



CLINICAL AND MORPHOLOGICAL INDICATIONS FOR PERFORMING GASTRIC BARIATRIC RESECTION IN GRADE II OBESITY

Farrukh Saidaliyevich Akbarov

Andijan state medical institute, PhD

farruxakbarov1@gmail.com

Nosirjon Juraevich Mahkamov

Andijan state medical institute, Doctor of medical sciences, Associate

professor. nosirzonmahkamov5@gmail.com

<https://doi.org/10.5281/zenodo.18857639>

ARTICLE INFO

Received: 26th February 2026

Accepted: 27th February 2026

Online: 28th February 2026

KEYWORDS

*morphological indication,
obesity, metabolic syndrome,
stomach*

ABSTRACT

In metabolic syndrome, when performing bariatric gastric surgery, morphological examinations are considered essential in accordance with the national clinical protocol developed by the Ministry of Health of each country. Based on Order No. 777 dated December 25, 2017, approving Medical Document Form No. 014, the mandatory pathoanatomical examination of any surgical material is established. Furthermore, according to Appendix 1 to Order No. 180 dated June 23, 2025, which regulates the procedure for obtaining biopsy specimens in chronic precancerous conditions prior to surgical intervention, the necessity of conducting radical corrective procedures in compliance with the legal regulatory documents established by the Ministry of Health is defined.

Accordingly, before performing sleeve (longitudinal) gastric resection, the assessment of morphological alterations based on modern classifications serves as a basis for modifying therapeutic strategies in clinical practice. This approach aims to prevent the development of precancerous conditions during the reparative regeneration of gastric sutures and wound surfaces in the postoperative period following radical correction.

Relevance of the Problem. Over the past decade, the global prevalence of metabolic syndrome characterized by increased body weight, visceral obesity, and disturbances in carbohydrate and lipid metabolism has risen by approximately 21%. In the United States, the prevalence has increased by 34% over the last five years, while in European countries it has grown by 20.8%. Metabolic syndrome is observed in 56% of individuals over 40 years of age and in 44% of those over 50, indicating its high occurrence among the working-age population and the significant economic burden it imposes on national healthcare systems.

In the Russian Federation and Central Asian countries, the average prevalence is about 16.8%, including 51% among individuals over 50 years, 36% among those over 40 years, and 11% among young adults aged 20-30 years. These data confirm the growing urgency of the problem and highlight the need to investigate age-related morphological changes of the gastrointestinal tract, particularly in patients affected by metabolic syndrome. In Uzbekistan, more than 4.2 million women are affected by metabolic syndrome, of whom 38% are of

reproductive age. This fact underscores the importance of the issue for maternal and child health protection. Notably, national healthcare expenditures allocated for restoring reproductive health in women with metabolic syndrome increased from 22% in 2022 to 36% in 2023, demonstrating a steady upward trend. The present study addresses the interrelated clinical and morphological changes associated with metabolic syndrome, including gastric enlargement, increased gastric volume, and the development of cholelithiasis. However, analysis of international and CIS scientific literature reveals a lack of comprehensive data on the specific morphological and immunohistochemical alterations of the stomach in metabolic syndrome. This gap creates the necessity for further research and provides an opportunity to develop evidence-based clinical recommendations for medical practice.

Objective of the Study: To determine the pathomorphological criteria for optimizing gastric resection in bariatric surgery.

Discussion and Results. Patients with metabolic syndrome were stratified into two clinical groups according to body mass index (BMI).

Group 1: BMI ≥ 25 kg/m² (including ≥ 35 kg/m²), comprising 83 patients classified as having clinical obesity.

Group 2: BMI ≥ 27.5 kg/m² (30–34.9 kg/m²) with confirmed metabolic comorbidities, including 100 cases.

In the majority of patients from both groups, gastric mucosal biopsy specimens were obtained and evaluated according to pathomorphological conclusions using the OLGA (Operative Link for Gastritis Assessment) and OLGIM (Operative Link on Gastric Intestinal Metaplasia Assessment) classification systems.

Group 1. Most patients demonstrated OLGA stage I–II (1–2 points), corresponding to mild atrophic changes. Histologically, mild inflammatory, atrophic, and sclerotic alterations of the gastric mucosa were observed, with predominantly reversible features. According to OLGIM, intestinal metaplasia was $\leq 30\%$, and no significant precancerous risk factors were identified.

Therefore, bariatric surgery was not recommended for this cohort. Instead, symptomatic and pathogenetic therapy was advised, followed by re-evaluation after 6 months.

Group 2. In this group, biopsy specimens revealed pronounced pathological alterations, including deep metaplasia of the fundal gland epithelium in superficial, medial, and deep layers; marked atrophic and dysplastic glandular changes; and structural mucosal remodeling. According to OLGA and OLGIM classifications, patients were assigned stage III (3 points each), with a total score of 6 points.

These findings indicate grade III atrophic changes and intestinal metaplasia in the antral and fundal regions, corresponding to a moderate-to-high gastric cancer risk. Pathomorphological Assessment Algorithm (Scoring System)

Evaluation was performed based on biopsy specimens obtained from the antrum (3 samples) and gastric body (2 samples).

Parameter	0 points	1 point (Mild)	2 points (Moderate)	3 points (Severe)
OLGA (Atrophy)	None	<30% gland loss	30–60% gland loss	>60% gland loss
OLGIM (Metaplasia)	None	<30% intestinal metaplasia	30–60% intestinal metaplasia	>60% intestinal metaplasia

Important Note. In patients with metabolic syndrome, increasing degrees of atrophy (higher OLGA stages) are associated with decreased density of ghrelin-producing cells, which may attenuate the postoperative metabolic response. Therefore, in Group 1 patients, bariatric surgery should be deferred in favor of targeted mucosal therapy. Such an approach may contribute to improvement of metabolic disturbances, reduction of blood glucose levels, and gradual weight loss without immediate surgical intervention.

Conclusion and practical recommendations

1. Choice of surgical procedure based on olga/olgin stage. If a patient is diagnosed with OLGA/OLGIM stage III or IV, standard gastric bypass surgery Roux-en-Y Gastric Bypass is not recommended. The reason is that after this procedure, the excluded (blind) gastric pouch becomes inaccessible for endoscopic surveillance. If carcinoma develops in this segment, early diagnosis becomes extremely difficult or impossible.

In such cases, Sleeve Gastrectomy (longitudinal gastric resection) is preferable, as it allows continuous endoscopic visualization of the remaining stomach and facilitates postoperative monitoring.

2. Mandatory *Helicobacter pylori* Eradication. In patients with metabolic syndrome, even if OLGA/OLGIM stage I–II is detected, eradication therapy for *Helicobacter pylori* must be performed at least 4 weeks prior to surgery. This approach helps halt the progression of atrophy and intestinal metaplasia, and reduces the risk of postoperative anastomotic ulcers and inflammatory changes in the gastric remnant.

3. Biochemical monitoring of metabolic status. Preoperative and postoperative evaluation should include not only OLGA staging but also assessment of GastroPanel markers (Pepsinogen I, Pepsinogen II, and Gastrin-17).

In metabolic syndrome, reduced ghrelin levels are commonly observed. A decrease in Pepsinogen I may indicate advanced gastric mucosal atrophy (OLGA stage III–IV). These biomarkers enable prediction of postoperative vitamin B12 and iron malabsorption risk, allowing timely preventive correction.

4. Individualized endoscopic follow-up schedule Postoperative surveillance must be determined according to the patient's OLGA/OLGIM stage:

- OLGA I–II: Esophagogastroduodenoscopy (EGD) once every 3–5 years after surgery.
- OLGA III–IV: Mandatory endoscopic monitoring every 1–2 years, including targeted biopsy from suspicious areas.

This strategy facilitates early detection of secondary gastric mucosal changes in patients with metabolic syndrome and contributes to timely prevention of malignant transformation.

List of References:

1. Rubino F, Nathan DM, Eckel RH, Schauer PR, Alberti KG, Zimmet PZ, Del Prato S, Ji L, Sadikot SM, Herman WH, Amiel SA, Kaplan LM, Taroncher-Oldenburg G, Cummings DE, Delegates of the 2nd Diabetes Surgery Summit Metabolic surgery in the treatment algorithm for type 2 diabetes: a joint statement by international diabetes organizations. *Diabetes Care*. 2016 Jun;39(6):861–77.
2. Ruiz-Ojeda F.J., Méndez-Gutiérrez A., Aguilera C.M., Plaza-Díaz J. Extracellular Matrix Remodeling of Adipose Tissue in Obesity and Metabolic Diseases. *Int. J. Mol. Sci*. 2019;20:4888.
3. Rutledge R (2001) The mini-gastric bypass: experience with the first 1,274 cases. *Obes Surg* 11:276–280
4. Rutledge R, Kular K, Manchanda N (2019) The mini-gastric bypass original technique. *Int J Surg* 61:38–41

5. Rutledge R. The mini-gastric bypass: experience with the first 1,274 cases. *Obes Surg.* 2001;11(3):276–80.
6. Rutledge R. The mini-gastric bypass: experience with the first 1,274 cases. *Obes Surg.* 2001;11(3):276–280.
7. Saeidi N, Meoli L, Nestoridi E, Gupta NK, Kvas S, Kucharczyk J, Bonab AA, Fischman AJ, Yarmush ML, Stylopoulos N. Reprogramming of intestinal glucose metabolism and glycemic control in rats after gastric bypass. *Sci-ence.* 2013 Jul 26;341(6144):406–10.
8. Sarna MJ, Giorgi M, Luhrs AR. Metabolic syndrome as a predictor of perioperative outcomes in primary bariatric surgery, a MBSAQIP survey. *Surg Endosc.* 2022 Aug;36(8):6122–6128.
9. Schauer PR, Bhatt DL, Kirwan JP, Wolski K, Aminian A, Brethauer SA, Navaneethan SD, Singh RP, Pothier CE, Nissen SE, Kashyap SR, STAMPEDE Investigators. Bariatric surgery versus intensive medical therapy for diabetes - 5-year outcomes. *N Engl J Med.* 2017 Feb 16;376(7):641–51.
10. Šebunova N, Štšepetova J, Sillakivi T, Mändar R. The Prevalence of *Helicobacter pylori* in Estonian Bariatric Surgery Patients. *Int J Mol Sci.* 2018 Jan 24;19(2):338.