

# Management of Chronic Pancreatitis with Pancreatic Duct Calculi

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## Abstract

Chronic pancreatitis (CP) is a progressive inflammatory disorder of the pancreas characterized by irreversible fibrosis and intraductal calculi, leading to recurrent abdominal pain and functional impairment. Here, we present the case of a 37-year-old female, 2 months postpartum with a history of gestational diabetes, who presented with 1 month of worsening epigastric pain radiating to the back, aggravated after meals, and associated with nausea and nonbilious vomiting. Laboratory investigations were unremarkable except for mildly elevated HbA1c, while imaging revealed multiple large calculi within the main pancreatic duct, confirming chronic calcific pancreatitis. Conservative management failed to relieve symptoms, necessitating surgical intervention. She underwent lateral pancreaticojejunostomy (Partington–Rochelle procedure) with intraoperative extraction of ductal calculi. Postoperative recovery was uneventful, and at 6-week follow-up, she reported complete resolution of symptoms with improved quality of life. This case emphasizes the importance of timely diagnosis and surgical management in CP with ductal obstruction.

**Keywords:** Chronic pancreatitis, lateral pancreaticojejunostomy, pancreatic duct calculi, Partington–Rochelle procedure

## Résumé

La pancréatite chronique (PC) est un trouble inflammatoire progressif du pancréas caractérisé par une fibrose irréversible et des calculs intracanalaires, entraînant des douleurs abdominales récurrentes et une déficience fonctionnelle. Nous présentons ici le cas d'une femme de 37 ans, 2 mois après l'accouchement avec des antécédents de diabète gestationnel, qui ont présenté depuis 1 mois une aggravation de douleurs épigastriques irradiant vers le dos, aggravées après les repas, et associée à des nausées et des vomissements non bilieux. Les examens de laboratoire étaient sans particularité, à l'exception d'une HbA1c légèrement élevée, tandis que l'imagerie a révélé plusieurs gros calculs dans le canal pancréatique principal, confirmant une pancréatite calcifiante chronique. La direction conservatrice n'a pas réussi à soulager les symptômes, nécessitant une intervention chirurgicale. Elle a subi une pancréaticojuéjunostomie latérale (procédure de Partington-Rochelle) avec extraction peropératoire des calculs canaux. La récupération postopératoire s'est déroulée sans incident et, après 6 semaines de suivi, elle a signalé une résolution complète des symptômes avec une qualité de vie améliorée. Ce cas souligne l'importance d'un diagnostic et d'une prise en charge chirurgicale rapides en cas de PC avec obstruction canalaire.

**Mots-clés:** Pancréatite chronique, pancréaticojuéjunostomie latérale, calculs du canal pancréatique, procédure de Partington-Rochelle

## INTRODUCTION

Chronic pancreatitis (CP) is a progressive inflammatory disorder of the pancreas characterized by persistent inflammation, irreversible structural changes, and progressive fibrosis, ultimately resulting in loss of both exocrine and endocrine function.<sup>[1-3]</sup> Clinically, it often

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presents with recurrent or persistent abdominal pain, nausea, vomiting, and features of malabsorption.<sup>[2]</sup> One of the less common but clinically significant complications of CP is the formation of pancreatic duct calculi, which contribute to ductal obstruction and exacerbate pain.<sup>[4]</sup> The underlying pathophysiology involves repetitive pancreatic injury leading to acinar cell destruction, intraductal obstruction, calcification, and subsequent ductal hypertension with parenchymal ischemia.<sup>[5]</sup>

Although medical and endoscopic treatments remain the initial approaches for symptom control and ductal decompression, surgical intervention becomes necessary in patients with intractable pain, ductal dilatation, or failure of conservative therapy.<sup>[6,7]</sup> Lateral pancreaticojejunostomy (LPJ; Partington–Rochelle procedure) is a well-established surgical option that provides effective ductal drainage and long-term symptom relief.<sup>[8]</sup>

## CASE REPORT

A 37-year-old female, 2 months postpartum with a history of gestational diabetes mellitus, presented with a 1-month history of worsening epigastric abdominal pain radiating to the back. The pain was aggravated after meals and was often associated with nausea and nonbilious vomiting. She had a history of previous hospital visits for similar complaints. There was no history of alcohol intake, smoking, or any significant family history of pancreatic or metabolic disorders.

On examination, the patient was mildly febrile (37.8°C), and vitals were stable. Abdominal examination revealed a soft abdomen with tenderness in the epigastric region, without rebound tenderness, guarding, or palpable masses. The liver and spleen were not enlarged. Laboratory investigations showed a total leukocyte count of 9,200/ $\mu$ L, serum amylase of 87 U/L, and lipase of 16 U/L. Liver function tests and serum calcium levels were within normal limits, and Hemoglobin A1C (HbA1c) was mildly elevated at 6.2%. An erect abdominal X-ray revealed a midline radio-opaque density at the level of the L1 vertebra measuring 23 mm  $\times$  17 mm [Figure 1]. Contrast-enhanced computed tomography (CT) of the abdomen showed multiple radiodense calculi within the main pancreatic duct, the largest measuring 19 mm  $\times$  8 mm. Magnetic resonance cholangiopancreatography (MRCP) and endoscopic ultrasonography (EUS) confirmed the diagnosis of chronic calcific pancreatitis with pancreatic duct calculi. Upper gastrointestinal endoscopy demonstrated antral gastritis with a reactive rapid urease test. The Karnofsky index score on admission was 80.

The patient was initially managed conservatively with bowel rest nil per os (NPO), intravenous hydration, analgesics, antiemetics, and nutritional support. Insulin therapy with Human Actrapid was initiated according to a sliding scale to maintain glycemic control. Despite these measures, her abdominal pain persisted, prompting consideration of surgical intervention. Under general anesthesia, a bilateral

subcostal (rooftop) incision was made to access the pancreas. A longitudinal incision was created along the anterior surface of the pancreas to expose the main pancreatic duct [Figure 2a]. Intraoperative ultrasonography was used to guide the extraction of multiple ductal calculi. An LPJ (Partington–Rochelle procedure) was then performed, establishing a wide anastomosis between the opened pancreatic duct and the jejunum to ensure adequate drainage [Figure 2b]. After the successful excision of pancreatic duct calculi [Figure 2c], the anastomosis was checked for patency and leaks before closure. The procedure was completed without intraoperative complications.

Postoperatively, the patient was managed with intravenous antibiotics, analgesics, and antiemetics, and she was kept nil per oral for the first 72 h. Oral intake was gradually reintroduced, and her recovery was uneventful. The postoperative Karnofsky index score was 90. She was discharged on the 12<sup>th</sup> postoperative day in stable condition.

At a 6-week follow-up, the patient reported complete resolution of abdominal pain and vomiting, with improvement in appetite and overall quality of life. Her glycemic control remained stable, and there was no recurrence of symptoms.

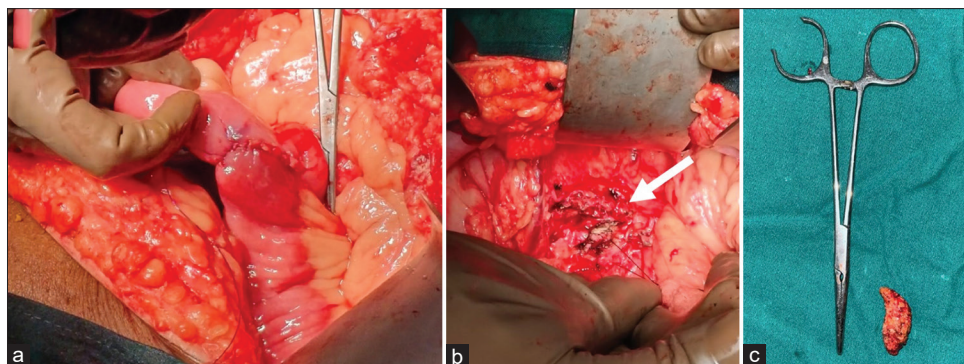
## DISCUSSION

CP is a complex and progressive inflammatory disease characterized by fibrosis, ductal changes, pain, and eventual exocrine and/or endocrine insufficiency.<sup>[2,3]</sup> The presence of large radiodense intraductal stones implies significant ductal obstruction and likely raised intraductal pressure. Indeed, ductal hypertension has been ascribed as a major driver of pain in CP, and removal of obstruction (and stones) is central to management.<sup>[5,9]</sup>

Management of CP begins with conservative measures that include pain control, enzyme supplementation, nutritional support, abstinence from noxious stimuli (alcohol and smoking), and, where appropriate, endoscopic therapy.<sup>[2]</sup> However, when persistent pain



**Figure 1:** X-ray erect abdomen showing large pancreatic duct calculi (encircled)



**Figure 2:** (a) Intraoperative image showing the opened main pancreatic duct during lateral pancreaticojejunostomy. (b) Intraoperative image showing the large pancreatic duct calculi (white arrow). (c) Excised specimen of pancreatic duct calculi

and ductal dilatation or obstruction occur, interventional options are recommended.<sup>[6,9]</sup> The literature supports that patients with dilated main pancreatic ducts and symptomatic pain do better when ductal decompression, either by endoscopic or surgical means, is undertaken rather than prolonged medical therapy only.<sup>[6,7]</sup> In our case, conservative management (including bowel rest, analgesia, antiemetics, nutritional support, and insulin for glycemic control) failed to relieve the symptoms, prompting a timely decision for surgical drainage.

Surgical LPJ, often in its modified (Partington–Rochelle) form, is a well-recognized method for decompressing a dilated pancreatic duct and removing obstructing stones; it offers durable pain relief and preservation of pancreatic tissue compared to resectional techniques.<sup>[10,11]</sup> Early reports demonstrated good pain relief: for instance, Silen *et al.* reported relief of pain in 13 of 15 patients undergoing side-to-side pancreaticojejunostomy.<sup>[12]</sup> More recent series and systematic reviews have affirmed acceptable outcomes with pain relief in 60%–80% or more of patients and low mortality.<sup>[13,14]</sup> In our patient, the decision to perform LPJ with intraoperative ultrasonic-guided stone extraction appears justified in the setting of large intraductal calculi and persistent pain. The favorable clinical outcome in our patient underscores its potential effectiveness.

Timing of surgery is increasingly recognized as a key determinant of long-term outcomes in CP. A recent long-term follow-up of the ESCAPE trial (early surgery vs. endoscopy for CP) showed that early surgical intervention in patients with dilated main pancreatic duct was superior to an endoscopy-first approach, with better pain relief, fewer reinterventions, and higher patient satisfaction.<sup>[15]</sup> In the context of this case, the earlier failure of conservative therapy and the persistent symptom burden justified moving to surgical management rather than delayed intervention; this aligns with current recommendations favoring earlier surgical drainage when indicated. This case thereby highlights that atypical presentations (postpartum, nonalcoholic, and large calculi) should not preclude consideration of CP, and imaging such as CT, MRCP, and EUS remain essential for diagnosis and anatomical delineation.

## CONCLUSION

Chronic calcific pancreatitis remains a challenging condition, often requiring a tailored approach based on the severity of symptoms, ductal anatomy, and patient profile. While conservative management forms the first line of treatment, surgical intervention becomes necessary when pain and ductal obstruction persist. LPJ offers an effective and durable solution for symptomatic relief and functional preservation in patients with dilated pancreatic ducts and intraductal calculi. This case highlights the importance of timely diagnosis, appropriate imaging, and individualized treatment planning, even in uncommon presentations such as postpartum, nonalcoholic women. Early surgical decompression, guided by clinical and radiological findings, can significantly improve patient outcomes and quality of life in CP.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

There are no conflicts of interest.

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