A Case of Acute Pancreatitis Following Endoscopic Biopsy of the Ampulla of Vater

YUSUKE ISHIDA, YOSHINOBU OKABE, HIDENORI TOKUYASU, RYOHEI KAJI, GEN SUGIYAMA, TOMOYUKI USHIJIMA, YU SASAKI, MAKIKO YASUMOTO, KEI KURAOKA, OSAMU TSURUTA AND MICHIO SATA

Department of Gastroenterology, Kurume University School of Medicine, Kurume 830-0011, Japan

Received 3 July 2013, accepted 4 September 2013
J-STAGE advance publication 27 January 2014

Edited by TOSHI ABE

Summary: Ampullary tumors are diagnosed by endoscopic biopsy of the ampulla of Vater. We encountered a rare case of acute pancreatitis following endoscopic biopsy of the ampulla. A 53-year-old man referred to our hospital for detailed examination of a suspected tumor of the ampulla of Vater. We conducted endoscopic biopsy from the ampulla. He developed severe abdominal pain four hours after the procedure. The serum amylase and serum lipase were elevated and abdominal computed tomography (CT) revealed pancreatic enlargement and diffuse stranding of the peri-pancreatic fat, compatible with the findings of acute pancreatitis. We diagnosed the patient as having acute pancreatitis caused by endoscopic biopsy of the ampulla of Vater. Conservative therapy improved his condition, however, a large pancreatic walled-off necrosis (WON) developed. Therefore, we performed endoscopic ultrasonography (EUS)-guided cyst drainage on the 74th day after admission. The WON diminished gradually in size and the symptoms disappeared, and the patient was discharged in good physical condition on the 137th day after admission. In this case, the ampullary biopsy may have caused mucosal edema or intraductal hematoma, resulting in pancreatic duct obstruction. It is important for endoscopists both to be aware of this potential complication following endoscopic biopsy of the ampulla and to inform the patients about possible complications of this procedure.

Key words Acute pancreatitis, Ampulla of Vater, Endoscopic biopsy

INTRODUCTION

Endoscopic biopsy is recommended and necessary for the diagnosis of ampullary tumors. [1] Although the risk of complications of duodenal biopsy in the region of the ampulla of Vater is reported to be low, we encountered a case of acute pancreatitis directly associated with endoscopic biopsy of the ampulla. We believe that there are few similar reports, hence, we present this case report.

CASE REPORT

A 53-year-old man was referred to our hospital for detailed examination of a suspected tumor of the ampulla of Vater detected by esophagogastroduodenoscopy (EGD) during a medical checkup. Although we conducted observation of the ampulla with a side-viewing scope, there were no abnormal findings suggestive of an ampullary tumor (Fig. 1). We conducted endoscopic biopsy from the ampulla of Vater apart from the orifice of the pancreatic duct, in order to rule out non-exposed-type ampullary tumor. The specimen was obtained with standard biopsy forceps (diameter
1.8 mm, FB-21K-1, Olympus Medical Systems, Tokyo, Japan) through a side-viewing endoscope. The biopsy caused minor bleeding, however, we confirmed hemostasis at the end of the procedure without any hemostatic therapy. While the patient had no symptoms immediately after the procedure, he developed severe abdominal pain four hours after the procedure; he returned to our hospital and was admitted seven hours later. His temperature, blood pressure and pulse rate were normal on admission. The WBC count, serum amylase and serum lipase at the time of admission were 20100/mm³, 2740 IU/L (42 < normal < 132), and 10406 IU/L (normal < 140), respectively. Abdominal computed tomography (CT) on admission revealed pancreatic enlargement and diffuse stranding of the peripancreatic fat, compatible with the findings of acute pancreatitis, however, neither the main pancreatic duct nor the common bile duct was dilated. He had no history of regular drug use prior to the endoscopy, and his alcohol intake consisted of approximately one can of beer and distilled spirits per day, with no history of abuse. We diagnosed the patient as having acute pancreatitis caused by endoscopic biopsy of the ampulla of Vater. Also note that the result of the biopsy was Vater papillitis, and there was no finding of neoplasm.

After admission, the patient was initially treated conservatively by complete restriction of oral intake, administration of protease inhibitors (nafamostat mesilate 120 mg/day and ulinastatin 150000 u/day), administration of broad-spectrum antibiotics, and adequate fluid administration. Although abdominal CT with contrast enhancement on hospital day 2 revealed fluid collection around the pancreas and partial pancreatic necrosis, the clinical condition of the patient gradually improved, with the patient becoming able to resume oral intake on the 16th day after admission (Fig. 2). Follow up CT on the 29th day after admission demonstrated an improvement of contrast enhancement of the pancreatic parenchyma and formation of a large pancreatic walled-off necrosis (WON). Although there was no evidence of infection, the patient complained of a sensation of abdominal distension, and the WON remained unchanged on the 67th day after admission (Fig. 3). Therefore, we performed endoscopic ultrasonography (EUS)-guided cyst drainage on the 74th day after admission. Thereafter, we conducted intracystic lavage repeatedly through a cyst-nasal drainage tube, with replacement of the tubes as necessary. The WON diminished gradually in size (Fig. 4), the symptoms disappeared, and the patient was discharged in good physical condition on the 137th day after admission.

Fig. 1. Ampulla of Vater looks like normal expect for biopsy scar on top of the fold. The biopsy was conducted at the medical checkup.

a. Endoscopic image before biopsy, b. Endoscopic image during biopsy

Fig. 2. CT with contrast enhancement on the second hospital day showing fluid collection around the pancreas and partial pancreatic necrosis.

Fig. 3. The follow up CT on the 29th day revealed increase of the fluid collection with the formation of a huge pancreatic walled-off necrosis.
Endoscopic biopsy is recommended and necessary for the diagnosis of ampullary tumors. [1] In addition, there have been a number of recent reports describing the usefulness of biopsy of the ampulla of Vater for the diagnosis of autoimmune pancreatitis. [2] Acute pancreatitis is a rare complication of endoscopic biopsy of the ampulla of Vater.

Although there are some case reports of acute pancreatitis possibly caused by duodenal intramural or submucosal hematoma after duodenal biopsy or polypectomy [3,4], to the best of our knowledge, our case is only the second case report of acute pancreatitis directly associated with endoscopic biopsy of the ampulla.

In the present case, ampullary biopsy possibly caused mucosal edema or intraductal hematoma, resulting in increased pressure in the pancreatic duct, although neither ultrasonography nor CT revealed pancreatic duct dilatation. The first case was reported by Morales TG et al, who proposed the same mechanism. [5] Pancreatic duct dilatation could not be depicted, because the period and degree of increased pressure of the pancreatic duct must have been short and not very severe. Generally, post endoscopic retrograde cholangiopancreatography (ERCP) pancreatitis can occur even in cases panreatography is not performed. However, imaging after post ERCP pancreatitis rarely demonstrates dilatation of the main pancreatic duct. A similar situation may have occurred in this case. The ampulla in our patient was relatively small, and ampullary biopsy could have blocked the flow of pancreatic juice, because small ampulla has short common channel. In the other case reports by Zinelis SA and Kwak H, the authors suggested that the acute pancreatitis resulted from pancreatic duct obstruction caused by a duodenal intramural hematoma formed after biopsy or polypectomy. [3,4] However, intramural hematoma formation may not have been responsible for the pancreatic duct obstruction in our case, because we confirmed hemostasis at the end of the procedure and could not find any evidence of duodenal hematoma on CT. Moreover, the result of the biopsy revealed that there were not many vessels in the ampulla.

Based on the above, risk factors of acute pancreatitis following endoscopic biopsy of the ampulla of Vater may be small ampulla and bleeding tendency. Of course, it is important both to avoid biopsying normal ampulla and to biopsy some distance from the orifice of the pancreatic duct to prevent acute pancreatitis, but it is also necessary to pay special attention to cases with small ampulla, and the possibility of hematoma formation must be considered in case with bleeding tendency.

In our institute, we have performed 156 cases of endoscopic biopsy of ampulla of Vater over the past ten years. Of these 156 cases, 131 were for diagnosis of ampullary tumor, and 25 were for adjunct diagnosis of autoimmune pancreatitis. Seventy-eight (78) of the 156 cases were conducted after ERCP, and the remaining 78 were not associated with ERCP. Among the 78 cases of endoscopic biopsy after ERCP, serum amylase values obtained at 24 hours post-ERCP ranged from 31-2063 UI/ml (average 294 UI/ml), and hyperamylasemia occurred after the procedure in five cases (range 537-2063 UI/L, average 1214.2 UI/L). Acute pancreatitis occurred in two of the five cases, and there was no severe pancreatitis. However, various procedures other than ampullary biopsy, such as pancreatography, intraductal ultrasonography, obtaining cytologic specimens, etc. may affect the incidence of acute pancreatitis. Rate of pancreatitis after endoscopic biopsy is almost the same as that after common ERCP, according to a previous report. [6] In cases of endoscopic biopsy not associated with ERCP, we performed the procedure on an outpatient basis. Although we did not check serum amylase after these procedures, we have not experienced any patient with severe symptoms after the procedure, except for this case.

It is still challenging to differentiate between neoplasm and non-neoplasm in the case of ampullary masses, because endoscopic findings have not been established. Development of magnifying endoscopy, narrow band imaging and other image enhanced endoscopy techniques, may facilitate endoscopic diagnosis of ampulla of Vater, which leads to refinement of the indications for ampullary biopsy in the future.
In conclusion, while we still consider the risk of complications of duodenal biopsy in the region of the ampulla of Vater to be low, it is important for endoscopists both to be aware of the potential complication following endoscopic biopsy of the ampulla described in this report, and to closely monitor patients after procedure. It is also essential to provide thorough information to the patient about the possible complications of this procedure.

REFERENCES