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A Comparative Study on Ultrasound Guided Aspiration Versus Conventional Surgery in Pancreatic Pseudo CYST

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Abstract

Introduction: The treatment team for pseudocysts includes radiologists, endoscopists and surgeons. The radiologists by way of guided per-cutaneous techniques for aspiration/drainage to the therapeutic embolization of bleeding aneurysms the endoscopists by way of various endoscopic drainage procedures contribute to the team. *Methodology:* Patients admitted to department of surgery with symptomatic pseudocyst of pancreas of greater than 6 weeks duration are included in the study. Percutaneous drainage involves either simple percutaneous aspiration or percutaneous catheter placement, most commonly performed under CT control, but in some cases under sonographic or fluoroscopic guidance. It is a valuable alternative to operative management, as maturation of the pseudocyst wall does not have to be awaited. *Results:* Among aspiration group, 60%(18 patients) patients needed only 2 aspirations to relieve symptoms, whereas 30%(9patients) patients needed 3 aspirations and 10%(3 patients) needed 4 aspirations. Among 30 patients who underwent surgery, 16 patients (53.3%) had cystogastrostomy, 7 patients(23.3%) had cystojejunostomy, 3 patients(10%) had cystoduodenostomy, 2 patients(6.7%) had distal pancreatectomy. 2 patients(6.7%) had external drainage as surgical procedure. *Conclusion:* USG is simple and can be done bedside and also palliative option in patients who are not fit for surgery and are debilitated.

Keywords: Pancreatic Pseudocyst; USG Guided Aspiration; Surgery.

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Introduction

Pancreatic pseudocysts are encapsulated collections of necrotic tissue, old blood and secretions from the pancreas. The prefix "pseudo" is used to emphasize the fact that these collections frequently have no true capsule and that the cyst wall is made up of adjacent viscera such as the stomach and / or colon [1]. The pseudocysts are the most common complications following pancreatic inflammation both acute and chronic. They also constitute the most frequently encountered cystic lesions of the pancreas others being the cystic neoplasms [2].

The pseudocysts present clinically as epigastric pain, abdominal masses to jaundice.The laboratory findings are not much of use in the diagnosis of these pseudocysts. It is radiology which helps in the diagnosis of the pseudocysts with the help of USG, CT scan, MRI, etc. These investigations govern the therapeutic procedures to be carried out [3].

The treatment team for pseudocysts includes radiologists, endoscopists and surgeons. The radiologists by way of guided per-cutaneous techniques for aspiration/drainage to the therapeutic embolization of bleeding aneurysms the endoscopists by way of various endoscopic drainage procedures contribute to the team [4].

The surgeon plays an important and definitive role in the therapeutic team with an array of techniques both open and laproscopically. It is ultimately to provide adequate, dependent drainage of pseudocyst contents before they present with any complications [5].

This study is carried out to compare USG guided aspiration versus conventional surgery in pseudocyst pancreas.

Methodology

This is a prospective study conducted in the department of General surgery, Tertiary care hospital.The patient admitted in our hospital wards with symptomatic pancreatic cyst have been taken up for the study.The selected patients were subjected to a detailed history elicitation followed by thorough evaluation of risk factors and clinical features.They were then subjected with baseline investigations (Biochemistry, Haemogram, and Chest Skiagram). This was then followed up by specificinvestigations like serum amylase, liver function tests, USG – Abdomen andCT – Abdomen. Each patient was individualized and treated accordingly. The outcomes were documented using proforma.

Inclusion Criteria for the Study

Pseudocysts with greater than or equal to 6 weeks duration were involved in the study.

Exclusion Criteria

Children and traumatic pseudocysts.

Sample Size

50 cases adult patients with symptomatic pancreatic pseudocyst are included in the study.

Results

Table 1: Age sex wise distribution of study subjects

Age group	Sex		Total
	Male	Female	
30 – 39 years	20 (36.4%)	02 (40.0%)	22 (36.7%)
40 – 49 years	26 (47.3%)	02 (40.0%)	28 (46.7%)
50 – 59 years	09 (16.3%)	01 (20.0%)	10 (16.7%)
Total	55 (100%)	05 (100%)	60 (100%)

In this study, 55 males and 5 females are included and age 40 to 49 years had highest

Table 2: Distribution of study subjects based on size of abdominal mass (considering largest measure)

Mass Size	Frequency	Percentage
6 – 7 cms	08	13.3%
8 – 9 cms	27	45.0%
10 – 11 cms	16	26.7%
>11 cms	09	15.0%
Total	60	100%

Table 3: Distribution based on location of cyst

Location	Frequency	Percentage
Body	34	56.7%
Head	23	38.3%
Tail	03	05.0%
Total	60	100%

Table 4: Distribution of study subjects based on intervention

Intervention	Frequency	Percentage
Surgery	30	50%
USG aspiration	30	50%
Total	60	100%

In this study 30 patients are treated with ultra sound guided aspiration and 30 patients are treated with a surgical procedure.

Table 5: Distribution of study subjects based on frequency of aspiration

Aspiration number	Frequency	Percentage
2 times	18	60.0%
3 times	09	30.0%
4 times	03	10.0%
Total	30	100%

In this study 18(60%) patients are subjected to aspirations twice, 9(30%) patients 3 times,and 3(10%) patients had 4 aspirations.

Table 6: Distribution of study subjects based on type of surgery

Surgery	Frequency	Percentage
Cystogastrostomy	16	53.3%
Cystojejunostomy	07	23.3%
Cystodudenostomy	03	10.0%
Distal pancreatectomy	02	06.7%
External drainage	02	06.7%
Total	30	100%

In my study16(53.3%) patients underwent cystogastrostomy, 7(23.3%) patients underwent cysto jejunostomy,3 patients(10%) underwent cystoduodenostomy, 2(6.7%) patients underwent distal pancreatectomy and 2(6.7%) patients underwent external drainage as a surgical procedure

Table 7: Comparison of age and hospital stay

Variables	Surgery	USG aspiration	P value*
Age (years)	43.4 +/- 6.5	42.8 +/- 5.6	0.70
Hospital stay (days)	5.8 +/- 0.5	3.4 +/- 0.5	0.001

*Independent 't' test

Table 8: Comparison of recurrence

Recurrence	Surgery	USG aspiration	Total
Yes	00	02(6.7%)	6.7%
No	30 (100%)	28 (93.3%)	58 (93.3%)
Total	30 (100%)	30 (100%)	60 (100%)

In my study aspiration group of 30 patients had 6.7%(2) recurrence and were subjected to surgery after wall maturation(>6mm) with regular follow up.

Table 9: Comparison of infection

Infection	Surgery	USG aspiration	Total
Yes	02 (06.7%)	00	02 (03.3%)
No	28 (93.3%)	30 (100%)	58 (96.7%)
Total	30 (100%)	30 (100%)	60 (100%)

In this study patients who underwent surgery had 6.7% of infection and no patients had infection in aspiration group.

Table 10: Comparison of hospital stay

Hospital stay	Intervention		Total
	Surgery	USG aspiration	
2 days	00	01 (03.3%)	01 (01.7%)
3 days	00	16 (53.3%)	16 (26.7%)
4 days	00	13 (43.3%)	13 (21.7%)
5 days	06 (20.0%)	00	06 (10.0%)
6 days	22 (73.3%)	00	22 (36.7%)
7 days	02 (06.7%)	00	02 (03.3%)
Total	30 (100%)	30 (100%)	60 (100%)

Chisquare value – 60.0 df- 5 p value – 0.001

In this study mean hospital stay was 5.8days for surgical group compared to 3.4days for aspiration group.

In this study, USG guided aspiration group had a mean pseudocyst wall thickness of 3.8mm and patients who underwent surgery had mean wall thickness of 6.8mm.

Among aspiration group, 60%(18 patients) patients needed only 2 aspirations to relieve symptoms, whereas 30%(9patients) patients needed 3 aspirations and 10%(3 patients) needed 4 aspirations.

Among 30 patients who underwent surgery, 16 patients(53.3%) had cystogastrostomy, 7 patients(23.3%) had cystojejunostomy, 3 patients(10%) had cystoduodenostomy, 2 patients(6.7%) had distal pancreatectomy. 2 patients(6.7%) had external drainage as surgical procedure.

Among 30 patients who underwent surgery, 6.7%(2 patients) had postoperative wound infection and were treated conservatively.

In aspiration group, 2 patients continued to have symptoms after subjecting to aspiration for four times and were taken to surgical procedure, after cyst wall maturation(>6mm).

Discussion

A similar study was conducted in Lousiana University Medical Center, New Orleans 70112 by name"the efficacy of definitive percutaneous versus surgical drainage of pancreatic pseudocysts: a prospective study of 85 patients" By Lang EK, Paolini RM, Pottmeyer A [6].

In this study percutaneous aspiration has cured 11 of 14 infected pseudocysts and palliated two, which were subsequently cured by surgery; one was palliated but patient was lost to follow up. Surgical drainage cured six of 12 infected pseudocysts and palliated the other six, of which four were cured by further surgery and the other two by secondary percutaneous drainage. Nine of 12 noninfectedpseudocysts were cured by percutaneous aspiration, and two were palliated and later cured. In one patient, disease progressed, and he was ultimately lost to follow-up. Thirteen of 14 noninfectedpseudocysts were cured by surgical drainage. The other patient died of pulmonary embolus. In patients treated by percutaneous techniques, there were four major complications. Our study established distinct advantages of percutaneous drainage under computerized tomographic and ultrasonic guidance: (1) the procedures can be carried out under ultrasonic guidance in an intensive care unit on critically ill patients, (2) the technique proved highly effective for initial palliation, with defervescence and stabilization occurring in most critically ill patients within 48 hours, (3) findings from fine needle aspiration provided valuable information as to microorganisms and antibiotic sensitivities and differed in 29 of 85 patients from those of concomitant blood cultures, and (4) definitive eradication of the process (surgical ablation of residual necrotic material) can be elected after the patient 's clinical condition stabilizes.

In the following table a comparison is made between the various studies using ultrasound guided or percutaneous drainage as a chief modality of the treatment of pseudocyst of pancreas.

Author	Number of Patients(N)	Drainage Duration (Days)	Complication	Fistula	Success Rate (100%)	Follow Up
Matzinger et al[7]	12	11-47	0	0	100	NS
Van sonnenberg et al[8]	50	17	NS	6	66	8-48
Grosso et al [9]	42	NS	2	0	67	27
Adams & Anderson[10]	52	42	5	1	81	NS
This Study	60	--	Ns	0	93.3%	Till Date

Ns: not significant

Conclusion

Ultrasound guided aspiration is equally safe compared to conventional surgery,

1. It not only cures but provides palliation of symptoms and gives enough time needed for maturation of the cyst.
2. It avoids a major surgery with its associated morbidity and mortality.
3. It has minimal risk of development of fistula and secondary infection provided if its done under asepsis.

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