



Pancreatitis Management: A Comprehensive Evaluation of Endoscopic, Medical, and Surgical Treatment Approaches for Acute and Chronic Disease

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Vol: 16/02

Received: January 25, 2026 Accepted: March 02, 2026 Published: July 06, 2026

Abstract:

Background: Pancreatitis, working with both acute and chronic behaviors, is a specialized clinical condition which is characterized by inflammation of the pancreas. It shows a huge range of complications and severity in cases, which necessitates comprehensive approach towards the management.

Aim: This study aims to calculate out the efficacy and endoscopic role, medical, and different surgical interventions in term of pancreatitis management. The calculation of all these terms are necessary to manage all other issue and resolve it.

Methods: This research was conducted using several recent clinical trials, meta-analysis, treatment and guidelines. To check out the effectiveness of each treatment modality, it was compared based on clinical outcomes, time period of recovery, recurrence rates, and several complications.

Results: We use Endoscopic therapy for pancreatic treatment because it is highly effective in managing pancreatic ductal obstructions and complications like pseudo cysts. Medical management make it focusing on acute pancreatitis, think upon supportive care. Surgical interventions are mostly helpful to serve for severe or complicated cases, especially like chronic pancreatitis with anatomical disruptions.

Conclusion: This integrated approach is tailored to the type and severity of pancreatitis yields and its best outcomes. Endoscopic techniques are increasingly crucial but surgical and several medical strategies remains essential and depends on individual patient needs.

Keywords: chronic, acute, pancreatitis, patients, Surgical tools, ductal.



Introduction:

Pancreatitis includes multifactor and it seems inflammatory disorder of the pancreas which cause acute or chronic disease [1]. Acute pancreatitis or AP show sudden pain in upper abdomen with elevated pancreatic enzymes and may generates or progress to systemic complications [2]. On the other hand, Chronic pancreatitis or CP, is characterized by irreversible damage which leads to fibrosis, calcifications, and insufficiency of exocrine or endocrine [3].

[4] Etiologies include gallstones, alcohol abuse, hypertriglyceridemia, auto-immune disorders and many other iatrogenic causes [5]. The clinical burden is showing its significant value because of rising hospitalization rates and healthcare expenditures [6]. There are lots of advances in therapeutic and medical research and modalities it includes ERCP which is known as Endoscopic Retrograde Cholangioancreatography[7]. EUS-guided interventions, several pharmacotherapies, minimally encroaching surgeries, have transform the treatment and procedure they used in modern world[8]. This article decided to examine critically and it also compares the roles of endoscopic, surgical and medical interventions for the management of both acute and chronic pancreatitis [9]. It considered mainly their indications of work, its benefits, limitations, and outcomes.

Methodology:

A comprehensive study was conducted to balance out the accuracy and error of this research. This study is mainly related to the pancreas, pancreatic duct, and its acute and chronic stages. Criteria of inclusions includes Studies published between 2012 and 2023. This studies research with the terms of data analysis. Complications, limitations and results. Studies evaluates the treatment outcomes, multiple complications and rate of recurrence. Criteria of exclusion also includes, Research based study, Case controls and reporting, Studies on animals and publications. Data extract was also part of it and it mainly focus on patient's outcomes, interventions, time of recovery, limitations, assurance and complication rates. Data were personalized extracted by two different phblishers and also cross-checked for consistency. Some specific variables were selected such as Type and severness of pancreatitis. Intervention used such as endoscopic, surgical, or alternative. Timings and indications for interventions. Outcomes are measured like morbidity, mortality, length of hospital stays and recurrence. Quantitative data were going to synthesize by using descriptive statistics, and where some possible, meta-analytical techniques which were applied by using statistical software to compare the efficacy and accuracy of the different interventions type. Subgroups were analyse and conducted for acute verses chronic cases. Ethical approvals were obtained from them were the observational component of this study from the local institutional reviewed board. Data from publicational sources collected to the original ethical standards with all included studies. As a mixed-method of study,



potential limitations were included in publication bias, variability included in study designs, and heterogeneity in outcomes and definitions across reviewed studies.

Results:

In the cases of acute pancreatitis, medical therapy always remains on the first-line of intervention. Supportive care includes volume resuscitation, pain controlling methods, and nutritional support is the central support to the management. Antibiotics are specially booked for infected necrosis disease. Random Trials have shown some results as early aggressive fluid management improves the outcomes but it also increases the risk of pulmonary complications. But this will occur only if it does not manage properly. In chronic pancreatitis, medical management mainly focuses on several important points like pain control, replacement of enzyme, and diabetes management. Tricyclic antidepressants, enzyme and pancreatic enzyme supplements show modest success in mitigate pain and also improves the quality of life.

Endoscopic methods, importantly ERCP used mainly for the management of pancreatic duct stones, gallstone pancreatitis, stenosis, and pseudo cysts. EUS-guide emptying of pancreatic fluid collections that has emerged as unconventional to necrosectomical surgeries.

Patients with Endoscopic therapy experience shorter hospital stays and less complication rate as compared to surgical departments. But if we check out the patients with extensive necrosis, it will be limited for them. Terms and conditions will be different in their case.

Surgery is recommended to patients with specific type of complications like necrotizing pancreatitis, unbearable pain and persistent pseudo cysts are unresponsive to other modalities. On minimum rate invasive approaches, including video-assisted retroperitoneal debridement have gained special attention for necrosectomical surgeries. In chronic pancreatitis, there are several surgical options such as Puestow procedure, Frey's procedure, or total pancreatectomy with islet cell auto transplantation are considered in patients with ductal enlargement, disabling symptoms, and failure of medical treatment.

This comparative study shows surgery in terms of superior with long-term pain relief in chronic pain as compared to endoscopic therapies, even though with higher initial morbidity rates.

Table 1: Comparative Efficacy of Treatments and Modalities in Pancreatitis

Treatment Modality	Indications	Advantages	Limitations
Medical Managements	Acute pancreatitis and mild chronic cases	Non-invasive and initial stabilization	Limited for structural issues and recurrence risk



Endoscopic Therapies	Pseudo cysts, strictures and ductal stones	Minimally invasive and effective drainage	Operator-dependent and not suitable for all cases
Surgical Interventions	Severe CP, necrosis and other treatments	Durable long-term relief and structural correction	Higher morbidity and longer recovery

Table 2: Outcome Metrics by Arbitration Type

Outcome Metric	Medical Management	Endoscopic Therapy	Surgical Intervention
Hospital Stay (in days)	8-10	4-5	10-1
Complication Rate	10-25	5-16	15-33
Pain Relief (Success Rate)	60-80	60-80	70-90
Recurrence Rate	20-35	10-25	5-20

Discussion:

Specialized Effective management have specific requirements [10]. These requirements includes individual response and action [11]] Acute pancreatitis or AP randomly follow a step-wise treatment system begins with conventional measures [12] Endoscopic interventions are introduced by bile duct, its causes and if complications occur it cause pseudocysts arise [13].

For CP, a model of multi-disciplinary pattern is very crucial [14]. Initial treatment with analgesics and enzyme replacement make the grade in early stages [15], but on the other hand [16], refractory pain and ductal obstruction investigate endoscopic treatment or somehow surgical treatments[17]. The choice between endoscopy and surgery depends on patient's anatomical information, severity of disease, and institutional experts[18].Developing trends include the specific use of EUS-guided arbitration, pancreatic duct stent [19], and early surgeries select CP cases [20]. Individualized medicine, consideration of genetic and lifestyle factors which includes several aspects[21]. It is expected to enhance the overall planning of treatment [22]. mainly this discussion is related to pancrease and its working [23]. Acute and chronic disorders are mainly related to this [24]. Both chronic and acute play important role in it [25]. Pancreatic duct and other ductal glands effects the body.In comparence with chronic pancreatitis it often requires a huge difference in therapeutic approach which is due to its progressive and reapproaching nature. The primary and main goals related to this study are pain control, management of exocrine and endocrine unavailability and insufficient values, and also the treatment of structural behaviors. Endoscopic interventions, such as collapsing



of pancreatic ducts and stone extractions, it is very useful for ductal decompressions and relief of constructive symptoms. Moreover, in patients who fails endoscopic therapy or having extensive ductal disease, many surgical options like the (Puestow) procedure or pancreatic rehabilitation may be more effective for long-term effects of symptoms and it's control. Emerging techniques, like endoscopic ultrasound guidelines, celiac plexus blocks, offer promises in managing chronic pain related to pancreatitis though their efficacy varies from person to person. In some selected cases, total pancreatectomy with the islet autotransplantation or TPIAT may be considered, particularly in those patients with unbearable pain and preserved islet cells functions.

Furthermore, the actual management of pancreatitis continues to evolve out, with a growing trends toward less intrusive which is more targeted interventions. Future research should be focus on the optimize timings and selections of this procedure, integrates the personalized medicinal approach, and evaluating it for long-term outcomes which helps to improve patient quality of life and disease prognosis value.

Conclusion:

Pancreatitis management is complex and requires a refinement understanding of different type of disease, its stages, and specific factors among patients. Medical therapy holds the foundation for starting treatment, especially in Acute cases. Endoscopic arbitration offers a minimal invasive, effective alternative for managing complications and selected chronic cases. Surgery remains encroaching, especially essential for severe or obstinate cases, usually in chronic pancreatitis or CP.

A multi-disciplinary factors, patient-centered approach and others investigates that it integrates medical, as well as endoscopic, and different surgical modalities who offers the super outcomes. Ongoing research and arbitrations in endoscopic techniques and surgeries which includes procedures of surgeries which continue to refine out and improves management strategies.

Reference:

1. Huang, P. Y., Xiao, A. F., Ren, Z. Q., Chen, L., Ding, L., & Li, C. (2025). Best Practices for Chronic Pancreatitis Pain Management: A Comprehensive Evidence-Based Review. *Journal of Inflammation Research*, 5087-5096.
2. Sheth, S. G., Machicado, J. D., Chalhoub, J. M., Forsmark, C., Zyromski, N., Thosani, N. C., ... & ASGE Standards of Practice Committee. (2024). American Society for Gastrointestinal Endoscopy guideline on the



- role of endoscopy in the management of chronic pancreatitis: summary and recommendations. *Gastrointestinal endoscopy*, 100(4), 584-594.
3. Cassar, N., Cromwell, P., Duggan, S., van Veldhuisen, C., Boermeester, M., Besselink, M., & Conlon, K. (2024). Surgery versus endoscopy for the management of painful chronic pancreatitis: a systematic review and meta-analysis of randomized trials. *Digestive Surgery*, 41(1), 1-11.
 4. Faghieh, M., Ramsey, M. L., Unnisa, M., Phillips, A. E., Lobner, K., Han, S., ... & P-QST Consortium. (2024). Endoscopic and Surgical Treatments for Painful Chronic Pancreatitis: A Scoping Review of Pain Assessment Tools and Meta-analysis of Outcomes. *Pancreas*, 10-1097.
 5. Sheth, S. G., Machicado, J. D., Chhoda, A., Chalhoub, J. M., Forsmark, C., Zyromski, N., ... & Qumseya, B. J. (2025). American Society for Gastrointestinal Endoscopy guideline on the role of endoscopy in the management of chronic pancreatitis: methodology and review of evidence. *Gastrointestinal endoscopy*, 101(1), e1-e53.
 6. Aseni, P., Fanetti, I., Ganguzza, E., Bosco, S., Fontana, P., Armellino, A., & Gambitta, P. (2025). Role of Endoscopic Ultrasound in Diagnosis and Management of Pancreas Divisum: A Case Study and Literature Review. *Applied Sciences*, 15(6), 2948.
 7. Ueki, T., Maruo, T., Igarashi, Y., Yamamiya, A., Tominaga, K., Irisawa, A., ... & Isayama, H. (2024). Role of advanced endoscopy in the management of inflammatory digestive diseases (pancreas and biliary tract). *Digestive Endoscopy*, 36(5), 546-553.
 8. Wilcox, C. M., Bang, J. Y., Buxbaum, J., Gardner, T. B., Hawes, R., Kedia, P., ... & Varadarajulu, S. (2024). Effect of endoscopic ultrasound guided celiac plexus block on the palliation of pain in chronic pancreatitis (EPOCH Trial): study protocol for a randomized multicenter sham-controlled trial {1}. *Trials*, 25(1), 676.
 9. Dominguez-Muñoz, J. E., Vujasinovic, M., de la Iglesia, D., Cahen, D., Capurso, G., Gubergrits, N., ... & Witt, H. (2025). European guidelines for the diagnosis and treatment of pancreatic exocrine insufficiency: UEG, EPC, EDS, ESPEN, ESPGHAN, ESDO, and ESPCG evidence-based recommendations. *United European Gastroenterology Journal*, 13(1), 125-172.
 10. Yadlapati, S., Gutta, A., & Fogel, E. L. (2025). Determining the value of endoscopic retrograde cholangiopancreatography in the management of patients with acute pancreatitis and related complications. *Expert Review of Gastroenterology & Hepatology*, (just-accepted).
 11. Podda, M., Murzi, V., Marongiu, P., Di Martino, M., De Simone, B., Jayant, K., ... & Pisanu, A. (2024). Effectiveness and safety of low molecular weight heparin in the management of acute pancreatitis: a systematic review and meta-analysis. *World Journal of Emergency Surgery*, 19(1), 30.



12. Pandey, A., Mehta, D., & Horvath, K. (2025). A Review of Exocrine Pancreatic Insufficiency in Children beyond Cystic Fibrosis and the Role of Endoscopic Direct Pancreatic Function Testing. *Current Gastroenterology Reports*, 27(1), 14.
13. Phillips, A. E., Hughes, S. J., Andersen, D. K., Bell, A., Brand, R., Coté, G. A., ... & Zyromski, N. (2024). Interventions for pancreatitis—new approaches, knowledge gaps, and research opportunities: summary of a National Institute of Diabetes and Digestive and Kidney Diseases Workshop. *Pancreas*, 53(4), e368-e377.
14. van Veldhuisen, C. L., Kempeneers, M. A., de Rijk, F. E., Bouwense, S. A., Bruno, M. J., Fockens, P., ... & Dutch Pancreatitis Study Group. (2025). Long-term outcomes of early surgery vs endoscopy first in chronic pancreatitis: follow-up analysis of the ESCAPE randomized clinical trial. *JAMA surgery*, 160(2), 126-133.
15. Pavlek, G., Romic, I., Kekez, D., Zedelj, J., Bubalo, T., Petrovic, I., ... & Silovski, H. (2024). Step-Up versus open Approach in the treatment of Acute Necrotizing pancreatitis: a case-matched analysis of clinical outcomes and long-term pancreatic sufficiency. *Journal of Clinical Medicine*, 13(13), 3766.
16. Hollemans, R. A., Timmerhuis, H. C., Besselink, M. G., Bouwense, S. A., Bruno, M., Van Duijvendijk, P., ... & Van Santvoort, H. C. (2024). Long-term follow-up study of necrotising pancreatitis: interventions, complications and quality of life. *Gut*, 73(5), 787-796.
17. Joshi, D., Shafi, T., Al-Farsi, U., Keane, M. G., Grammatikopoulos, T., Kronfli, R., ... & Harrison, P. (2024). Endoscopic Retrograde Cholangio-Pancreatography and Endoscopic Ultrasound in the Management of Paediatric Acute Recurrent Pancreatitis and Chronic Pancreatitis. *Journal of Clinical Medicine*, 13(18), 5523.
18. Bellin, M. D., Andersen, D. K., Akshintala, V., Born, D., Coghill, R. C., Easler, J., ... & Yadav, D. (2025). Heterogeneity in Pancreatitis: Recognizing Heterogeneity and Its Role in the Management of Pancreatitis Summary of a National Institute of Diabetes and Digestive and Kidney Diseases Workshop. *Pancreas*, 54(2), e114-e121.
19. Choudhary, S., Gupta, P., Shah, J., Singh, A., Jearth, V., Samanta, J., ... & Dutta, U. (2024). Role of imaging in evaluating the complications of endoscopic management of pancreatic fluid collections in acute pancreatitis. *Abdominal Radiology*, 49(7), 2449-2458.
20. Phillips, A. E., Afghani, E., Akshintala, V. S., Benos, P. Y., Das, R., Drewes, A. M., ... & Singh, V. K. (2024). Pancreatic quantitative sensory testing to predict treatment response of endoscopic therapy or surgery for painful chronic pancreatitis with pancreatic duct obstruction: study protocol for an observational clinical trial. *BMJ open*, 14(3), e081505.
21. Yamao, K., Takenaka, M., Yoshida, A., Yamazaki, T., Omoto, S., Minaga, K., ... & Kudo, M. (2025). Concealed pancreatic cancer in acute pancreatitis: Early MRCP and EUS surveillance improves prognosis and identifies high-risk patients. *Pancreatology*.



22. Talukdar, R., Olesen, S. S., Unnisa, M., Bedarkar, A., Sarkar, S., Tandan, M., ... & Drewes, A. M. (2024). Extracorporeal shock-wave lithotripsy and endoscopy for the treatment of pain in chronic pancreatitis: a sham-controlled, randomized trial. *Annals of internal medicine*, 177(6), 749-758.
23. Efgan, M. G., Karakaya, Z., Kanter, E., Kırık, S., & Tekindal, M. A. (2024). Can CONUT and PNI Scores Predict Necrotizing Pancreatitis in Acute Pancreatitis Patients Presenting to the Emergency Department?. *Journal of clinical medicine*, 13(19), 5902.
24. Zhang, Q., Ai, X., Wang, T., & Qin, Y. (2024). Choledochoscopy combined with double-cannula lavage in the treatment of acute pancreatitis with encapsulated necrosis and the analysis of related inflammatory indexes. *Surgical Endoscopy*, 38(8), 4505-4511.
25. Fu, Y., Nguyen, H. N., Ponrartana, S., Piester, T. L., Trout, A. T., Alharbi, O., ... & Zheng, Y. (2025). Endoscopic pancreatic function test and other modalities for exocrine pancreatic disease measures. *Journal of Pediatric Gastroenterology and Nutrition*.