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Before and after study

Quality of life of patients undergoing surgery for obstructed defecation syndrome: A before-after study

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HIGHLIGHTS

- What is already known on this topic?
- Obstructed defecation syndrome is a very common problem and deeply affecting quality of life.
- What this study adds?
- In our sample, surgery led to ODS symptoms relief after 3 months.

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ABSTRACT

Introduction: Obstructed defecation syndrome (ODS) is the inability to evacuate the contents of the rectum. It is a common problem with both social and psychological effects on a patient's quality of life. Surgery has proven effective and safe in reducing symptoms, with subsequent improvement of quality of life (QOL).
Methods: This study evaluates QOL both before and after surgery (three months) in a series of 96 patients. The Short Form-12 (SF-12) and ODS questionnaires were scored and pain during voiding was assessed by means of the Numerical Rating Scale.
Results: 92 consecutive patients were studied. After three months, pain and ODS scores improved significantly. General QOL also improved significantly.
Discussion: More than three months from surgery might be necessary in order to obtain more useful information regarding the effects of surgery on both physical and mental health. However this study suggests the benefits are seen even in the early post-operative period.
Conclusion: After three months general quality of life shows a improvement and hopefully these results will be sustained (or even improved) in the longer term.

1. Introduction

Several authors have studied the relationship between obstructed defecation syndrome (ODS), anorectal surgery, and quality of life. With appropriate expertise, and on selected patients, surgery has proven both effective and safe in reducing symptoms with improvement in quality of life. [1–7] Obstructed defecation (OD) is the inability to adequately void the contents of the rectum. It is a common condition, which affects approximately 7% of the

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adult population in Western Countries [4], with severe social and psychological consequences, and reduced quality of life. In order to investigate quality of life in patients undergoing surgery for ODS, it is necessary to assess their symptoms both before and after surgery. Common symptoms include a sensation of incomplete evacuation, excessive straining, hard stools, ano-rectal pain (which often causes patients to postpone evacuation), the use of non-physiological body positions to aid defecation, a sensation of perineal weight while standing, tenesmus, interrupted defecation, the need to stimulate the rectum or the vagina to allow voiding, enema use and continuous stress. These symptoms can all affect a patient's quality of life [4,7,8]. Common clinical conditions found include rectocele, rectal intussusception, haemorrhoids and rectal prolapse. When an anatomical abnormality can be confirmed then surgery is usually the basis for treatment [9–13].

The aetiology of ODS is complex and includes both mechanical and anatomical factors often alongside functional problems with faecal evacuation. Patients often have longer transit times in the recto-sigmoid region whilst these are often normal in the remaining colon. There are however several overlapping conditions in which ODS is associated with global slow transit. It is not always easy for these patients to clearly describe their symptoms and often they are labelled with simple constipation. Many find relief after surgery, especially in cases that have not responded to conservative treatments. In many cases surgery is not the definitive solution. There is a high incidence of both relapses and complications which include post-operative haemorrhage, recto-vaginal fistulae, faecal urgency and/or incontinence. Additionally obstructed defecation is often associated with other co-morbidities which can adversely the surgical outcome. It is therefore necessary to properly assess these associated diseases and conditions in order to select the patients for surgery [4,12–15].

The investigation of ODS includes either colonoscopy, barium enema or CT colography to exclude other bowel diseases. It usually includes anorectal manometry and transrectal ultrasonography, which are used to detect functional abnormalities of the sphincters, as well as defecography (to study the puborectal Muscle and the process of evacuation). Many other tests can be employed and the results of all examinations can often allow precise assessment of the patient's conditions and identify those suitable for surgery [12,16].

Overall, the impact of ODS on quality of life is significant. Surgery is often recommended and assessing the quality of life before and after operations is both necessary and relevant. Several authors have investigated this at 6–12 months after surgery showing clinically improved outcomes [1]. There is a lack of data regarding possible changes in quality of life within the first few months of surgery and this study specifically sets out to study this.

2. Materials and methods

We conducted a before-after study on a consecutive, non-randomized sample of 96 consecutive patients, enrolled in the General Surgery Unit and the colonproctology outpatient's of the Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico in Milan, Italy, over a period of 10 months. The duration of the study allowed a minimum of three months between the preoperative period and the postoperative follow-up visits. A pilot study on a sample of 20 patients had already shown that after only 3 months quality of life for these patients may already show significant improvements. All patients, aged 18–80 years, undergoing surgery for ODS were identified. Those with anorectal cancer, inflammatory bowel disease, faecal incontinence, and perineal sepsis were excluded.

Quality of life was evaluated using the Italian version of the Short-Form 12 and ODS score questionnaires. The SF-12 Health Survey questionnaire is in two parts, the physical components of health (called PCS-12) and the psychological well-being of the patient (called MCS-12). It provides information on daily activities, during the day in which the questionnaire is filled and the previous 4 weeks. The ODS score is a questionnaire used to assess the ODS level of severity. It includes 8 items investigating the patient's evacuation habits, use of digital stimulation, use of enemas, and fecal consistency. It is based on Likert scales, with 7 ITEMS SCORING FROM 0 TO 4, AND 1 ITEM FROM 0 TO 3. Therefore, the overall score can range from 0 (no problems) to 31 (worst possible symptoms). In our study, pain intensity during evacuation was measured by using the Numerical Rating Scale NRS which ranges from 0 (no pain) to 10 (the worst possible pain, according to the patient's experience) [17–20].

Pain assessment performed by patients is preferable to external assessment, as suggested by the literature.

The study was conducted according to the principles contained in the Declaration of Helsinki. According to the regulations of the local ethical committee, no approval was necessary for this observational study. Informed consent was obtained by all patients and the hospital management gave formal approval. Statistical analyses were conducted with SAS 9.2 for Windows and the SAS SF-12 program for the SF-12 questionnaire.

Before and after comparisons were undertaken using linear regression after Blom's transformation; in case of failure of the inverse normal transformation, the Wilcoxon's signed-rank test for matched pairs was used. To assess correlation between the scores Pearson's coefficient was used, after Blom's normalization. When Blom's transformation failed, Spearman's rho coefficients were calculated. Logistic regression was used to assess for binary outcome variables. A statistician reviewed the analysis and checked the results.

3. Results

Ninety two consecutive patients were enrolled, 53 females and 39 males. Age ranges were split into 18–44 years($n = 23$), 45 and 64 years ($n = 51$) and 65–80 years ($n = 15$). Three patients were older than 81 years.

The diagnosis was either haemorrhoids ($n = 18$) or rectal prolapse ($n = 74$). Patients with rectal prolapse were afflicted with different degrees of rectocoele ($n = 30$ first degree rectocoele, $n = 44$ s degree rectocoele)

Patients with haemorrhoids underwent open Milligan and Morgan haemorrhoidectomy. Patients with rectal prolapse underwent stapled trans anal rectal resection (STARR).

Twenty six patients (28.3%) had undergone previous ano-rectal surgery (haemorrhoidectomy $n = 10$, rectal prolapse $n = 8$, anal fistula $n = 2$, STARR $n = 2$, perianal abscess $n = 1$, not specified $n = 3$).

The ODS scores before surgery had a median value of 11, IQR = [8,18] and were not influenced by previous surgery ($p = .654$), age ($p = .257$) or gender ($p = .303$). After surgery, the median score was 6, IQR = [4,8], ($p < .001$). After surgery patients had a reduced need to defaecate from 3 to 4 to 2 attempts per day, fewer episodes of incomplete defecation (from 2 to 3 per week to 1 per month) and shorter mean time spent for defecating (from 11-20 min to 6–10 min per day).

The calculations performed on the SF-12 questionnaire provided two separate scores: MCS-12, regarding the psychological aspects of quality of life, and PCS-12, concerning the physical aspects.

In the MCS12 domain the median, score before surgery was 40.58, IQR[35.27; 49.33] and after surgery was 50.56, IQR[45.95; 54.30], $p < .001$. The PCS12 scores also increased from 40.33, IQR [34.86; 49.22] to 53.48, IQR[49.68; 56.90], $p < .001$.