C-47

High Ki67 Index is Indicative for Lymph Node Metastasis in Small Non-Functioning Pancreatic Neuroendocrine Neoplasms

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BACKGROUND: Small PanNEN is not rare. The Surveillance Epidemiology and End Results database demonstrated that a large proportion of PanNEN are attributable to tumors ≤2 cm. These imply the necessity of identifying risk factors as well as the ranges of lymph node metastasis in such small tumors. This study evaluated clinicopathological factors associated with lymph node metastasis in patients with non-functioning pancreatic neuroendocrine neoplasms (PanNEN) and specifically analyzed the risk factors and range of lymph node metastasis for tumors ≤2 cm in diameter.

METHODS: Consecutively diagnosed PanNEN patients at our hospital from January 2000 to June 2018 were evaluated in this study. We analyzed 69 non-functioning sporadic PanNEN patients in whom R0 resection with no distant metastasis as well as 43 patients with tumors ≤20 mm in radiological diameter.

RESULTS: Nineteen PanNEN patients (27.5%) had lymph node metastasis, including seven patients (16.3%) with small PanNEN. Large radiological diameter, high Ki67 as well as cyst formation correlated significantly with positive lymph node metastasis. In patients with tumors ≤20 mm in diameter, high Ki67 index correlated significantly with lymph node metastasis. When we set the cut-off Ki67 index as 3.3%, 2 out of 43 patients had lymph node metastasis. Tumors in the uncinate process readily metastasized to the region around the superior mesenteric artery.

CONCLUSION: These findings indicate that high Ki67 index suggests a necessity of lymphadenectomy in tumors ≤20 mm and lymphadenectomy should be applied to the region spatially adjacent to the primary tumor.