Colloid Carcinoma of the Pancreas: A Case Report

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Case report

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Abstract

Background: Pancreatic colloid carcinoma is a rare pancreatic cancer, which is a subtype of pancreatic ductal adenocarcinoma.

Case: a 71-year-old woman with a tumor of about 1.9x1.3cm in size located in the neck and body of the pancreas without invasion of surrounding organs. The patient underwent body and tail pancreatectomy, and the pathology revealed an intraductal papillary mucinous tumor of the pancreas with associated infiltrating colloid carcinoma. The patient recovered well after surgical treatment.

Conclusion: Pancreatic colloid carcinoma is a malignant tumor, but it has a lower degree of malignancy and a better prognosis compared with pancreatic ductal adenocarcinoma. Currently, radical surgical resection is the main treatment principle.

Background

Pancreatic cancer has an increasing incidence and is now the fourth leading cause of cancer-related death, with a 5-year survival rate of about 8%[1]. Pancreatic cancer mainly refers to Pancreatic ductal adenocarcinoma (PDAC), which accounts for more than 85% of all Pancreatic cancers. Colloid carcinoma(CC) is a variant type of Pancreatic ductal adenocarcinoma, often associated with Intraductal papillary mucinous neoplasm (IPMN), and is relatively rare. It accounts for about 1–3% of all pancreatic cancers [2]. With the further research on IPMN in recent years, the number of cases of IPMN developing into CC has increased significantly. A case of pancreatic colloid carcinoma admitted to the Second Affiliated Hospital of Kunming Medical University in November 2020 was reported, and the disease was discussed in combination with relevant literature.

Case Report

The patient, a 71-year-old female, was admitted as "found pancreatic tumor for 3 days in health examination". She had a history of hypertension, diabetes, coronary heart disease, cerebral infarction, Hashimoto's thyroid and gallbladder stones. No history of smoking or drinking, no family history of malignant tumor. Physical examination: no yellow skin, soft abdomen, no tenderness, no rebound pain, no abnormal mass touched. Laboratory examination:WBC 7.11×10^9/L(3.5–9.5×10^9/L),RBC 4.39×10^12/L(3.8–5.1×10^12/L)，HGB 134g/L(115-150g/L)，TP 59.2g/L(64-83g/L)，ALB 34.9g/L(35-50g/L)，GLO24.3g/L(22-33g/L)，ALT 22U/L(5-40U/L)，AST 18U/L(8-40U/L)，TB 6.1umol/L(3.4-20.5umol/L)，DB 1.9umol/L(0-6.8umol/L)，CEA 56.77ng/ml(0-5ng/ml)，CA125 41.34KU/L(0-35KU/L)，CA19-9 67.54KU/L（0-35KU/L）.Imaging examination:CT showed mixed low-density shadow nodules in the neck and body of the pancreas, with poorly defined lesion boundaries. The main pancreatic duct was truncated here, distally the main pancreatic duct was dilated, and the pancreatic parenchyma in the body and tail was atrophied (Fig. 1A). MRI indicated that longer T2 signals and slightly longer T1 signals were seen in the neck and body of the pancreas; DWI showed high signal; ADC showed slightly lower signal; after enhancement, there was relatively low enhancement; the boundary was clear; distal

pancreatic duct was dilated (Fig. 1B,1C). Both CT and MRI indicated pancreatic mass. Considering the possibility of IPMN, surgical treatment was decided.

The patient was treated under general anesthesia on November 26, 2020, and intraoperative exploration showed that the tumor was located in the body of the pancreas, spherical, with clear boundary with surrounding pancreatic tissue, without serious adhesion, no abnormality in other parts of the pancreas, and no enlarged lymph nodes were touched around. After communicating with the patient's family, the decision was made to perform distal pancreatectomy. Postoperative pathology indicated that pancreatic intraductal papillary mucinous tumor accompanied by associated infiltrating colloid carcinoma(Fig. 2).Immunohistochemistry:CKL(+),Mucin5Ac(+),MUC6(+),MUC2(+),SMA(-),CEA(+),P53(+),Ki-67(60%),CDX-2(-),Villin(+),CK20(-),CK7(+),ER(-),PR(-).The patient was discharged after 2 weeks.

One month after the operation, the patient returned to the hospital for review, without abdominal pain, abdominal distension, diarrhea, constipation and other symptoms. Laboratory examination:CEA 1.07ng/ml(0-5ng/ml),CA125 14.80KU/L□0-35KU/L□□CA19-9 25.17KU/L□0-35KU/L□.Abdominal CT suggested cystic lesions in the neck of the pancreas and possible effusions in the operative area. The general condition of the patient was OK. Oxaliplatin (100mg) and gemcitabine (1g) combined chemotherapy was given, and no special chemotherapy reaction was observed. Follow-up to deadline(July 1, 2021),The patient's condition is stable without special discomfort.

Discussion

CC is also known as mucinous noncystic carcinoma, a rare subtype of pancreatic ductal carcinoma, its have huge mucous protein matrix pool, mucins pool floating scattered into bundles, or a single tumor cells, signet ring cell, the WHO defines the tumor mucus ingredient at least accounted for more than 80% of the tumor entity in 2010[3].

CC is similar to other pancreatic tumors in clinical manifestations, usually presenting with abdominal pain, jaundice, weight loss and abdominal mass, and the median age of onset of CC is thought to be between 59 and 69 years, irrespective of gender[4]. CA199 and CEA were elevated in tumor markers, but they were not specific. CT and MRI are important ways to diagnose CC preoperatively. CC on CT is often characterized as masses with round or lobular margins, a low attenuation masses on scan, the focal mild reinforcement on enhance,venous phase and delayed phase lesions in progressive edge and internal grid reinforcement, myxoid stroma without reinforcement, tumor boundaries clear, if not with the duodenum, it shows that the tumor is likely to have infringed the duodenum [5]. CC on MRI performance for the edge of the outline and irregular lump,T1WI was mixed with low signal, T2WI was significantly high signal, and lesions in the low signal contrast, namely “the pepper salt”, tumor is no or mild strengthening, arterial venous phase and delayed the mid-term tumor can show progressive edge reinforcement, and the tumor grows to mesh or sponge to strengthen[6]. In addition to imaging, fine-needle needle biopsy also plays an important role in the diagnosis of CC, and can make a clear diagnosis under the microscope after puncture sampling. However, due to the location of the pancreas in the retroperitoneum, puncture is

difficult, and due to the adhesion of mucus, the process of puncture may promote the spread of the primary tumor [7], so it is limited in clinic.

Compared with other pancreatic cancers, CC is characterized by well-defined and large volume, mainly located in the head and neck of the pancreas, and also involving the tail of the pancreas. Most CC occurs in the context of IPMN, especially in close relation to intestinal type IPMN, as well as gastric type, pancreatic bile duct type and eosinophilic type [3, 7]. Most studies have shown that CC has a better prognosis than other pancreatic cancers, with a 5-year survival rate of 28–55% compared with 5–12% for pancreatic cancers [2, 8, 9]. Currently, the main reasons are as follows: CC and IPMN usually rich in sticky protein 2 (MUC2), and contains no sticky protein 1 ((MUC1)),but PDAC express MUC1 strongly and lack of MUC2, MUC2 epithelial cells as a barrier to inhibit invasion of tumor cells to prevent further spread, which has a tumor suppressor activity, at the same time, the CC, mismatch repair gene mutation and microsatellite instability frequency is lower, so CC and IPMN malignant degree lower[10–13], so there is even some lymph node metastasis is still alive and disease-free survival in 10 years' time [13]. Another potential reason for the better prognosis of CC is cellular change: colloidal carcinoma cells exhibit reverse polarization,the cell base secretes mucins toward the cell-matrix interface (rather than into the lumen), thereby separating the cells from the underlying matrix[9]. Meanwhile, lower T stage, fewer lymph node metastases,highly differentiated tumors, and fewer vascular and nerve invasion are also considered to be one of the reasons for the better prognosis of CC[10]. However, some scholars hold different views, believing that the prognosis of CC is not good. Seidel[14] believed that tumor site, peripheral nerve infiltration, vascular infiltration, and resection margin status were independent factors affecting the survival rate, which would then affect the prognosis.

In this case, the patients' clinical symptoms are not typical, no symptoms such as abdominal pain, jaundice, weight loss, abdominal did not touch the abnormal lump, preoperative and intraoperative diagnosis for tumor have limitations, and pancreatic tissue around the border and clear, shows that tumor in its early, prompt will have better prognosis, this is the reason why patients has no obvious symptoms. Immunohistochemistry of the patients showed positive MUC2 and CEA, similar to that reported in the literature[2–4,7–13].

At present, there is no treatment guidelines for CC, because of its rarity and morphology characterized by malignant, its treatment strategy follows the PDAC, for without distant organ metastasis and vascular invasion, have suggested that surgical resection, surgical procedure depends on the size and location of the tumor,operation methods includ pancreaticoduodenectomy, total pancreatectomy and distal pancreatectomy[4, 8, 9]. Since most CC are accompanied by IPMN, it has been proposed that if IPMN is found in the surgical margin of CC after surgery, a second operation should be performed to ensure the therapeutic effect [7]. Radiotherapy and chemotherapy are important means for the treatment of malignant tumors, however, there is no evidence that adjuvant chemotherapy can improve the prognosis of patients [2,7–9]. Therefore, early diagnosis and treatment is an important way to improve the prognosis of CC.

In summary, pancreatic colloid carcinoma is a rare subtype of pancreatic cancer, usually associated with pancreatic intraductal papilloma. Its clinical manifestations are similar to those of other pancreatic cancers. Currently, radical surgical resection is the main treatment principle, and the prognosis is slightly better than that of pancreatic adenocarcinoma.

Abbreviations

PDAC
Pancreatic ductal adenocarcinoma
CC
Colloid carcinoma
IPMN
Intraductal papillary mucinous neoplasm
MUC1
Sticky protein 1
MUC2
Sticky protein 2

Declarations

Ethics approval :This study was approved by Ethics Committee of the Second Affiliated Hospital of Kunming Medical College.

Consent to participate:Written informed consent for publication of their clinical details and clinical images was obtained from the patient.

Availability of data and materials: All data generated or analyzed during this study are included in this published article.

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Contributions:JH and HHY designed the study, JH reviewed and analyzed literature was a major contributor of manuscript writing.XPW revised the manuscript critically for important intellectual content. All authors read and approved the final manuscript.

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Figures

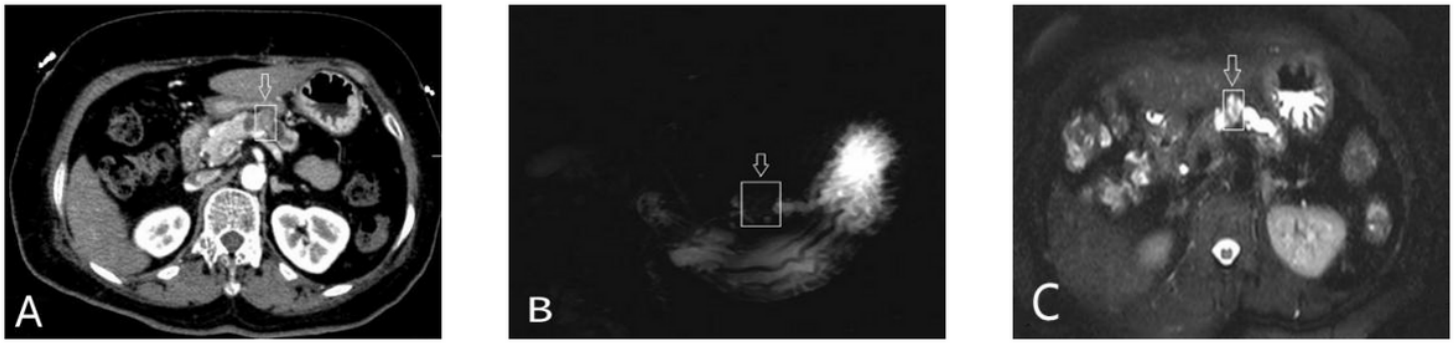

Figure 1

A:CT venous phase, B:MRCP, C:MRI cross-section: cervical and body mass mass of pancreas, main pancreatic duct truncated at the lesion, distal expansion

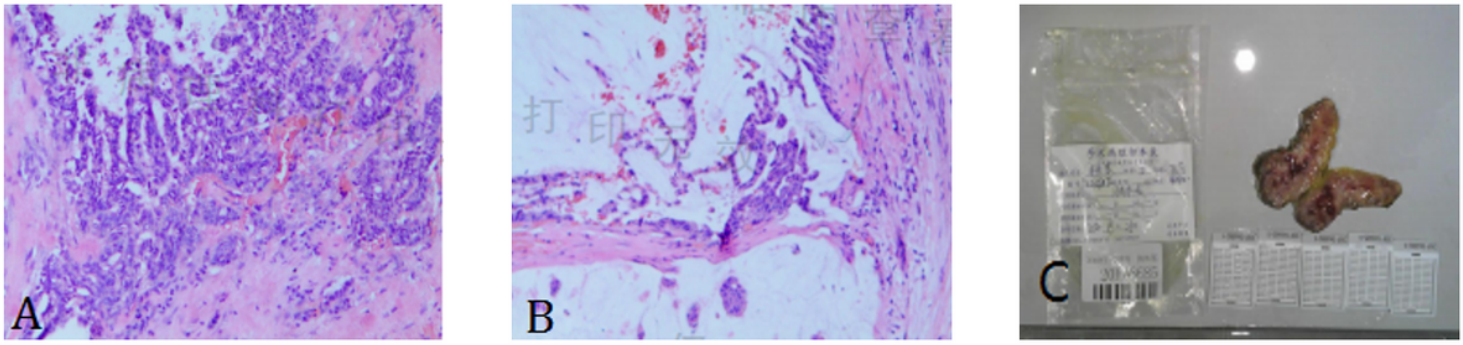

Figure 2

Pathology: intraductal papillary mucinous tumor of the pancreas with associated infiltrating colloid carcinoma