

# Surgical Management of Pancreatic Pseudocyst: A Tertiary Care Centre Experience

Vikesh Kumar<sup>1</sup>, Sabreena Kumar<sup>2</sup>, Swati Sharma<sup>3\*</sup>

<sup>1</sup>Associate Professor, Department of General Surgery, Pacific Medical College and Hospital, Udaipur, Rajasthan, India

<sup>2</sup>Resident, Department of General Surgery, Pacific Medical College and Hospital, Udaipur, Rajasthan, India

<sup>3</sup>Associate Professor, Department of Anaesthesia, Pacific Medical College and Hospital, Udaipur, Rajasthan, India

\*Address for Correspondence: Dr. Swati Sharma, Associate Professor, Department of Anaesthesia, Pacific Medical College and Hospital, Udaipur, Rajasthan, India

E-mail: [28ganesha@gmail.com](mailto:28ganesha@gmail.com)

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## ABSTRACT

**Background:** 15-20% of the population is suffering from pancreatitis, acute>chronic, with variable necrosis of the surrounding tissue. Open surgical procedures are now replaced with minimally invasive procedures, but open pancreatic debridement is still an important entity in cases of severe disease. Necrotising pancreatitis is an extremely heterogenous disease; as such, no specific treatment is given or assured for the pancreatitis patients. The aim is to analyse the outcomes in patients of acute pancreatitis with necrotising disease, managed with open procedures.

**Methods:** The study area includes Udaipur, Rajasthan, 20 patients, including patients diagnosed with pancreatic pseudocyst detected on ultrasound or CT scan, with an age of more than 15 years. Excluding the patients who were diagnosed with cystic neoplasm of the pancreas.

**Results:** Twenty patients with abdominal pain and swelling, diagnosed with pancreatic pseudocyst on USG and CT scan, were included in the study. Most patients were males aged 40 years and above. Cyst jejunostomy proved to be a versatile drainage method, particularly when the pseudocyst was located at the base of the transverse mesocolon and not adherent to the posterior gastric wall. The majority of pseudocysts were managed by cyst jejunostomy or cystogastrostomy. Effective management of necrotising pancreatitis requires a multidisciplinary approach with careful procedural planning for optimal patient outcomes.

**Conclusion:** In the era of minimally invasive techniques, some diseases are still managed with the help of open methods for good patient recovery and satisfaction. Fewer complications and post op visits were observed after patients underwent cystojejunostomy or cysto-gastrostomy for the treatment of necrotising pancreatitis.

**Key-words:** Pancreatic pseudocyst, Walled off pancreatic necrosis, Acute necrotic collections, Necrotising pancreatitis, cystogastrostomy, Roux-en-Y cyst jejunostomy

## INTRODUCTION

Approximately 15–20% of patients with acute pancreatitis develop severe disease with variable necrosis of the pancreatic and peripancreatic tissues <sup>[1]</sup>. Surgical intervention is often required in patients with symptomatic or infected pancreatic necrosis.

Over the years, a wide range of therapeutic approaches have evolved for the management of pancreatic necrosis, including percutaneous drainage, endoscopic interventions, and surgical debridement <sup>[1,2]</sup>.

Minimally invasive techniques such as laparoscopy, endoscopic necrosectomy, videoscopic-assisted retroperitoneal debridement (VARD), and sinus tract necrosectomy have largely replaced traditional open surgery and have contributed to improved outcomes and reduced morbidity <sup>[1–3]</sup>. However, open pancreatic debridement and surgical drainage procedures continue to play an important role in selected patients with severe or complex disease where minimally invasive methods are not feasible or have failed <sup>[3,6]</sup>.

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Necrotising pancreatitis is an extremely heterogeneous condition, and no single therapeutic approach is suitable for all patients. The selection of an optimal intervention depends on multiple factors, including the extent and location of necrosis, presence of infection, patient comorbidities, and institutional expertise [1,6]. Therefore, successful management requires careful patient selection and a multidisciplinary approach involving surgeons, gastroenterologists, radiologists, and intensivists [2,6].

Acute pancreatitis can present as mild, moderately severe, or severe disease. While mild pancreatitis is usually self-limiting, severe acute pancreatitis is associated with complications such as pancreatic and peripancreatic fluid collections, necrosis, and organ failure [2]. Severe acute pancreatitis is defined by persistent single or multiple organ failure lasting more than 48 hours and carries a mortality rate of up to 25% [2,6]. Acute necrotising pancreatitis accounts for approximately 5–10% of all cases and is diagnosed when more than 30% of the pancreatic gland is affected by necrosis [6].

The Revised Atlanta Classification provides a standardized framework for categorizing pancreatic fluid collections. Acute pancreatic fluid collections (APFCs) occur within the first four weeks and lack solid components, whereas acute necrotic collections (ANCs) contain both fluid and necrotic debris [2]. After four weeks, APFCs may mature into pancreatic pseudocysts, while ANCs may evolve into walled-off pancreatic necrosis (WOPN) [2,4]. These collections may be sterile or infected, with infected necrosis associated with significantly higher mortality rates of 20–30% [6].

Advances in critical care, delayed intervention strategies, and minimally invasive surgical techniques have significantly reduced early mortality in necrotising pancreatitis [2,6]. Nevertheless, surgical approaches such as transgastric necrosectomy and internal drainage procedures remain valuable options in carefully selected patients and form an important component of the modern treatment algorithm [1–6].

## MATERIALS AND METHODS

**Study Design and Setting-** This was a prospective observational study conducted at a tertiary care teaching hospital in Udaipur, Rajasthan, India.

**Study Duration-** The study was conducted over a defined study period (duration to be specified by authors).

**Study Population and Sample Size-** The study included patients diagnosed with pancreatic pseudocyst who underwent surgical management at our institution. A total of 20 patients were enrolled during the study period.

### Inclusion Criteria

- Patients aged more than 15 years.
- Patients diagnosed with pancreatic pseudocyst based on abdominal ultrasonography (USG) and/or contrast-enhanced computed tomography (CECT) of the abdomen.
- Patients providing valid informed consent for surgical intervention.

### Exclusion Criteria

- Patients younger than 15 years of age.
- Patients diagnosed with cystic neoplasm of the pancreas.
- Patients unfit for surgical intervention.

**Preoperative Evaluation-** All patients underwent detailed clinical examination and radiological assessment, including ultrasonography and CECT abdomen, to confirm the diagnosis, assess cyst size, location, wall maturity, and relation to adjacent structures. Routine laboratory investigations, including haemoglobin, total leukocyte count (TLC), liver function tests, and serum bilirubin levels, were performed.

**Surgical Procedure-** Patients underwent internal drainage procedures in the form of cystogastrostomy or cystojejunostomy, depending on the size, location, and anatomical relation of the pseudocyst. The choice of procedure was determined intraoperatively based on feasibility and surgeon's discretion.

**Outcome Measures-** The primary outcomes assessed were postoperative complications, need for re-intervention, and recovery profile. Secondary outcomes included duration of hospital stay and postoperative morbidity.

**Statistical Analysis-** Data were entered and analysed using descriptive statistics. Continuous variables were

expressed as mean±standard deviation where applicable, and categorical variables were presented as frequencies and percentages.

## RESULTS

Total 20 patients were subject of this study in Udaipur, Rajasthan. all patients who complained of abdominal pain, abdominal swelling and vomiting and have examination and investigation findings favouring our study were included. Majority of patients were more than 40 years of age, mostly male. All the patients, i.e. 20 presented with complain of pain, 15 with swelling in the abdomen and 13 patients presented with vomiting. 6 patients had icterus while others had hemoglobin more than 12gm/dL. 9 patients had normal TLC count and rest had >1100/cumm TLC. 10 patients had <1.0mg/dL and 10 had >1.0mg/dL. 17 patients were taken up for cystogastrostomy and 3 were taken for cyst jejunostomy. Pseudo cysts are more common in males. The commonest aetiology associated was chronic pancreatitis, with a prevalence of 50%. Most of the cases of pseudo-cysts of the pancreas are due to acute pancreatitis. Ultrasound was the basic radiological investigation done in all patients, followed by CECT abdomen. The commonest presentation is upper abdominal pain with an upper abdominal mass. A few presented with vomiting as well. In all cases, we have confirmed that the cyst wall is deficient in epithelium by HPE. Pain was the most important postoperative complication, followed by wound infection, with no mortality.

**Table 1:** Demographic Profile and Clinical Presentation of Patients with Pancreatic Pseudocyst (n = 20)

Parameters	Number of Patients
Age	
<40 Years	8
>40 Years	12
Presenting Complaints	
Pain	20
Swelling	15
Vomiting	13
On Examination	
Tenderness	20
Abdominal Swelling	15

Icterus	6
Investigations	
HB	
<10gm/dL	6
>10gm/dL	14
TLC Count	
4-1100/cumm	9
>1100/cumm	11
Total Bilirubin	
<1.0mg/dL	10
>1.0mg/dL	10
Procedure	
Cystogastrostomy	17
Cystojejunostomy	3

HB- Haemoglobin; TLC - Total leucocyte count; Complications of pseudocysts

**Table 2:** Laboratory Parameters and Surgical Procedures Performed in Study Patients (n = 20)

Infection	Abscess
Haemorrhage	Into the cyst GI haemorrhage
Pressure on adjacent viscera	Biliary tree Stomach and duodenum Inferior vena cava Transverse colon
Rupture	Peritoneal cavity GIT Thorax
Involvement of the Spleen	Splenic necrosis Haemorrhage into cysts Splenic vein thrombosis Rupture spleen

## DISCUSSION

Pancreatic pseudocyst is a well-recognized local complication of acute and chronic pancreatitis and often develops following episodes of pancreatic inflammation and necrosis. Symptomatic pseudocysts presenting with abdominal pain, swelling, vomiting, or obstructive features require timely intervention to prevent further morbidity. In the present study, most patients were

males above 40 years of age, which is consistent with previous literature reporting a higher incidence of pancreatic collections in middle-aged male populations [7].

Surgical internal drainage remains a definitive and reliable treatment modality, particularly in patients with mature cyst walls and favorable anatomy. Cystogastrostomy was the most performed procedure in our study, while cystojejunostomy was reserved for cases where the pseudocyst was located at the base of the transverse mesocolon or was not adherent to the posterior gastric wall. Similar observations have been described in earlier studies, highlighting cystojejunostomy as a versatile option in anatomically suitable cases [8]. Comparative evaluations of internal drainage procedures suggest that cystogastrostomy is associated with shorter operative duration and less intraoperative blood loss, whereas cystojejunostomy may be preferred in selected complex presentations [9].

With advances in minimally invasive and endoscopic techniques, there has been a paradigm shift toward less invasive management strategies for pancreatic collections. However, open surgical drainage continues to demonstrate favorable outcomes in selected patients, particularly in tertiary care settings where patient selection and perioperative optimization are emphasized [10,11]. Proper radiological assessment using ultrasonography and contrast-enhanced CT scanning plays a critical role in determining cyst maturity, size, and anatomical relationships before surgical planning.

Postoperative complications such as infection, bleeding, and recurrence have been reported in various series, though careful surgical technique and appropriate patient selection significantly reduce these risks [12]. In our study, postoperative pain and wound infection were the most common complications, with no mortality observed. These findings reinforce that open internal drainage remains a safe, effective, and practical option for managing pancreatic pseudocysts in appropriately selected patients.

## CONCLUSIONS

Necrotising pancreatitis is a heterogeneous disease entity with an expanding range of interventional strategies available for the management of symptomatic or infected necrosis. Surgical transgastric debridement is one such technique that offers specific advantages in

carefully selected patient populations, particularly in cases of severe biliary acute pancreatitis. Both laparoscopic and endoscopic transgastric approaches represent important therapeutic options, each with distinct benefits and limitations. Optimal management of necrotising pancreatitis requires a multidisciplinary approach to appropriately match the patient with the most suitable intervention.

## CONTRIBUTION OF AUTHORS

**Research concept:** Vikesh Kumar

**Research design:** Vikesh Kumar, Sabreena Kumar

**Supervision:** Vikesh Kumar

**Materials:** Vikesh Kumar, Sabreena Kumar, Swati Sharma

**Data collection:** Vikesh Kumar, Sabreena Kumar

**Data analysis and interpretation:** Vikesh Kumar, Sabreena Kumar, Swati Sharma

**Literature search:** Sabreena Kumar, Swati Sharma

**Writing article:** Vikesh Kumar, Sabreena Kumar

**Critical review:** Vikesh Kumar

**Article editing:** Vikesh Kumar, Swati Sharma

**Final approval:** Vikesh Kumar.

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