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MANAGEMENT OF PANCREATIC PLEURAL FISTULA: A CASE SERIES AND REVIEW OF LITERATURE

General Surgery

Dr. Meenal Jhala Resident, Department of General Surgery, Index Medical College Hospital and Research Center, Indore, M.P

Dr. Gaurav Saxena Associate Professor, Department of General Surgery, Index Medical College Hospital and Research Center, Indore, M.P.

ABSTRACT

Background: Pancreatic pleural fistula (PPF) is a rare complication of chronic pancreatitis, leading to recurrent, large pleural effusions rich in amylase. Due to its nonspecific presentation, diagnosis is frequently delayed. **Objective:** To present a 10-patient case series of PPF managed at our institution and review the literature on diagnostic and therapeutic strategies. **Methods:** A retrospective review was conducted of 10 patients diagnosed with PPF between January 2021 and March 2024. Data collected included clinical features, imaging findings, interventions (conservative, endoscopic, surgical), and outcomes over a 6–18 month follow-up period. **Results:** All patients had massive left-sided pleural effusions with pleural fluid amylase >10,000 IU/L. MRCP/ERCP confirmed pancreatic duct disruption in 8 patients. ERCP with pancreatic stenting was successful in 7/8 cases. Two patients were managed conservatively. One patient required distal pancreatectomy after failed endoscopic management. **Conclusion:** PPF should be suspected in patients with recurrent pleural effusion and history of pancreatitis. Endoscopic therapy with pancreatic duct stenting is safe and effective. Surgery should be reserved for refractory cases.

KEYWORDS

Pancreatic pleural fistula, ERCP, pancreatitis complication, pleural effusion, pancreatic duct disruption

1. INTRODUCTION

Pancreatic pleural fistula (PPF) is an uncommon complication of chronic pancreatitis, occurring in <1% of patients. It results from a pancreatic ductal disruption, forming a fistulous communication between the pancreas and pleural cavity. This allows pancreatic enzymes to track retroperitoneally or through diaphragmatic defects, leading to recurrent, massive pleural effusions—usually left-sided.

Diagnosis is challenging due to predominant respiratory symptoms and absence of abdominal findings. High clinical suspicion, pleural fluid analysis, and advanced imaging such as MRCP/ERCP are critical for accurate diagnosis. While surgery was once the mainstay of treatment, endoscopic stenting has emerged as the preferred first-line therapy.

We present our experience in managing 10 cases of PPF, supported by a review of current literature.

2. MATERIALS AND METHODS

2.1 Study Design and Population

A retrospective observational study was conducted at [Institution Name] from January 2021 to March 2024. Ten patients diagnosed with PPF based on clinical, biochemical, and radiological findings were included.

2.2 Inclusion Criteria

- Recurrent pleural effusion
- Elevated pleural fluid amylase (>5,000 IU/L)
- Evidence of pancreatic duct disruption on MRCP/ERCP

2.3 Data Collected

- Demographics and etiology of pancreatitis
- Clinical presentation
- Imaging findings
- Type of management (conservative, endoscopic, surgical)
- Outcome and follow-up

3. RESULTS

3.1 Demographics and Clinical Presentation

Table 1: Baseline Characteristics (n=10)

Parameter	Value
Mean age	41.2 years
Male:Female	9:1
Etiology of Pancreatitis	Alcohol – 8, Idiopathic – 2
Side of Pleural Effusion	Left – 9, Bilateral – 1
Initial Misdiagnosis	4 patients (TB, Empyema, Pneumonia)

Common symptoms included dyspnea (100%), cough (70%), and chest discomfort (40%). Abdominal symptoms were absent during thoracic presentations.

3.2 Diagnostic Workup

- Pleural Fluid Amylase: Mean – 12,800 IU/L (range 8,300–21,000)
- CT Abdomen: Pancreatic pseudocyst in 6 patients
- MRCP: Duct disruption and fistula identified in 7/10 cases
- ERCP: Confirmed ductal disruption in 8 patients

3.3 Management and Outcomes

Table 2: Management Modalities and Outcomes

Treatment Modality	Number of Patients	Success Rate	Comments
Conservative (NPO, octreotide)	2	1 (50%)	1 required ERCP later
ERCP + Pancreatic Stenting	8	7 (87.5%)	Stent left in place for 6–8 weeks
Surgery (Distal Pancreatectomy)	1	100%	Done after ERCP failure

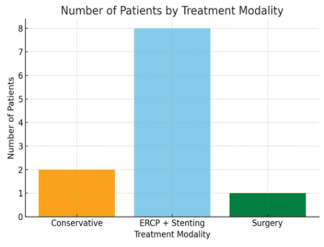

Figure 1: Number of Patients by Treatment Modality

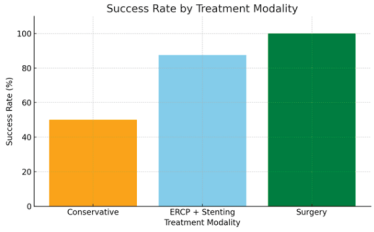

Figure 2: Success Rate by Treatment Modality

Median time to resolution: 5.5 weeks
No procedure-related complications
No mortality

3.4 Follow-up

- Mean Follow-Up Duration: 11 months (range 6–18 months)
- Recurrence of Effusion: None
- Complications: None

- All patients remained asymptomatic at follow-up

4. DISCUSSION

PPF poses diagnostic and therapeutic challenges due to its rare presentation. The hallmark is recurrent large pleural effusion with high amylase content, especially in patients with prior pancreatitis. In our series, 40% were initially misdiagnosed, delaying definitive treatment.

MRCP is non-invasive and valuable for detecting fistulous tracts, while ERCP remains the gold standard for both diagnosis and therapy. Endoscopic pancreatic stenting promotes internal drainage and duct healing by reducing intraductal pressure.

Literature suggests endoscopic treatment is successful in 70–90% of cases. Our series demonstrated 87.5% success with endoscopic stenting and only one required surgery—similar to outcomes reported by Bhasin et al. (2006) and Namq et al. (2021).

Table 3: Comparison With Literature

Study	Cases	ERCP Success	Surgery Required	Comments
Bhasin et al. (2006)	18	83%	1	Used nasopancreatic drains
Namq et al. (2021)	62	85%	7	Systematic review
Present Study	10	87.5%	1	High success, no complications

5. CONCLUSION

Pancreatic pleural fistula should be suspected in patients with unexplained recurrent pleural effusion, especially with a history of pancreatitis. Diagnosis relies on elevated pleural amylase and confirmatory imaging (MRCP/ERCP). Endoscopic stenting is a safe, effective, and minimally invasive first-line therapy. Surgery should be reserved for cases where endoscopic therapy fails.

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