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SIMULTANEOUS PROCEDURES IN BARIATRIC SURGERY: A COMPREHENSIVE LITERATURE REVIEW

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Abstract
The global escalation of morbid obesity has established bariatric surgery as the gold standard for long-term weight loss and metabolic improvement. A significant proportion of bariatric candidates present with concomitant surgical pathologies, most notably cholelithiasis and abdominal wall hernias. The decision to perform simultaneous (concomitant) procedures-combining bariatric surgery with another surgical intervention-remains a subject of intense debate among surgeons. Proponents argue for the benefits of a single anesthetic episode and cost-effectiveness, while critics highlight concerns regarding increased operative time, infectious risks, and perioperative complications. This review examines the current evidence regarding the safety, feasibility, and clinical outcomes of simultaneous bariatric procedures.

Keywords: Bariatric surgery, Simultaneous procedures, Concomitant surgery, Cholecystectomy, Ventral hernia repair, Hiatal hernia, Postoperative complications.

Introduction

Bariatric surgery, including Roux-en-Y Gastric Bypass (RYGB) and Sleeve Gastrectomy (SG), effectively treats obesity-related comorbidities. However, the physiological changes associated with obesity often lead to secondary conditions that require surgical intervention [1]. Cholelithiasis is found in up to 30% of bariatric patients, and ventral hernias are prevalent due to increased intra-abdominal pressure [2].

The primary question in bariatric clinical pathways is whether to address these secondary issues during the index bariatric procedure or as a staged approach. Simultaneous operations aim to reduce the cumulative risks of multiple surgeries, but they must be balanced against the potential for "clean-contaminated" field complications [3].

Cholecystectomy and Bariatric Surgery

Cholecystectomy is the most frequent simultaneous procedure performed alongside bariatric surgery.

The Rationale for Concomitant Cholecystectomy

Rapid weight loss following bariatric surgery is a known risk factor for the development of gallstones. Studies indicate that approximately 35-40% of patients develop cholelithiasis within the first year post-operatively [4]. Performing a simultaneous cholecystectomy prevents future emergency

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admissions for cholecystitis or choledocholithiasis, which can be technically more challenging after gastric bypass due to altered anatomy [5].

Safety and Outcomes

Research by Worni et al. (2012) using the Nationwide Inpatient Sample found that concomitant cholecystectomy increased the length of hospital stay but did not significantly raise the mortality rate [6]. However, more recent meta-analyses suggest that in asymptomatic patients, routine cholecystectomy may unnecessarily increase operative time and the risk of bile duct injury [7].

"The trend has shifted toward performing cholecystectomy only in symptomatic patients at the time of bariatric surgery, rather than as a prophylactic measure for all." [8].

Ventral Hernia Repair (VHR) and Bariatric Surgery

Ventral and umbilical hernias are common in the morbidly obese population. Repairing these simultaneously with weight loss surgery presents a unique challenge: the use of prosthetic mesh in a potentially contaminated field.

Traditional Primary Repair vs. Mesh

Primary suture repair in the obese population is associated with high recurrence rates, often exceeding 30% [9]. While mesh repair is superior for durability, the risk of mesh infection during a gastric bypass (where the GI tract is opened) is a significant deterrent [10].

Clinical Evidence

Raziel et al. (2014) demonstrated that simultaneous laparoscopic SG and VHR with mesh is feasible with low infection rates, provided strict aseptic techniques are maintained [11]. Conversely, some experts recommend a staged approach: performing the bariatric procedure first, allowing for weight loss, and then repairing the hernia in a cleaner, lower-tension environment [12].

Other Simultaneous Procedures

While less common, other procedures are occasionally performed alongside bariatric surgery:

1. **Hiatal Hernia Repair:** Frequently performed with SG to reduce the risk of post-operative GERD [13].
2. **Anti-reflux Procedures:** Nissen fundoplication is rarely combined with bariatric surgery due to anatomical constraints, often replaced by RYGB as the primary treatment for both obesity and reflux [14].
3. **Gynecological Surgeries:** Case reports exist for simultaneous hysterectomy or oophorectomy, though these are generally discouraged due to increased infectious risk [15].

Risks and Complications

The primary concerns regarding simultaneous operations include:

- **Operative Time:** Prolonged anesthesia is a known risk factor for VTE (Venous Thromboembolism) and pulmonary complications in the obese [16].

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- **Infection:** Combining a "clean" procedure (like hernia repair) with a "clean-contaminated" one (like RYGB) increases the risk of surgical site infections (SSI) [17].
- **Complexity:** The ergonomic challenge of working in multiple quadrants of the abdomen can lead to surgeon fatigue and increased error rates [18].

Economic Considerations and Quality of Life

From a healthcare systems perspective, simultaneous procedures are highly cost-effective. A single hospitalization and recovery period reduce the burden on the patient's productivity and hospital resources [19]. Patients often prefer a single surgery to avoid the psychological stress of a second operation [20].

Discussion and Future Directions

The literature suggests that "selective" simultaneous surgery is the most prudent approach. For symptomatic gallbladder disease or incarcerated hernias, the benefits of simultaneous intervention outweigh the risks [21]. However, for asymptomatic conditions, the surgeon must weigh the patient's BMI and comorbidities (like Type 2 Diabetes) which may impair healing [22].

Advancements in robotic surgery may further facilitate simultaneous procedures by providing better visualization and dexterity in the crowded abdominal space of the bariatric patient [23, 24].

Conclusion

Simultaneous operations in bariatric surgery are feasible and safe for selected patients. Cholecystectomy should be reserved for symptomatic cases, while hernia repairs should utilize mesh only when the risk of contamination is minimized. Further randomized controlled trials are needed to establish definitive protocols that maximize patient safety while maintaining the efficiency of a single-stage surgical approach.

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