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Audit

Conservative treatment as an option in the management of pancreatic pseudocyst

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***Background*: Management of pancreatic pseudocysts is associated with considerable morbidity (15–25%). Traditionally, pancreatic pseudocysts have been drained because of the perceived risks of complications including infection, rupture or haemorrhage. We have adopted a more conservative approach with drainage only for uncontrolled pain or gastric outlet obstruction. This study reports our experience.**

***Patients and Methods*: A consecutive series of 36 patients with pancreatic pseudocysts were treated over an 11-year period in one district general hospital serving a population of 310,000. This study group comprised of 19 men and 17 women with a median age of 55 years (range, 10–88 years). Twenty-two patients had a preceding attack of acute pancreatitis whilst 12 patients had clinical and radiological evidence of chronic pancreatitis. The aetiology comprised of gallstones (16), alcohol (5), trauma (2), tumour (2), hyperlipidaemia (1) and idiopathic (10).**

***Results*: All patients were initially managed conservatively and intervention, either by radiological-assisted external drainage or cyst-enteric drainage (by surgery or endoscopy), was only performed for persisting symptoms or complications. Patients treated conservatively had 6 monthly follow-up abdominal ultrasound scans (USS) for 1 year. Fourteen of the 36 patients (39%) were successfully managed conservatively, whilst 22 patients required intervention either by percutaneous radiological drainage (12), by endoscopic cystogastrostomy (1) or by open surgical cyst-enteric anastomosis (9). Median size of the pancreatic pseudocysts in the 14 patients managed conservatively (7 cm) was nearly similar to that of the 22 patients requiring intervention (8 cm). The most common indications for invasive intervention in the 22 patients were persistent pain (16), gastric outlet obstruction (4), jaundice (1) and dyspepsia with weight loss (1). Although one patient required surgery for persistent pain, no other patients required urgent or scheduled surgery for complications of untreated pancreatic pseudocysts. Two of the 12 patients treated by percutaneous radiological drainage had recurrence of pancreatic pseudocysts requiring surgery. Two patients developed an intra-abdominal abscess following cyst-enteric drainage of pancreatic pseudocysts and one patient had a pulmonary embolism. On the mean follow-up of 37.3 months, one patient with alcoholic pancreatitis died 5 months after surgical cyst-enteric bypass.**

***Conclusions*: These results suggest that many patients with pancreatic pseudocysts can be managed conservatively if presenting symptoms can be controlled.**

Key words: Pancreas – Pseudocyst – Conservative treatment

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Pancreatic pseudocysts are localised collections of pancreatic secretions, lacking an epithelial lining, which occur secondary to pancreatic inflammation or ductal disruption.

In 1761, Morgagni first described pancreatic pseudocyst[1] and internal drainage by cystogastrostomy was first performed in 1921.[2] Cystoduodenostomy was described in 1928 and cystojejunostomy in 1931.[3,4] Surgical drainage of pancreatic pseudocysts was the standard method of treatment for over half a century until the 1980s when the first successful radiology-assisted drainage was reported.[5,6] This was followed in 1985 by endoscopic drainage[7] and in 1994 by laparoscopic pseudocysto-jejunostomy.[8] For over three-quarters of a century, pancreatic pseudocysts have been drained surgically and more recently by other techniques because of the perceived risks of complications including infection, rupture or haemorrhage.[9,10] The natural history of pancreatic pseudocysts documented by ultrasound scan in the 1980s reported serious complications in 30–50% of unoperated pseudocysts.[11] This study also concluded that pancreatic pseudocysts present for less than 6 weeks had a 40% chance of spontaneous resolution whilst those present over 12 weeks never resolved. Pseudocyst-related complications were observed to escalate with time and were frequent (57%) after 6 weeks. Hence drainage of pancreatic pseudocysts persisting over 6 weeks was recommended, as this allows time to document lack of resolution and would also lead to maturation of the cyst wall.[12,13]

The size of the pseudocyst was also considered an important factor in the management of pancreatic pseudocysts. The majority of pseudocysts of over 6 cm in size, which persisted for over 6 weeks in duration, were regarded as unlikely to resolve spontaneously, hence the recommendation for treatment.[14] Although percutaneous and endoscopic techniques of drainage are now used as alternatives to surgery, the place of non-interventional management in pseudocysts is still poorly evaluated.

The aim of this study was to determine the role and results of non-interventional, conservative management of pancreatic pseudocysts.

Patients and Methods

A consecutive series of 46 patients with pancreatic pseudocysts or related complications were treated over an 11-year period in a district general hospital (serving a population of 310, 000). Ten patients were excluded from the study based on the 1992 Atlanta convention guidelines,[15] as 9 patients required surgical intervention for complications of acute pancreatitis (acute pancreatitis) within 14 days of admission and one presented *de novo* with ruptured pancreatic pseudocysts.

The study group of 36 comprised of 19 men and 17 women with a median age of 55 years (range, 10–88 years). Pseudocysts were documented by ultrasound (USS) and/or computed tomography (CT) scan in all patients. USS was performed in 34 patients (94.4%) and CT scan in 30 patients (83.3%). The size and location of the pancreatic pseudocysts was noted and, wherever possible, the aetiology of the pseudocyst determined. Endoscopic retrograde cholangiopancreatography (ERCP) was performed to demonstrate pancreatic ductal anatomy in 13 patients (33.3%) and a communication of duct to pseudocyst was documented in 2 patients.

Patients were initially managed conservatively and intervention only performed for persisting symptoms such as pain, gastric outlet obstruction or cyst-related jaundice. Radiological-assisted percutaneous external drainage was used in patients with thin-walled pancreatic pseudocysts or significant co-morbidity. Cyst-enteric drainage was either by surgery or endoscopic stent placement.

The small number of patients in this study makes statistical comparison inappropriate. Therefore, the results were analysed retrospectively and are presented in descriptive form. Follow-up, to date, was by clinic appointments or telephone interview.

Results

Twenty-two patients had a preceding attack of acute pancreatitis, whilst 12 had clinical or radiological evidence of chronic pancreatitis. Two patients with pancreatic pseudocysts, without a preceding attack of acute pancreatitis or clinical evidence of chronic pancreatitis, were presumed to have suffered a clinically silent attack of acute pancreatitis. The aetiology comprised of gallstones (16), alcohol (3), trauma (2), tumour (2), hyperlipidaemia (1) and idiopathic (10).

The indications for abandoning conservative treatment were persistent pain in 16 (73%), gastric outlet obstruction in 4 (18%), jaundice in 1 (4.5%) and dyspepsia with weight loss in 1 (4.5%). The average time from diagnosis to treatment in patients with acute pancreatitis was 9·2 weeks and with chronic pancreatitis 13 weeks. The median size of the pseudocyst in patients with acute pancreatitis was 9 cm (range, 5–20 cm), whilst in patients with chronic pancreatitis it was 7 cm (range, 4–17 cm).

Conservative expectant treatment was possible in 14/36 patients (39%). One patient represented with recurrent pain and weight loss after 4 months of conservative treatment. He was then treated by endoscopic stent placement but later required surgical cyst-enteric drainage. Another patient with expectant treatment had recurrent mild pain, which did not require interventional treatment. The remaining patients continued pain-free on mean follow-up of 37.6 months.

Twenty-two patients required interventional management of pancreatic pseudocysts. Radiology-assisted external

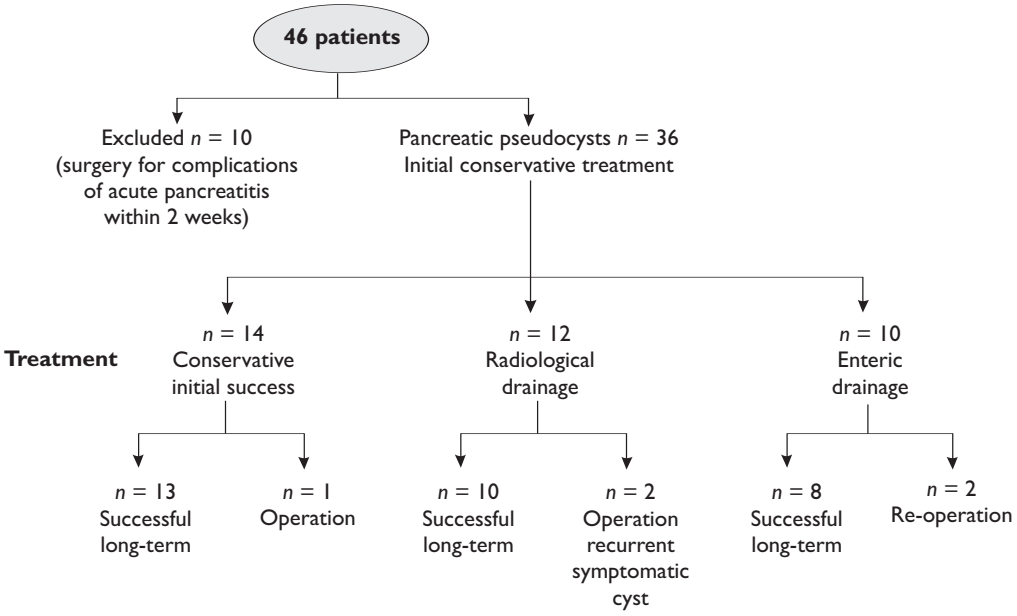

Figure 1 Summary of study group patients' treatment and outcome.

Table 1 Treatment, outcome and complications

Group	Number	AP/CP	Size median (range) (cm)	Follow-up (mean) (months)	Complications (*n*)
Successful conservative treatment	14 (39%)	9/5	7 (4–15)	37.6	Recurrence (1)
Radiological external drainage	12 (33.3%)	8/4	7 (4.5–20)	36.5	Recurrence (2)
Cyst-enteric drainage	10 (27.7%)	7/3	9 (5–16)	38	Abscess (2), pulmonary embolism (1)

AP, acute pancreatitis; CP, chronic pancreatitis.

drainage was used in 12 patients. It proved successful long term in 10 patients after a median follow-up of 36 months, but 2 patients developed symptomatic recurrence at 2 and 4 years, respectively. These patients went on to have distal pancreatectomy. Surgical drainage was employed in 10 patients (Fig. 1). Two of these patients developed an intra-abdominal abscess and a further patient had a pulmonary embolism in the peri-operative period. There were no cyst recurrences on mean follow-up of 38 months.

There was no 30-day mortality in the cohort of 36 patients with pancreatic pseudocysts. One patient with chronic pancreatitis secondary to alcohol was re-admitted 5 months after cystoduodenostomy with cholangitis and died despite biliary drainage. Cumulative major complications occurred in 6 (16.6%) patients as described earlier (recurrence [3], abscess [2], pulmonary embolism [1]). Five of these 6 complications occurred in patients with a background history of alcoholic chronic pancreatitis (5/12), whilst only one patient with pseudocyst following acute pancreatitis (1/24) had a complication (Table 1). Follow-up, to date, was complete in 89% of patients as two moved out of the region and one was lost for follow-up. Eight patients died of unrelated causes in the long-term follow-up.

Discussion

There have been several studies in the literature warning of serious, life-threatening complications related to conservative non-interventional treatment of pancreatic pseudocysts.[1–3] We acknowledge the possibility of real life-threatening complications with pancreatic pseudocysts; however, surgical or other interventional drainage methods are associated with significant morbidity and, in reality, all patients with pancreatic pseudocysts do not develop complications. One patient excluded from the study presented *de novo* with peritonitis and at laparotomy had a ruptured pancreatic pseudocyst which was managed by surgical drainage. The incidence of this complication, however, is < 1% in the larger published series.

Our experience of conservative management of pancreatic pseudocysts in selected patients during our study period of 11 years has been similar to the results reported by Vitas *et al*.[16]

and by Yeo *et al*.[10] However, in these two retrospective studies from larger institutions with multiple clinicians involved, there was no clear management policy employed at the outset.

The major difference between our study and those in the literature is the management of asymptomatic pancreatic pseudocysts persisting over 6 weeks. Twelve of the 14 (85.7%) patients who were successfully managed conservatively for the first 6 weeks continued to maintain good health without complications on a median follow-up of 37.6 months. The remaining 2 patients developed recurrent pain. One required surgical drainage at 4 months, but pain in the other was not considered by patient or surgeon to require intervention. The several studies which report a high risk of complications and a low percentage of resolution of pancreatic pseudocysts[9,11,15] have predominantly dealt with pseudocysts related to acute alcoholic pancreatitis and these patients may have an increased susceptibility to complications. Although the retrospective analysis and the incomplete radiological follow-up are limitations of the study, there are important observations that require discussion.

Twelve of the 14 patients managed conservatively had remained symptom-free after a mean follow-up of 37.6 months (range, 6–117 months), so pancreatic pseudocysts which persist over 6 weeks are not associated with increased risk of morbidity. Second, pancreatic pseudocysts of over 6 cm in size need not mandate interventional treatment, as the median size of the pancreatic pseudocysts in the conservative group was 7 cm (range, 4–15 cm) and 4 patients with pancreatic pseudocysts over 10 cm in size were managed successfully with conservative measures.[13,17]

Interventional radiological procedures, in addition to a morbidity of 10–30% and a mortality of 2–6%, are associated with a recurrence rate of 6–22%.[6,18–20] Surgical drainage has a reported morbidity of 20–30%, mortality of 2–6% with a 5% recurrence rate.[9,21–24] Despite huge advances in the field of radiology and the current knowledge of the natural history of the pancreatic pseudocyst, we are still handicapped by our inability to predict complications in individual patients. Hence we have adopted a more conservative approach and our experience shows that conservative treatment can be successful in a selected group of patients. We do not consider the size or duration of the pancreatic pseudocysts as the prime indicators for surgical intervention, but instead the symptoms of persisting pain, weight loss, jaundice or obstruction.

Conclusions

Many patients with pancreatic pseudocysts can be managed conservatively if presenting symptoms can be controlled. Complication rates are low with conservative management.

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