

## Comparison Of Clinical Outcomes Between Minimally Invasive (laparoscopic And Robotic) And Open Extended Cholecystectomy

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**Background :** Minimally invasive surgery (MIS), both laparoscopic and robotic surgery for gallbladder cancer (GBC) has rapidly increased recently, however, there is a lack of large multicenter studies of its safety and long-term outcome. This study was undertaken to determine the feasibility of MIS-extended cholecystectomy for GBC and compare it with conventional open surgery.

**Methods :** Patients diagnosed with clinically suspected GBC who underwent extended cholecystectomy (EC) from 2007 to 2020 in 3 large volume hepatobiliary centers were studied. EC was defined as a wedge resection of liver bed including cholecystectomy and regional lymphadenectomy. Clinicopathologic data of O-EC and MIS-EC was analyzed and propensity score matching was performed to compare the short-term and long-term outcomes. Subgroup analysis of laparoscopic and robotic surgery was evaluated.

**Results :** A total of 377 patients were included, O-EC and MIS-EC group (laparoscopic EC: 40, robotic EC: 29) were 308 and 69 patients, respectively. Though MIS-EC group had a longer operative time (188.9 vs 238.1 minutes,  $p<0.001$ ), shorter length of hospital stay (9.0 vs 7.2 days,  $p=0.007$ ), there was no difference in operative blood loss, complication rate, 30-day mortality rate. More lymph nodes were retrieved in O-EC (8.5 vs 7.1,  $p=0.044$ ) and there was no significant difference in 3-year overall survival. In subgroup analysis of MIS-EC, laparoscopic EC had longer operative time (264.4 vs 202.0 min,  $p=0.001$ ), however, other perioperative outcomes and 3-year survival outcomes were comparable.

**Conclusions :** MIS-EC is feasible with advantages of decreased length of stay and comparable survival to O-EC in GBC. Both laparoscopic and robotic EC had comparable perioperative and oncologic outcomes so it can be chosen according to the preference of the surgeon.

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