Case Report

Pancreatic pseudocyst

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ABSTRACT

Gallstones cause more than two-thirds of the acute pancreatitis episodes in the Kingdom of Saudi Arabia (KSA). The majority of these attacks are often mild and self-limiting. However, some are associated with complications; most common of which is development of pancreatic pseudocyst. This complication was reported to be rare in some areas of KSA. The author reports his personal experience with pancreatic pseudocysts that he encountered over 9 years of surgical practice in one of the busiest hospitals in the Eastern Province of KSA and discusses various management options.

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Acute pancreatitis is believed to be uncommon in the Kingdom of Saudi Arabia (KSA).[1-3] Albeit, this is not true in the author's practice, where acute pancreatitis is not an uncommon surgical emergency. The causative agent in more than two-third of the cases is gallstones.[2,4] Although the attacks are often mild and self-limiting, they are in some occasions severe and may be associated with complications that could be fatal. One of these complications is the development of pancreatic pseudocysts. This article reports the author's personal experience at Dammam Central Hospital, Eastern Province, of KSA with 6 cases of pancreatic pseudocysts that were encountered over a 9-year period (1992-2000) of surgical practice (**Table 1**).

Case Report. ***Case One.*** A 26-year-old Saudi male was admitted as an emergency with repeated episodes of epigastric and left hypochondriac abdominal pain that was associated with nausea, vomiting and weight loss. There was no history of alcoholism, trauma or gallstones, but he had been admitted twice before with idiopathic pancreatitis. On examination, his vital signs were stable and the abdomen was tender with guarding in the epigastric and left hypochondriac areas with no palpable masses. His laboratory investigations revealed no leucocytosis, normal liver function tests, and persistently elevated amylase. His hydatid and amoebic serology were negative. Ultrasonography of the abdomen was normal but the computed tomography (CT) scan showed 5 x 4 cm cystic lesion at the tail of pancreas, which could represent a pseudocyst, hydatid cyst or cystadenocarcinoma. He underwent endoscopic retrograde cholangiopancreatography (ERCP), which was normal but papillotomy was performed due to suspicion of microlithiasis. The patient was given a pneumococcal vaccine and underwent distal pancreatectomy and splenectomy. His postoperative course was uneventful and was discharged home on Pencillin V. Histopathology confirmed the diagnosis of infected pseudocyst of the tail of the pancreas. He remained well at 7-year follow-up.

Case 2. A 40-year-old Saudi female who was transferred from a nearby hospital having been admitted to the intensive care unit a month earlier with severe acute idiopathic pancreatitis. On examination, she was febrile (temperature 39.5^0), pale, mildly jaundiced, and looked dehydrated. The pulse rate was 110 per minute and she was normotensive. Abdominal examination revealed a large cystic mass occupying the upper abdomen, which was mildly tender. Blood investigations showed hemoglobin of 8.6 g, raised amylase and mildly elevated bilirubin, alkaline phosphatase and

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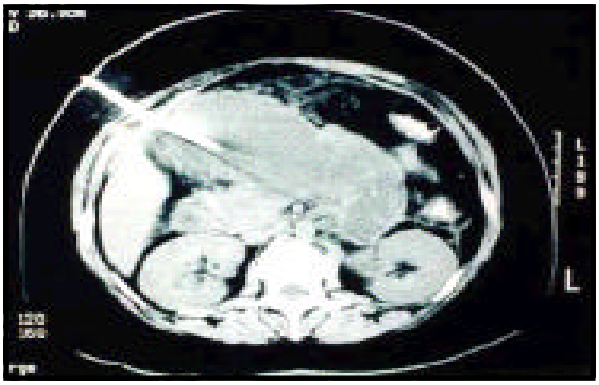

Figure 1 - Computerized tomography scan guided percutaneous drainage of the pancreatic pseudocyst in case 3.

transaminases. Ultrasonography of the abdomen revealed a huge cystic mass in the region of the pancreas but no gallstones. Computerized tomography scan suggested a large multiloculated pseudocyst (16.7 x 7.6 x 16 cm) behind the stomach with wall enhancement suggestive of an infected pseudocyst. She was started on intravenous imipenem one gram every 8 hours but continued to have intermittent pyrexia and leucocytosis despite minimal clinical signs. She therefore, underwent laparotomy and cystogastrostomy of an infected pseudocyst. Pus swab grew *Klebsiella species*. Her postoperative recovery was uneventful and remained well after more than 12-month follow-up.

Case 3. A 25-year-old Saudi female who was transferred to intensive care unit from a nearby private hospital having been admitted 3 days earlier with acute necrotizing pancreatitis secondary to gallstones. On admission she was intubated, a febrile and with stable vital signs; and the acute physiology, age and chronic health evaluation II (APACHE II) score was 6. She was started on supportive treatment and intravenous imipenem. Her general condition improved within 48 hours and therefore she was extubated and transferred back to the general ward. A week later she underwent ERCP, which revealed normal common bile duct. Accidental pancreatography showed extravasation of contrast into pancreatic parenchyma. On 12th day after the initial attack, she looked clinically very well but abdominal examination revealed a mass in the epigastrium, which was minimally tender. Ultrasound scan confirmed presence of 6 x 7 cm pseudocyst. She was discharged home with a planned weekly follow-up and laparoscopic cholecystectomy once cyst resolves. However, she was readmitted 2 days later with severe upper abdominal pain and repeated vomiting. She looked unwell, febrile and pale but with normal vital signs. Abdomen revealed tender epigastric mass. Investigations revealed low hemoglobin, normal white cell count, and normal liver function tests and elevated amylase. Computerized tomography scan confirmed enlargement in the size of the pseudocyst (9 x 10 cm). Percutaneous

Table 1 - Data summary of all cases.

Case	Age	Sex	Cause of pancreatitis	Treatment	Hospital stay (day)	Outcome
1	26	M	Idopathic	DP and splenectomy	8	Well
2	40	F	Idiopathic	Cystogastrostomy	15	Well
3	25	F	Gallstones	PTC/external drainage and cholecystectomy	55	Well
4	50	M	Trauma	Cholecystectomy	25	Lost FU
5	55	M	Gallstones	Conservative and elective LC	10	Well
6	52	F	Hyperlipidemia	Conservative	14	Well

M - male, F - female, PTC - percutaneous catheter drainage, LC - laparoscopic cholecystectomy, DP - distal pancreatectomy, FU - follow-up

catheter drainage (**Figure 1**) was carried out and the patient became generally better; apyrexial and amylase were normalized. The catheter accidentally fell out a week later and the culture grew methicillin-resistant staphylococcal aureus (MRSA) and therefore she was isolated and started on vancomycin. Due to continuous spikes in temperature and persistent leucocystosis, she underwent laparotomy. As the pseudocyst was adherent to the site of catheter drainage, it ruptured and thick pus was drained. Therefore, cyst was completely evacuated of pus and necrotic debris, cholecystectomy was performed and external catheter drainage was fashioned. The patient was started on octerotide 150 microgram subcutaneously 3 times a day. The catheter was removed a week later and she was discharged in good health after she became MRSA-negative.

Case 4. A 50-year-old male worker who was transferred from a nearby town with a huge epigastric mass having sustained blunt abdominal trauma 3 weeks earlier. On arrival he looked reasonably well, stable with mildly tender cystic epigastric mass. His investigations revealed mildly disturbed liver function tests, raised amylase, leucocytosis and anemia. Ultrasound and CT scans confirmed presence of huge pseudocyst (10 x 12 cm) posterior to stomach. Endoscopic retrograde cholangiopancreatography was not available and therefore was deferred. Laparotomy and cystogastrostomy was performed. The general condition after drainage improved dramatically and was discharged but was lost to follow-up.

Case 5. A 55-year-old Saudi male was admitted with a mild episode of acute biliary pancreatitis. Endoscopic retrograde cholangiopancreatography and sphincterotomy was performed and he was discharged

home. On follow-up he was found to have a pseudocyst (5 cm in diameter). After 6-week follow-up, the cyst completely resolved. Laparoscopic cholecystectomy was performed without any difficulty. Patient remained well at 18 months later.

Case 6. A 52-year-old Saudi female whose known to have hyperlipidemia was admitted with acute pancreatitis. The APACHE-II score was 4, but CT scan showed severe radiological picture of necrotizing pancreatitis. She was treated conservatively with analgesia, nasogastric aspiration, fluid replacement and high doses of antibiotics. The initial pyrexia and abdominal tenderness settled gradually over 10 days. Clinical examination at 14-days post admission showed fullness in the epigastrium but patient looked generally well, hemodynamically stable with no abdominal tenderness. Ultrasonography of abdomen revealed a 5 x 5 cm pseudocyst. She was discharged home with serial ultrasound follow-up of the pseudocyst. The cyst resolved completely after 5 weeks and she remained well 6 months later.

Discussion. Pseudocyst is a collection of pancreatic fluid or debris that occurs as a result of parenchymal or ductal disruption and is lined by a non-epithelialized wall. This disruption may occur as a result of acute pancreatitis, chronic pancreatitis or trauma.[5] This personal series of 6 cases was collected over 9 years in a busy Surgical Unit at Dammam Central Hospital. This is indeed a small series and probably reflects the low incidence of pancreatic pseudocysts after acute pancreatitis in the Eastern Province of KSA. During the same period the author treated 84 cases of acute pancreatitis (average of 9 cases per year). The incidence of pseudocysts in the author's practice is therefore 6.25%. This is similar to the incidence reported from a major hospital in Riyadh, Central Province of KSA, where only 6 pesudocysts (6.6%) developed in 91 patients with 104 attacks over 5 years.[1] In another study from Riyadh, 6 pseudocysts (5.3%) were encountered in 114 patients with acute pancreatitis over 3-year period.[6] In a recent study from the south-western region of KSA only 2 pseudocysts (2.9%) were encountered over 3-year period in 69 patients presenting with acute pancreatitis.[4] These 3 hospital-based studies as well as ours confirm the low incidence of pancreatic pseudocyst in different parts of KSA.[1,4,6] The incidence of pseudocysts is higher after chronic pancreatitis, but this is very rare in KSA. To some extent, this may be explained by the low incidence of chronic alcoholism in our society. Severe form of acute pancreatitis is encountered in 21-32% of Saudi patients; majority is above the age of 50 years[1,2] and only 22% of patients with severe attacks develop complications.[4] This series also reflects diversity of causes of pancreatic pseudocyst. Pseudocysts commonly occur as a result of parenchymal or ductal disruption that occurs after acute pancreatitis, chronic pancreatitis and trauma.[5] In this series, pseudocyst developed after traumatic pancreatitis in one patient only and in the remaining 5 patients after acute pancreatitis due to variety of causes: biliary pancreatitis (2), idiopathic pancreatitis (2) and hyperlipidemia (one). None of the patients had chronic pancreatitis, which is uncommon in the author's experience. Although acute pancreatitis is commonly encountered in females due to the high prevalence of cholelithiasis among females in KSA[1,4] pancreatic pseudocyst was equally seen in males and females in this small series. This series also highlights various management options for pancreatic pseudocysts that are available to the treating surgeon. Two of the 6 patients (33%) resolved completely after a period of conservative management. Although spontaneous resolution of pseudocysts is not uncommon, occurring in approximately 50% of cases,[7] non-operative management options are gaining popularity. Such options include percutaneous catheter drainage[8] and endoscopic drainage.[9-11] The former is conducted by interventional radiologists and is associated with many disadvantages such as high failure, recurrence and fistula formation rates. Furthermore, it has a high incidence of secondary infection rate and for its conduction, presence of an interventional radiologist is a must. The latter is an elegant minimally invasive way that is conducted by gastroenterologists and achieves similar objectives to that of open surgery. Percutaneous drainage was tried in one patient (case 3) but failed, necessitating operative intervention and external drainage. The endoscopic drainage can be achieved transmurally (cystogastrostomy, cystoduodenostomy)[8] or via transpapillary approach.[10-12] Internal drainage in the form of cystogastrostomy was performed in 2 patients with good long-term outcome. Internal drainage is associated with 2% mortality, 5% recurrence and 25% complication rates.[13] These complications are higher for cystogastrostomy than cystojejunostomy.[13] There was no morbidity or mortality associated with internal drainage in this small series. On the other hand, external drainage is associated with 6% mortality and 22% complication rate especially external fistula that occurs in 10%.[14] External fistula occurred in one patient (case 3) after external drainage but successfully settled with a short course of octerotide. The surgical options have recently undergone major advances with the introduction of the laparoscopic approach. Nowadays, all the operative procedures (cystogastrostomy, cystoduodenostomy and cystojejunostomy) can be conducted laparoscopically with utmost safety and precision.[15,16] Furthermore, the causative gallstones can be dealt with at the same time laparoscopically. None of the patients in this series was treated laparoscopically, but one patient with biliary pancreatitis (case 5) was treated conservatively with complete resolution after 6 weeks. He then underwent successful laparoscopic cholecystectomy. It was anticipated to be very difficult with high possibility of conversion to open but to the contrary, it was very easy. One patient with idiopathic pancreatitis (case one) developed a cystic lesion in the tail of the pancreas and was difficult preoperatively to determine its nature. He

was treated by distal pancreatectomy and splenectomy. This resectional option is valid for pseudocysts located in the tail of the pancreas. Splenic-preserving procedure can be attempted, but this is usually very difficult and time-consuming. This personal series indicates the rarity of pancreatic pseudocysts in the Eastern Province of KSA despite reasonably higher incidence of acute biliary pancreatitis.

References

1. Laajam MA. Acute pancreatitis: Experience in University Hospital in Riyadh, Saudi Arabia. ***Annals of Saudi Medicine*** 1990; 10: 140-144.
2. Al-Karawi MA, Mohamed AE, Dafala MM, Yasawi MI, Ghandour ZM. Acute pancreatitis in Saudi patients. ***Saudi Journal of Gastroenterology*** 2001; 7: 30-33.
3. Hanid MA, Karawi MA, Mohamed AE. Acute pancreatitis in alcohol prohibited society. ***JAMA*** 1989; 21: 60-63.
4. Abu-Eshy S. Pattern of acute pancreatitis. ***Saudi Med J*** 2001; 22: 215-218.
5. Williamson RCN, Grace PA. Modern management of pancreatic pseudocysts. ***Br J Surg*** 1993; 80: 573-581.
6. Al-Qasabi QO, Alam MK, Haque MM, Sebayel MI, Al-Faqih S, Al-Karida A. Assessment of severity in acute pancreatitis: use of prognostic factors. ***Annals of Saudi Medicine*** 1991; 11: 551-555.
7. Czaja JJ, Fischer M, Martin GA. Spontaneous resolution of pancreatic masses (pesudocysts); development and disappearance after acute alcoholic pancreatitis. ***Arch Intern Med*** 1975; 135: 558-562.
8. D'Egidio A, Schein M. Percutaneous drainage of pancreatic pseudocysts: a prospective study. ***World J Surg*** 1991; 156: 97-98.
9. Beckingham IJ, Krige JEJ, Bornman PC, Terblanche J. Endoscopic management of pancreatic pseudocysts. ***Br J Surg*** 1997; 84: 1638-1645.
10. Smits ME, Rauws EA, Tygat GN, Huibergtse K. The effucacy of endoscopic treatment of pancreatic pseudocysts. ***Gastrointest Endosc*** 1995; 42: 202-207.
11. Grimm H, Binmoeller KF, Soehendra N. Endosonography-guided drainage of a pancreatic pseudocyst. ***Gastrointest Endosc*** 1992; 38: 170-171.
12. Beckingham IJ, Krige JE, Bornman PC, Terblanche J. Long term outcome of endoscopic drainage of pancreatic pseudocyst. ***Am J Gasteroenterol*** 1999; 941: 71-74.
13. Bradley EL. Cysts and pseusocysts of the pancreas. Surgical aspects. In: Berk JE editor. Gastroenterology. Volume 6. London (UK): WB Saunders Company 1985: 4151-4157.
14. Ranson JHC. The role of surgery in the management of acute pancraetitis. ***Ann Surg*** 1990; 211: 382-393.
15. Mori T, Abe N, Sugiyama M, Atami Y, Way LW. Laparoscopic pancreatic cystogastrostomy. ***J Hepatobiliary Pancreat Surg*** 2000; 7: 28-34.
16. Park A, Schwartz R, Tandon V, Anvari M. Laparoscopic pancreatic surgery. ***Am J Surg*** 1999; 177: 158-163.