Preoperative Diagnosis of Abdominal Diseases with Endoscopic Ultrasonography

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In the diagnosis of abdominal diseases, especially hepatobiliary diseases, there has been rapid progress in noninvasive imaging methods, including ultrasonography, computed tomography (CT), and magnetic resonance cholangiopancreatography, that enable the detection of smaller lesions at an earlier stage. However, the smallest lesions remain difficult to detect and to diagnose accurately.

Endoscopic ultrasonography (EUS) is a less-invasive endoscopic technique that provides detailed images of the abdominal organs, especially the pancreas. It has been recognized as a minimally invasive and maximally accurate diagnostic technique\(^1\). EUS obtains information in addition to that obtained with CT or magnetic resonance imaging. For diagnosing small, solid tumors of the pancreas (less than 3 cm), EUS is more accurate than US or CT\(^2\).

EUS can be used to guide needle biopsies in abnormal areas of the pancreas, thereby avoiding exploratory surgery. In Japan, the technique of EUS-guided fine-needle aspiration (FNA) has been covered by medical insurance since the start of 2010. Our institution began to perform this technique at the end of 2011 (Fig. 1). Thus far, the sensitivity of this technique for the preoperative diagnosis of solid pancreatic tumor is 83.3%. Here, we will describe how our method of using EUS for the preoperative diagnosis of abdominal diseases, including hepatobiliary, pancreatic, and submucosal lesions.

**Case 1**

A 60-year-old woman was referred to our hospital for EUS examination of a submucosal tumor of the stomach. Magnetic resonance imaging had shown that the tumor was located on the outside of the posterior stomach wall. She underwent EUS-FNA, in which a 19-G needle was used to obtain a tumor specimen. On the

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basis of histological examination of the specimen after hemotoxylin and eosin staining and immunohistological staining for c-kit (diffusely positive), CD34 (diffusely positive), α-smoth muscle antigen (weak and patchy positivity), and S100 (negative) (Fig. 2), the tumor was diagnosed preoperatively as a gastrointestinal stromal tumor. Surgical extirpation of the tumor was performed, and the histologic examination of the resected tumor confirmed the results of the preoperative EUS-FNA biopsy.

**Case 2**

A 65-year old man who was being followed up for immunoglobulin A nephropathy was referred to our department because transabdominal US and plain abdominal CT showed an elevated lesion in the gallbladder. EUS demonstrated that the irregular tumor of the gallbladder body had infiltrated the subserosa. EUS with Sonazoid contrast agent clearly showed that the tumor had abundant blood flow and was likely malignant (Fig. 3). The patient underwent surgery, and the tumor was diagnosed, on the basis of intraoperative examination of frozen sections, as a cancer that had invaded the subserosa.

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**References**


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