

## Early recurrence following pancreaticoduodenectomy in patients with ampullary cancer

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**Purpose:** We aimed to identify the factors of patients with early recurrence (within 6months) following curative resection for ampullary cancer and to compare the immunohistochemical (IHC) expression rate of CK7, CK20, MUC1, MUC2, MUC5AC, MUC6, S100P and CDX2 between the two main histological subtypes of ampullary adenocarcinoma.

**Methods:** In this retrospective study, the postoperative outcomes and clinicopathologic factors for early recurrence that occurred in 14 of a total of 93 patients who underwent pancreaticoduodenectomy (PD) for ampullary adenocarcinoma between January 2002 and August 2014 were analyzed. Thereafter, we identified the factor that associated with early recurrence (within 6months) following surgery through the multivariate analyses. In addition, we compared the immunohistochemical (IHC) expression rate of CK7, CK20, MUC1, MUC2, MUC5AC, MUC6, S100P and CDX2 between the two main histological subtypes of ampullary adenocarcinoma.

**Results:** The patients who underwent PD for ampullary cancer were divided into two groups: early recurrence and late recurrence. 14 patients (32.6%) showed the early recurrence and they showed the shorter median DFS and median OS than those of patients with late recurrence (DFS, 4.2 Vs. 49.7 months,  $p = 0.001$ ; OS, 18.2 Vs. 113.7 months,  $p < 0.001$ ). Large tumor ( $> 3.0\text{cm}$ ), pancreatobiliary type, poor cell differentiation, lympho-vascular invasion, perineural invasion, T stage  $\geq 3$ , Lymph node (LN) metastasis, multiple LN metastasis, high LN metastasis ratio (LNR;  $> 0.15$ ), and positive MUC1 in IHC staining were associated with early recurrence in univariate analysis (all  $p < 0.05$ ). Among them, Large tumor (odds ratio, 71.215; 95% confidence interval, 1.175-4317.636;  $p = 0.042$ ), LN metastasis (odds ratio, 47.746; 95% confidence interval, 2.010-1134.093;  $p = 0.017$ ), and pancreatobiliary type (odds ratio, 28.150; 95% confidence interval,

1.140-694.951;  $p = 0.041$ ) were independently associated with early recurrence in patients with ampullary cancer following PD.

**Conclusion:** Large tumor, LN metastasis, and pancreato-biliary type were the independent risk factors for early recurrence in patients with ampullary ca. following curative resection. Therefore, ampullary cancer patients with large tumor, LN metastasis, and pancreatico-biliary type should be considered to have aggressive adjuvant treatment and follow-up more frequently postoperatively. In addition, different strategies of adjuvant therapy may be helpful to improve the outcomes of different histologic type tumors.