

Misdiagnosis of Groove Pancreatitis: A Case Report

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Abstract

Groove Pancreatitis (GP) is a kind of chronic pancreatitis with a clear pathological diagnosis. It's characterized by fibrotic scarring of the gastroduodenal groove, an anatomical area near the pancreatic head, duodenum and common bile duct (CBD). Its etiology is not clear. GP may be related to alcoholism, weight loss, biliary tract disease, pancreatic cysts and so on. Its incidence rate of GP is low and the diagnosis is difficult. The purpose of this essay is to report a case of GP. A 56-year-old woman is admitted to hospital with painless systemic jaundice as her only symptom and the symptom aggravated in two months. Both medical imaging (CT, MR, and MRCP) and serologic examination (cancer antigens (CA) 19-9) support the diagnosis of malignant cholangiocarcinoma; but, the results of electronic gastroscopy were basically normal. Surgeons had found no malignant tumor characteristics (irregular shape, adhesion, necrosis and so on) in the operation. However, Postoperative pathological results verified the intraoperative evaluation. Combined with postoperative pathological results, the surgeon's experience and reported in domestic and foreign literature, operators consider the patient should be diagnosed as GP. Making a definite diagnosis of GP requires a comprehensive analysis on discriminating with another disease like CBD carcinoma and pancreatic head carcinoma to prevent an over-treatment of patient.

Keywords: Groove Pancreatitis; CBD carcinoma; Pancreatic head carcinoma; Chronic nonspecific inflammation; Jaundice

Introduction

GP is a kind of chronic inflammation, rarely, occurrence around pancreas groove segment. Aggravating painless jaundice mainly suggests malignant tumor of the distal CBD carcinoma and pancreatic head carcinoma [1,2]. Cholelithiasis is not a common chronic disease, and is easier to be identified by medical imaging results. Only a few cases of chronic inflammation of the pancreas are located at the groove and their symptoms are similar to malignant painless jaundice. We here report a case of GP about a patient who was preoperatively misdiagnosed as ampulla carcinoma. We have analyzed and reviewed the clinical and pathological manifestations in this case.

Case presentation

A 56-year-old woman from a rural area of China, was admitted to our hospital with symptoms comprising of cutaneous pruritus, loss of body weight and yellowish urine. Two months ago, the patient appeared painless jaundice under no obvious predisposing causes. As the initial symptom, dark yellow urine, skin itching and jaundice occurred in this patients. Meanwhile, no identifiable symptoms such as pain, swelling, redness and heat. The patient had no operation history, infectious diseases, unhealthy living habits and never smoke and drink alcohol. Since the disease appeared, the patient had been in good spirits, normal sleep, and normal stool. Magnetic resonance imaging (MRI, which had been performed in local hospital), revealed space-occupying lesions in the common bile duct duodenal ampulla, dilated intrahepatic bile duct, hepatic duct, gallbladder and bile duct. And it

was more likely to suggest bile duct cancer. The patient's symptoms did not significantly improve after the treatment for liver and jaundice treatment.

An initial laboratory test at our hospital yielded the following findings: white blood cell count, $10.23 \times 10^9/L$ (normal range, $4 \times 10^9/L - 10 \times 10^9/L$); neutrocyte ratio, 73.9% (normal range, 50%-70%); hemoglobin concentration, 105 g/L (normal range, 115-150 g/L); platelet count, $312 \times 10^9/L$ (normal range, $100 \times 10^9/L - 300 \times 10^9/L$); serum alanine aminotransferase and aspartate aminotransferase levels, 92 U/L and 107 U/L, respectively (normal range, 5-40 U/L); serum total bilirubin level, 88.5 $\mu\text{mol/L}$ (normal range, 5-24 $\mu\text{mol/L}$); serum direct bilirubin level, 73.0 $\mu\text{mol/L}$ (normal range, 0-11 $\mu\text{mol/L}$); serum γ -glutamyltranspeptidase level, 719 U/L (normal range, 7-45 U/L); Serum alkaline phosphatase, 545 U/L (normal range, 50-135 U/L); carbohydrate antigen (CA) 19-9 level, 129 u/mL (normal range, ≤ 34). The patient's serum creatinine and urea levels were both within the normal ranges. A physical examination indicated body temperature 36.5°C, jaundice, whole abdomen without tenderness, and a negative Murphy sign.

With concerns about possible malignancy the patient underwent some other tests. Electronic gastroscopy revealed a slightly increased major duodenal papilla without mucosal abnormalities (Figure 1). The results of abdominal computed tomography (CT) indicated the lower CBD wall thickening, the upper segment of CBD system "vine-like" expansion, and intrahepatic bile duct system "vine-like" expansion. And these tended to be malignant lesions (Figure 1).

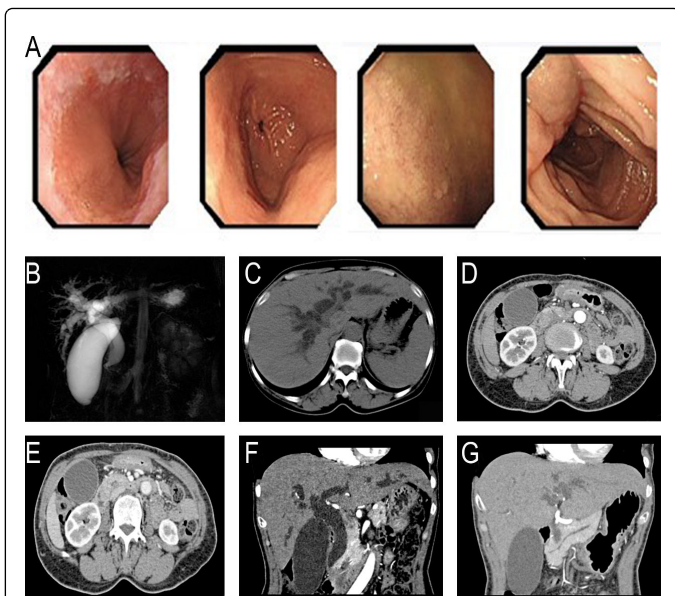


Figure 1: Electronic endoscopy, Image from computed tomography; (A) esophagus segments and all parts of the stomach were normal, duodenal mucosa were normal; the duodenum nipple slightly larger, no abnormal mucosal surfaces; (B) before admission MRCP results; (C) Noncontract enhanced scanning, upper segment of common bile duct system "vine-like" expansion; (D-E) D and E were enhanced CT arterial phase and portal venous phase, the black arrow indicate the position of the narrow position; (F) CT sagittal reconstruction diagram shows the level of bile duct dilatation and stenosis location; (G) CT sagittal reconstruction diagram shows the level of pancreatic duct dilatation.

Combining with these checks, we cannot rule out the possibility of the patient suffering from cancer and then we plan to treat surgically. Finally, we made a laparotomy, gallbladder excision, CBD incision and choledochoscope probe, lower the CBD segment mucosal biopsy, the duodenal pancreatic head mass biopsy, upper middle section of CBD excision, and hepatic duct/jejunum Roux-en-Y anastomosis.

The results of her abdominal exploration indicated that the liver was green and yellow in color, slightly fatty, and normal in size. The gallbladder and the extrahepatic bile duct were obviously expanding with high tension. And the choledochoscopy results revealed the absence of a calculus in the extrahepatic and proximal intrahepatic bile ducts. Surgeons also found no tumor within the CBD, and they only found the CBD mucosal thickening. They used two forceps to get tissues and could send them to pathology department. We freed pancreatic head and duodenum descending segment, in the rear head of the pancreas, and found two lateral streak mass, which was tough texture, movable and about the size of 1 cm* 0.5 cm. We got pathology tissues through the needle of puncture. Preoperative talk to adequately inform patient and her families about the condition of the patient, the surgical procedures and as well as risks. However the patient's family hold a negative attitude, and refused to give patients do pancreaticoduodenectomy (Whipple). The operation was completed after hepatic duct/jejunum Roux-en-Y anastomosis.

The specimens included gallbladder, lymph nodes around the common bile duct, common bile duct and ampulla mucosa, pancreas

tumor from biopsy needle. The final pathology results negated the preoperative diagnosis of cholangiocarcinoma. Pathology results were as the followings (Figure 2) chronic cholecystitis, lymphoproliferative, chronic inflammation with erosion and focal hemorrhage, part papillary epithelial and moderate dysplasia, fibrosis, and a small amount of inflammatory cell infiltration.

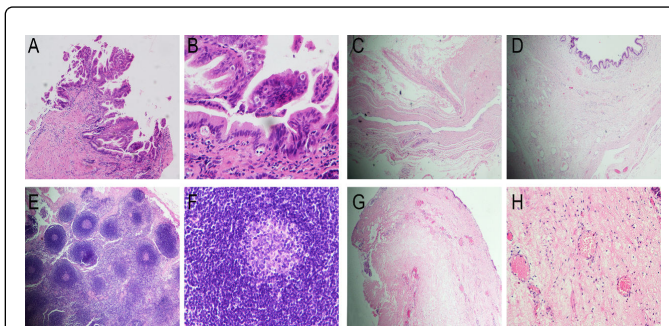


Figure 2: A-B. Bile duct mucosal tissue that partly glandular papillary and moderate dysplasia (A, $\times 100$ B, $\times 400$); C-D, Bile duct tissue showed chronic inflammation, erosion and focal hemorrhage (C, $\times 40$ D, $\times 40$); E-F, two lymph nodes next to common bile duct and duodenum, lymphoproliferative (E, $\times 100$ F, $\times 400$); G-H, needle biopsy was small pieces of pancreatic tissue, suggesting fibrous tissue with a small amount of inflammatory cell infiltration (G, $\times 100$ H, $\times 400$).

The sixth day after surgery, patient recovered essentially normal. The results of some related blood laboratory tests are better than before: white blood cell count, $9.0 \times 10^9/L$ (initial result, $10.23 \times 10^9/L$); neutrocyte ratio, 63.4% (initial result, 73.9%); serum alanine aminotransferase and aspartate aminotransferase levels, 42 U/L and 47 U/L, respectively (initial result, 92 U/L, 107 U/L); serum total bilirubin level, 43.4 $\mu\text{mol/L}$ (initial result, 88.5 $\mu\text{mol/L}$); serum direct bilirubin level, 24.7 $\mu\text{mol/L}$ (initial result, 73.0 $\mu\text{mol/L}$); serum γ -glutamyltranspeptidase level, 324 U/L (initial result, 719 U/L). Urine traits are back to normal. Itchy skin symptoms improve significantly. In order to save cost of hospitalization, the patient and her family members refused to retest the level of CA19-9. She recovered uneventfully after the operation and was discharged in a good condition (Figure 3).

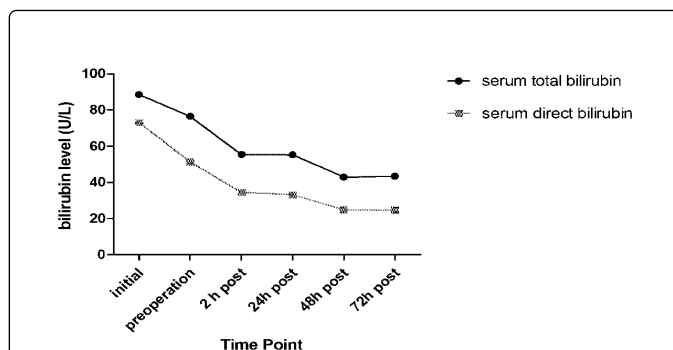


Figure 3: Changes of bilirubin level during perioperative period.

Discussion

GP is a kind of chronic segmental pancreatitis, which affecting the anatomical region among the pancreatic head back, duodenum and common bile duct [3]. Its etiology is complex, and has not been clear. Its causes include biliary tract diseases, pancreatic cysts, and peptic ulcer and so on. The 40- and 50-year-old male with a history of alcohol abuse is high-risk population. In pathology, it is mainly duodenal wall and groove area visible gray scar tissue, duodenal wall thickening and luminal stenosis [4]; Microscopic lesions are mainly atypical hyperplasia, less involvement of pancreatic duct, and CBD stenosis [5]. The GP is divided into two kinds of tissue typing in the 90's: in the early 1990s recognized two forms: The "segmental" form, which involves both the pancreatic head and the groove; and the "pure" form, which affects the groove only, sparing the pancreatic head [6]. The incidence rate of GP is not high. Its clinical manifestations, symptoms and signs are atypical, so it is sometimes difficult to distinguish it from the CBD cancer, ampulla cancer, pancreatic cancer and other diseases. Among the laboratory diagnosis of most patients, liver function is in the normal range. The serum amylase and bilirubin can be no significant increase. The tumor markers are generally within the normal range. The CT and MR features can be used as reference signs between GP and pancreatic cancer [7]. For example, MR showed mass shadow between the head of the pancreas and duodenum. T1WI was low signal, and T2 WI showed low signal, medium signal and high signal due to different histological types [8,9]. Fibrosis is mainly low signal lesions, but it shows high signal when the lesion tissue is surrounded by edema.

According to the reports of the disease, the clinical manifestation is painless jaundice exacerbation. The clinical symptoms are very similar to cholangiocarcinoma, which can be seen from the above case presentation, CT, MR, and CA19-9. It tended to be diagnosis of malignant disease. Although we cannot confirm the diagnosis of cancer, the diagnosis of GP is more far-fetched. The surgical treatment is essential. The general radical pancreaticoduodenectomy can significantly reduce pain and other symptoms, help patients gain weight, and minimize repeated illness or worse. The patients suffering GP received surgery for chronic pancreatitis, and as high as 24.5% of patients have been reported to choose pancreaticoduodenectomy [6]. And the selection of conservative surgical procedures require patients' comprehensive assessment of clinical symptoms, imaging, and other tests for hematology. The surgeon should raise awareness of GP during the operation if the patient has no history of chronic abdominal pain and preoperative examination does not adequately support malignant diagnosis. It requires careful observation of the lesion area by intraoperative choledochoscopy auxiliary judgment and multi-point

puncture. When we highly consider benign lesions, we should adopt simple operation. It will solve the obstruction, reduce the complications and deduce hospitalization time to the greatest extent. So, for a particular patient, the treatment should be unique. GP is classified as a rare disease, but this might be partly due to lack of awareness of GP.

Conclusion

In conclusion, GP is rare and its diagnosis is difficult. It is easily misdiagnosed, which increases the difficulty of selecting surgical method. GP is difficult to be distinguished from some malignant tumors before the operation. So when the doctors admit the patients who suffer from pancreatic head mass or CBD tumor, they need to diagnose them carefully. They should be aware of the possibility of GP before radical surgery. Of course, when we can't exclude GP completely, we shouldn't ignore the possibility of malignant tumor.

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