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Surgical And Survival Outcomes After Robotic And Open Pancreaticoduodenectomy For Ampullary Cancer: A Propensity Score-matching Comparison

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Background : Robotic pancreaticoduodenectomy in ampullary cancer has never been studied. This study aimed to clarify the feasibility and justification of robotic pancreaticoduodenectomy in ampullary cancer in terms of surgical risks, and oncologic and survival outcomes.

Methods : A propensity score-matching comparison of robotic and open pancreaticoduodenectomy based on seven factors commonly used to predict the survival outcomes in ampullary cancer patients.

Results : A total of 147 patients were enrolled, of which 101 and 46 underwent robotic and open pancreaticoduodenectomies, respectively. After propensity score-matching with a 2:1 ratio, 88 and 44 patients in the robotic and open pancreaticoduodenectomy groups were included. The operation time was of no significant difference after matching. The median intraoperative blood loss was much less in those who underwent robotic pancreaticoduodenectomy, both before (median, 120 vs. 320 c.c. $P < 0.001$) and after (100 vs. 335 mL $P < 0.001$) propensity score-matching. There were no significant differences in terms of surgical risks, including surgical mortality, surgical morbidity, Clavien-Dindo severity classification, postoperative pancreatic fistula, delayed gastric emptying, post-pancreatectomy hemorrhage, chyle leak, bile leak, and wound infection, both before or after propensity score-matching. The survival outcomes were also similar between the two groups, regardless of matching.

Conclusions : Robotic pancreaticoduodenectomy for ampullary cancer is not only technically feasible and safe without increasing surgical risks, but also oncologically justifiable without compromising surgical radicality and survival outcomes.

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