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## Improved Outcomes through Technical Optimization of Simultaneous Operations in Laparoscopic Biliary Surgery

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**Relevance.** Modern surgical practice prioritizes reducing invasiveness, minimizing hospitalization, and accelerating recovery. Performing simultaneous procedures during laparoscopic cholecystectomy offers the opportunity to treat multiple conditions under a single anesthesia, thereby reducing overall surgical trauma. However, such interventions require precise tactical planning and technical execution. Without proper optimization, the risks of increased operative time, blood loss, and postoperative complications may rise. Therefore, developing and implementing effective tactical and technical strategies for simultaneous procedures during laparoscopic cholecystectomy remains an important objective in minimally invasive surgery.

**Materials and Methods.** A comparative clinical study was conducted involving 114 patients who underwent simultaneous procedures alongside laparoscopic cholecystectomy. Patients were divided into two groups: a comparison group (55 patients) who underwent standard surgical management, and a main group (59 patients) who received an optimized surgical approach. Key parameters analyzed included operative time, intraoperative blood loss, rate of postoperative complications, and length of hospital stay. Statistical analysis was performed using Student's t-test and Fisher's exact test, with  $p < 0.05$  considered statistically significant.

**Results and Discussion.** The results demonstrated that the optimized approach in the main group led to a significant reduction in operative time ( $90 \pm 25$  min vs.  $112 \pm 30$  min), blood loss ( $80 \pm 20$  mL vs.  $140 \pm 30$  mL), postoperative complication rate (5.1% vs. 18.2%), and length of hospitalization ( $3.2 \pm 0.8$  days vs.  $4.5 \pm 1.2$  days) compared to the comparison group. These findings confirm that strategic planning of trocar placement, procedure sequencing, and the use of advanced laparoscopic techniques greatly improve surgical efficiency and patient safety in simultaneous interventions.

**Conclusion.** The optimization of tactical and technical aspects in simultaneous laparoscopic procedures significantly enhances the outcomes of surgical treatment. Implementation of individualized planning, procedural sequencing, and minimally invasive technology ensures reduced complication rates, faster recovery, and overall improved efficiency. The study confirms that optimized simultaneous surgery during laparoscopic cholecystectomy is a safe and effective method and should be considered for broader application in clinical practice.