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ORIGINAL ARTICLE

Quality of Life, Bowel and Urinary Functions After Surgery for Bowel Endometriosis

Ahmet Kale[1], Elif Cansu Gündoğdu[1], Esra Keleş[2], Kürşad Nuri Baydili[3], Taner Usta[4], Ebru Kale[5], Deniz Çokay[1], Elif Ünlügedik Sayın[1], Engin Oral[6]

[1]Department of Obstetrics and Gynecology, University of Health Sciences Türkiye, Kartal Dr. Lütfi Kırdar City Hospital, İstanbul, Türkiye
[2]Department of Gynecologic Oncology, University of Health Sciences Türkiye, Kartal Dr. Lütfi Kırdar City Hospital, İstanbul, Türkiye
[3]Department of Biostatistics, University of Health Sciences Türkiye, Hamidiye Faculty of Medicine, İstanbul, Türkiye
[4]Department of Obstetrics and Gynecology, Acıbadem Mehmet Ali Aydınlar University, Acıbadem Altunizade Hospital, Endometriosis and Pelvic Pain Center, İstanbul, Türkiye
[5]Department of Biochemistry, University of Health Sciences Türkiye, Hamidiye Faculty of Medicine, İstanbul, Türkiye
[6]Department of Obstetrics and Gynecology, Bezmialem Vakıf University, İstanbul, Türkiye

Abstract

Introduction: This study aimed to evaluate pain symptoms, functional outcomes, and quality of life (QoL) before and after surgery for rectosigmoid endometriosis.

Methods: We conducted a retrospective cohort study on patients who underwent laparoscopic segmental resection, discoid resection, or shaving for DIE in a tertiary referral hospital. Pre- and postoperative data based on surgical records and questionnaires covering bowel, urinary function, and QoL were collected. Visual Analogue Scale (VAS), Constipation Severity Scale (CSS), Overactive Bladder-Validated 8-questionnaire Screener (OAB-V8), and 36-item Short Form Health Survey (SF-36) were used as scales.

Results: All measures of QoL except mental health were improved at three months after surgery. The median Visual Analogue Scale (VAS) pain score significantly decreased three months after surgery ($p<0.001$). Women surgically treated had significantly improved results on the Constipation Severity Scale ($p<0.001$). Overall Overactive Bladder-Validated 8-questionnaire Screener scores did not show any significant change after surgery when compared to the preoperative scores ($p<0.001$). There were few complications associated with surgery for rectosigmoid endometriosis.

Discussion and Conclusion: Surgery for rectosigmoid endometriosis results in improvements in all aspects of pain and bowel functions three months after surgery. A significant and clinically relevant improvement in QoL, except for mental health, was observed three months after surgery.

Keywords: Colorectal Resection; Deep-Infiltrating Endometriosis; Disc Resection; Endometriosis; Functional Scores; Quality of Life; Rectal Endometriosis; Shaving.

Deep infiltrating endometriosis (DIE), one of the most aggressive forms of endometriosis with bladder or bowel involvement, affects 0.2–0.5% of women of childbearing age[1]. The majority of patients diagnosed with rectosigmoid endometriosis experience symptoms such as chronic pelvic pain, most commonly in the form of dysmenorrhea, deep dyspareunia, dysuria, and cyclic gastrointestinal symptoms such as dyschezia, constipation, diarrhea, and rectorrhagia[2,3].

Correspondence: Esra Keleş, M.D. Department of Gynecologic Oncology, University of Health Sciences Türkiye, Kartal Dr. Lütfi Kırdar City Hospital, İstanbul, Türkiye
Phone: +90 216 391 06 80 **E-mail:** dresrakeles@hotmail.com
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Endometriosis affects the quality of life (QoL) of women by impairing their ability to carry out everyday activities, social relationships, and work productivity, resulting in worsening their physical functioning, mental well-being, and social health[4,5]. In the case of a limited response to medical treatment, surgical treatment is an option to improve patient-reported outcomes and QoL[6,7].

There are a large number of published studies on the impact of endometriosis on QoL[8-10]. Although postoperative QoL in patients with endometriosis has been indicated in women from elsewhere in the world[11-13], there are no precise data available on intestinal and urinary symptoms and QoL following surgery in our population. There may be important differences between these patient populations that could affect QoL. Therefore, we conducted a study to evaluate symptoms and explore the QoL of Turkish women submitted to surgery for DIE with bowel involvement in a single tertiary referral center.

Materials and Methods

This retrospective cohort study was conducted on patients who were surgically treated for rectosigmoid endometriosis in the Department of Obstetrics and Gynecology at the University of Health Sciences Türkiye, Kartal Dr. Lutfi Kirdar City Hospital, Türkiye, from January 2019 to December 2021. This study was approved by the Research Ethics Committee of the same hospital (Approval number: 2021/514/202/16, 26.05.2021). The study was conducted according to the criteria set by the Declaration of Helsinki and each subject signed an informed consent before participating in the study.

Patients were eligible if they were surgically treated for rectosigmoid endometriosis by either rectal shaving/discoid resection or colorectal resection. Those who were pregnant or menopausal, had a current or history of malignancy, were diagnosed with any inflammatory bowel disease, had a colorectal surgery for benign or malignant disease, lost follow-up, and refused to participate in the study were excluded.

As shown in Figure 1, all patients underwent a thorough medical history and physical examinations (bimanual and speculum examinations). Then, they were submitted to transvaginal ultrasonography and magnetic resonance imaging (MRI), and/or colonoscopy if required, followed by surgical treatment. Histopathological examination confirmed the diagnosis of endometriosis in all of the cases. All participants were fully informed regarding the aims, potential risks, and benefits of the surgical approach. The surgical approach was based on the preoperative evaluation and in accordance with patient informed choice. All surgical procedures were performed in our hospital by one senior gynecological surgeon (A.K.) in a multidisciplinary team consisting of two colorectal surgeons (Y.E.A. and I.E.). During the study period, data were recorded by a clinical research assistant (D.C.) in charge of evaluating patients' follow-up.

Abstracted data included patients' socio-demographic characteristics, medical history, clinical symptoms, diagnostic imaging findings, details of surgical procedures, and postoperative outcomes. A detailed questionnaire was used as a data collection tool. All patients received the Visual Analogue Scale (VAS) questionnaire to score pain symptoms. The Constipation Severity Scale (CSS) was used to assess the presence and severity of constipation problem[14]. The Overactive Bladder-Validated 8-questionnaire Screener (OAB-V8) was used in the evaluation of urologic functions[15]. Quality of life and health condition were assessed using the 36-item Short Form Health Survey (SF-36)[16]. The distribution and severity of DIE were evaluated according to the Enzian classification[17]. The Clavien–Dindo classification was used for grading the severity of postoperative complications. All patients who completed the preoperative questionnaire were invited to complete the same questionnaire 3 and 6 months after surgery.

The SF-36 consists of eight health domains. It has been indicated that SF-36 is a useful instrument for evaluating health-related QoL in patients with bowel endometriosis[18,19].

Statistical analyses and graphs were created with IBM SPSS for Windows, Version 25.0. Continuous variables were presented as median (range) and comparison performed using the Kruskal–Wallis test or one-way analysis of variance. Categorical variables were presented as numbers and frequencies, and comparison performed using Fisher's exact test and the χ^2 test. P values of <0.05 were accepted as statistically significant.

Results

There were 81 patients diagnosed with rectosigmoid endometriosis, of whom 21 patients did not complete follow-up at six months, and two patients refused to participate in the study between January 2019 and December 2021. A total of 58 patients were eligible for the final analysis. The patients' mean age was 41 years (range 21–52) (Table 1).

The intraoperative findings, surgical procedures, and postoperative complications are presented in Table 2. Most cases were treated by laparoscopy (n=48, 82.7%); two of the

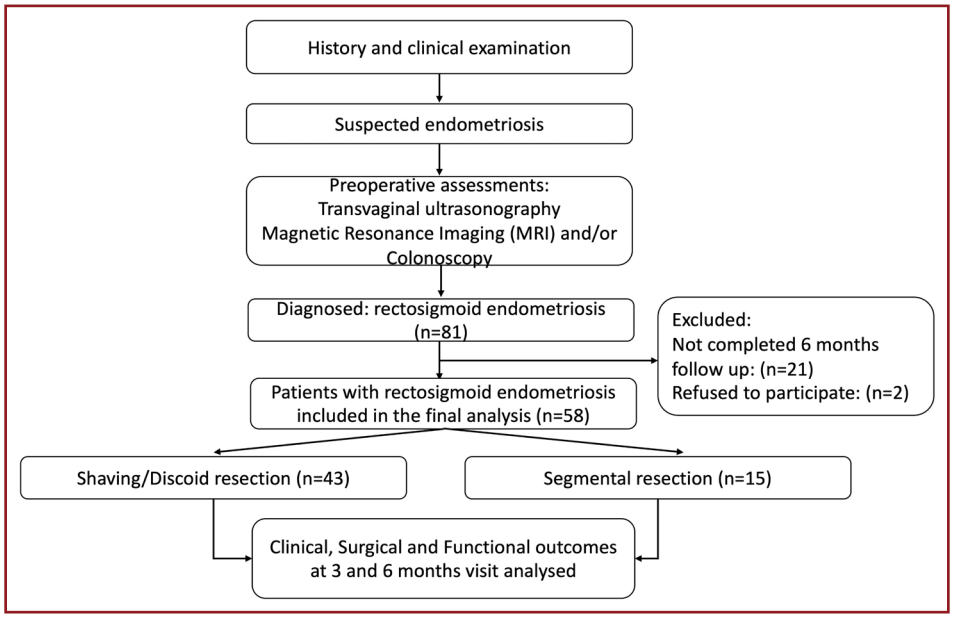

Figure 1. The study flow diagram.

laparoscopic cases (3.4%) were converted to open surgery, and in eight cases (13.7%), an open surgical procedure was performed. Fifteen (25.9%) patients were managed by segmental resection and 43 (74.1%) by shaving/discoid excision for rectosigmoid endometriosis. The median follow-up was 16.8 months.

Pain symptoms were evaluated before and 3 and 6 months after surgery using a VAS score. The median VAS pain score significantly decreased over three months after surgery. The VAS scores for dysmenorrhea, dyspareunia, chronic pelvic pain, cyclic dysuria, and dyschezia were significantly reduced after the surgical procedure ($p<0.001$). Among the CSS items that improved after surgery compared to before surgery were colonic inertia (preoperative: 5.5 [3-22]; three months: 3 [3-13]) and obstructive defecation (preoperative: 9.5 [4-28]; three months: 4 [4-17]) ($p<0.001$). No significant change was observed in postoperative OAB-V8 scores compared to the preoperative scores ($p<0.001$) (Table 3).

Table 4 and Figure 2 depict changes in symptoms and QoL scores of the eight different domains. Significant improvement was observed three months after surgery in all domains except for mental well-being ($p<0.001$).

Twelve (20.6%) of the patients experienced postoperative complications, of which three (5.16%) were Clavien Dindo I, one (1.72%) was Clavien Dindo II, and seven (12.04%) cases were Clavien Dindo III. Early postoperative complications were as follows: three (5.17%) rectovaginal fistulas, three (5.17%) anastomotic leaks, two (3.45%) ileus, one (1.72%) hematuria, one (1.72%) venous thromboembolism, and one (1.72%) ureteral stenosis (Appendix 1).

Table 1. Baseline characteristics of the study sample

	n	%
Age (years)	41 (21-52)	
BMI (kg/m^2)	24.2 (17.4-35.6)	
Marital status		
Single	15	25.9
Married	43	74.1
Education status		
Illeterate	2	3.4
Primary	15	25.9
Secondary	9	15.5
High School	16	27.6
University	16	27.6
Employment status		
Unemployed	36	62.1
Employed	22	37.9
Previous medical treatment for endometriosis		
OCP	12	20.7
Dienogest	23	39.7
Levonorgestrel-releasing intrauterine system	3	5.2
Obstetric history		
Nulligravida	14	24.1
Nullipara	15	25.9
Comorbidities	18	31
Sexual intercourse during past year,	55	94.8
Infertility	12	20.7
Infertility care	7	12.1
Previous surgery	31	53.4
Previous surgery for endometriosis	15	25.9

BMI: Body mass index; OCP: Oral contraceptive pill.

Table 2. Intraoperative findings, surgical procedures and complications

	n	%
Surgical route		
Open surgery	8	13.8
Laparoscopic surgery	48	82.8
Laparoscopy followed by open route	2	3.4
Surgical procedures on digestive tract		
Shaving/disc excision	43	74.1
Segmental resection	15	25.9
Side-end anastomosis	8	13.8
End-end anastomosis	7	12.1
Hysterectomy		
No	28	48.3
Total hysterectomy	30	51.7
Adnexal surgery		
No	20	34.5
Unilateral salpingoophorectomy	18	31
Bilateral salpingoophorectomy	20	34.5
Surgical procedures on urinary tract		
Partial cystectomy	3	5.2
Ureterolizis	46	79.3
Ureteroneocystostomy	1	1.7
Stripping	13	22.4
Drainage	6	10.3
Obstetric complication	2	3.4
Intra-operative complication	8	13.8
Post-operative complication	12	20.7
Follow-up (months)	16.8 (6.6-80.4)	

In the distribution and severity of the lesions according to the Enzian classification, type T was the most commonly found in 52/58 (89.7%), followed by type B in 35/58 (60.3%) (Appendix 2).

Discussion

We found general improvement in bowel functions and QoL in women surgically managed for DIE infiltrating the rectum three months after surgery. It is of paramount importance for patients to receive this information before surgery for endometriosis involving the bowel. In addition, it may be useful in shared decision-making.

The study presented the pre- and postoperative bowel, urinary function, and QoL for DIE with bowel involvement. While there were data from many countries, it is noteworthy that there are no data from Türkiye. For this reason, we believe that this article from our country will be of interest and useful to the scientific community in future work, although it does not reflect the whole country.

DIE involving the bowel significantly impacts QoL due to its link with chronic pelvic pain, dysmenorrhea, dyspareunia, cyclic dysuria, and changes in bowel movements[20]. It is well-established that surgical removal of endometriosis results in improvement in endometriosis-related symptoms and QoL[21]. A retrospective analysis conducted by Mehedintu et al.[22] regarding QoL in patients with colorectal endometriosis indicated that surgery improved QoL and digestive function. Similarly, a prospective, observational study found a significant improvement in pelvic pain and QoL one year after surgery[23]. Similar to our findings, Kent et al.[24] reported that surgery results in substantial improvement in pain, sexual function, and QoL.

A retrospective study conducted by Roman et al.[25] indicated that a conservative approach involving rectal shaving appeared to be superior compared with the radical group in terms of functional outcomes. Consistent with the literature on bowel function, in our series, a trend towards normalization can be observed after three months, and even later thereafter.

Table 3. Assessment by questionnaires before surgery and at each post-operative visits

	Baseline	3 months	6 months	p value of baseline vs. 3 months
Acyclic pelvic pain, VAS score	5 (0-10)	0 (0-9)	0 (0-9)	<0.001*
Dysmenorrhea, VAS score	8 (0-10)	0 (0-9)	0 (0-8)	<0.001*
Dyspareunia, VAS score	6 (0-10)	0 (0-9)	0 (0-8)	<0.001*
Cyclic dyschezia, VAS score	0 (0-10)	0 (0-10)	0 (0-9)	0.014*
Cyclic dysuria, VAS score	0 (0-10)	0 (0-9)	0 (0-9)	0.006*
OAB-V8	0 (0-30)	0 (0-40)	0 (0-40)	<0.001*
CSS	18.5 (7-59)	8 (7-30)	8 (7-38)	<0.001*
Colonic inertia	5.5 (3-22)	3 (3-13)	3 (3-16)	<0.001*
Obstructive defecation	9.5 (4-28)	4 (4-17)	4 (4-17)	<0.001*
Pain	0 (0-13)	0 (0-8)	0 (0-5)	<0.001

VAS: Visual analogue scale; QAB-V8: Overactive Bladder-Validated 8-questionnaire Screener; CSS: Constipation severity scale.

Table 4. Evaluation of 36-item Short Form Health Survey scores before surgery and at each post-operative visit

	Baseline	3 months	6 months	p value of baseline vs 3 months
SF-36 subscales and items				
Functional capacity	60 (0-100)	100 (45-100)	100 (55-100)	<0.001*
Physical aspect	0.375 (0-100)	100 (0-100)	100 (50-100)	<0.001*
Emotional aspects	0 (0-100)	100 (0-100)	100 (0-100)	<0,001*
Self-esteem and disposition	45 (10-330)	67,5 (5-315)	65 (10-325)	0.038*
Mental health	68 (8-260)	72 (44-376)	72 (8-284)	0.429
Social aspects	62.5 (0-100)	100 (37.5-100)	100 (50-100)	<0.001*
Pain	45 (0-100)	100 (0-100)	100 (55-100)	<0.001*
General health status	50 (10-90)	70 (40-100)	75 (35-90)	<0.001*

*: p<0.05.

The main indication for endometriosis surgery is pain, but controversy still remains as to whether surgery should be performed due to the risk of long-term side effects, such as denervation of the bladder, potentially causing voiding problems. The existing literature has shown that urinary functional problems are common in women diagnosed with endometriosis, regardless of past surgical history[26-28]. Data from several studies on the cause of urinary dysfunction following surgery for rectosigmoid endometriosis focuses particularly on the damage to the autonomous nerve plexus innervating the bladder during surgical procedures[29]. Several lines of evidence suggest that it may be related to pre-existing conditions in the endometriosis population[30]. Erdem et al.[31] concluded that there was a clinical deterioration in symptoms of evacuation and incontinence following laparoscopic segmental rectal resection for the treatment of DIE involving the rectal wall. On the other hand, Roman et al.[32] indicated better long-term outcomes for constipation and incontinence in patients who underwent rectal shaving compared to colorectal resection. A prospective

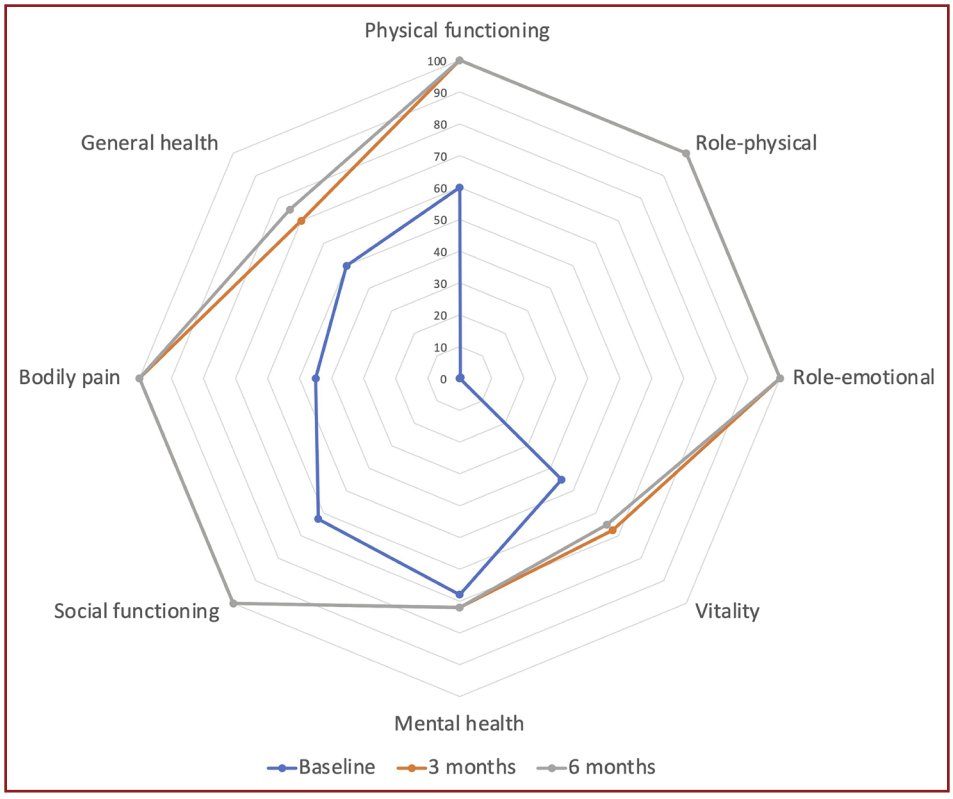

Figure 2. Spiderweb plot according to 36-item Short Form Survey (SF-36) item scores before (–), 3 months (–), and 6 months (–) after surgery for rectosigmoid deep infiltrating endometriosis.

observational cohort study conducted by Dior et al.[33] reported that urinary function improved following minimally invasive surgery for DIE, while postoperative deterioration was observed in patients with initial normal function.

Anastomotic leaks and rectovaginal fistulas have been reported in 3-6% and 0-14% of cases, respectively[34-37]. Overall, an anastomotic leak rate of 5.17% (n=3) and a fistula rate of 6.89% (n=4) among our patient population is comparably well to previous studies. Therefore, surgery for endometriosis involving the bowel seems to be a reasonable option owing to acceptable functional outcomes and much lower rates of short-term complications.

There are several limitations to be acknowledged. Our research was a small sample-sized single-center study. A low dropout rate and a high response rate after six months, which reduces the risk of information and selection bias, can also be considered as strengths of the study. Only a specialized gynecological team in conjunction with colorectal surgeons performed surgery. This is the first comprehensive study to provide pre- and postoperative data on bowel, urinary functions, and QoL outcomes in women managed surgically for DIE involving the bowel using validated, well-known questionnaires filled in through face-to-face interviews in Türkiye.

Conclusion

The present study showed that women having surgery for endometriosis infiltrating the rectosigmoid had improved pain symptoms and bowel function three months after surgery. Additionally, patients in this study reported better QoL outcomes in all domains measured except for mental health.

Ethics Committee Approval: The study was approved by the Kartal Dr. Lütfi Kırdar City Hospital Clinical Research Ethics Committee (no: 2021/514/202/16, date: 26/05/2021).

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Conflict of Interest: None declared.

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