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A Case of Concurrence of Clonorchis Sinensis and Pancreatic Adenocarcinoma-A Diagnostic Dilemma

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Abstract

Clonorchis Sinensis, a common liver fluke, is known to cause biliary disease and can present with a wide array of symptoms. It's mostly found in Asian countries due to consumption of undercooked or raw fish. Although Cholangiocarcinoma is a known serious complication of this disease, Pancreatic neoplasms are rare and have seldom been reported. Here, we report a case of an 80-year-old man who presents with pancreatic adenocarcinoma associated with Clonorchis Sinensis infection.

Keywords: Clonorchis Sinensis, Liver fluke, Cancer, Pancreatic adenocarcinoma

1. Introduction

Clonorchis Sinensis, also known as Chinese liver fluke, is a parasite endemic to the eastern hemisphere of the world with around 15 to 20 million current infections.¹ The parasite can live and grow in bile ducts for up to 20 years causing Clonorchiasis which generally presents as indigestion, jaundice, biliary inflammation, and bile duct obstruction.² The feared and most serious complication of Clonorchis Sinensis is cholangiocarcinoma and several studies have evaluated this relationship.²⁻⁵ There is limited research on the possible association between Clonorchis Sinensis and pancreatic disease including pancreatic neoplasms.

2. Case report

An 80-year-old male with a past medical history of asthma, gout, and anemia, presented to the hospital due to progressive yellowing of the skin and abdominal pain. The patient endorsed fatigue and a

decreased appetite with a 10-pound weight loss in two months but no bowel habit change. The patient is a former cigarette smoker with a 35 pack-year smoking history. He was a farmer in Guangdong, China, and retired after immigrating to the United States. Patient reported a history of consuming undercooked fish when in China. The patient denied any family history of malignancy or gastrointestinal disease. On physical examination, the patient was cachectic with yellowish skin and scleral icterus. The abdominal exam was significant for tenderness on deep palpation in the epigastric and right upper quadrant regions without any organomegaly.

Laboratory findings were significant for a total bilirubin of 5.2 (0.2–1.4 mg/dL), direct bilirubin of 2.9 (0–0.2 mg/dL), alkaline phosphatase of 556 (36–112 IU/L), lipase of 98 (8–69 U/L) and CEA of 4.7 (0.3–2.5 ng/mL). Additionally, the patient had a reactive hepatitis B core antibody. Other laboratory values including eosinophil count, AST, ALT, and CA19-9 were within normal limits.

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CT scan of the abdomen/pelvis with contrast showed a hypo enhancing $4.8 \times 5.0 \times 4.2$ cm mass arising from the anterior head/proximal body of the pancreas with intrahepatic and extrahepatic duct dilation, but no pancreatic duct dilatation (Fig. 1). ERCP was notable for severe mid to distal CBD stricture likely due to compression by the pancreatic mass. Also seen in the ERCP were sludge and 2 long greenish-brown material; subsequent pathology results showed a hepatic trematode compatible with *Clonorchis* (Fig. 2). The fine needle biopsy of the pancreas was positive for adenocarcinoma. The patient's hospital course was complicated by post-ERCP pancreatitis that was managed with intravenous fluids and analgesics. Testing of the patient's stool showed no ova and parasites but as the organism was visualized on ERCP, the patient was prescribed a seven-day course of 600 mg albendazole. The patient followed up with infectious disease post discharge. For the pancreatic adenocarcinoma, oncology was consulted but the patient opted for palliative care and declined any sort of chemotherapy.

3. Discussion

The life cycle of *Clonorchis sinensis* involves ingestion of its eggs by snails, its first intermediate host. The eggs then undergo metamorphosis, leave the snail, and encyst in freshwater fish, its second intermediate host. It is when humans (definitive host), eat raw or undercooked fish that they become infected. From the duodenum, the parasite enters

and ascends through the biliary tree.¹ The parasite grows in the intrahepatic ducts and can live undetected for up to 20 years. The eggs from adult *Clonorchis sinensis* are passed in the stool.¹

Many infected humans with a small parasite burden are asymptomatic. The greater the parasite load, the higher the chance of symptoms which may include right upper quadrant abdominal pain, jaundice, fevers, nausea, vomiting, and malaise.^{1,4} Complications of infection by *Clonorchis* include cholecystitis, ascending cholangitis, and Cholangiocarcinoma being the most severe possible complication. The gold standard for diagnosis of *Clonorchis Sinensis* is egg detection in the stool. However, the absence of eggs in feces doesn't rule out Clonorchiasis as eggs can be undetectable due to biliary obstruction. Hence, direct evidence of parasites can also be obtained in duodenal or biliary aspirates via ERCP(1). In our patient, there was no evidence of *Clonorchis* in the stool and the patient had a CBD stricture as well.

There is a near 100 percent cure rate with praziquantel dose of 25 mg/kg of body weight taken 3 times a day for 1 day only. Alternatively, *Clonorchis* can be treated with 10 mg/kg albendazole for seven days.¹ The molecular mechanism of carcinogenesis in *Clonorchis*-associated cholangiocarcinoma is not fully elucidated, though recent research has led to the postulations of several contributing mechanisms. *Clonorchis* has been shown to cause mechanical injury, mucosal metaplasia, periductal fibroplasia, as well as epithelial hyperplasia.⁴ In addition, *Clonorchis* has been demonstrated to



Fig. 1. Hypo enhancing $4.8 \times 5.0 \times 4.2$ cm pancreatic mass with intra and extrahepatic duct dilation.

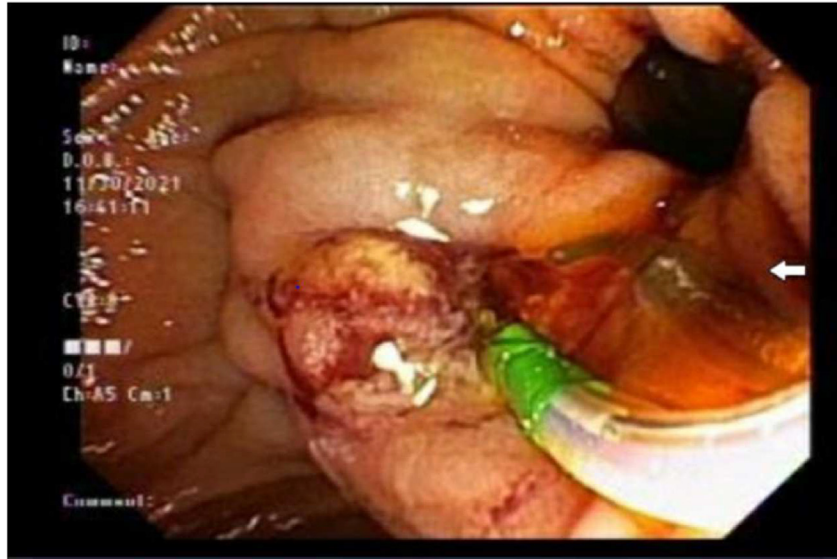


Fig. 2. Sludge and greenish brown material extracted during patient's ERCP.

release excretory-secretory products (ESPs) which are metabolic products that have the potential to stimulate proliferation and inhibit apoptosis.^{4,5} The presence and extent of these changes is dependent on the parasite burden and duration of infection.⁴

The research on *Clonorchis* and pancreatic disease is limited. *Clonorchis* can colonize the pancreas to cause pancreatic clonorchiasis.⁶ It can also cause acute pancreatitis secondary to obstruction of the pancreatic duct and pancreatic duct metaplasia from infection.⁷ However, little has been elucidated on possible association between *Clonorchis* and pancreatic malignancy. To our knowledge, there is only one case report which was published in 1987 on a patient with pancreatic adenocarcinoma and *Clonorchis* infection.⁸ There is one other case report published in 2015 on a patient with mucinous cystadenoma and *Clonorchis* infection.⁹ In our patient we had a biopsy proven evidence of hepatic trematode infection and occurrence of pancreatic adenocarcinoma.

4. Conclusion

We propose a multifactorial etiology of obstructive jaundice from bile duct stricture, *Clonorchis sinensis* infection and extrinsic compression from pancreatic head adenocarcinoma. A possible association connecting pancreatic adenocarcinoma with *Clonorchis* infection is not studied extensively. Nonetheless, this case report highlights the importance of inquiring about raw/undercooked fish in *Clonorchis*-endemic areas. As this is a case report, there is the limitation of not being able to establish a causal relationship. More experimental studies to

explore the possible relationship between *Clonorchis* and the development of pancreatic neoplasms need to be conducted.

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Conflict of interest

The authors declare no conflict of interest.

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