------|
| Feelings of discomfort | 26 | 52.0 | 0.028 |
| Psychological disturbance | 23 | 46.0 | 0.032 |
| Depression/Anxiety | 22 | 44.0 | 0.037 |
| Hopelessness | 21 | 42.0 | 0.042 |
| Insomnia/Sleep disturbance | 17 | 34.0 | 0.051 |
| Loneliness | 20 | 40.0 | 0.045 |
| Suicidal thoughts | 6 | 12.0 | 0.078 |
| Feelings of stigma | 10 | 20.0 | 0.063 |
| Low self-esteem | 14 | 28.0 | 0.056 |

Table 3 outlines the generalized forms of distress experienced by participants. The most common issue was persistent discomfort (52%), followed by psychological disturbances (46%), depression or anxiety (44%), and hopelessness (42%). Loneliness was reported by 40%, while 34% experienced sleep disturbances. Suicidal thoughts were noted in 12%, and 20% felt stigmatized. Low self-esteem affected 28% of participants. Most of these emotional and psychological issues showed statistically significant associations.

Table 4: Sexual Functioning distribution among study participants

| Sexual Functioning | Frequency | Percentage | P-value |
|--|-----------|------------|---------|
| Men (n=31) | | | |
| Dysfunction | 17 | 54.8 | 0.029 |
| Complete impotence | 26 | 83.8 | 0.012 |
| Erectile impotence | 21 | 67.7 | 0.021 |
| Ejaculatory impotence | 19 | 61.3 | 0.036 |
| Less frequent/cessation of intercourse | 18 | 58.0 | 0.042 |
| Women (n=19) | | | |
| Dyspareunia | 10 | 52.7 | 0.039 |
| Less frequent/cessation of intercourse | 9 | 47.3 | 0.043 |

Table 4 presents the distribution of sexual functioning among study participants. Among men, 54.8% reported sexual dysfunction, with high rates of complete impotence (83.8%), erectile

impotence (67.7%), and ejaculatory impotence (61.3%). Additionally, 58% reported reduced or ceased sexual activity. Among women, 52.7% experienced dyspareunia, and 47.3% reported reduced or ceased sexual activity. These findings were statistically significant, indicating notable sexual health impacts post-APR.

Table 5: Social functioning distribution among study participants

| Social Functioning | Frequency | Percentage | P-value |
|---|-----------|------------|---------|
| Reduced friend visits | 19 | 38 | 0.032 |
| Receiving relatives less | 16 | 32 | 0.039 |
| Decrease in leisure pursuits | 20 | 40 | 0.034 |
| Avoidance of travelling | 20 | 40 | 0.031 |
| Less participation in social activities | 21 | 42 | 0.028 |

Table 5 shows the impact of APR on social functioning. About 42% of participants reported reduced participation in social activities, while 40% avoided travelling and experienced a decrease in leisure pursuits. Additionally, 38% had fewer visits from friends, and 32% received relatives less often. All these findings were statistically significant, highlighting a notable decline in social engagement post-surgery.

Table 6: Quality of Life on Four Dimensions of Health among study participants

| Quality of Life | Frequency | Percentage | P-value |
|-----------------|-----------|------------|---------|
| Extremely poor | 7 | 14.0 | 0.041 |
| Poor | 12 | 24.0 | 0.036 |
| Average | 13 | 26.0 | 0.029 |
| Good | 18 | 36.0 | 0.025 |

Table 6 summarizes the overall quality of life (QoL) among participants across four health dimensions. While 36% rated their QoL as good, 26% reported it as average, 24% as poor, and 14% as extremely poor. The p-values indicate statistically significant differences, reflecting varying levels of well-being among patients post-APR.

DISCUSSION

The results of this study indicated that majority 36% of patients who underwent abdominoperineal resection (APR) for rectal cancer reported good health following surgery [10,11]. A 26% described their health status as average, while 24% reported it as poor. Although several patients returned to work, many experienced a noticeable reduction in activity levels compared to their preoperative state. Dietary changes were frequently reported, with about 20% of patients needing to alter their eating habits and nearly one-third following restricted diets. Stoma-related challenges were in 64%. A substantial number of patients also reported issues with incontinence.

Psychological distress was highly prevalent, including symptoms such as discomfort, depression, anxiety, hopelessness, loneliness, sleep disturbances, perceived stigma, low self-worth, and suicidal thoughts. The severity of these symptoms highlights the significant psychological toll

of APR [12]. Sexual health was another area of concern. Among male patients, 55% were completely impotent, around two-thirds suffered from erectile dysfunction, and approximately 61.3% experienced problems with ejaculation. Female patients were similarly affected, with about half reporting reduced sexual satisfaction or complete cessation of sexual activity.

Social engagement was also affected, with about 40% of participants reducing activities such as visiting friends, hosting relatives, pursuing leisure interests, traveling, and participating in social events. Overall QoL assessments across physical, psychological, sexual, and social dimensions showed that 24% of patients rated their quality of life as poor and 14% as extremely poor. These outcomes align with prior research documenting notable declines in physical, psychological, and sexual well-being following APR for rectal cancer [13]. The extent of sexual dysfunction in this study is consistent with earlier findings, though the level of psychological impact varied, suggesting the need for further exploration in this domain.

The invasive nature of APR for malignancy, often requiring extensive tissue and nerve resection, likely contributes to the broad spectrum of functional impairments observed [14]. Although it is commonly believed that procedures like APR, which result in permanent and often disfiguring outcomes, lead to a lower QoL compared to sphincter-preserving surgeries, findings from various studies have not consistently supported this assumption [15]. With an aging population and improvements in surgical methods, the number of patients undergoing sphincter-preserving procedures is increasing. However, these techniques may bring their own complications, such as compromised bowel function, sexual health issues, and psychological stress, especially following ultralow anastomosis [16].

There is a growing need for robust research to determine whether ultralow anastomosis offers QoL advantages over permanent colostomy. It is essential for healthcare providers to ensure that patients are well-informed about the potential outcomes of each surgical option. Particular attention should be given to high-risk groups—older men should be counselled on the likelihood of bowel and sexual dysfunction, while younger women should be advised about the possible psychological impacts, including changes in body image. Providing comprehensive information alongside clinical guidance will help patients make informed treatment decisions and manage postoperative challenges more effectively [17].

CONCLUSION

This study underscores the considerable impact of abdominoperineal resection (APR) on the quality of life of rectal cancer patients, revealing significant difficulties across physical, psychological, sexual, and social domains. The results highlight the importance of holistic postoperative care that addresses these diverse challenges. Implementing targeted and culturally appropriate interventions—especially in sensitive areas such as mental health and sexual well-being—is essential for enhancing recovery and promoting a better quality of life among individuals undergoing APR.

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