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Bariatric Surgery: Types and Health Impacts on Patients – A Brief Review

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ABSTRACT

Bariatric surgery has become an essential therapeutic intervention for the treatment of severe obesity and its comorbidities. This review examines the main bariatric procedures gastric bypass, sleeve gastrectomy and adjustable gastric banding highlighting their effects on patient health. Initially, the importance of surgery as a tool for substantial weight reduction and metabolic improvement (type 2 diabetes, hypertension and dyslipidaemia) is discussed. Indications, contraindications and risks are then addressed, together with benefits such as normalisation of biochemical parameters and long-term reductions in morbidity and mortality. The psychological and social dimensions of pre and post-operative care are analysed, underscoring the need for multidisciplinary follow-up. Careful evaluation is essential to select the most appropriate procedure, considering obesity severity, existing comorbidities and individual expectations. Finally, the review stresses the relevance of public policies and prevention campaigns that facilitate early identification of candidates for surgical intervention.

Keywords:

Obesity, Bariatric surgery, Gastric bypass, Sleeve gastrectomy, Patient health.

Objectives

This review aims to summarise the literature on the principal types of bariatric surgery and their impacts on patient health, discussing indications, contraindications, success rates, risks and complications.

Introduction

Obesity is one of the foremost global public health challenges, being associated with significant metabolic, cardiovascular, and psychosocial complications [1]. Its rising prevalence in recent decades has been attributed to factors such as a sedentary lifestyle, excessive caloric intake, and genetic predisposition [2,3]. In this context, bariatric surgery has emerged as an effective alternative for achieving weight loss and controlling associated comorbidities, particularly in patients who have not succeeded with conservative therapies, including dietary modifications, physical exercise, and pharmacological treatment [4,5]. Among the surgical techniques, Roux-en-Y gastric bypass (RYGB), vertical sleeve gastrectomy (sleeve), and adjustable gastric banding stand out. RYGB combines gastric restriction with intestinal bypass, promoting significant weight loss and hormonal changes that favor glycemic control [6,7].

Vertical sleeve gastrectomy reduces gastric volume without markedly altering nutrient absorption, though it necessitates continuous vitamin supplementation [8,9]. Adjustable gastric banding, while less invasive, may lead to mechanical complications such as slippage or erosion and requires regular adjustments, resulting in greater variability of outcomes [5,10].

Procedural success depends not only on the chosen technique but also on multidisciplinary follow-up involving a surgeon, endocrinologist, nutritionist, and psychologist to consolidate new dietary and behavioral habits [3]. Emotional and social factors, such as low self-esteem and obesity-related stigma, also impact preoperative preparation and postoperative adaptation, requiring specialized support [3,8].

Discussion

Comparative analysis of bariatric techniques reveals significant advances in the management of obesity and its comorbidities. RYGB stands out for rapid weight loss and a high rate of type 2 diabetes remission, attributed to altered food transit and hormonal responses that increase satiety and improve glycemic control [4,6]. Vertical sleeve gastrectomy, meanwhile, offers comparable efficacy in weight reduction with a lower risk of severe nutritional deficits; nevertheless, vitamin and mineral supplementation remains essential to prevent anemia and osteopenia [7,9].

Adjustable gastric banding, despite requiring less surgical intervention, yields less consistent results and carries a higher propensity for mechanical complications. Moreover, the frequent need for recalibration can cause discomfort and negatively affect quality of life [5,10]. Postoperative follow-up is critical for maintaining results across all techniques. Adherence to a balanced diet, psychological support, and regular physical activity are essential to prevent weight regain and late complications such as dumping syndrome and eating disorders [6]. Nutritional deficiencies particularly of iron, vitamin B_{12}, and calcium may arise without proper monitoring and supplementation [7,9].

Surgical complications range from early events, such as fistulas and hemorrhage, to late issues including strictures and gastroesophageal reflux. Additionally, psychosocial impacts require ongoing attention, as abrupt changes in body image can trigger anxiety and depression, necessitating psychological care and family support [8]. Selecting the ideal procedure should consider obesity severity, associated comorbidities, and the patient's ability to adhere to multidisciplinary follow-up. Experienced centers and teams report lower complication rates, underscoring the importance of specialized institutions [1,2].

Conclusion

Bariatric surgery is a safe and effective therapeutic option for severe obesity and its comorbidities, yielding substantial weight reduction, metabolic improvement, and enhanced quality of life [1,4]. RYGB, vertical sleeve gastrectomy, and adjustable gastric banding each present distinct benefit-risk profiles, necessitating individualized selection based on clinical evaluation and multidisciplinary support [2,10].

Success extends beyond the surgical act, relying also on the adoption of healthy eating habits, ongoing psychological support, and regular exercise to prevent nutritional deficiencies and weight regain [6,9]. Centers with adequate infrastructure and specialized professionals achieve better outcomes, reducing complications and optimizing patient support [1,2].

Finally, integrating bariatric surgery into public health strategies coupled with prevention campaigns and early candidate identification—is crucial to expand access and optimize long-term results. Further longitudinal studies are needed to refine surgical techniques and follow-up protocols, ensuring the sustainability of achieved [2,3].

Conflict of Interest

None.

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