ABSTRACT

Background: Pancreatic juice cytology (PJC) is a tool for diagnosing malignant intraductal papillary mucinous neoplasm (IPMN); however, the accuracy is insufficient using the conventional method. Liquid-based cytology (LBC) improves the cell recovery rate, and almost all cells can be evaluated. We evaluated the efficacy of PJC with LBC for malignant IPMN.

Methods: We retrospectively analyzed 90 patients with suspected malignant IPMN who underwent PJC before pancreatectomy. PJC with smear and LBC methods was conducted in 52 patients (between June 2003 to December 2011) and 38 patients (between January 2012 to December 2018). Based on the imaging studies, all of the patients were classified according to the international consensus guidelines for IPMN revised in 2017.

Results: Of the 90 patients, 43 (48%) had malignant IPMN (high-grade dysplasia or invasive carcinoma), and the remaining patients had non-malignant IPMN (intermediate- or low-grade dysplasia). LBC increased the accuracy of PJC for the diagnosis of malignant IPMN (smear method: 56% [29/52] vs. LBC method: 76% [29/38]; $P = 0.044$). In a multivariate analysis, LBC was a significant factor influencing the accurate diagnosis of PJC (odds ratio: 3.52; $P = 0.021$). Furthermore, LBC increased the accuracy of PJC for malignant IPMN in patients with worrisome features (smear method: 66% [19/29] vs. LBC method: 93% [14/15]; $P = 0.043$).

Conclusions: LBC increases the accuracy of PJC for diagnosing malignant IPMN compared with

the conventional smear method.