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Clinical results and histopathological findings of laparoscopic sleeve gastrectomy specimens

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ABSTRACT

Background and objectives: The opportunity of evaluating histological changes has increased since laparoscopic sleeve gastrectomy (LSG) has been a common surgical treatment for morbid obesity in recent years. This research was designed to describe gastric specimens that has been surgically resected.

The study was conducted retrospectively based on records from a single center in the UAE.

Results: Of 585 patients, 205 were men (35%) and 380 were women (65%). The average body mass index was 43.8 kg/m2. The average age at the time of the operation was 29.93 years. 202 patients (34.5%), had histopathologic findings in the resected specimens. The main histopathologic findings were normal stomach mucosa (383, or 65.5%) and chronic gastritis was the second most common diagnosis, with 182 cases (31.2%), followed by H pylori positivity in 11 samples (1.3%) and Dysplasia-intestinal metaplasia was found in 5 patients (0.9%) of the patients. Out of those with chronic gastritis it was found that 51 (28%) cases had positive H pylori test earlier.

Conclusions: All sleeve gastrectomy specimens should be histologically examined, as the results revealed curable problems where endoscopies prior to sleeve gastrectomy may have missed some lesions, histopathologic investigations are crucial for accurate diagnosis.

Several variables, including age, gender, the histology of the stomach that was removed, and the presence or absence of H. pylori, should be taken into account when attempting to predict the success of weight loss following surgery.

Keywords: Sleeve Gastrectomy, histopathology, gastritis, H pylori

Introduction

Diabetes, cardiovascular disease, cancer, and other concomitant conditions are all linked to obesity, making it a leading cause of preventable death worldwide. According to WHO data, in 2022, approximately 2.5 billion adults (43%) were overweight, including over 890 million (16%) who were living with obesity. The global prevalence of obesity has more than doubled since 1990, highlighting its growing impact on public health [1].

Dietary adjustments, exercise, and anti-obesity medicines are all ineffective measures because they lead to weight gain again after a while 2. Limiting the stomach volume by reduced caloric intake or restrictive treatments, or limiting the intestinal absorption by shortening the small intestine, are two ways in which bariatric surgery provides advantages over more traditional approaches to weight loss. Since its inception two decades ago, laparoscopic sleeve gastrectomy (LSG) has become the most common type of bariatric surgery performed [3,4].

Unless otherwise indicated, stomach tissue samples acquired during bariatric surgery are considered to be of normal quality. Histological evidence, however, failed to back up this theory, and research on the histology of gastrectomy specimens after bariatric surgery is sparse [5-7].

This study compared the histopathological findings in resected gastric specimens from patients undergoing LSG at a single center in Sharjah, United Arabs Emirates, to those previously published, with the goal of developing more comprehensive guidelines for preoperative assessment and treatment planning.

Methods:

The research was approved by the hospital's ethical committee and done retrospectively in Al Qassimi Hospital in the United Arab Emirates. Between 2017 and 2022, the entire population of patients getting LSGs to treat morbid obesity was analyzed. Other reasons for partial gastrectomy cases were not evaluated.

Data on patients' ages, sexes, and beginning body mass index was extracted from medical records. Along with the previously mentioned diagnosis, the results of the gross and histological exams included in the final biopsy reports were also retrospectively evaluated. Based on the results of the biopsies, we classified the cases as either (i) normal stomach histology, (ii) chronic non-specific gastritis, (iii) Moderate chronic focally active H pylori associated gastritis, (iv) H pylori associated severe chronic active gastritis, (v) non-neoplastic lymphoid hyperplasia, (vi) dysplasia-intestinal metaplasia, or (vii) other pathological entities.

The data were identified, and an Excel spreadsheet (Microsoft) was created for data management and analysis.

Microsoft Excel was used to enter and analyze the data. For categorical variables like sex and diagnosis, only basic descriptive statistics were used.

Results

The retrospective study included data from 585 total patients. The patients' average age was 29.93, and there were 205 men (35%) and 380 women (65%) in the study's sample. Average body mass index was 43.8 kg/m2.

The majority of the specimens (383, or 65.5%) showed normal stomach mucosa, according to the histological findings. Chronic gastritis was the second most common diagnosis, with 182 cases (31.2%), followed by H pylori positivity in 11 samples (1.3%). Dysplasia-intestinal metaplasia was found in 5 patients (0.9%) of the patients, which is a surprisingly high number.

Histopathological analysis of 182 cases of chronic gastritis revealed that 133 (73%) were female and 49 (27%) were male. Of those, 51 (28%) cases of chronic gastritis had positive H pylori test earlier.

After LSG, patients who had normal gastric histology lost more weight than those who had abnormal histopathology findings with an average percentage of weight loss of 37% compare t0 32% respectively.

Discussion

Sleeve gastrectomy is a common surgical procedure used to treat obesity all over the world since it has been shown to be a safe and feasible procedure with good postoperative results and a considerable improvement in comorbidities [8].

Gastric specimens removed after sleeve gastrectomy undergo standard histopathologic analysis to determine the presence and extent of inflammation, atrophy, intestinal metaplasia, and H. pylori infection. Normal stomach mucosa (at 65.5%) and chronic gastritis (at 31.2%) were the most often observed abnormalities in histopathology. Studies have found that between 13.4% and 74.4% of LSG specimens had histological evidence of chronic gastritis, while between 35.2% and 69.0% have normal histology [9-14].

Additionally, the necessity of routine postoperative biopsy in cases where less than 40% of patients exhibit pathological findings remains debatable. However, histopathological evaluation provides valuable insights that can influence postoperative management and long-term outcomes.

Chronic gastritis was linked to factors such as gender, age, and body mass index. Female older individuals with a higher body mass index were more likely to be associated with chronic gastritis. Consistent with our findings, Safahaan et al. 15 found that women are more likely to experience chronic active gastritis. Therefore, being overweight may increase the likelihood of developing gastritis, a condition that is more common in women [15, 16].

Those who had normal stomach histology following LSG had more weight loss than those who had abnormal histological findings, such as chronic gastritis. However, there are insufficient studies that directly compare weight

reduction in patients with normal stomach histological results to patients with different histopathologies. However, Erkinuresin et al. [17] found that LSG was more effective for weight loss in younger patients with low body mass index and inactive gastritis.

Chronic bacterial infection is caused by H. pylori infection, and most people who have it have no symptoms [18]. Gastritis, duodenitis, peptic ulcer, and other benign and malignant illnesses of the digestive tract can arise in some people [19-21].

Considering the widespread spread of H. pylori infection in our area, our study's findings that H. pylori infection was found in 10.9% of our LSG specimens are not surprising. Our study's 13.5% prevalence of H. pylori is lower than the 20%-50% prevalence found in the obese population [13,22,23]. Chronic gastritis is accompanied by H. pylori infection, as we discovered. Similar relationships between H. pylori and chronic gastritis have been found in prior research [24, 25].

Conclusions

Since endoscopies prior to sleeve gastrectomy may have missed some lesions, histopathologic investigations are crucial for accurate diagnosis. Many variables, including age, gender, the histology of the stomach that was removed, and the presence or absence of H. pylori, should be taken into account when attempting to predict the success of weight loss following surgery.

The results show that routine histological examination of all LSG specimens is necessary to identify any pathology that may affect future treatment of patients.The necessity for standardizing terminology is demonstrated by the divergence in diagnostic insights among pathologists.

Ethical Statement

Conflicts of Interest: The authors declare that they have no conflicts of interest.

The compliance to the Research and Publication Ethics: This study was carried out in accordance with the rules of research and publication ethics.

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