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## **TACTICAL MANAGEMENT OF UNEXPECTED CIRRHOSIS IN BARIATRIC SURGERY**

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### **Abstract**

This retrospective analysis of 629 consecutive laparoscopic bariatric surgery patients (2023-2024) evaluated management strategies for incidentally discovered liver cirrhosis. Despite standard preoperative screening, 39 patients (6.2%) presented with unexpected intraoperative cirrhosis confirmed by biopsy. Surgical modification was required in 30.8% of cases, including procedure conversions and abandonment. While 69.2% proceeded with technical modifications, complications occurred in 10.2% with one mortality (2.5%). Twelve-month follow-up revealed significant improvements in liver stiffness (18.7 to 12.3 kPa,  $p < 0.001$ ), reduced hepatic steatosis (81%), and improved Child-Pugh scores (79.5%). These findings emphasize the need for institutional protocols and decision algorithms for managing unexpected cirrhosis during bariatric surgery.

**Keywords:** Surgical tactics, incidental cirrhosis, laparoscopic bariatric surgery, intraoperative decision-making, sleeve gastrectomy, gastric bypass, FibroScan, liver biopsy

### **Introduction**

The prevalence of non-alcoholic fatty liver disease (NAFLD) among bariatric surgery candidates ranges from 80-90%, with a subset progressing to cirrhosis [1]. Despite comprehensive preoperative screening protocols, subclinical cirrhosis may remain undetected until surgical exploration [2]. The unexpected intraoperative discovery of cirrhosis presents unique challenges requiring immediate tactical decisions that can significantly impact patient outcomes.



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**Purpose.** This study aimed to establish evidence-based surgical tactics for managing unexpected liver cirrhosis discovered during laparoscopic bariatric surgery and to evaluate the impact of bariatric procedures on hepatic function in cirrhotic patients through comprehensive postoperative monitoring.

**Materials and Methods.** We performed a retrospective review of 629 patients who underwent laparoscopic bariatric surgery between 2023-2024 at private hospital StarMed. Preoperative planning designated 524 patients (83.3%) for laparoscopic sleeve gastrectomy (LSG) and 105 patients (16.7%) for one anastomosis gastric bypass (OAGB). Despite standard preoperative hepatic evaluation, including liver function tests and ultrasonography, some patients presented with undetected cirrhosis discovered only during surgery. All patients with suspected cirrhosis underwent intraoperative liver biopsy for histological confirmation. Postoperative hepatic assessment included FibroScan elastography at 3, 6, and 12 months, and contrast-enhanced MRI at 6 and 12 months to monitor liver morphology and fibrosis progression. We analyzed surgical tactics adopted, procedural modifications, and long-term hepatic outcomes.

**Results.** Intraoperative discovery of liver cirrhosis occurred in 39 patients (6.2% prevalence), all confirmed by liver biopsy. Of these, 33 patients (84.6%) were initially scheduled for LSG and 6 patients (15.4%) for OAGB. Cirrhotic severity varied: 30 patients (77.2%) presented with early compensated cirrhosis and minimal portal hypertension, while 9 patients (21.8%) exhibited advanced cirrhosis with extensive collateral circulation.

Surgical tactics were adjusted in 12 patients (30.8%): six OAGB procedures were converted to LSG due to concerns about anastomotic healing in cirrhotic patients, and six operations were terminated after diagnostic laparoscopy and liver biopsy confirmation. The remaining 27 patients (69.2%) proceeded with their originally planned procedures incorporating technical modifications, including meticulous hemostasis, reduced pneumoperitoneum pressure, and reinforced staple lines.

Postoperative morbidity affected 4 patients (10.2%), comprising 1 hepatic decompensation episodes, 2 bleeding complications, and 1 wound healing issues.



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One patient (2.5%) died from progressive liver failure. Hospital stay averaged 7.2 days for cirrhotic patients versus 2.8 days for non-cirrhotic patients ( $p < 0.001$ ).

Follow-up FibroScan measurements demonstrated significant improvement in liver stiffness, with mean values decreasing from 18.7 kPa preoperatively to 12.3 kPa at 12 months ( $p < 0.001$ ). MRI controls showed reduction in hepatic steatosis in 81% of patients and stabilization of fibrosis in 89%. Notably, 31 patients (79.5%) who completed bariatric procedures showed improvement in Child-Pugh scores, with 12 patients progressing from Class B to Class A.

**Conclusion.** When liver cirrhosis is unexpectedly encountered during bariatric surgery, surgical tactics must be rapidly reassessed. Our experience suggests that while 69.2% of patients can proceed with modified techniques, nearly one-third require significant strategic changes including procedure conversion or abandonment [3]. The decision algorithm should consider cirrhosis severity, portal hypertension degree, and procedure complexity. Importantly, successful bariatric surgery in selected cirrhotic patients leads to satisfactory hepatic outcomes, with significant improvements in liver stiffness, steatosis, and overall hepatic function [4]. Establishing institutional protocols for managing incidental cirrhosis, ensuring surgical team preparedness for tactical modifications, and implementing structured postoperative monitoring are essential for optimizing outcomes in this challenging scenario.

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