

Duodenal Obstruction Linked to Duodenum Ischemia after Limited Local Surgery of Pancreatic Cyst Disease: A Case Report

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Abstract

Background: Cystic lesions of the pancreas are common and increasingly detected in Grade A hospitals. Majority of patients have accepted the limited local surgery due to a low risk for developing a malignancy. However, duodenal obstruction contributed to duodenum ischemia origin postoperatively is quite rare and difficult to treat.

Objective: The potential causes of duodenal obstruction after surgery were analysed, and value of pharmacological treatments including Erythromycin was emphasized.

Results: The upper digestive tract contrast radiography (UDCR) and enhanced-CT scan of abdomen revealed a narrow luminal cavity of duodenum especially its third part, and a remarkable thickened wall. The presentations removed completely after pharmacological treatments. No any complications including tumor recurrence and intestinal obstruction were found after 3-year follow-up.

Conclusions: Erythromycin and Procaine allow for the therapy of ischemic duodenal obstruction.

Keywords: Duodenal obstruction; Erythromycin; Ischemia; Limited surgery; Pancreatic cyst disease

Introduction

Currently, the pancreatic cystic neoplasm is becoming a hot point because of its most frequency in primary care settings [1]. Small cysts (size <3 cm) in asymptomatic patients without any suspicious features may be observed due to its low-risk of malignancy unless the patient has strong desire to remove the lesion. With regard to the importance of conservation of pancreas-sparing tissue and its exo- and endo-crine functions, limited local surgery is world widely accepted. In addition, it has better outcomes compared to standard oncology resection [2]. The surgical-related complications, for example, duodenum ischemia, biliary leak, duodenum leak, pancreatic fistula, et al, are found up to 38%, and the hospital mortality is nearly up to 1% [3]. However, duodenal obstruction triggered by duodenum ischemia after surgery is very seldom, which challenges further decision-making.

Case Report

A 48-year-old man was admitted with asymptomatic processus uncinatus cystic neoplasm. He had no pancreatitis history, did not drink alcohol, not smoke, or drugs abuse. His pancreatic cyst lesion was found in annual routine examination with B-type ultrasound 2 weeks prior to hospitalization admission. At that moment, all serum tests were all normal without specific findings, while enhanced-CT scan of pancreas, endoscopic US of pancreas suggested a cyst lesion with size of 2 cm in diameter (Figure 1).

Successful pancreatic neoplasm enucleation was performed. However when he received oral meal in 3rd postoperative day, he had abdominal distension and repeatedly vomiting after meals. He had to replace gastric tube in the 7th postoperative day.

The UDCR via oral Diatrizoate showed a delayed gastric-emptying due to duodenal obstruction (Figure 2). Postoperative re-CT scan of abdomen showed duodenal wall thickened obviously (Figure 3). Gastriccopy revealed a stricture luminal cavity in 3rd portion of duodenum. All clues from serial imaging and operation note suggested duodenal obstruction linked to duodenal ischemia origin. To avoid reoperation, Erythromycin (3-6mg/kg/d) was applied in venous to promote duodenal movement. Simultaneously, Dexamethasone and

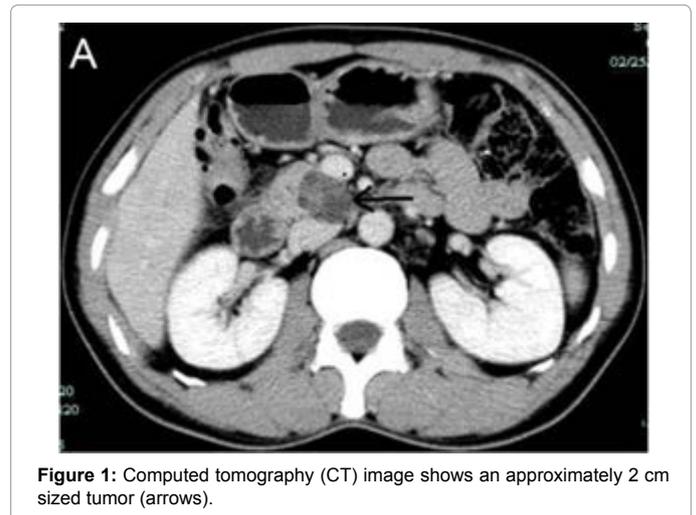


Figure 1: Computed tomography (CT) image shows an approximately 2 cm sized tumor (arrows).

Procaine were irrigated into duodenal luminal via gastric tube to reduce their mucosa edema and to raise duodenum blood supply.

Discussion

With the increasingly understanding of benign pancreatic neoplasms and the precision local surgical procedures [4]. Majority of surgeons believe that most patients with benign pancreatic lesions

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Received August 14, 2016; **Accepted** August 27, 2016; **Published** September 02, 2016

Citation: Jia Z, Wan YF, Lu J, Li ZT (2016) Duodenal Obstruction Linked to Duodenum Ischemia after Limited Local Surgery of Pancreatic Cyst Disease: A Case Report. *Surgery Curr Res* 6: 276. doi:[10.4172/2161-1076.1000276](https://doi.org/10.4172/2161-1076.1000276)

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Figure 2: X- radiology image shows an obvious delayed gastric-emptying due to duodenal obstruction.

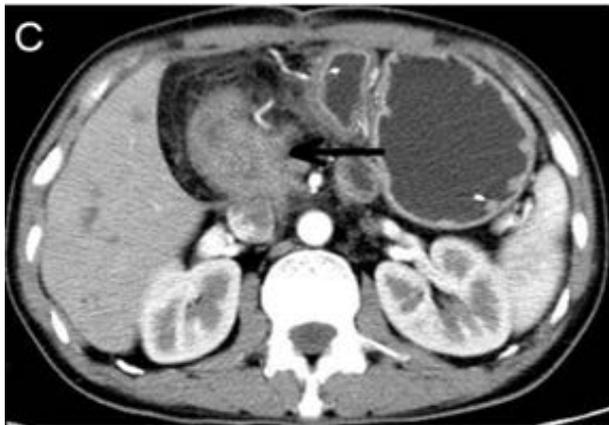


Figure 3: CT shows duodenum wall thickened and the stricture luminal cavity (arrows).

including inflammatory tumor pancreatitis, pancreatic cystic neoplasms and neuroendocrine tumors will gain benefits from the limited surgery. A tumour size <3 ~ 4 cm is suitable for enucleation [5]. As a result; the patients will live a high-quality life after surgery compared to the oncological tumor resection [6].

Obviously, the severity of limited surgery-related morbidities, postoperative complications, the frequency of reoperation and/or readmission play a deciding role to judge a limited surgery whether successful or not. So, the presentations of duodenal obstruction after surgery in this case maybe mirror lack of experience in this process.

To the best of our knowledge, duodenum has a quite complex vascular system, which is likely to be damaged due to procedure mistake. The duodenum vascular system of duodenum consists of

branches of anterior/posterior pancreaticoduodenal arteries. In general, periduodenal tissues dividing should be performed over the level of duodenal papilla, that also means keeping enough periduodenal tissue about 0.5 ~ 1.0 cm lengths closer to the margin of duodenum. Once ischemic duodenum is found intra-operation, a segment of duodenal resection and end-to-end duodenum to duodenum anastomoses should be performed timely. However, duodenal obstruction after limited surgery appears to never be reported before. As a result, the further therapeutic strategies will challenge the surgeon's decision-making.

In this case, the patient presented duodenum wall thickening and persistent delayed gastric emptying. It's very necessary to identify the real reason. At first glance, the accumulated free ascites around the duodenum may lead to inflammatory intestinal obstruction. But on second look, there are no evidence (neukemia, abdominal pain, fever, intestinal paralysis etc) found from the beginning. In addition, the free ascites is too little to drain under ultrasound guidance. Of note, excessive periduodenum tissues removing or dividing maybe the real reason according to operation note record. Furthermore, these imagings have never seen in previous inflammatory intestinal obstruction cases. Therefore, the case in our study resulting from duodenum ischemia origin is totally possible.

In practice, a short term duodenal stent in postoperative duration is required to keep the duodenum tube drainage in position. Most therapeutic period is not surpass than a month. So, if the patient suffers a persistent delayed gastro empty, the diagnosis of ischemic duodenal obstruction should be considered. Erythromycin recognized firstly as an antibiotic, in turn, its adverse effect of promoting gastrointestinal movement also plays an important role to settle gastric paralysis or inflammatory intestinal obstruction. Herein, we firstly applied large dose of Erythromycin to treat the ischemic duodenal obstruction, simultaneously, Procaine, Dexamethason are irrigated into duodenal luminal cavity 3 times a day, it last 1-2 weeks. Two weeks later, duodenal obstruction remarkably relived, the value of these drugs were confirmed by re-CT scan of abdomen and re-gastroscopy. In some cases, the definite etiology is not so easy to identify, for example, distinguishing from inflammatory factors. Sometimes, the factors maybe co-exist and interact each other, the diagnostic therapy is recommended.

Conclusion

Once ischemic duodenal obstruction after limited local surgery is confirmed or suspected, early applications of large dose of Erythromycin intravenous and irrigating Dexamethason and Procaine into the obstructive duodenum maybe effective.

Acknowledgement

We appreciate Prof Bin Yang and Dr. Ju-feng Guo for their critical comments and crucial revisions of the paper.

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