

## Gastrointestinal bleeding as the initial manifestation of pancreatic adenocarcinoma successfully treated by emergency pancreaticoduodenectomy: case report

Keiko Kamei, Takeo Yasuda, Yasuyuki Nakata, Mitsuo Yamazaki, Hajime Ishikawa, Takuya Nakai and Yoshifumi Takeyama

*Department of Surgery, Kinki University Faculty of Medicine, Osakasayama Osaka 589-8511, Japan*

### Abstract

Pancreatic adenocarcinoma is a rare cause of gastrointestinal bleeding, and it is extremely rare that the initial symptom of pancreatic adenocarcinoma is hematochezia, melena, or hematemesis. Moreover, there have been a few reports of successful treatment by emergency pancreaticoduodenectomy to control bleeding in such cases. We report the case of a 55-year-old man with melena who was found to have pancreatic adenocarcinoma directly invading the duodenum by histopathological examination. In this case, preoperative diagnosis of pancreatic

adenocarcinoma was difficult. The endoscopic hemostatic procedure failed and emergency pancreaticoduodenectomy was performed successfully to stop bleeding. His postoperative course was uneventful, but he died 8 months after the operation of recurrence of pancreatic adenocarcinoma. The clinical course of this unusual case is reviewed.

**Key words:** gastrointestinal bleeding, pancreatic adenocarcinoma, pancreaticoduodenectomy, emergency operation

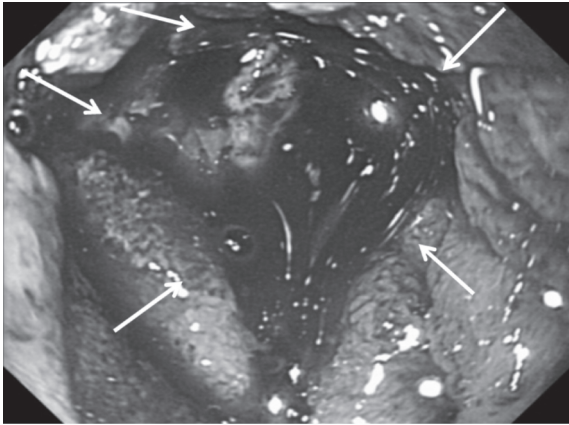
### Introduction

The symptom of pancreatic adenocarcinoma (PA) is nonspecific, and it is very difficult to diagnose PA on the basis of symptoms alone.<sup>1</sup> As an initial symptom of PA, gastrointestinal bleeding is extremely rare. Moreover, the incidence of PA directly invading the gastrointestinal tract leading to gastrointestinal hemorrhage is very low. Thus far, a limited number of cases have been reported. Herein, we report a patient with gastrointestinal bleeding who was subsequently diagnosed with PA. The clinical course of this unusual case is reviewed.

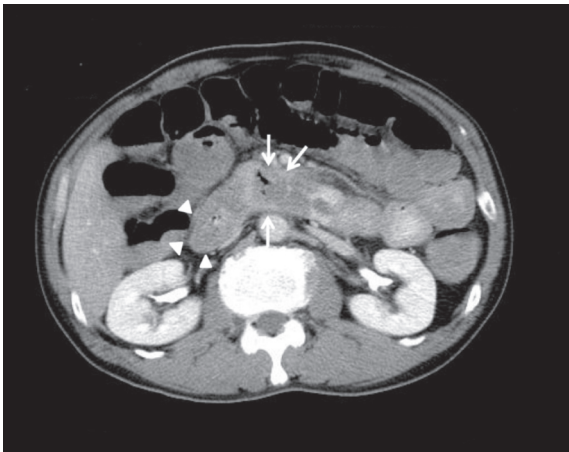
### Case Report

Occult stool blood was noted at the medical checkup of a 55-year-old man, but colonoscopy

was negative. The patient had been well until this episode. He subsequently experienced sudden massive melena and went into shock, so he was referred to our hospital for further investigation and treatment. On admission, his vital signs showed reduced blood pressure (88/53 mmHg) with tachycardia of 114 beats/minute. Laboratory studies showed a low red blood cell count of  $125 \times 10^4/\mu\text{l}$  (normal range,  $400\text{-}540 \times 10^4/\mu\text{l}$ ), hemoglobin of 3.8 g/dl (normal range, 12-16 g/dl), hematocrit of 11.0% (normal range, 37.0-47.0%), albumin of 1.4 g/dl (normal range, 3.8-5.3 g/dl), and a slightly elevated level of C-reactive protein of 0.49 mg/dl (normal range, <0.30 mg/dl). Tumor markers, including CEA and CA19-9, were normal. Urgent upper gastrointestinal endoscopy revealed a huge ulcer with hemorrhage in the posterior wall of the third portion of the duodenum (Fig. 1), but the endoscopic



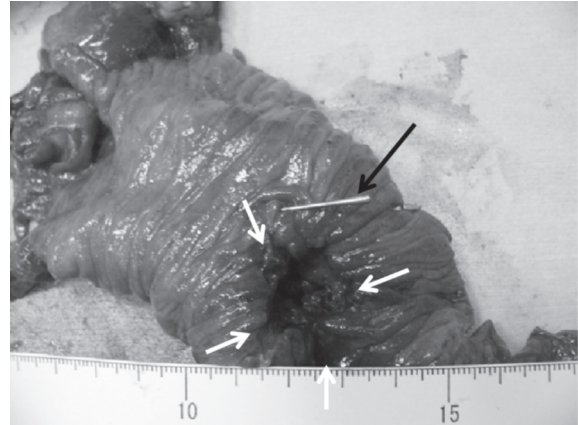
**Fig. 1** Upper gastrointestinal endoscopy showed a huge ulcer (white arrow) with hemorrhage in the posterior wall of the third portion of the duodenum.



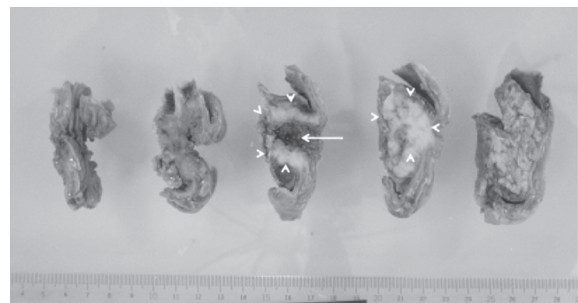
**Fig. 2** Abdominal computed tomographic imaging showed a tumor containing gas (white arrow) and the duodenum (white arrowhead).

hemostatic procedure failed to stop bleeding. Abdominal computed tomography disclosed a tumor with gas near the pancreatic uncus and the duodenum (Fig. 2), and we thought that this bleeding might have been caused by duodenum cancer or gastrointestinal stromal tumor (GIST) with central necrosis.

Blood transfusion was effective and his general condition improved transiently, however, laboratory data the following day revealed the progression of anemia, and additional blood transfusion was needed. This treatment stabilized his vital signs temporarily. Transcatheter arterial embolization or surgical intervention was planned, and emergency surgery was chosen for complete remission. Intraoperative findings revealed no palpable tumor in the soft pancreas or duodenum, and that the pancreatic uncus adhered strongly to the supramesenteric vein. Pan-



**Fig. 3** Surgical specimen. Black arrow indicates a sonde inserted in the papilla of Vater. White arrows indicate the ulcer.



**Fig. 4** Cross-section of the surgical specimen revealed a huge hole from the duodenum to the pancreatic head, and a whitish nodule in the head of the pancreas. White arrowheads indicate the tumor and white arrow indicates the ulcer.

creaticoduodenectomy (PD) with regional lymphnode dissection was performed.

The resected specimen showed a deep ulcer in the posterior wall of the third portion of the duodenum (Figs. 3 & 4). Microscopic examination disclosed that gastrointestinal bleeding had been caused by the direct invasion of pancreatic head tubular adenocarcinoma into the duodenum. Lymph node metastasis was not detected. The postoperative course was uneventful and he was discharged on the 10th postoperative day. In spite of adjuvant chemotherapy using gemcitabine and S-1, PA recurred 6 months later. He died 8 months after the operation.

## Discussion

By recent advances of investigating modalities, the ability to detect PA has improved, but only 10-25% of patients are candidates for surgical treatment.<sup>2</sup> Initial symptoms of PA are common-

ly abdominal pain (36.9%), jaundice (15.2%), lower back pain (7.8%), and weight loss (6.2%), but the bleeding in the gastrointestinal tract (hematochezia, melena, and hematemesis) is extremely rare, with an average of 2.6% reported by Lee et al.<sup>3</sup> By summarizing the literature, there are four mechanisms for gastrointestinal bleeding in PA, either gastric variceal bleeding secondary to splenic vein occlusion, a fistula from the blood vessel to duodenum (namely wirsungorrhage), direct tumor bleeding via the pancreatic duct (namely hemosuccus), or direct tumor invasion into the gastrointestinal tract.<sup>4</sup> In our case, the pancreatic tumor extending to the duodenum was evident from the pathologic findings. As bleeding is usually severe and unremitting, clinicians are sometimes confronted with difficulty in controlling bleeding from the tumor invasive site. To control gastrointestinal bleeding, endoscopic hemostatic procedures and radiographic intervention have been adopted recently, because of the poor general condition of the patients.<sup>5,6</sup> In some selected cases, emergency surgery is performed.<sup>7</sup>

Recent advances in surgical techniques and perioperative management have improved the safety of PD, with a low mortality rate and reduced morbidity,<sup>8-10</sup> but emergency PD is still rarely performed. Z'graggen et al. have reported a prevalence of 1% in a consecutive series of more than 400 patients undergoing pancreatic head resection.<sup>11</sup> It has mainly been performed for abdominal trauma, with either massive uncontrollable retropancreatic hemorrhage or complex unreconstructable injuries (blunt or penetrating) to the head of the pancreas, duodenum, and distal common bile duct.<sup>12</sup> In our case, although the patient had severe hemorrhage, his general condition was well preserved, so it was feasible to perform emergency PD to treat tumor bleeding.

In general, PA is revealed as a hypovascular nodule, and it rarely develops to cystic formation. In this case, the tumor had penetrated to the duodenum, disintegrated, and had an unusual form containing gas. This made it difficult to diagnose preoperatively as PA. In fact, we suspected duodenal cancer or GIST in this case. Preoperative endoscopic biopsy may be important, but accurate diagnosis is thought to be difficult.<sup>7</sup>

In conclusion, it is important to keep in mind

that pancreatic adenocarcinoma may cause gastrointestinal bleeding as an initial symptom, and once occurred, emergency pancreaticoduodenectomy is one of the treatment options for severe and unremitting bleeding.

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