

# Laparoscopic Cystogastrostomy in the Management of Pancreatic Pseudocysts

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## Summary

Pancreatic pseudocysts develop following acute or chronic pancreatitis. Majority of the cases resolve spontaneously but some persist beyond six weeks. Active management of pancreatic pseudocysts involves draining of the fluid collection through open surgery, endoscopically, laparoscopically or percutaneously. In our setup, drainage has traditionally been done through open surgery. In this article we present a case of a 61 year old male who developed pancreatic pseudocysts

secondary to chronic pancreatitis. Laparoscopic cystogastrostomy was performed and there was no recurrence after three months of follow up. The case presentation highlights the need to offer laparoscopic cystogastrostomy as a method of managing pancreatic pseudocysts in our setup.

**Keywords:** Pancreatic Pseudocyst, Cystogastrostomy, Laparoscopic Drainage.

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## Introduction

Pancreatic pseudocysts are collections of peri-pancreatic fluid enclosed in a wall of inflammatory and fibrous tissue. It is called a pseudocyst because it lacks epithelial tissue on the inner surface of the cyst wall. Pancreatic pseudocysts appear 5-6 weeks into the course of acute pancreatitis and in chronic pancreatitis (1).

The natural course of pancreatic pseudocysts involves spontaneous resolution after 4 to 6 weeks in 85% of the cases (2). Active management is however required if they persist, are larger than 6cms or are symptomatic (2). Complications of these pseudocysts include infection, rupture and bleeding seen in 30-50% of the cases, and the probability of spontaneous resolution is low (2).

Minimally invasive techniques such as laparoscopic and endoscopic drainage have been developed and are gaining popularity due to reduced risk of complications and favorable results (3,4). A case of symptomatic pseudocysts in a 61 year old following chronic pancreatitis managed laparoscopically is discussed.

## Case Report

A 61 year old male patient presented to the emergency department with a three year history of intermittent abdominal pain. The pain was progressively increasing in severity and intensity. It was localized to the epigastric region and

was exacerbated by feeding. One week prior to presentation to our facility, he had noted a mass over the same area which was also gradually increasing in size. He also reported nausea, post-prandial vomiting and early satiety. He gave no history of yellowing of the eyes or darkening of the urine. He denied any chest pains or shortness of breath.

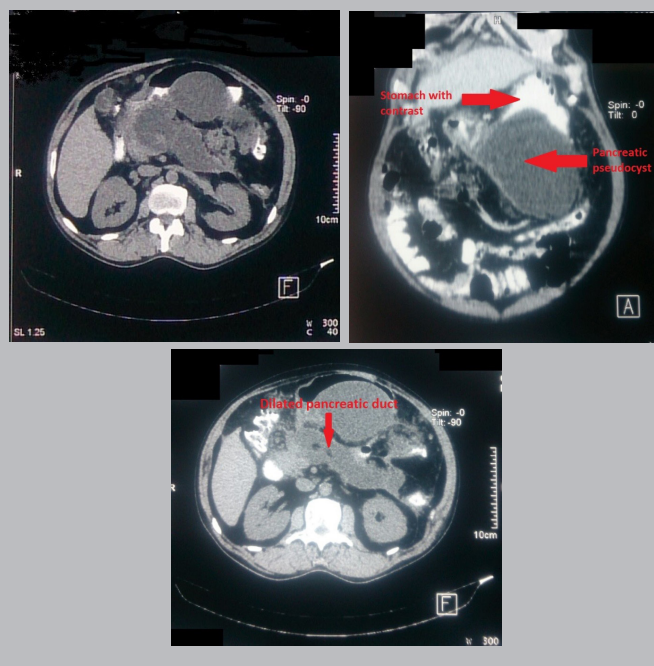
The patient had been treated several times in various facilities for pancreatitis, the most recent of which was a three week hospital admission one month prior. He was also on follow up for hypertension and diabetes. The patient reported a long-standing history of alcohol use. He did not smoke and was not on any narcotic substances. No significant past family history was elicited.

On physical exam at admission, his temperature was 36.3°C, pulse rate of 112 bpm, blood pressure of 120/80mmHg and oxygen saturation of 98% on room air. He was not pale, cyanosed or jaundiced. Pain scale was at 7/10. His abdomen was tender over the epigastrium. There was a large epigastric mass measuring approximately 15cm by 15 cm. It was firm, fixed, non-pulsatile, tender and dull to percussion. Examination of the other systems was unremarkable.

Laboratory investigations revealed elevated amylase and lipase at 313 iu/L and 103.8 iu/L respectively. Blood sugar was at 16.5mmol/l, the white cell count was elevated at  $12.07 \times 10^3/L$  with

76% neutrophils. Hemoglobin concentration was 13.4g/dl. His metabolic profile was normal except for a gamma glutamyl transferase of 142U/l and an ALP of 130U/L. A CT scan of the abdomen revealed multiple large pancreatic pseudocysts causing partial gastric outlet obstruction. He had features of an acute on chronic pancreatitis and a small left pleural effusion with basal atelectasis (Figure 1).

Figure 1: CT scan Abdomen at admission showing large pancreatic Pseudocysts causing gastric outlet obstruction. The pseudocysts are connected and pancreatic duct is dilated.



The patient was admitted and the initial plan was to manage him conservatively on analgesia and intravenous fluids. In lieu of the worsening symptoms and the CT scan findings confirming gastric outlet obstruction, he underwent laparoscopic cystogastrostomy on the third day post admission. The aim was to relieve the symptoms of gastric outlet obstruction caused by the largest cyst impinging on the stomach as seen on the CT scan. Intra operatively, three ports were used to make a gastrostomy on the anterior wall of the stomach and posterior wall simultaneously opening the cyst wall as it was noted to be bulging through the stomach wall. The largest cyst was drained and biopsies of the cyst wall were obtained for histology. The opening was widened to 5cm while ensuring homeostasis. The opening was then secured using an endoscopic GIA stapler and intracorporeal suturing of the anterior gastric wall completed with a non-absorbable suture. The abdomen was deflated and port sites closed. A drain

was left through one of the ports and removed on post-op day 4. An intra-operatively placed NG tube was removed on day 3 and he was commenced on liquid diet.

The post-operative course was uneventful and the patient was allowed home on post op day 5 in good general condition.

He was reviewed as an outpatient two weeks later. He was in good general condition and completely pain free. He was also feeding well. The abdomen was soft and non-tender and the mass was not palpable (Figure 2). Repeat CT scans showed near complete collapse of the cyst with a patent cystogastrostomy tube (Figure 3). The final CT scan done six weeks later confirmed resolution of the cyst with a normal pancreatic duct (Figure 4). He is currently on follow up and is asymptomatic.

Figure 2: CT scan of the Abdomen on the 14th post op day showing near complete collapse of the cyst.

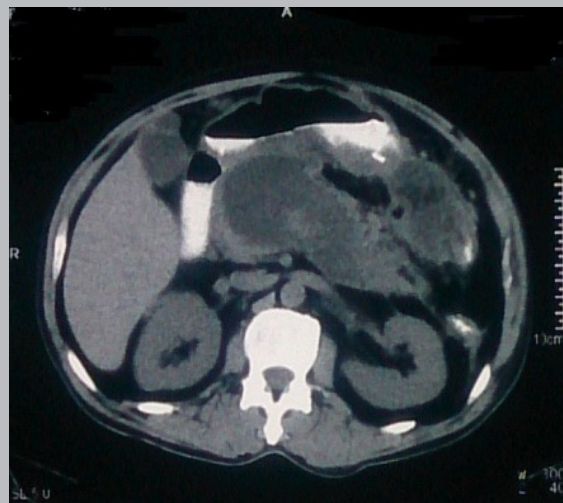
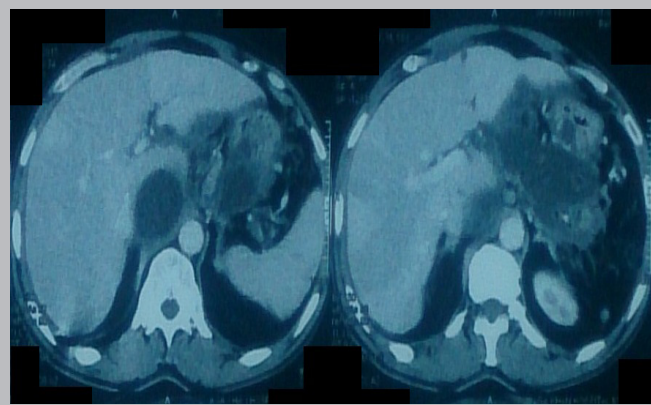


Figure 3: CT scan of the abdomen done after six weeks which shows resolution of the cyst with a normal pancreatic duct Review at 6 weeks



## Discussion

Active management of pancreatic pseudocysts usually involves surgical, laparoscopic, endoscopic or percutaneous drainage. Many series have reported excellent outcomes with the laparoscopic procedure which was introduced in 1994 (3-5). This is because this procedure is minimally invasive while conserving all the surgical principles of drainage of pancreatic pseudocysts.

The classic surgical approach of pancreatic pseudocysts involves laparotomy; this comes with the attendant risks of morbidity and mortality (10). A literature review conducted by Jang et al concluded that laparoscopic and endoscopic approaches were associated with shorter hospital stays and fewer complications such as bleeding, and infection than traditional open methods for cyst drainage (6).

The main disadvantage of laparoscopic surgery is that patients who have undergone extensive intra-abdominal surgery may not be suited for this procedure as well as those not able to tolerate general anesthesia. These patients will benefit from endoscopic cystogastrostomy where the expertise is available (11).

Laparoscopic surgery therefore presents a suitable alternative for open surgery with better outcomes. However, long term follow up has not yet been carried out to compare between open, laparoscopic and endoscopic approaches thus more randomized controls are needed (7). Internationally, the longest follow up available was carried out by Crisanto-Campos et al in Mexico where patients were followed up for 40 months after laparoscopic surgery with no recurrence reported following laparoscopic drainage of the pseudocyst (8). In Kenya no data could be obtained for laparoscopic drainage of pancreatic pseudocysts.

Laparoscopic drainage as described in this case report has not been documented in our setup and represents the next frontier in the management of pancreatic pseudocysts in the setting of acute or chronic pancreatitis in Kenya.

## Conclusion

Laparoscopic cystogastrostomy presents a suitable alternative in the management of pancreatic pseudocysts. This modality is associated with fewer complications, shorter hospital stays and fewer recurrence rates.

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