

Clinical analysis of uncinata process carcinoma of the pancreas

Chun Ye, Peng-Cheng Xi and Xian-Gui Hu

Shanghai, China

OBJECTIVE: To analyse the clinical features of uncinata process carcinoma of the pancreas and the diagnosis and treatment of this malignancy.

METHOD: Fifty-nine patients with pancreas uncinata process carcinoma treated from January 1998 to September 2002 at our hospital were analysed retrospectively.

RESULTS: Major symptoms of these patients were upper abdominal pain accompanied with lumbar pain, body weight loss and jaundice. Thirty-seven patients received regional pancreaticoduodenectomy (RP), 16 partial resection of the superior mesenteric vein-portal vein (SMV-PV) or superior mesenteric artery (SMA) and reconstruction, 1 anhydrous alcohol injection in the celiac nerve plexus, regional chemotherapy via a chemotherapy pump, and liver biopsy, and 5 no operation. The survival of the patients after operation was 2–46 months (median 12.1 months). Eleven patients are still alive with a longest survival of 46 months. The 1- and 3-year survival rates were 37.7% and 5.6%.

CONCLUSIONS: Pancreas uncinata process carcinoma invading the adjacent SMV/SMA-PV causes difficulty in early diagnosis and poor prognosis, which are related to its location, not tumor's aggressive nature. This carcinoma has a high resection rate of 89.8%.

(*HBPD Int* 2003; 2: 605–608)

Key words: uncinata process carcinoma; pancreas; pancreaticoduodenectomy, regional

Introduction

The uncinata process is a hook-like extension of the lower part of the head of the pancreas. Anatomically, it extends posterior to the superior mesenteric vein (SMV), ending at the right margin of the superior mesenteric artery (SMA). Compared with other parts of the pancreas, this region is more closely connected to the mesentery and is situated at some distance from the course of both bile and pancreatic ducts. These topographic relationships account for the special clinical features of carcinoma in this portion of the pancreas. Previous-

ly, we considered that the incidence of uncinata process carcinoma of the pancreas was very low as 10.7% (6/56),^[1] 2.5% (3/19)^[2] and 8% (39/506),^[3] but it may be wrong. In this study, 59 cases of uncinata process carcinoma of the pancreas were analysed in an attempt to update our knowledge about the disease.

Methods

Patients

From January 1998 to September 2002, we treated 59 patients with carcinoma of the uncinata process of the pancreas, including 39 men and 20 women, aged from 53 to 84 years (average 60.2). The course of the disease varied from 4 days to 2 years. Their symptoms included upper abdominal pain mostly associated with lumbar pain (40 patients), weight loss (34), jaundice (24), anepithymia (19), and upper abdominal malaise (10). On ab-

From the Department of General Surgery, Changhai Hospital, Second Military Medical University, Shanghai 200433, China (Ye C, Xi PC and Hu XG)

Correspondence: Chun Ye, MD, Department of General Surgery, Changhai Hospital, Second Military Medical University, Shanghai 200433, China (Tel: 86-21-65584005; Email: thomas2000@citiz.net)

dominal examination, no lump was palpated. Of the 59 patients, 54 (91.5%) were detected by CT, 47 (79.7%) by B-ultrasound, and 16 by endoscopic retrograde cholangiopancreatography (ERCP) (stenotic pancreatic duct at the pancreatic head or cholangiectasis at the distant end in 12 patients, and lumps around the pancreatic head in 4 patients), and 52 by CA19-9 (higher value than normal in 47 patients). SMV was involved in 27 patients, SMV+SMA mesenteric artery in 9, SMV+portal vein (PV) in 9, but the abdominal aorta remained intact. Of the 59 patients, 25 showed lymph node metastasis at 13b, 13a and 14 groups, and 25 showed involvement of the nerves. The size of lumps was 1.5–7 cm (average 4.0 cm). TNM classification showed stage I and II in 32 patients, stage III in 21, and stage IV in 6. Histologically, highly differentiated duct adenocarcinoma was observed in 17 patients, moderately differentiated duct adenocarcinoma in 18, low differentiated duct adenocarcinoma in 15, adenosquamous carcinoma in 3, and acinic cell carcinoma in 1 (53 patients were confirmed pathologically after operation, and 1 was by biopsy).

Treatment

Of the 59 patients, 37 received regional pancreaticoduodenectomy (RP), 16 partial or segmental resection of SMV-PV or SMA and reconstruction, 1 anhydrous alcohol injection at the celiac nerve plexus plus a chemotherapy pump and liver biopsy, and 5 no operation. Operation combined with blood vessel resection lasted 4 hours and 10 minutes–9 hours and 50 minutes, with blood loss of 200–7000 ml (average 1650 ml), whereas operation without blood vessel resection lasted 2 hours and 50 minutes–7 hours and 15 minutes, with blood loss of 200–1500 ml (average 610 ml). Postoperative hospitalization varied from 8 to 52 days (average 16 days).

Results

In this group, all patients survived after operation, but 5 patients (9.4%) had complications: lung infection (2), incision dehiscence (2), and gastric

emptying disturbance (1). In contrast to the reported incidence of 30%,^[4] the lower incidence rate in this group might be attributed to the improvement of our expertise. Altogether 51 patients were followed up and 8 missed. Postoperative life cycle varied from 2 to 46 months, and the median position life cycle was 12.1 months. Eleven patients are still alive with a longest survival of 46 months. The 1- and 3-year survival rates were 37.7% and 5.6% respectively.

Discussion

Throughout the study, the peculiar aspects of uncinata process carcinoma of the pancreas can be summarized as follows: paucity of distinctive signs and symptoms such as jaundice, severe pain, and abdominal mass; no evidence of abnormalities in laboratory studies; and preservation of biliary and pancreatic function until the latest stage.

Patients with uncinata process carcinoma of the pancreas in this study exhibited a few non-specific symptoms with upper abdominal pain and weight loss as the leading ones. Upper abdominal pain mostly associated with lumbar pain manifested a kind of slight or moderate dull pain, aggravating at night, which can be endured. Such a pain was caused by tumorous infiltrates or inflammatory infiltrates, celiac nerve or mesenteric nerve plexus. Sometimes the pain radiated around the side toward the tip of the right scapula, exactly like cholecystitis or cholelithiasis. Most patients were considered to have diseases of the stomach, intestine, liver and gallbladder on their first medical examination, a phenomenon recognized in patients with pancreatic cancer.^[5] Concomitantly, the time between first medical consultation and establishment of a correct diagnosis was significantly longer in patients with uncinata process carcinoma of the pancreas. This seems to be not only due to lack of specific early symptoms, but also to additional difficulties in the application of imaging techniques.

Uncinata process carcinoma of the pancreas can be diagnosed mainly by ways of imaging techniques and laboratory examination. B-ultrasound as the first-line imaging technique for the diagnosis of

abdominal disorders has an overall sensitivity of 70%–80% in pancreatic carcinoma.^[6] CT is proved to be the best diagnostic tool with a sensitivity of 91.5% in this group. CT can detect the smaller masses in the uncinate process when other techniques showed normal morphology. Meanwhile CT can not only confirm the pancreatic uncinate origin of the lesion, but also determine precisely the mode of mesenteric vascular involvement.^[7] The widening of the uncinate process angle in CT scanning is a sensitive sign suggesting space-occupying lesions in the uncinate process carcinoma of the pancreas.^[8] Owing to the distance of the uncinate process from the common bile duct and the pancreatic duct, ERCP is of little or no use in detecting the uncinate process carcinoma of the pancreas. The tumor marker CA19-9 is a valuable diagnostic method with a sensitivity and specificity of more than 80%.^[9] In this group, the sensitivity was 90.4% (47/52).

Uncinate process carcinoma of the pancreas is adjacent to the SMA/SMV-PV, abdominal aorta and other large blood vessels, which lead to a low resection rate. Birk et al^[3] reported a resection rate of 30.1% because the tumor had already infiltrated the mesenteric vessel. We found that the tumor of the uncinate process invading the SMA/SMV or PV was relevant to the extensive growth of the tumor, not infiltration behavior of the tumor itself. In this group, tumors were tightly adhered to the SMA/SMV or PV in 48 patients, but they were separated carefully from blood vessels in 32 patients, and partial resection of the SMV-PV or SMV and reconstruction were performed in 16 patients. Postoperative pathological examination showed blood vessel was infiltrated by cancer cells in only one patient. Those who received extended pancreaticoduodenectomy because of invaded blood vessels can live longer than those who received standard pancreaticoduodenectomy.^[10] Therefore, when blood vessel is invaded by uncinate process carcinoma of the pancreas, radical excision should not be abandoned. It should not be simply regarded as a contraindication of radical resection when the carcinoma invades the adjacent blood vessel.^[11]

Uncinate process carcinoma of the pancreas shows no typical symptoms at early stage and is

“closely” related to blood vessels nearby, which is anatomically related not a manifestation at late stage. In this group, grade I or II tumors were seen in 32 patients, grade III in 21, and grade IV in 6; most patients (89.8%) underwent radical resection. Those who were considered to suffer from an irresectable tumor received regional chemotherapy in order to increase their survival rate.

With the increase of resection rate of uncinate process carcinoma of the pancreas and the decrease of incidence rate of postoperative complications, most patients may have a good therapeutic effect, with a median survival rate close to the reported,^[12] but the 1- and 3-year survival rates are constantly low. The reported local recurrence rate of the carcinoma remains high as 50%–80% because of positive results of cutting edge specimens. But in our study only 1 out of 53 patients showed the cutting edge specimens of the common bile duct positive pathologically. The reasons of metastasis and recurrence may vary. Under the condition of cancerism, the tissues near the tumor may be cancerous or has potential cancer cells. Lymph node metastasis is likely to occur at the early stage of pancreatic carcinoma, but micrometastasis is hard to identify. Therefore, lymph node and soft tissues behind the peritoneum should be completely eradicated during the operation for matching postoperative chemotherapy or radiotherapy to increase the survival rate.

To sum up, we must take uncinate process carcinoma of the pancreas into account. In our opinion, people aging over 50, who have symptoms of upper abdominal pain together with lumbar pain, weight loss, and jaundice, should routinely take B-ultrasound examination. If condition permits, CT combined with CA19-9 is recommended. Because of the particularity of uncinate process carcinoma, the only way to improve poor prognosis of patients with uncinate process carcinoma of the pancreas appears to be the early application of currently available diagnostic tools and the constant improvement of surgical skills.

Competing interest

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

References

- 1 Suzuki T, Karatsuka H, Uchida K, et al. Carcinoma of the pancreas arising in the region of the uncinate process. *Cancer* 1972;30:796-800.
- 2 Yamaguchi K. Carcinoma of the uncinate process of the pancreas with a peculiar clinical manifestation. *Am J Gastroenterol* 1992;87:1046-1050.
- 3 Birk D, Schoenberg MH, Gansauge F, et al. Carcinoma of the head of the pancreas arising from the uncinate process. *Br J Surg* 1998;85:498-501.
- 4 Sohn TA, Yeo CJ, Cameron JL, et al. Resected adenocarcinoma of the pancreas - 616 patients: results, outcomes, and prognostic indicators. *J Gastrointest Surg* 2000;4:567-579.
- 5 Warshaw AL, Fernandez-del Castillo C. Pancreatic carcinoma. *N Engl J Med* 1992;326:455-465.
- 6 Campell JP, Wilson SR. Pancreatic neoplasmas: how useful is evaluation with US? *Radiology* 1988;167:341-344.
- 7 Sato M, Ishida H, Konno K, et al. Pancreatic uncinate carcinoma: sonographic findings. *Abdom Imaging* 2001;26:64-68.
- 8 Mei ZJ, Liu R, Shao CH, et al. Diagnostic meaning of uncinate process angle in the uncinate process carcinoma of the pancreas. *Chin J Gen Surg* 2002;17:327-328.
- 9 Safi F, Roscher R, Beger HG. The clinical relevance of the tumor marker CA19-9 in the diagnosing and monitoring of pancreatic carcinoma. *Bull Cancer* 1990;77:83-91.
- 10 Cuasck JC, Fuhrmann GM, Lee JE, et al. Managing unsuspected tumor invasion of the superior mesenteric-portal confluence during pancreaticoduodenectomy. *Am J Surg* 1994;168:352-354.
- 11 Li S, Pei YQ, Du FT, et al. Surgical treatment for uncinate process carcinoma of the pancreas. *HBPD Int* 2002;1:592-594.
- 12 Evans DB, Pisters PW, Lee JE, et al. Preoperative chemoradiation strategies for localized adenocarcinoma of the pancreas. *J Hepatobiliary Pancreas Surg* 1998;5:242-250.

Received December 9, 2002

Accepted after revision August 12, 2003