ORIGINAL RESEARCH PAPER

Gastroenterology

KEY WORDS: Internal pancreatic fistula, Pancreatic ascites, Pancreatic pleural effusion, Distal pancreatectomy, Disconnected pancreatic duct syndrome

DISTAL PANCREATECTOMY FOR UNRESOLVING INTERNAL PANCREATIC FISTULA- A CASE REPORT

Dr. Chandrasekar Murugesan*
Department of Surgical Gastroenterology, Sri Ramachandra Institute of Higher Education and Research, Porur, Chennai *Corresponding Author

Prof.Sankar Subramanian
Department of Surgical Gastroenterology, Sri Ramachandra Institute of Higher Education and Research, Porur, Chennai

Dr.Santhosh Kumar Ganapathi
Department of Surgical Gastroenterology, Sri Ramachandra Institute of Higher Education and Research, Porur, Chennai

Dr.Neelendra Yesaswy
Department of Surgical Gastroenterology, Sri Ramachandra Institute of Higher Education and Research, Porur, Chennai

ABSTRACT

Pancreatic-pleural fistula and pancreatic ascites are uncommon but recognised sequelae of pancreatitis leading to the disruption of the pancreatic duct. The management depends on the clinical history with underlying aetiology, site, and extent of the pancreatic duct leak. Management options are conservative medical therapy, endotherapy, and surgery. We report a middle age chronic alcoholic patient who had presented with abdominal distension and weight loss. He had a history of acute alcoholic pancreatitis and had underwent open cystogastrostomy for pancreatic pleural fistula with pseudocyst. On examination, the abdomen was grossly distended with free fluids with no tenderness. The ascitic fluid analysis showed markedly elevated amylase and raised albumin. CT abdomen showed gross ascites with fluid extending into the posterior mediastinum and collection in the distal body of pancreas with suspicion of disconnected pancreatic duct syndrome The patient was diagnosed with unresolving internal pancreatic fistula and managed successfully with distal pancreatectomy. Further we have discussed the clinical presentation, investigation and management of internal pancreatic fistula.

Introduction

Disruption of the pancreatic duct in the inflammatory pancreatic disease has diverse clinical presentation. Often these pancreatic fluid leaks are contained within the lesser sac with ensuing formation of the pseudocyst. Infrequently, the pseudocyst ruptures or the pancreatic duct disrupts and disseminates to the free peritoneal cavity leading to the formation of the pancreatic ascites or communicate to the pleural cavity through the oesophageal or aortic hiatus forming the pancreatico-pleural fistula (Lipsett & Cameron, 1992). As the pancreatic fluids were in inactivated form and rich in protein, these patients have a chronic and indolent course with malnourishment. Traditionally, these patients were managed medically with bowel rest, parenteral nutrition, paracentesis, and somatostatin analogues. Increasingly, medical treatment with endotherapy are employed more successfully in select favourable patients. In failure of these treatments, surgical options like drainage procedure or distal pancreatectomy are used (Dhar et al., 1996). We report a middle-age man with relapsing pancreatic pleural fistula and pancreatic ascites managed successfully with distal pancreatectomy.

Case Report

37-year old gentleman, with history of chronic alcoholic intake presented to our hospital with painless abdominal distension and unintentional weight loss for 2 months. He has no comorbidities. He had an episode of moderate grade acute alcoholic pancreatitis, about a year ago. The patient was treated at an outside hospital with open cystogastrostomy and left intercostal drainage for pancreatico-pleural fistula with pseudocyst after six months from the episode of pancreatitis. His symptoms improved initially. However, later he had come with above complaints. On examination, the abdomen was soft and gross ascites was noted. Blood investigation showed anaemia (Hb-7.1 gm/dl) and hypoalbuminemia (2.1 gm/dl). The ascitic fluid analysis revealed high albumin and amylase (11000 IU/ml). Earlier computed tomography (CT) abdomen images showed necrosis of the distal body and tail of the pancreas with walled off collection in the lesser sac abutting the stomach. Also, the collection extended to the left pleural cavity through the diaphragm (Figure 1). The present CT abdomen showed gross ascites with fluid extending into the posterior mediastinum and heterogenous organised collection in the region of distal body of pancreas with suspicion of disconnected pancreatic duct syndrome (Figure 2). He was diagnosed with relapsing pancreatic-pleural fistula and pancreatic ascites. Patient optimised for surgery with nutritional support, ascitic tapping, physiotherapy and blood transfusion and then taken up for surgery. Laparotomy was done through previous incision and 5 litres of ascitic fluid was tapped. Lesser sac was entered by dividing the gastrocolic omentum. The pancreas and spleen were mobilised lateral to medially. Previous cystogastrostomy was disconnected and the posterior gastric wall rent was closed in two layers. Dorsal pancreatic and splenic vessels were ligated and divided. Transection of the pancreas was done at the body, proximal to the cystogastrostomy site. Distal pancreatico-splenectomy specimen was delivered. The pancreatic duct was identified and sutured with prolene and the pancreatic stump was covered with omentum and sutured. The abdomen was closed with drains. The drain fluid amylase at post-operative day-5 was within normal limit and post-op recovery was uneventful. On six months follow-up, patient had gained weight and has no relapse of symptoms.

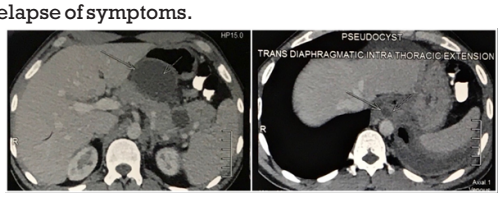

Figure 1: Previous axial CT images showing **(A)** Necrosis of the distal body and tail of the pancreas with walled off

collection in the lesser sac. **(B)** The collection extending through the diaphragm with left pleural effusion

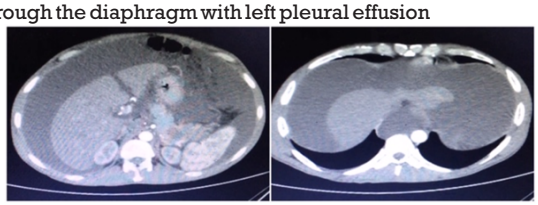

Figure 2: Present axial CT images showing **(A)** Heterogenous collection in the distal body of pancreas with suspicion of disconnected pancreatic duct syndrome. **(B)** Gross ascites with fluid extending into the posterior mediastinum

Discussion

Pancreatic ascites and pancreatic pleural effusion are first reported by Smith in 1953 (SMITH, 1953) and Cameron coined the term internal pancreatic fistula and described the characteristics of the internal pancreatic fistula in 1978. They occur due to the leak of the pancreatic pseudocyst or pancreatic duct leak with communication to the peritoneal or pleural cavity (Cameron, 1978). The most common aetiologies are chronic pancreatitis (68%), acute pancreatitis (23%), and pancreatic trauma (9%) (Somasekar et al., 2018). The increased prevalence of IPF in chronic pancreatitis is explained due to pancreatic fibrosis and ductal obstruction by the stricture and calculi impeding the healing and epithelisation of the disrupted pancreatic duct. Most often the ductal disruption in acute pancreatitis are walled off by the surrounding organs and with preserved pancreatic ductal drainage, they regress spontaneously. As the pancreatic juice are in inactive forms, they have a benign and chronic course. Pancreatic ascites presents with painless abdominal distension and weight, and the pancreatic pleural effusion with dyspnoea, cough and chest pain (Lipsett & Cameron, 1992).

Internal pancreatic fistula is diagnosed with the background clinical history and ascitic or pleural fluid analysis showing high amylase (>1000 IU/ml) and albumin (>3 gm/dl) (Tay & Chang, 2013). When the diagnosis is confirmed, imaging is required to detect the underlying aetiology and identify the site and extent of the pancreatic duct disruption. MRCP is useful in delineating the pancreatic ductal stricture, dilation and leak. With its sensitivity equal to ERCP, they have decreased the need of ERCP in diagnosis (Tajima et al., 2006). Cross sectional images like computed tomography and magnetic resonance imaging are helpful to define the morphological characteristics features of pancreas such as glandular calcification, pancreatic atrophy, and stones. Further, features of pseudocyst if present such as extent, wall maturity and relationship to adjacent organs are made out with these images.

Being a rare yet challenging complication, this calls for consensus guidelines among various treatment options such as medical therapy, endoscopic and surgical options. In general, treatment is guided based on the underlying patient condition, disease severity, presence or absence of pseudocyst and site of the ductal leak. Conservative treatment such as bowel rest, parenteral nutrition, and repeated paracentesis or thoracentesis, is generally associated with high failure rate (upto 50 %) and increased morbidity (Kaman et al., 2001). Early endoscopic intervention intends to decompress the pancreatic duct and thus lead to resolution and reduced hospital stay. The endotherapy is likely to be successful when the stent is able to bridge across the site of the disruption. The positive predictive factors of successful endotherapy are the proximal ductal disruption and single predominant stricture with minimal stones (Fonseca Chebli et al., 2004; Pai et al., 2009; Tanaka et al., 2013). The pancreatic ductal endotherpy needs a wide armamentarium and technical expertise. When attempts of endotherapy fails they cause a considerable risk of infection, hence, early surgical intervention is needed (Wronski et al., 2011). Surgical options are cystoenterostomy, lateral pancreatic jejunostomy and distal pancreatectomy (Dhar et al., 1996). When internal pancreatic fistula is associated with the pseudocyst, that is mature with close approximation to the stomach and duodenum, the IPF can be primarily treated with internal drainage procedure. In patients with underlying chronic pancreatitis, definitive drainage procedures such as modified Puestow or Frey's procedure are required. Distal pancreatectomy is needed in case of complete disruption of the main pancreatic duct at distal body or tail of the pancreas with disconnected pancreatic duct syndrome (King et al., 2010).

Conclusion:

In summary, internal pancreatic fistula is an uncommon sequela of pancreatic ductal disruption or rupture of the pseudocyst. In addition to conservative treatment, early endoscopic or surgical intervention improves the outcome. Endotherapy are effective when the stent is able to bridge the ductal disruption and decompress the pancreatic duct. Surgical options are tailored based on the underlying aetiology, site of the ductal disruption and presence or absence of the pseudocyst.

REFERENCES

1. Cameron, J. L. (1978). Chronic pancreatic ascites and pancreatic pleural effusions. Gastroenterology, 74(1), 134–140. https://doi.org/10.1016/0016-5085(78)90371-2
2. Dhar, P., Tomey, S., Jain, P., Azfar, M., Sachdev, A., & Chaudhary, A. (1996). Internal pancreatic fistulae with serous effusions in chronic pancreatitis. Australian and New Zealand Journal of Surgery, 66(9), 608–611. https:// doi.org/10.1111/j.1445-2197.1996.tb00830.x
3. Fonseca Chebli, J. M., Duarte Gaburri, P., Meirelles De Souza, A. F., Toledo Ornellas, A., Vidal Martins, E., Andrade Chebli, L., Gonçalves Felga, G. E., & Ferreira Pinto, J. R. (2004). Internal pancreatic fistulas: Proposal of management algorithm based on a case series analysis. Journal of Clinical Gastroenterology, 38(9), 795–800. https:// doi. org/ 10.1097/ 01.mcg. 00 00 13 9051.74801.43
4. Kaman, L., Behera, A., Singh, R., & Katariya, R. N. (2001). Internal pancreatic fistulas with pancreatic ascites and pancreatic pleural effusions: Recognition and management. ANZ Journal of Surgery, 71(4), 221–225. https:// doi. org/ 10.1046/j.1440-1622.2001.02077.x
5. King, J. C., Reber, H. A., Shiraga, S., & Hines, O. J. (2010). Pancreatic-pleural fistula is best managed by early operative intervention. Surgery, 147(1), 154–159. https://doi.org/10.1016/j.surg.2009.03.024
6. Lipsett, P. A., & Cameron, J. L. (1992). Internal pancreatic fistula. The American Journal of Surgery, 163(2), 216–220. https://doi.org/10.1016/0002-9610(92)90104-Y
7. Pai, C. G., Suvarna, D., & Bhat, G. (2009). Endoscopic treatment as first-line therapy for pancreatic ascites and pleural effusion. Journal of Gastroenterology and Hepatology (Australia), 24(7), 1198–1202. https:// doi. org/10.1111/j.1440-1746.2009.05796.x
8. SMITH, E. B. (1953). Hemorrhagic ascites and hemothorax associated with benign pancreatic disease. AMA Archives of Surgery, 67(1), 52–56.
9. Somasekar, R. D. R., SENTHILKUMARAN, G. R., PRABHAKARAN, R., AMUDHAN, A., GNANASEKAR, M., SIVAKUMAR, K., Rajendran, S., & Naganathbabu, O. (2018). Primary Early Surgical Management of Pancreatic Ascites Complicating Chronic Pancreatitis-A Single Centre Experience. Journal of Clinical & Diagnostic Research, 12(2).
10. Tajima, Y., Tsutsumi, R., Kuroki, T., Mishima, T., Adachi, T., Kitasato, A., & Kanematsu, T. (2006). Evaluation and management of thoracopancreatic fistula. Surgery, 140(5), 773–778. https://doi.org/10.1016/j.surg.2006.02.020
11. Tanaka, T., Kuroki, T., Kitasato, A., Adachi, T., Ono, S., Hirabaru, M., Matsushima, H., Takatsuki, M., & Eguchi, S. (2013). Endoscopic transpapillary pancreatic stenting for internal pancreatic fistula with the disruption of the pancreatic ductal system. Pancreatology, 13(6), 621–624. https:// doi. org/ 10. 1016/ j.pan.2013.08.006
12. Tay, C. M., & Chang, S. K. Y. (2013). Diagnosis and management of pancreaticopleural fistula. Singapore Medical Journal, 54(4), 190–194. https://doi.org/10.11622/smedj.2013071
13. Wronski, M., Slodkowski, M., Cebulski, W., Moronczyk, D., & Krasnodebski, I. W. (2011). Optimizing management of pancreaticopleural fistulas. World Journal of Gastroenterology, 17(42), 4696–4703. https:// doi. org/ 10. 3748/ wjg.v17.i42.4696