

Surgical Drainage Cystogastrostomy in Patient with Pancreatic Pseudocyst

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ABSTRACT

Background: Pancreatic pseudocysts are often managed through surgical drainage, which is common in rural areas for several reasons, including limited facilities. **Case:** Therefore, this study presents a successful treatment of three pancreatic pseudocyst cases using surgical drainage cystogastrostomy. Furthermore, this treatment method was selected due to the ease of performance in rural hospitals and was successfully performed without any complications. **Conclusion:** The diagnoses of pancreatic pseudocysts were confirmed by anamnesis, physical examination, and CT-scan imaging. The operations were also performed successfully without any complications. However, the patients will also undergo follow-up for two years to enable the doctors to observe for any possible long-term complications.

Keywords: pancreatic pseudocyst, cystogastrostomy, surgical drainage.

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INTRODUCTION

Pancreatic pseudocyst is a challenging medical condition, and there is currently no level A evidence of a safe management conclusion regarding the optimal treatment method.¹ Generally, the management of pancreatic pseudocysts is divided into conservative and operative approaches. In addition, operative percutaneous drainage comprises endoscopic and surgical drainages. However, each method presents unique advantages and disadvantages. Therefore, the effectiveness, recurrence rates, and complications must be considered before selecting a surgical method.

After the discovery of endoscopic management, a reduction occurred in the prevalence of surgical drainage. The surgical drainage option was performed for numerous reasons, including limited facilities in rural areas. This study, therefore, reports three cases

of pancreatic pseudocyst subjected to surgical drainage. The operation was selected based on the size increase during follow-up, and the procedure was performed in a regional hospital using surgical drainage cystogastrostomy.

CASE PRESENTATION

Case 1

A 30-year-old woman complained of a mass in her left abdomen, first felt in June 2018. Initially, the patient also complained of nausea and vomiting, especially after excessive eating or drinking. However, there was no complaint of reduction in body weight, black stool, or yellowing of the body or eyes. Furthermore, the patient was discovered to have a history of abdominal trauma at the epigastric region. The lump seemed to increase, so an abdominal CT scan was performed once the complaint was made at the

hospital. According to the results, the pancreatic pseudocyst has a size of 15.3x11.2x13.7 cm and includes the pancreas' corpus and caudal areas (**figure 1**).

Subsequently, a cystogastrostomy per laparotomy was performed with an anterior approach and pancreatic pseudocysts pressing the stomach were discovered during the operation. The anterior gastric mucosa was opened and the thick, black pseudocyst fluid within was tapped using a 10 cc syringe. This was followed by performing a posterior gastric

incision and penetrating the cyst, to evacuate 1,200 cc of the cyst fluid. A bypass was created from the cyst to the stomach, and an NGT drain was left to evacuate the cystic fluid. In addition, the last hole in the NGT outside of the cyst was left to evaluate the gastric fluid to detect irritation due to the pancreatic cyst fluid. The CT scan performed on POD 10 showed the air and fluid distributions, which follow the pancreas' shape accompanied by the surrounding necrotic tissue.



Figure 1. Clinical picture and CT scan before and after operation of Case 1.

Case 2

A 51-year-old woman with a lump in the upper stomach quadrant was first detected eight months ago. The patient also has a history of abdominal trauma due to an accident where she took a hit to the epigastric area from a bicycle handlebar. Initially, the lump was the size of a chicken egg but enlarged to the size of a volleyball. Furthermore, there were no complaints of pain, except for nausea and pain experienced while eating or drinking. To support the diagnosis, an abdominal CT was performed, and a cystic mass with a size of 13x11x15 cm was discovered in the pancreas, with a thickening of the cyst wall (**figure 2**).

Surgical drainage was selected and performed through cystogastrostomy per laparotomy. Intraoperatively, a pancreatic pseudocyst pressing against the stomach was

discovered. Subsequently, an incision was made in the stomach, which was previously tiled to reveal the posterior gastric mucosa, and a thick, black, cystic fluid was aspirated using a 10 cc syringe. Subsequently, about 1,000 cc of this fluid were evacuated. A bypass was created from the cyst to the gastric mucosa, and an NGT drain was left to evacuate the cyst fluid. During the POD 1 and 2 treatments, 500 cc and 400 cc of cystic fluid, respectively, were drained in 24 hours. However, the drain production was discovered to decrease at POD 5 with a residue of 200 in 24 hours. Subsequently, a CT scan of the Abdomen POD-5 was performed as an evaluation. Based on this evaluation, the pseudocyst of the corpus pancreas shrunk to a size of 6.6x4.8x6.9 cm.

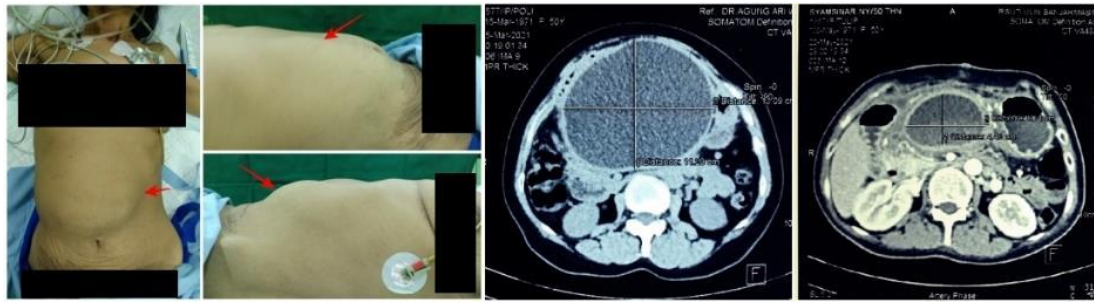


Figure 2. Clinical picture and CT scan before and after the operation of Case 2.

Case 3

A 28-year-old woman complained of a mass in the upper quadrant of the abdomen, first detected in June 2017, and increasing in mass. The patient also had a history of trauma in the epigastric region and complained of nausea and vomiting about 1 month after the trauma and abdominal bloating after excessive eating or drinking. However, there were no complaints of weight loss and yellowish or black stool. In March 2021, the patient visited the hospital, where an abdominal CT scan was performed, and a pseudocyst pancreas, with a size of 19.7 x 11 x 17 cm, was detected (**figure 3**).

Subsequently, a cystogastrostomy per laparotomy with an anterior approach was performed, and a pancreatic pseudocyst

pressing on the stomach was discovered (**figure 4**). The anterior gastric mucosa was then opened and tapped, obtaining 10 cc of thick blackish pseudocyst fluid. Then the anterior gastric mucosa is opened and tapping is done, the pseudocyst fluid is 10 cc. This was followed by making a posterior gastric incision and penetrating the cyst to evacuate 1,500 cc of cyst fluid. A bypass was created from the cyst to the stomach and the NGT 18Fr was left to drain the cyst fluid. In addition, the last hole in the NGT was left outside of the cyst to evaluate gastric fluid, to detect irritation in the stomach due to pancreatic cyst fluid. The CT scan evaluation performed on POD 10 showed a reduction in air distribution and thick cystic fluid within the corpus-cauda regions of the pancreas.

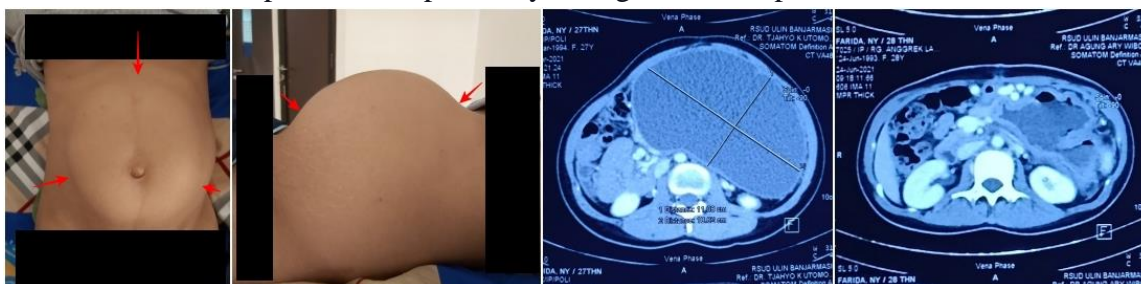


Figure 3: Clinical picture and CT scan before and after the operation of Case 3.

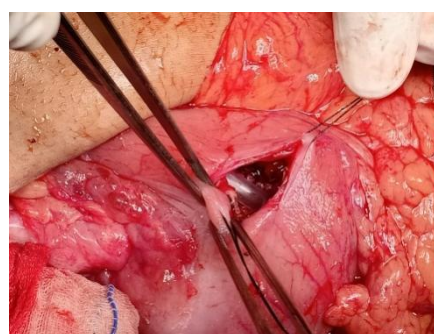


Figure 4. Open Cystogastrostomy

DISCUSSION

According to the Summary of the 1992 Atlanta Classification, *pancreatic pseudocyst* is defined as a round or ovoid-shaped collection of pancreatic juice enclosed by a wall of fibrous or granulation tissue due to acute pancreatitis, pancreatic trauma, or chronic pancreatitis, occurring at least four weeks after onset of symptoms, most often sterile.² Pancreatitis is a cause directly related to the formation of a pancreatic pseudocyst. It is most commonly caused by alcohol consumption, gall stones³, and pancreatic trauma, the most prevalent cause among children.⁴ However, in this report, the patients in all 3 cases have a history of abdominal trauma.

Generally, the treatment of pancreatic pseudocysts is either conservative or operative. The indications for pancreatic pseudocyst surgery include rupture of surrounding organs, pain originating from the pseudocyst, bile, gastric or duodenal obstruction, or increased size during a six-week follow-up. In all three cases, the patients have been undergoing follow-up for over six weeks, significantly increasing the cyst size. The patients also complained of vomiting severally and experiencing loss of appetite.

Surgical drainage was selected and performed for these patients using the pancreatic cystogastrostomy technique because this is superior to Cystojejunostomy.⁵ During the operation, the surgeons made a tile at the anterior side of the tunica serosa, then performed an anterior gastric incision. Subsequently, a posterior incision was made in the gastric lumen, and the cyst wall is pulled into the stomach and perforated. This was followed by suturing the cyst wall sutured in the stomach, inserting a tube to create a cystogastrostomy track, and maintaining the tube for a week. Generally, endoscopic drainage is preferable to surgical drainage due

to the lower morbidity rate, cost, length of stay, and improved quality of life for patients.^{6,7} However, rural hospitals often lack the equipment for this technique. Therefore, surgical drainage has a better success rate of 94-99%, compared to the endoscopic counterpart with 60-90%.⁸ Furthermore, to monitor the outcome, patients must also be observed for possible complications, such as pancreatic fistula, hemorrhage, sepsis, pneumonia, and pancreatic abscess.⁹

CT scan evaluation post-operation day-10 has also been carried out for all the cases, and the pancreatic pseudocyst was discovered to have shrunk, while no complication was detected. The patients will also undergo follow-up for two years to enable the doctors to observe for any possible long-term complications.

CONCLUSION

In this case series, three diagnosed pancreatic pseudocyst cases have been reported. The diagnoses were confirmed by anamnesis, physical examination, and CT-scan imaging. In addition, the selected surgical management technique was the cystogastrostomy procedure because this technique is possible even in rural hospitals. The operations were also performed successfully without any complications. However, the patients will also undergo follow-up for two years to enable the doctors to observe for any possible long-term complications.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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