



## Mass-forming Pancreatitis with a Duct-penetrating Sign

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A 70-year-old man applied to the gastroenterological surgery clinic for a mass found at the head of the pancreas at another clinic and for weight loss. The physical examination showed neither jaundice nor palpable mass. The patient had no history of alcohol use. Among the tests performed, the white blood cell count was  $7.56 \times 10^3/\mu\text{l}$ ; aspartate aminotransferase, 15 IU/l; alanine aminotransferase, 37 IU/L; gamma-glutamyl transferase, 26 IU/l; total bilirubin, 10.26  $\mu\text{mol/l}$ ; cancer antigen 19-9, 1.5 IU/ml; lipase, 143 IU/l; and amylase, 57 IU/l. Aside from the high lipase level, the patient's results were within normal limits.

Contrast-enhanced abdominal magnetic resonance imaging revealed a mass measuring 6 x 4 cm that was localized at the head of the pancreas, slightly hyperintense on T2-weighted imaging, and isohypointense on T1-weighted imaging, with heterogeneous contrast enhancement and nondiffusion restriction (Figure 1). The pancreatic body and tail were atrophic, and the main pancreatic duct was dilated (6 mm). The main pancreatic duct (Wirsung) passed through the mass without interruption and opened up to the papilla. The choledoch was not dilated and ran through the mass without interruption. The result of the percutaneous biopsy, which was performed on suspicion of malignancy, was consistent with chronic pancreatitis.

A duct-penetrating sign is an imaging finding defined by a smooth narrowing of the main pancreatic duct passing through the pancreatic mass without obstruction or a normally appearing main pancreatic duct in the mass.<sup>1</sup> This sign is useful in distinguishing inflammatory masses of the pancreas secondary to chronic pancreatitis from malignant lesions and can prevent unnecessary surgery when detected. This sign was defined by Boninsegna et al.<sup>2</sup> in 2001 and can best be demonstrated by magnetic resonance cholangiopancreatography. In patients with chronic pancreatitis, irregularity strictures in the ductal contour, diffuse parenchymal coarse calcifications, and intraductal calcifications may also help in differentiating it from pancreatic adenocarcinoma. The patient's history also helped in the diagnosis. Some patients with chronic pancreatitis may have a history of alcohol use, recurrent abdominal pain, and previous history of pancreatitis.<sup>3</sup> Pancreatic mass biopsy may also help in the diagnosis; however, it is technically difficult and prone to complications such as hemorrhage and pancreatitis.

In conclusion, recognizing the duct-penetrating sign is very important in the differential diagnosis of pancreatic masses. However, the risk of pancreatic adenocarcinoma increases in patients with chronic pancreatitis.<sup>4</sup>

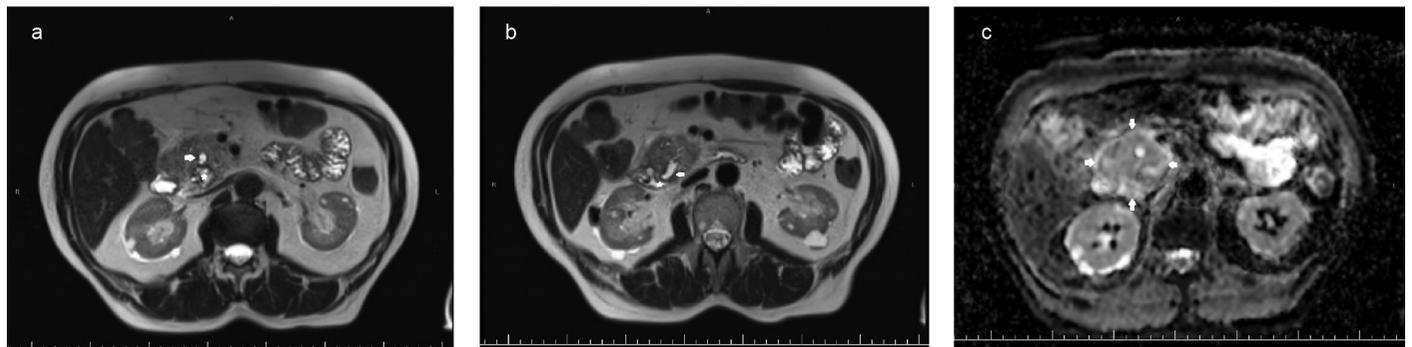


FIG. 1. **a-c.** Magnetic resonance imaging scans of the patient. **a)** Axial plane T2-weighted image shows the dilated main pancreatic duct (white arrow) passing through the pancreatic mass and abuts a pancreatic pseudocyst (white star), **b)** More caudal axial plane T2-weighted image shows the dilated main pancreatic duct (white arrow) opens on the papilla (white star), **c)** Apparent diffusion coefficient (ADC) image shows the mass with no diffusion restriction (white arrows).



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