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RESEARCH ARTICLE

Histopathological findings in laparoscopic sleeve gastrectomy specimens

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ABSTRACT

Objective: To study the demographic data and histopathological specimen findings of patients who have undergone laparoscopic sleeve gastrectomy.
Design: A retrospective descriptive study.
Setting: Pathology and Laboratory Medicine Department, Al-Ahli Hospital, Doha, Qatar.
Methods: Data of patients who underwent laparoscopic sleeve gastrectomy between January 1, 2009 and December 31, 2016 were retrospectively collected from the laboratory information system of Al-Ahli Hospital.
Results: A total of 342 patients underwent laparoscopic sleeve gastrectomy. Among these patients, 294 (86%) were Qatari and 241 (70%) were female. The patient age ranged from 13 to 72 years, and most patients were in the 31 – 40-year age group. Histological examination of specimens showed that lymphocytic aggregates in the lamina propria were the most frequent histopathological finding (171, 50%), followed by no remarkable pathological finding (98, 28.6%). The other pathological findings were follicular gastritis, fundic gland polyps, and acute and chronic gastritis.
Conclusion: Our findings clearly indicate the need for routinely performing histopathological examination of laparoscopic sleeve gastrectomy specimens. The study also highlights lymphocytic aggregates as the most common histopathological finding.

Keywords: obesity, laparoscopic sleeve gastrectomy, histopathological findings

INTRODUCTION

With the increase in global affluence, obesity has become a worldwide health problem, and its prevalence is high in the Middle Eastern countries, particularly among females.[1–3]

Ordinary diet regimens have failed to arrest the progression of morbid obesity. Therefore, bariatric surgery has become a treatment of choice. Consequently, with the increase in the rate of obesity in societies globally, the incidence of bariatric surgery has increased. One such surgery is laparoscopic sleeve gastrectomy (LSG), which involves the removal of majority of the stomach.[4,5] It is mostly assumed that similar to other elective surgery specimens, gastrectomy specimens obtained in bariatric surgery would be normal, except for unexpected incidental findings.[6] However, this assumption has not been supported by histological findings of LSG specimens. Although there is a lack of published data on histopathological changes in gastric specimens from patients with morbid obesity, few reports have shown that several pathological changes, including those involving malignant lesions, might occur.[7–9] Additionally, there is conflicting evidence on whether preoperative investigations, such as endoscopic examination and gastric biopsy, are essential alongside routine preoperative investigations.[10,11]

The present study aimed to assess the importance of performing histopathological examination on LSG specimens by documenting the prevalence of different histopathological findings. We also compared our findings to those of other published studies to highlight the heterogeneity in the histopathological diagnosis of LSG specimens and emphasize the need for the adoption of uniform diagnostic criteria.

METHODS

This retrospective descriptive study included 342 patients who underwent LSG for morbid obesity at Al-Ahli Hospital, Doha, Qatar, between January 1, 2009 and December 31, 2016. All LSG specimens that reached the histopathology laboratory were included in this study.

We retrospectively collected and analyzed patient demographic data and pathological reports through the laboratory information system of the hospital. The patient demographic data included characteristics such as age, sex, and nationality. The pathological reports included microscopic examination findings and the final diagnosis.

IBM SPSS, version 23 (IBM Corp., Armonk, NY, USA) was used for all statistical analyses. Variables included age in years, sex, nationality, and histopathological findings. We calculated the frequencies and percentages of these variables.

RESULTS

The study analyzed 342 patient reports. The patient population included 294 (86%) Qatari and 48 (14%) nonQatari patients. Additionally, 241 (70%) patients were female and 101 (30%) were male. The patient age ranged from 13 to 72 years, and the mean age was 34.75 (standard deviation $\pm$10.36) years.

Most patients were in the 31–40-year age group (115, 33.6%), followed by the 21–30-year age group (98, 28.7%), 41–50-year age group (70, 20.5%), 51–60-year age group (29, 8.5%), and 11–20-year age group (29, 8.5%).

Lymphocytic aggregates in the lamina propria were the most frequent histopathological finding (171, 50%), followed by no remarkable pathological finding (98, 28.6%), follicular gastritis (48, 14%), chronic non*Helicobacter pylori* gastritis (9, 2.6%), *H. pylori* gastritis (7, 2%), lymphocytic gastritis (2, 0.6%), and fundic gland polyp (2, 0.6%). Additionally, there was one case of granulomatous gastritis recorded (1, 0.3%), one case of acute gastritis (1, 0.3%) and three cases with other nonspecific features (3, 0.8%) (Table 1).

DISCUSSION

Bariatric surgery is an option in patients with severe obesity in whom lifestyle changes and medications have not been effective.[12] NICE has provided clear guidelines on the consideration of bariatric surgery. Research findings suggest that bariatric surgery is worthwhile in individuals with a body mass index (BMI) over 30–35 kg/m^2. The risk-to-benefit ratio is less certain for young individuals, elderly individuals, and those with a BMI of $>$70 kg/m^2.[13]

Although there are conflicting reports about the necessity of histopathological examination of bariatric surgery specimens, most reports favor such an examination.[9,11]

In this study, most of the patients were Qatari (294, 86%); however, it was difficult to determine whether this was related to the prevalence of obesity in Qatar

Table 1. The histopathological diagnosis of laparoscopic sleeve gastrectomy.

Histopathological findings	Surgical cases	
	Number of cases	Percentage
No pathology	98	28.6
Lymphocytic aggregates	171	50
Follicular gastritis	48	14
Chronic non-H. pylori gastritis	9	2.6
H. pylori gastritis	7	2
Lymphocytic gastritis	2	0.6
Granulomatous gastritis	1	0.3
Fundic gland polyps	2	0.6
Acute gastritis	1	0.3
Others	3	0.8

or simply the accessibility of the service. Females accounted for the majority of the patients who underwent LSG (241, 70%). This finding is consistent with the results of another study from an Arab Gulf country (female proportion, 73%),[14] a study from Romania (66%),[8] as well as studies by Miller (76%)[15] and Clapp (67%).[9] The observed female predominance corresponds with the predominance of obesity in females.[2,3] However, it might also be attributed to the fact that females are more likely to be concerned about their self-image.

Most of our patients were in the fourth decade of life (115, 33.6%), and the mean age was 34.75 years. This age is similar to the age reported in a study from Kuwait (mean age, 33 years),[14] but is lower than the ages reported in the study from Romania (39.1 years)[8] and the study by Clapp (43.1 years).[9]

The histopathological findings varied, and there was variation in the reporting of the findings. In the present study, there were no pathological changes in 28.6% of cases. The studies from Kuwait[14] and Romania[8] did not feature this category, whereas the study by Miller[15] mentioned that this category was prominent and accounted for 80% of cases.

In our study, the most reported histopathological observation was lymphocytic aggregates, which occurred in 50% of cases. This finding was noted in 33.3% of cases in the study from Romania,[8] but was absent in the study from Kuwait[14] and in the studies by Clapp[9] and Miller.[15] It is difficult to determine whether these cases were considered as normal or chronic gastritis by other investigators. However, it raises the issue of nonuniformity in the histopathological diagnosis of LSG specimens and indicates the need for uniform diagnostic criteria. This finding also indicates the need for further studies on such cases to determine whether these lymphocytic aggregates are just a phenomenon of obesity or are associated with some other provocative agent that needs to be identified.

Our study did not identify parietal cell hyperplasia. Additionally, it was not noted in the study from Kuwait[14] and the studies by Clapp[9] and Miller.[15] However, the study from Romania[8] reported prominent parietal cell hyperplasia (63.2%).

With regard to follicular gastritis, the rate was 14% in our study, 9.6% in the study from Kuwait,[14] and 4.1% in the study by Clapp.[9] With regard to chronic nonspecific gastritis, the rate was 2.6% in our study, 74.4% in the study from Kuwait,[14] and 44% in the study by Clapp.[9] These discrepancies might be associated with either histological evaluation or population variation.

In our study, patients did not have tumors (benign or malignant). Furthermore, the patients had undergone radiological investigations, such as barium meal, prior to surgery, and this might have prevented patients with tumors from undergoing bariatric surgery.

Although our findings were similar to those of other studies in the literature, there were significant differences in the occurrence of cases. This might be associated with underlying differences in the population or patient lifestyle or with heterogeneity in the pathologists' preference of nomenclature, indicating the need for uniform diagnostic criteria and classification of pathological findings in LSG specimens.

Although our data covered all patients undergoing LSG during the study period, there is a limitation of the absence of patients' BMI, and therefore, we could not assess its influence on histopathological findings.

CONCLUSION

LSG has become a common procedure in patients with obesity. Histopathological data are insufficient to describe the most common histopathological findings in LSG specimen. Our findings provide evidence that supports the need for routine histopathological examination of all LSG specimens to identify any pathology that might have an impact on future patient management. This study highlights lymphocytic aggregates as the most common histopathological finding. Further studies are required to determine whether lymphocytic aggregates are incidental or are associated with a certain trigger. The diagnostic differences among pathologists indicate the need for uniform terminology to allow appropriate comparisons between studies.

AUTHORS' CONTRIBUTIONS

R.A was responsible for the conception and planning of the study; collection, analysis and interpretation of data; writing critical revision; and final submission of the manuscript. G.E revised and assisted in writing and finalizing the manuscript.

CONFLICT OF INTEREST

The authors report no conflict of interest.

ETHICS APPROVAL

The study was approved by Al-Ahli Hospital Ethical and Research Committee.

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