International Surgery Journal
Mudgal M et al. Int Surg J. 2016 Aug;3(3):1474-1476
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20162732

Research Article

Pancreatic pseudocyst: a therapeutic predicament

Manish Mudgal[1]*, Ashutosh Gumber[2]

[1]Department of Surgery, MGS General Hospital, Surendranagar, Gujarat, India
[2]Department of Surgery, Blackpool Teaching Hospitals NHS Foundation Trust, United Kingdom

Received: 03 May 2016
Accepted: 10 June 2016

***Correspondence:**
Dr. Manish Mudgal,
E-mail: doctorsacadmy@gmail.com

ABSTRACT

Background: To compare effectiveness between USG guided aspiration technique and percutaneous drainage for resolution of pseudo pancreatic cyst.
Methods: In this interventional-analytic study, Twenty five patients with pancreatic pseudocyst were divided in two group, one group with nine patients undergone USG guided aspiration of cyst, while another group of sixteen patients managed by percutaneous drainage technique. As there were very few studies which compared directly these approaches, management varies based on local expertise, so we planned this study to select preferred approach between these modalities. Approval from Institutional ethics committee was taken before starting the study. The study was explained to patients in brief in a language they can understand. Consent of participants was taken in written informed consent form.
Results: Out of the 25 patients enrolled in the study, 20 (80%) were males and 5 (20%) females. The most common aetiology of the pancreatic pseudocyst was alcoholism (all males), however, two cases were the result of blunt abdominal trauma. Out of five females, three had gallstone pancreatitis, and two were idiopathic.
Conclusions: Though this study shows though aspiration technique is less time consuming, with low incidence of complications. Hospital stay is also apparently less in aspiration technique, but in term of complete resolution and /or less chance of recurrence per cutaneous drainage technique shows better results. As our study included only 25 patients with pancreatic pseudocyst which limits the statistical significance of its results, so a tailored therapeutic approach should be consider which involve patient preferences, multidisciplinary team of therapeutic endoscopist, interventional radiologist and pancreatic surgeon, in all cases.

Keywords: Pancreatic pseudocyst, Percutaneous drainage, Aspiration technique

INTRODUCTION

Pancreatic pseudocysts are the most common (75%) cystic lesions of the pancreas.[1] The disease is more prevalent in the age group between 30 and 40 years. Alcohol and gallstones contribute to the majority (75%) of the cases.[2] The different modalities of treatment of pancreatic pseudocyst include- open surgical and laparoscopic internal drainage, USG, CT, or fluoroscopy guided percutaneous external drainage, and endoscopic internal drainage. Surgery has been the traditional approach in the management of pseudocysts since 1960s with a significant mortality rate. Although the minimal invasive approaches like percutaneous catheter drainage (PCD) and endoscopic drainage procedures initially appeared attractive, the high failure and complication rates discouraged their wider acceptance. This was due to improper positioning of the percutaneous catheter because of poor resolution of the older radiological equipments. Some authors advocate that endoscopic and percutaneous drainage therapies should be the procedure of choice for the treatment of pancreatic pseudocyst, with surgery reserved for failed attempts.[3,4] Nowadays, laparoscopy bridges the wide gap between minimal

invasive approaches and conventional surgery. There has been a renewed interest in the percutaneous technique of external drainage due to the refined imaging studies, and lower complication rate in the judiciously selected group of patients. The choice of technique of pseudocyst drainage should primarily be a collaborative decision involving interested endoscopist, interventional radiologist, and surgeon. A rational algorithm for the management of symptomatic pancreatic pseudocysts is necessary for better outcomes.[5,6] So far, there has been no prospective randomised trial which has evaluated the results of the major modalities of therapy. The purpose of this study is to evaluate where PCD stands in the therapeutic armamentarium, when newer efficient imaging equipments and technical expertise is available.

METHODS

This is a interventional prospective study including the patients with pancreatic pseudocyst, who were admitted at tertiary health care institute, from the year 2005 to 2008. Clinical examination, biochemical investigations and imaging studies (including ultrasonography (USG) and CECT abdomen) were used to diagnose the disease. According to the technique of percutaneous drainage used (aspiration or continuous pigtail catheter) the patients were enrolled in two groups.

Group A (9 patients) included those patients in whom pseudocyst was drained by aspiration only.

Group B (16 patients) included those who were drained by the continuous pigtail catheter drainage. The duration, for which the drainage catheter is kept in situ, was guided by the symptomatic improvement and complete resolution of the pseudocyst as visualised by the follow-up repeated USG. All patients were randomly selected with following inclusion and exclusion criteria:

Inclusion criteria

- Post traumatic pseudocyst
- Symptomatic pseudocyst with immature walls (frequently resulting from an attack of necrotising pancreatitis)
- Simple unilocular pseudocyst
- Pseudocyst following both acute and chronic pancreatitis
- Infected pseudocyst
- Two or three communicating pseudocysts
- Critically ill patient unfit for surgery

Exclusion criteria

- Necrotising pancreatitis
- Pseudocysts with abnormal MPD (dilated, stricture, stone)
- Pseudocysts communicating with major pancreatic ducts
- Loculated complex cyst
- Bleeding disorders
- Anatomical hindrance in percutaneous approach

Follow-up protocol

All patients were regularly followed up for a period of 6 months to 1 year. The protocol was to get a follow-up repeated USG done to rule out the residual collection or detect the recurrence. The technique was considered successful when:

- Complete resolution of the pseudocyst occurred.
- There was no recurrence of the pseudocyst during the follow-up period.
- Patient recovered clinically.

RESULTS

Twenty five patients were included in the study for drainage of the pancreatic pseudocyst. 18 patients followed an attack of acute pancreatitis and 7 of them were due to chronic pancreatitis. The complete resolution and non-recurrence of the pseudocyst at the end of the 1-year follow-up along with clinical recovery of the patient was considered to be the cure of the disease. The mean age of the 25 patients included in the study was 34 years (range: 18-56 years).

Table 1: Patient characteristics.

Male: Female	**4:1**
Mean age in years	34 (18-56)
Range of age (years)	**% age of patients**
16-25	6 (24%)
26-35	10 (40%)
36-45	6 (24%)
46-55	2 (8%)
56-65	1 (4%)

Table 2: Comparative analysis between group A (aspiration) and group B (pigtail).

Parameter	**Aspiration (9)**	**Pigtail (16)**
Hospital stay	0-1 day	7-30 day
Secondary infection	Nil	8%
Paralytic illeus	Nil	16%
Hemetemesis	Nil	5.3%
Resolution of cases	Below 6cm - 100 %	Below 6cm - 100%
	Above 6 cm - 28.6%	Above 6 cm - 94.7%
Recurrence	5 out of 9 cases (all are >6 cm)	Nil
Mortality	0%	5.3%

Out of the 25 patients enrolled in the study, 20 (80%) were males and 5 (20%) females. The most common

aetiology of the pancreatic pseudocyst was alcoholism (all males), however, two cases were the result of blunt abdominal trauma. Out of five females, three had gallstone pancreatitis, and two were idiopathic. The statistics shown below demonstrates the effectiveness of percutaneous drainage in the management of the pancreatic pseudocyst.

DISCUSSION

Management of pancreatic pseudocysts has been controversial. In present study the patients were grouped into A and B according to the technique used in the drainage A few studies have compared results of surgical drainage versus results of percutaneous catheter drainage.

In our study we found that the aspiration technique in group A (9 patients) had maximum recurrence and pigtail catheter was effective in draining all pseudocysts while an another prospective trial conducted by Lang et al (1991) included 26 patients each in surgical and percutaneous drainage treatment groups shows that there was no significant difference between resolution (88% Vs 77%), or 6 months recurrence rates of 15% and 12%.[7]

Complications in term of secondary infection (8%), paralytic iileus (16%), hemetemesis (5.3%) is found higher in percutaneous drainage than aspiration technique in our study while according to Adams and Anderson et al there was no difference in the incidence of major complications (7.7% Vs 16.7%).[8] Even though this study revealed a significantly higher mortality rate associated with surgical therapy (9%) versus percutaneous therapy (1%; P <0.05).

Few studies revealed some new outcomes as Bradley et al, in a classic study, recommended an observation of 4-6 weeks to allow spontaneous resolution.[9] According to Pitchumoni and Aggrawal, all pseudocysts should be drained percutaneously by continuous catheter technique only.[10] Out of the two modalities, aspiration is better for the diagnosis and not for therapeutic use. The cysts with ductal communication reaccumulate fluid within 24 hours after aspiration . Chronic thick walled pseudocysts do not collapse with needle aspiration; recurrences are common. Moreover, repeat aspirations complicate the cyst by introducing infection. However, the smaller or inaccessible pseudocysts following acute pancreatitis can be put to aspiration.

CONCLUSION

Though this study shows though aspiration technique is less time consuming, with low incidence of complications. Hospital stay is also apparently less in aspiration technique, but in term of complete resolution and /or less chance of recurrence per cutaneous drainage technique shows better results. As our study included only 25 patients with pancreatic pseudocyst which limits the statistical significance of its results, so a tailored therapeutic approach should be consider which involve patient preferences, multidisciplinary team of therapeutic endoscopist, interventional radiologist and pancreatic surgeon, in all cases.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

REFERENCES

1. Palanivelu C, Senthilkumar K, Madhankumar MV, Rajan PS, Shetty AR, Jani K, et al. Management of pancreatic pseudocyst in the era of laparoscopic surgery. Surg Endosc. 2007;21(12):2262-7.
2. Hagopian EJ, Teixeira JA, Smith M, Steicher FM. Pancreatic pseudocyst treated by laparoscopic Roux-en-Y cystojejunostomy. Surg Endosc. 2001;14:967-70.
3. Cremar M, Deriere J, Engelholm L. Endoscopic management of cysts and pseudocysts in chronic pancreatitis-long term follow-up after 7 years of experience. Gastrointest Endosc. 1989;35:1-9.
4. Hennriksen FW, Hancke S. Percutaneous Cystogastrostomy for chronic pancreatic pseudocyst. Br J Surg. 1994;81:1525-8.
5. Lang EK, Paolini RM, Pott Meyer A: The efficacy of palliative and definitive percutaneous versus surgical drainage of pancreatic abscesses and pseudocysts: A prospective study of 85 patients. South Med J. 1991;84:55-64.
6. Hancke S, Pedersen JF. Percutaneous puncture of pancreatic cysts guided by ultrasound. Surg Gynecol Obstet. 1976;142:551-5.
7. Lang EK, Paolini RM, Pott Meyer A. The efficacy of palliative and definitive percutaneous versus surgical drainage of pancreatic abscesses and pseudocysts: A prospective study of 85 patients. South Med J. 1991;84:55-64.
8. Adams DB, Anderson MC. Percutaneous catheter drainage compared with internal drainage in the management of pancreatic pseudocysts. Ann surgery. 1992;215:571-8.
9. Bradley EL. The necessity for a clinical classification of Acute Pancreatitis: the Atlanta system. In: Bradley EL, ed. Acute Pancreatitis. New York: Raven; 1994: 27-32.
10. Pitchumoni CS, Agarwal N Pancreatic pseudocyst: When and how should drainage be performed? Pancreas Update. 1999;28(3):615-39.

Cite this article as: Mudgal M, Gumber A. Pancreatic pseudocyst: a therapeutic predicament. Int Surg J 2016;3:1474-6.