

## The Puestow Procedure in Chronic Pancreatitis: A Narrative Review

Javier Guzmán Villalón<sup>\*1</sup>, Cecilia Angoa Corona<sup>1</sup>, Gerardo Mejia Zacatelco<sup>1</sup>, Ana Karina Puerta Martinez<sup>2</sup>, Giovanni Alexis Rodriguez Barrón<sup>2</sup>

<sup>1</sup>Hospital General de Nicolás San Juan

<sup>2</sup>Hospital Regional de Alta Especialidad de Ciudad Victoria, Tamaulipas

### ABSTRACT

Chronic pancreatitis is a progressive inflammatory disease characterized by persistent abdominal pain, exocrine and endocrine insufficiency, and impaired quality of life. Although medical and endoscopic therapies may provide symptom control in selected patients, surgery remains a cornerstone in those with refractory pain and structural ductal disease. The Puestow procedure, also known as lateral pancreaticojejunostomy (LPJ), is a well-established surgical option for patients with chronic pancreatitis and a dilated main pancreatic duct. This narrative review summarizes the indications, technical principles, outcomes, complications, and evolving minimally invasive approaches of the Puestow procedure, based on current literature. Emphasis is placed on patient selection and the role of LPJ within modern multidisciplinary management strategies for chronic pancreatitis.

**KEYWORDS:** Chronic pancreatitis; Puestow procedure; lateral pancreaticojejunostomy; pancreatic duct dilation; surgical drainage.

### ARTICLE DETAILS

**Published On:**  
13 March 2026

**Available on:**  
<https://ijmscrs.com>

### INTRODUCTION

Chronic pancreatitis represents a complex clinical entity associated with recurrent or persistent abdominal pain, progressive pancreatic dysfunction, and significant morbidity. The pathophysiology involves chronic inflammation, fibrosis, and ductal obstruction, leading to elevated intraductal pressure and ischemic injury to pancreatic parenchyma. While conservative and endoscopic treatments may provide temporary relief, surgical

intervention is often required in patients with intractable symptoms or recurrent acute exacerbations. Among surgical drainage procedures, the Puestow procedure—also referred to as lateral pancreaticojejunostomy—has remained a fundamental option for patients with a dilated main pancreatic duct and diffuse ductal disease. By decompressing the pancreatic duct while preserving pancreatic tissue, this operation aims to relieve pain and maintain pancreatic function.

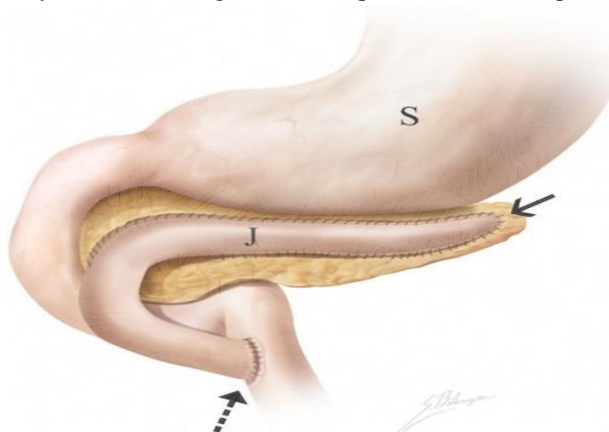


Figure 1. Puestow procedure

Indications and Patient Selection

Appropriate patient selection is the most critical determinant of success following the Puestow procedure. The primary indication is chronic pancreatitis with a uniformly dilated main pancreatic duct, generally  $\geq 7$  mm in diameter, extending from the head to the tail of the pancreas. This ductal morphology allows for effective longitudinal drainage and decompression of ductal hypertension, which is central to pain relief. Patients without a dominant inflammatory mass in the pancreatic head are considered ideal candidates. In contrast, those with significant head-dominant disease may benefit more from combined drainage–resection procedures, such as the Frey procedure. Careful preoperative imaging with contrast-enhanced CT or MRI/MRCP is essential to confirm ductal anatomy and exclude alternative pathologies.

Surgical Principles and Technique

The Puestow procedure involves a longitudinal incision along the main pancreatic duct, typically extending from the pancreatic head to the tail. The duct is opened widely, and a side-to-side anastomosis is created with a Roux-en-Y limb of the jejunum. This configuration facilitates continuous drainage of pancreatic secretions, reduces intraductal pressure, and alleviates pain while preserving pancreatic parenchyma. Several technical modifications have been described, including laparoscopic and robotic approaches, which aim to reduce surgical trauma while maintaining the principles of ductal decompression. Regardless of the approach, meticulous exposure of the pancreatic duct and creation of a tension-free anastomosis are essential for optimal outcomes.

Clinical Outcomes

Numerous studies have demonstrated that the Puestow procedure can provide significant pain relief in carefully selected patients. Short- and medium-term outcomes are

generally favorable, with improvements in pain control and quality of life. Preservation of pancreatic tissue contributes to the maintenance of exocrine and endocrine function, although disease progression may still occur over time. Long-term results remain variable, reflecting the progressive nature of chronic pancreatitis. Some patients may experience recurrent symptoms or require additional interventions. These findings highlight the importance of patient counseling regarding realistic expectations and long-term follow-up. Complications and Postoperative Considerations

The Puestow procedure is associated with a recognized spectrum of postoperative complications. Reported major complication rates are approximately 19%, with surgical site infections being the most common, followed by organ dysfunction and thromboembolic events. Mortality rates remain low, around 1–2% in large series. Procedure-specific complications include pancreatic fistula, postoperative fluid collections, intra-abdominal abscesses, pseudocyst formation, hemorrhage, and bowel obstruction. Endocrine insufficiency, including new-onset diabetes mellitus, may occur postoperatively and requires close monitoring. Postoperative imaging plays an important role in distinguishing expected anatomical changes from true complications. Familiarity with altered anatomy following LPJ is essential to avoid misinterpretation and unnecessary interventions. Minimally Invasive and Evolving Approaches  
Advances in minimally invasive surgery have expanded the role of laparoscopic and robotic Puestow procedures. These approaches may offer benefits such as reduced postoperative pain, shorter hospital stays, and faster recovery in appropriately selected patients and experienced centers. However, long-term comparative data remain limited, and careful patient selection remains paramount.

| ASPECT                         | DESCRIPTION                                                  |
|--------------------------------|--------------------------------------------------------------|
| PROCEDURE NAME                 | Puestow procedure (lateral pancreaticojejunostomy)           |
| PRIMARY INDICATION             | Chronic pancreatitis with dilated main pancreatic duct       |
| IDEAL DUCT DIAMETER            | $\geq 7$ mm, uniformly dilated from head to tail             |
| MAIN OBJECTIVE                 | Decompression of the pancreatic duct to relieve pain         |
| SURGICAL PRINCIPLE             | Longitudinal ductotomy with side-to-side jejunal anastomosis |
| PANCREATIC TISSUE PRESERVATION | Yes                                                          |
| EFFECT ON PAIN                 | Significant impr                                             |

CONCLUSION

The Puestow procedure remains a valuable surgical option for patients with chronic pancreatitis and uniformly dilated main pancreatic ducts. When applied to carefully selected patients, LPJ can provide meaningful pain relief and preserve pancreatic function. Nonetheless, long-term outcomes are influenced by disease progression, and patients should be counseled regarding the potential for recurrent symptoms and endocrine insufficiency.

Within a modern multidisciplinary framework, the Puestow procedure continues to play an important role alongside medical, endoscopic, and alternative surgical strategies. Future prospective studies are needed to refine selection criteria, optimize surgical techniques, and clarify the comparative effectiveness of LPJ in the evolving management of chronic pancreatitis.

### REFERENCES

- I. Napolitano M, Brody F, Lee KB, et al. 30-day outcomes and predictors of complications after Puestow procedure. *Am J Surg.* 2020;220(2):372-375. doi:10.1016/j.amjsurg.2019.12.024
- II. Biteman BR, Harr JN, Brody F. Laparoscopic Puestow: lateral pancreaticojejunostomy. *Surg Endosc.* 2016;30(12):5624. doi:10.1007/s00464-016-4920-z
- III. Adams DB. The Puestow procedure: how I do it. *J Gastrointest Surg.* 2013;17(6):1138-1142. doi:10.1007/s11605-012-2101-5
- IV. Laje P, Adzick NS. Modified Puestow procedure for the management of chronic pancreatitis in children. *J Pediatr Surg.* 2013;48(11):2271-2275. doi:10.1016/j.jpedsurg.2013.03.048
- V. Meehan JJ, Sawin R. Robotic lateral pancreaticojejunostomy (Puestow). *J Pediatr Surg.* 2011;46(6):e5. doi:10.1016/j.jpedsurg.2011.03.003
- VI. Ceppa EP, Pappas TN. Modified Puestow lateral pancreaticojejunostomy. *J Gastrointest Surg.* 2009;13(5):1004-1008. doi:10.1007/s11605-008-0590-z
- VII. Nathan JD, Ellery K, Balakrishnan K, et al. The role of surgical management in chronic pancreatitis in children: a position paper from the NASPGHAN Pancreas Committee. *J Pediatr Gastroenterol Nutr.* 2022;74(5):706-711. doi:10.1097/mpg.0000000000003439
- VIII. Bhandarwar A, Arora E, Gajbhiye R, et al. Laparoscopic lateral pancreaticojejunostomy: an evolution to endostapled technique. *Surg Endosc.* 2019;33(6):1749-1756. doi:10.1007/s00464-018-6434-3
- IX. Shah AA, Petrosyan M, Kane TD. Lateral pancreaticojejunostomy for chronic pancreatitis and pancreatic ductal dilation in children. *J Laparoendosc Adv Surg Tech A.* 2018;28(11):1397-1402. doi:10.1089/lap.2018.0136
- X. Balduzzi A, Zwart MJW, Kempeneers RMA, et al. Robotic lateral pancreaticojejunostomy for chronic pancreatitis. *J Vis Exp.* 2019;(154):e60301. doi:10.3791/60301
- XI. Cohen SM, Kent TS. Etiology, diagnosis, and modern management of chronic pancreatitis: a systematic review. *JAMA Surg.* 2023;158(6):652-661. doi:10.1001/jamasurg.2023.0367
- XII. Freed KS, Paulson EK, Frederick MG, et al. Abdomen after a Puestow procedure: postoperative CT appearance, complications, and potential pitfalls. *Radiology.* 1997;203(3):790-794. doi:10.1148/radiology.203.3.9169706