

PPPD is a better procedure than segmental bile duct resection for middle bile duct cancer

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Background and Aim

Appropriate procedure for middle bile duct cancer remains still controversial. R0 resection and the presence of lymph node metastases have been proposed to be important prognostic factors of bile duct carcinoma.¹⁻³ We clarified that the lymph node ratio (L/N ratio) is the most important factor to predict survival after bile duct cancer by reviewing 62 consecutive patients who underwent surgery for bile duct cancer at Wakayama Medical University Hospital (WMUH).⁴ Moreover, we clarify the following issues according to the national database of bile duct cancer in Japan that PPPD is a better procedure than segmental bile duct resection for middle bile duct cancer in terms of of R0 resection, lymph node metastasis, and L/N ratio.

Methods

Seven hundreds and thirty-nine patients (507PpPD and 232 segment bile resection)who underwent operation for middle bile duct cancer enrolled in the national database of bile duct cancer by Japanese Society of Hepato-Biliary-Pancreatic Surgery (JHPBS) were reviewed.

Results:

Results of WMUH; Univariate and multivariate analyses were used to reveal the predictive factors for long-term survival in 62 patients at WMUH. The univariate analysis revealed that 12 or more lymph nodes examined ($P=0.0485$), lymph node metastases ($P=0.0324$), lymph node ratio >0.2 ($P=0.0001$), surgical margin ($P=0.0125$), adjuvant chemotherapy ($P=0.008$) and tumor invasion to the pancreas ($P=0.016$), lymphatic vessel ($P=0.0037$), or perineural invasion ($P=0.0002$) significantly influenced the survival.⁴ A multivariate analysis with a Cox proportional hazards model revealed that a lymph node ratio >0.2 and perineural invasion were independent predictive factors for survival ($P=0.0271$, 0.0037 , respectively).⁴ The overall 5-year survival rate of patients with lymph node ratio of 0, lymph node ratio of 0 to 0.2 and lymph node ratio >0.2 were 62.4%, 41.0% and 0%, respectively.⁴

Results of JHPBS; The frequency of surgical margin positive in segment bile resection and PpPD were 13.6% and 6.9%, respectively ($P=0.0036$). Moreover, the overall 5-year survival rate of patients with surgical margin

positive and surgical margin negative in middle bile duct cancer were 7.8%, and 34.9%, respectively. Patients with surgical margin positive had significantly poor prognosis, compared to patients with surgical margin negative ($P=0.0001$). The overall 5-year survival rate of patients with lymph node positive and lymph node negative in middle bile duct cancer were 24.2%, and 37.8%, respectively. Patients with lymph node positive had significantly poor prognosis, compared to patients with lymph node negative ($P=0.0001$). The frequency of lymph nodes positive in middle bile duct cancer were 189 of 1626(11.6%) on the posterior surface of the pancreatic head, 38 of 1453 (2.6%) on the anterior surface of the pancreatic head, and 37 of 2470 (1.5%) along the root of superior mesenteric artery.

Discussion

R0 segmental bile duct resection may be recommended in patients with T1 tumor located in the middle bile duct and lymph node negative. However, there are two problems in segmental bile resection as follows;

1. To obtain R0 resection is more difficult in segmental bile duct resection than PpPD.

Because tumor in middle bile duct easily infiltrate to hepatoduodenal ligament as duct wall is thin. In results of JHPBS, the frequency of surgical margin positive was significantly higher in segmental bile duct resection than PpPD.

2. To perform appropriate lymphadenectomy is more difficult in segmental bile resection than PpPD.

Because L/N ratio and the accurate assessment of total number of lymph nodes may be affected by an extensive lymphadenectomy. Therefore, it is difficult to obtain a more accurate assessment of lymph node status in segmental bile duct resection.

Conclusion

It is suggested that PpPD seems to be an appropriate procedure in middle bile duct cancer, and further prospective cohort study including RCT should be needed to determine this clinical question.

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