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Anal disease in patients who are candidates for bariatric surgery: a descriptive study

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Abstract

Background: In 2022, 60% of the world's population was overweight or obese. Anal pathology is common and affects patients' quality of life. The aim of our study is to describe and analyse benign anal pathology in morbid obese patients who are candidates for bariatric surgery. Method: This is a prospective multicentre study. Obese candidates for bariatric surgery were included and demographic variables were studied. Comorbidities associated with obesity, specific characteristics of anal pathology and bowel habit are included. The HEMO-FISS-QoL and SF12-V2 questionnaires were used to assess quality of life. Results: 70 subjects (62.9% women) were included, mean age 46.7 years and preoperative BMI 45.7kg/m2. DM was observed in 20%, AHT in 44.3%, OSAHS 28.6%, ischaemic heart disease in 1.4% and DVT in 2.9%. Regarding anal pathology, 10% presented anal fissure, 42.9% external haemorrhoid, 61.4% presented symptoms compatible with internal haemorrhoid. Conclusion: The prevalence of anal pathology in the obese population who are candidates for bariatric surgery is higher than in the general population, moderately affecting the quality of life of the patients who suffer from it.

Keywords:

- Perianal disease
- Bariatric surgery
- Haemorrhoids
- Anal pathology
- Obesity

Introduction

Over recent years, obesity has become a major public health problem, so much so that, according to the report published by the WHO in 2022, 60% of all European citizens are overweight or obese[1]. Obesity is associated with a significant number of comorbidities, including cardiovascular ones, and these patients frequently suffer from hypertension (hypertension), dyslipidemia, diabetes mellitus (DM) or other associated pathologies (sleep apnea syndrome (OSAS), osteoarticular problems, hepatic steatosis, etc.). According to the latest recommendations of the IFSO, bariatric and metabolic surgery is the recommended treatment for patients having a body mass index (BMI) of over 35Kg/m2 (with or without an associated pathology)[2], attaining positive results on weight loss over the medium-long term, and resulting in the improvement of a significant percentage of comorbidities in these patients, as well as a reduced risk of mortality from cardiovascular disease[3].

On the other hand, benign perianal pathology has a high prevalence in the general population, although not all patients affected by it are evaluated in surgical consultations[4,5]. The embarrassment associated with these pathologies, often leads to the failure to visit specialists or receive proper treatment. In fact, most patients are treated directly by their primary care physician and are not assessed by general or digestive surgeons. When left untreated and becoming chronic, these pathologies may seriously affect the patient's quality of life. Most medical consultations for anorectal symptoms are due to the presence of anorectal pain, rectal bleeding, discharge, pruritus or swelling in the perianal region, and, most frequently, a combination of these symptoms are involved[6].

Of the many perianal pathologies, the most frequently diagnosed are hemorrhoids, anal fissure, anal fistula, pilonidal sinus and perianal hidradenitis6. Of the distinct pathophysiologies of these conditions, obesity is found to often play a major role[7-9].

The aim of our study is to describe and analyze benign anal pathology in morbidly obese patients who are candidates for bariatric surgery.

Material and Method

The protocol for this study has been developed according to the guidelines established by the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) statement for observational studies.

This is a multicenter prospective observational study, which evaluates perianal pathology in patients who are candidates for bariatric surgery and its impact on their quality of life.

Patient selection:

Patients have been diagnosed with morbid obesity, upon prior assessment by the Bariatric Surgery Unit of the General Surgery Service of the Hospital Torrecardenas or by the multidisciplinary team of Obesity Almeria of the Hospital Mediterraneo and are candidates for bariatric surgery, receiving prior approval from the corresponding local Ethics Committee.

All patients are assessed by a multidisciplinary team before considering surgery. This team consists of staff from the endocrinology, nutrition, psychology and surgery departments. The type of intervention to be carried out is personalized based on each patient.

The case series consists of obese patients who are candidates for bariatric surgery and who meet the following inclusion criteria: Patients over the age of 18; having a BMI ≥ 40 kg/m2 or 35 kg/m2 with comorbidities. Patients diagnosed with inflammatory bowel disease are excluded from the study.

Variables:

Preoperative variables include age, sex, weight, BMI, and obesity-related comorbidities (hypertension, DM, dyslipidemia, OSAS, ischemic heart disease, and deep vein thrombosis (DVT)) at the time of surgery. Specific features of benign anal pathology include intestinal habit (number of bowel movements and type according to the Bristol[10] classification), anal fissure, hemorrhoidal pathology, perianal hidradenitis classified in degrees according to Hurley[11], pilonidal sinus and anal fistula.

Data Collection:

The patient's medical history, with personal and contact details, as well as information on the patient's personal history, will be collected during the first contact with the patient, to take place during admission, prior to the surgery. At this contact, a perianal examination will be performed, and the patient will complete the two questionnaires. The first is the HEMO-FISS-QoL[12] (to assess the impact of perianal pathology on quality of life) whose minimum value is 1 (indicating minimum impact) and maximum value is 5 (indicating an important impact of perianal pathology on daily life). The second is the SF12-V2[13], having a maximum value 55 when the patient's physical condition and quality of life are optimal.

Statistics:

For the descriptive study, the means and their standard deviation (SD) for the expression of quantitative variables are represented. Qualitative variables are expressed according to number (n) and percentage of the total (%). A comparison of continuous variables is made using Student's t-tests for independent data and the Mann-U Whitney test for variables that do not follow a normal distribution. For categorical variables, Chi-square tests or Fisher's exact test have been used. The statistical analysis was obtained with SPSS® version 22 software (SPSS, Inc., Chicago, IL), and a value of $p<0.05$ has been considered statistically significant.

Results

A total of 70 obese patients who were candidates for bariatric surgery were included in the study. 62.9% of the sample were women (n = 44), having a mean age of 46.7 years. Their pre-operative BMI was 45.7 kg/m2 (35-62.9 kg/m2). **(TABLE 1)** With respect to lifestyle habits, as well as obesity-associated pathology, 20% of the population were smokers, and 31.4% (n=22) engaged in physical exercise (mean 5.55 hours of exercise per week). DM was found in 20%, HTA in 44.3%, and OSAS was being treated in 28.6% of patients. 1.4% of the subjects had suffered an episode of ischemic heart disease and 2.9% were being treated for DVT.

As for their depository habits, the average number of weekly stools was 11.4 (SD 6.01). In terms of consistency, the mean value was 3.87 (SD 0.93).

TABLE 1: General table of results, with demographic characteristics, intestinal habit and perianal pathology

Basal characteristics and related to perianal pathology	N=70
Age: Average, (SD)	46.76 (SD 10.05)
Gender: Female, N (%)	44 (62.90%)
Weight (kg): Medium, (SD)	127.60 (SD 25.27)
BMI (kg/m2): Mean, (SD)	45.74 (SD 6.56)
Comorbidity: N (%) HTA DM SAOS Ischemic heart disease DVT Smoking	44 (62.90%) 31 (44.3%) 14 (20%) 20 (28.6%) 1 (1.4%) 2 (2.9%) 14 (20%)
Depository Habit: Medium, (SD)	11.40 (SD 6.015)
Consistency: Medium, (SD)	3.87 (SD 0.931),
Previous proctological intervention: N (%) Hemorrhoidectomy Pilonidal sinuses Abscess drainage Seton lax	8 (11.4%) 2 (2.9%) 3 (4.3%) 2 (2.9%) 1 (1.4%)
Benign perianal pathology: N (%) Crack External hemorrhoid Internal hemorrhoid Hidradenitis suppurativa Pilonidal sinuses Fistula	 7 (10%) 30 (42.9%) 43 (61.4%) 8 (11.4%) 4 (5.7%) 1 (1.4%)

TABLE 2: Patients with symptoms compatible with internal haemorrhoid.

Patients with symptoms compatible with Internal hemorrhoid	N= 43
Bleeding: N (%)	25 (58.1%)
Pruritus: N (%)	29 (67.4%)
EVA - Medium (SD)	1.14 (0.467)
Grade: Medium (SD) I: N (%) II. III. IV.	1.51 (0.768) 26 (60.47%) 14 (32.56%) 1 (2.33%) 2 (4.65%)

In the perianal examination it was found that 11.4% of the subjects had a history of proctological surgical intervention. Of these, 2.9% corresponded to hemorrhoidectomy, 4.28% to pilonidal sinus, 2.9% had required perianal abscess drainage and 1.4% had a loose seton.

Regarding the perianal pathology explored, 10% (n=7) of the population suffered from anal fissure, which was acute in 28.6% (n=2) and chronic in 71.4% (n=5).

When evaluating the prevalence of hemorrhoidal disease, it was observed that 42.9% of the overall sample presented external hemorrhoid. On the other hand, 61.4% (n=43) of the subjects displayed symptoms related to internal hemorrhoids. Of these, 58.1% (n=25) had hemorrhoidal bleeding and 67.4% (n=29) report pruritus. 60.47% had grade 1 hemorrhoids, and 32.56% had grade 2. **(TABLE 2)**

The mean value on the Bristol scale was 3.70 (SD 0.99), with a lower value associated with a higher incidence of internal hemorrhoids ($p < 0.05$).

Regarding hidradenitis suppurativa, this was found in 11.4% (n=8) of the sample, of which 87.5% (n=7) was identified as grade 1 (12.5% was grade 2). Pilonidal sinus was present in 5.7% (n=4) of the patients, 100% of which were single type. As for perianal fistula, it was found in one patient (1.4%) and was the intersphincteric type.

The mean value of the Visual Analogue Pain Scale (VAS) was 1.66 (SD 1.91), higher in patients with anal fissure (VAS 7.14; SD 1.345), with this relationship being statistically significant ($p < 0.01$).

Regarding the questionnaires studied, the HEMO-FISS-QoL yields an average value of 2.1 (SD 0.908). The mean obtained for the SF12v2 Quality of Life Questionnaire was 37.97 (SD 7.172).

Discussion

This study describes the incidence of benign perianal pathology in the obese population of bariatric surgery candidates. The results suggest that these are diseases of high prevalence, impacting the patients' quality of life, and are often under-diagnosed7-9.

Hemorrhoidal disease is a common pathology. It is usually associated with conditions such as pregnancy, obesity or pelvic floor dysfunction, being, especially frequent in patients with a sedentary lifestyle and low fiber diet6. The study published by Riss et al.[14] prospectively studied 976 subjects, of whom 380 (38.9%) suffered from hemorrhoidal disease,

with 44.7% having symptoms related to these. Unlike the general population, 61.4% of the patients in our sample presented symptoms related to hemorrhoids. The precise pathophysiology of hemorrhoidal disease is unknown, although it is commonly believed that they result from the abnormal congestion of the descended hemorrhoidal plexus. Furthermore, due to increased intra-abdominal pressure, as is the case with obesity, the supporting structures deteriorate, producing a slide of the plexus hemorroidal13-16. A study14.17 by Riss found that BMI is a risk factor for hemorrhoidal disease. Other authors, however, have not found this relationship. Peery et al.18 conducted a cross-sectional study in subjects undergoing colonoscopy in which 1074 patients were diagnosed with hemorrhoidal disease. It was concluded that being overweight or obese (according to BMI) was not related to hemorrhoidal pathology17,18. Some authors have suggested that this discrepancy between BMI and hemorrhoidal disease may be due to the widespread use of IMC17. BMI is an anthropometric measurement tool used to classify populations. However, it is unable to represent visceral19 fat, which may be related to increased intra-abdominal pressure. On the other hand, Peery18 described an association between constipation and the incidence of hemorrhoids. In our study, we found that constipation (in number and consistency according to Bristol scale) is significantly associated with the risk of internal hemorrhoids. In fact, some authors claim that the symptoms of hemorrhoidal disease may be relieved by regular defecation and achieving a grade 3-4 consistency on the Bristol17 scale.

Regarding anal fissure, this is a longitudinal cutaneous tear in the anal canal, distal to the dentate line and normally located on the posterior midline6. It is a frequent cause of proctalgia in the general population and its incidence is the cause of debate. The largest study on the epidemiology of the anal fissure was published by Mapel DW et al.20. It is a retrospective analysis, in which it was observed that 1243 of 220000 patients had anal fissure (an incidence of 0.11%). Unlike this study, which describes the incidence in the general population, in our sample we obtained an incidence of 10%. This data is more similar to that provided by Abramowitz21 in his study on anal fissure during the postpartum period. Here, an incidence of 15% was found at two months after delivery, associated with pregnancy and, above all, constipation.

As for hidradenitis suppurativa, this is a chronic disease, occurring in outbursts of varied intensities, characterized by the presence of boils or abscesses that arise in areas rich in apocrine glands22. As for predisposing factors, they may be grouped into genetic or endocrine factors, the latter influencing the cycle of the apocrine gland11. Outbreak triggers include tobacco and obesity, the latter remaining under debate11,23. A US23 study established its prevalence at 0.1% and its incidence at 6 out of 100,000 people/year in this country. The study by Kirsten et al.24 calculated a hidradenitis suppurativa prevalence of 0.03%, with age of onset being 22 years. Both studies found a higher incidence in patients who were overweight and smokers23,24. In our sample, the prevalence of hidradenitis suppurativa was 11.4%. Some recent25 studies have shown that obesity alters DNA methylation, leading to dysregulation of the CXC16 ligand the chemokine (CXCL16) and its receptor at a tissue level in patients with hidrosadenitis25. On the other hand, in obese patients, hyperproduction of the adipokines (leptin, resistin, visfatin) is found, involved in the pathogenesis of hidradenitis suppurative, causing a proinflammatory state that exacerbates outbreaks 26. Furthermore, obesity negatively interferes with the effectiveness of new treatments for hidradenitis suppurativa. Nosrati et al.27 demonstrated that patients with BMI >30 suffer from physical-clinical deterioration despite complete treatment with adalimumab. Given the aforementioned, it is not surprising that new lines of research are reconsidering weight-based therapy to manage this pathology.

Regarding pilonidal disease, it is characterized as an infection of the subcutaneous adipose tissue located in the intergluteal fold. It appears as outbreaks of suppuration and abscess formation and, in its pathogenesis, follicles appear to be involved28. This disease predominantly affects young adults, mainly males of working age29. According to the systematic review conducted by Beal et al.29, it has a sinus incidence of 26 out of 100,000 inhabitants (0.026%) in the general population, increasing to 0.7% when limiting the population to working age patients. Our sample has a pilonidal sinus incidence of 5.7%. In addition, the average age of affected patients is 43.25 and all of them are male. This is in line with the findings of Luedi et al.30, which revealed that the gender-based proportion has remained constant over the decades, at 80% for males. In our study population, the mean weight in patients with pilonidal sinus is 150 kg

(22.4 kg higher than the average) with weight being a risk factor for suffering the disease. As for the higher incidence of sinuses in our sample, it should be recalled that our patients are obese candidates for bariatric surgery, and obesity has been found to be a risk factor for this condition, increasing the risk of pilonidal disease by 36%29

Regarding quality of life, in our patients it was observed that perianal pathology has a moderate impact, finding average values for both questionnaires. This is in line with the findings of Abramowitz et al.12, revealing a larger impact when suffering from an acute pathology or when it affects their working life or household economic situation12.

The main limitation of our study is the small study population. A larger number of subjects is recommended for more conclusive results.

In conclusion, the prevalence of anal pathologies in the population of obese bariatric surgery candidates is higher than that of the general population, and these pathologies are found to moderately affect the quality of life of patients suffering from them.

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