

Benign Anorectal Disorders and Pelvic Floor Disease After Bariatric Surgery

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Abstract

The correlations between morbid obesity, bariatric surgery and gastrointestinal disorders are well known and reported. Symptoms like abdominal pain, constipation, bloating, heartburn and gastroesophageal reflux disease are known to be significantly more prevalent in overweight patients and body mass index is associated positively with abdominal pain and diarrhea. In spite of these conditions, less is known about the lower gastrointestinal tract. Of these, anorectal disorders and pelvic floor disease are both believed to be more frequent in obese patients compared to the general population. Weight loss related to bariatric surgery seems to improve quality of life and weight-related symptoms, although some of these conditions may get worse. All these conditions are rarely studied in patients undergoing bariatric surgery for morbid obesity. This concise review aimed to focus on these conditions in patients undergoing bariatric surgery for morbid obesity in order to improve patient selection and post-operative management.

Keywords: Obesity; Bariatric surgery; Anorectal disorders; Pelvic floor disease

Introduction

The bariatric procedures achieved worldwide went from 40,000 surgeries in 1997 to 579,517 in 2014 and this increase was not only associated with commonly observed bariatric surgical adverse events, but also with several complications.

Manuscript submitted April 1, 2022, accepted April 26, 2022
Published online June 2, 2022

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doi: <https://doi.org/10.14740/jocmr4713>

Benign anorectal disorder (AD) and pelvic floor disorder after bariatric surgery (BS) are believed to be ordinary but are rarely inquired. Only two articles have been published on the incidence of benign ADs after BS [1].

The discovery of a relationship between body mass index (BMI) and intra-abdominal pressure suggested that obesity can stress the pelvic floor secondary to a chronic state of elevated pressure [2].

Treatment of ADs in morbidly obese patients before BS is challenging due to the medical examination complicated by overweight.

Several studies demonstrated that morbid obesity is a risk factor for the onset of functional digestive disorders, including fecal incontinence (FI) and constipation, although it has also been pointed out how weight loss after surgery can improve those symptoms as well as urinary incontinence and sexual activity [1-3].

ADs and pelvic floor disease (PFD) are believed to be both frequent and difficult to recognize, although weight loss related to BS can improve quality of life (QoL), weight-related symptoms and disorders in obese patients; nevertheless, these conditions are rarely studied. The aim of the present paper was to focus on these conditions rarely studied in patients undergoing BS for morbid obesity.

Bowel Habits

Symptoms of abdominal pain, irritable bowel syndrome (IBS), heartburn and gastroesophageal reflux disease (GERD) are known to be prevalent in obese patients [3, 4].

Fysekidis et al found a 90% prevalence of gastrointestinal disease (GD) with a high prevalence of functional intestinal disorders in patients eligible for BS. Conversely in a previous report, the authors found an increase in esophageal symptoms in patients who report GD [5].

Bouchoucha et al analyzed 596 overweight patients (BMI > 30) by completing a questionnaire to evaluate the presence of GD [6]. The study showed that the type of enrollment is an important predictor for the frequency and the type of complaints in obesity or morbid obesity patients. We agree with the authors that the recruitment source accounted for specific differences in the prevalence of functional gastrointestinal disorders in morbid obesity.

Conversely, several bariatric procedures such as adjustable gastric banding (AGB), sleeve gastrectomy (SG), Roux-

en-Y gastric bypass (RYGB), one-anastomosis gastric bypass (OAGB) or biliopancreatic diversion (BPD) may alter bowel habits due to the mechanism of action of the different types of surgery; moreover, little is known if these procedures could affect the QoL [7].

Potoczna et al analyzed 290 obese patients who underwent surgery between August 1996 and September 2004 [7]. They reported that fecal consistency changed after surgery. Soft stools and diarrhea were more frequent after BPD and RYGB ($P < 0.001$), but more after BPD than after RYGB or AGB ($P < 0.002$). In addition, constipation was more likely after AGB ($P = 0.03$).

Furthermore, foul-smelling flatulence was more frequent after BPD than after RYGB or AGB ($P < 0.003$). The flatulence increased after BPD and RYGB, and patients were more disappointed by foul-smelling flatus than after AGB ($P < 0.001$). The flatulence severity score was higher in BPD patients, intermediate in RYGB, and lower in AGB patients ($P < 0.001$), a difference that was not affected by the frequency of the metabolic syndrome before and after surgery [7].

We conclude that BS influences bowel habits, mainly resulting in diarrhea after BPD and RYGB, and constipation after AGB. The severity of flatulence damages QoL more in BPD, is intermediate in RYGB, and is minor after AGB, although we emphasize that the main limitation that may reduce the strength of this study is the retrospective assessment of bowel habits before surgery [7].

In her recent paper, Afshar et al included 26 patients undergoing a bariatric procedure with a median post-operative follow-up of 6.4 months [8]. Of these, 19 had RYGB, five had SG, and two had intragastric balloon (IGB) with a median excess weight loss (%EWL) of 67.9%, 52.4% and 31.3%. In this case series, dietary fiber intake decreased after surgery, and bowel movements frequency and the Bristol Stool Form Scale significantly decreased. Constipation was the main common disorder related to BS that may possibly due to a reduction in dietary fiber intake; furthermore, the small sample size (19 RYGB, five SG and two IGB) and the short follow-up may have reduced the power of this study. Finally, as also reported by some authors, dietary adaptation after RYGB occurs from 3 months to 2.5 years after the procedure, so the changes they reported may not represent a new state for these patients [7-9].

Benign Anorectal Disease

Benign ADs represent a potential complication after BS, although their incidence in this population is not well studied with only a few published articles. Treating AD before bariatric procedures is challenging because of a complicated assessment due to the overweight. Furthermore, overweight increases the risk of FI and a morbid bowel habit may be related to AD [10-14].

Guedea et al have described the prevalence of AD after BS [2]. The study was based on patients subjected to modified BPD (MBPD). After 5-year follow-up, the authors reported an AD incidence of 18%. Anal fissure was the most common dis-

ease, with an incidence of 8%.

Despite a well-designed study with a rigorous method and a good sample size, it was based on a surgical treatment which is no longer the most used procedure due to its well-described gastrointestinal complications; however, it is useful to emphasize its high incidence of AD.

In the only paper published by Cano-Valderrama et al, 196 patients with BS were collected through telephone interviews and medical record reviews and analyzed retrospectively. Of these, 59 patients were lost from follow-up despite 137 being included in the final analysis [15]. The authors included all patients who had undergone MBPD and gastric bypass (GBP) and classified AD as hemorrhoids, fistulas or anorectal abscesses, anal fissures and others (including anal pain, anal itching, FI and rectal prolapse).

After a mean follow-up of 87.8 months, 51 patients (37.2%) reported AD. Hemorrhoids were the prevailing diagnosis, and 27.5% of patients underwent surgery. Patients who developed AD had a longer follow-up (92.5 vs. 85.1 months, $P = 0.003$) and those with a pathological bowel habit (diarrhea or constipation) had a higher incidence of AD (54.5 vs. 28.3%, $P = 0.003$). ADs were common after MBPD (52.9%) than after GBP (21.7%) ($P < 0.001$). The multivariate analysis demonstrated that a pathological bowel habit was related to AD ($P = 0.003$).

Hemorrhoids and anal fissure were the most frequently ADs after bariatric procedures, but they are also known as the most prevalent ADs in the worldwide [7, 11, 14]. Despite an incidence of 21.7% of AD after GBP, it was not statistically significant compared to MBPD (52.9%), so we can conclude that MBPD was the most frequent bariatric procedure related to the development of AD. According to our experience, a normal bowel habit is essential in patients suffering from AD due to BS.

PFD

According to the literature, factors associated with increased intra-abdominal pressure such as chronic cough, morbid obesity and constipation may be related to pelvic floor dysfunction [13, 16].

Bowel symptoms related to PFD can range from some forms of fecal or gas incontinence and urgency to obstructed defecation or full-thickness rectal prolapse. The mechanisms by which excessive weight affects colorectal symptoms may be related to chronic pressure on the pelvic floor, pudendal nerves and sphincter mechanism.

Previous studies have shown that morbidly obese patients have an increase in abdominal and pelvic floor pressure, which is mainly associated with the orthostatic position [17-19]. Burgio et al studied changes in FI symptoms in 99 women undergoing laparoscopic RYGB for weight loss and reported a significant reduction in liquid and solid stool loss, from 19.2% before surgery to 8.6% after surgery [18]. However, Scozzari et al compared data on continence disorders and anorectal manometry in a group of obese women undergoing BS and found no significant difference before and after BS [19].

Conversely, if studies on the relationship between PFD and morbid obesity are lacking, many reports are emerging of improvements in female pelvic floor disorders after bariatric procedures.

In a recent meta-analysis, Lian et al included all studies reporting pre- and post-operative results in obese women undergoing bariatric procedure. Despite its several limitations such as the small sample size, the number of articles analyzed and the limited follow-up, the meta-analysis may lead to reliable results due to the use of well-known questionnaires for the evaluation of PFD (the Pelvic Floor Distress Inventory (PFDI-20), the Pelvic Floor Incontinence Questionnaire (PFIQ-7), the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire, Female Sexual Function Index and the International Consultation on Incontinence Questionnaire-Urinary Incontinence short form score) [20].

Eleven studies involving 784 participants were identified in this paper. The authors reported that bariatric procedures could have a benefit on PFD. In the subscale analysis, BS was associated with a significant improvement in urinary incontinence and PFD [20].

In a previous report, Wasserberg et al reported the effect of surgically induced weight loss on the pelvic floor in 46 morbidly obese women. The authors analyzed three main domains: pelvic, colorectal-anal and urogenital organ prolapse using the PFDI-20 and PFIQ-7 [21].

Although they did not mention the surgical approach, the prevalence of PFD symptoms improved from 87% before surgery to 65% after surgery ($P = 0.02$). There was a significant reduction in the mean total distress scores after surgery ($P = 0.015$), which was mainly attributed to the significant decrease in urinary symptoms ($P = 0.0002$).

Recently, Leshem et al prospectively enrolled 160 consecutive women undergoing BS and all patients completed four validated questionnaires for evaluate pelvic floor disorders and sexual dysfunction before and 3 - 6 months after surgery [22].

Overall, surgically induced weight loss was associated with a statistically significant improvement in urinary incontinence ($P < 0.001$), pelvic organ prolapse symptoms ($P < 0.001$), and colorectal-anal symptoms ($P = 0.004$). In addition, half of the preoperative incontinent women and more than a quarter of the women who had either pelvic organ prolapse or colorectal-anal symptoms reported complete resolution of their symptoms. The surgically induced weight loss was associated with significant improvement in pelvic floor disorders, including urinary incontinence, pelvic organ prolapse, and colorectal-anal symptoms, as well as improved sexual performance.

Finally, Mazoyer et al recently published a single-center pilot study comparing PFD in 72 consecutive women undergoing RYGB and SG; as we know this is the only study that analyzed the effect of SG in terms of PFD and anal incontinence (AI) after 1 year of follow-up [23].

Despite a heterogeneous and small sample size, some considerations can be made. The authors reported that AI significantly increased 1 year after RYGB ($P = 0.02$) due to an increase in flatulent incontinence ($P = 0.04$) and concluded that RYGB can decompensate flatulent incontinence while this effect is not found in patients undergoing SG; therefore the effect

of RYGB should be kept in mind in the process leading to the choice of the most appropriate bariatric procedure.

Conclusions

Interest is growing in the complications of benign ADs in obese patients undergoing BS, although several studies with small sample sizes and reduced follow-up are still published.

ADs appear to be a frequent complication after bariatric procedures and the majority of patients have been treated medically or surgically. Abnormal bowel habits and stool composition have frequently been related to AD, and more studies are needed.

The discomfort due to PFD symptoms and their negative impact on QoL may improve after weight reduction surgery. In morbidly obese women, surgical weight loss should be considered as a treatment option for PFDs prior to other perineal or abdominal interventions.

Acknowledgments

None to declare.

Financial Disclosure

No supporting foundations are involved in this study.

Conflict of Interest

The authors declare that they have no conflict of interest.

Author Contributions

GL designed and wrote the paper. MC collected data. DS and DB made study design. EB and PG drafted manuscript.

Data Availability

The authors declare that data supporting the findings of this study are available within the article.

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