

Total Pancreatic Lipomatosis and Complex Chronic Calcific Pancreatitis: A Case Report on Iatrogenic Duodenal Perforation

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Abstract

Case Report

Background: Pancreatic lipomatosis is traditionally viewed as an age-related or metabolic incidental finding. However, in the context of chronic pancreatitis (CP), it acts as a surrogate marker for extensive parenchymal atrophy, fibrosis, and loss of structural compliance. **Case Presentation:** We report the case of a 70-year-old female patient with long-standing type 2 diabetes and advanced chronic calcific pancreatitis. Imaging revealed total fatty replacement of the pancreatic parenchyma with severe obstructive macro-lithiasis (22 mm) and Wirsung duct dilatation (13 mm). Following an endoscopic retrograde cholangiopancreatography (ERCP) procedure for lithiasis extraction, the patient developed a symptomatic duodenal perforation. **Conclusion:** The presence of advanced pancreatic lipomatosis significantly alters the mechanical properties of the pancreatic-duodenal unit, elevating the risk of iatrogenic injury. This case underscores the necessity of a multidisciplinary surgical evaluation over repeated endoscopic interventions in patients with end-stage lipomatous atrophy.

Keywords: Pancreatic lipomatosis, Chronic calcific pancreatitis, Duodenal perforation, Endoscopic retrograde cholangiopancreatography, Pancreatic lithiasis, Parenchymal atrophy.

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INTRODUCTION

Chronic pancreatitis (CP) is an inflammatory condition defined by the progressive destruction of the pancreatic exocrine and endocrine functional tissue, ultimately resulting in permanent fibrotic replacement. Within this spectrum, pancreatic lipomatosis (or fatty infiltration) has evolved from being regarded as a benign finding to being recognized as a sentinel feature of severe, late-stage CP [1].

While endoscopic retrograde cholangiopancreatography (ERCP) represents the gold standard for the treatment of pancreatic lithiasis, the procedure is not devoid of morbidity. In patients where the gland has undergone total fatty replacement, the peripancreatic and peri-duodenal architecture often demonstrates profound stiffening due to associated desmoplastic reactions. This reduction in tissue compliance makes the duodenal wall significantly more susceptible to mechanical trauma, such as perforation, during standard instrumentation [2]. This report illustrates the correlation between radiological evidence of total lipomatosis and the heightened risk of life-

threatening complications during endoscopic interventions.

CASE PRESENTATION

A 70-year-old female patient presented with chronic upper abdominal pain radiating to the back, accompanied by episodic pruritus. The patient had a history of type 2 diabetes and known chronic calcific pancreatitis. Clinical examination revealed a stable but elderly patient with localized epigastric tenderness.

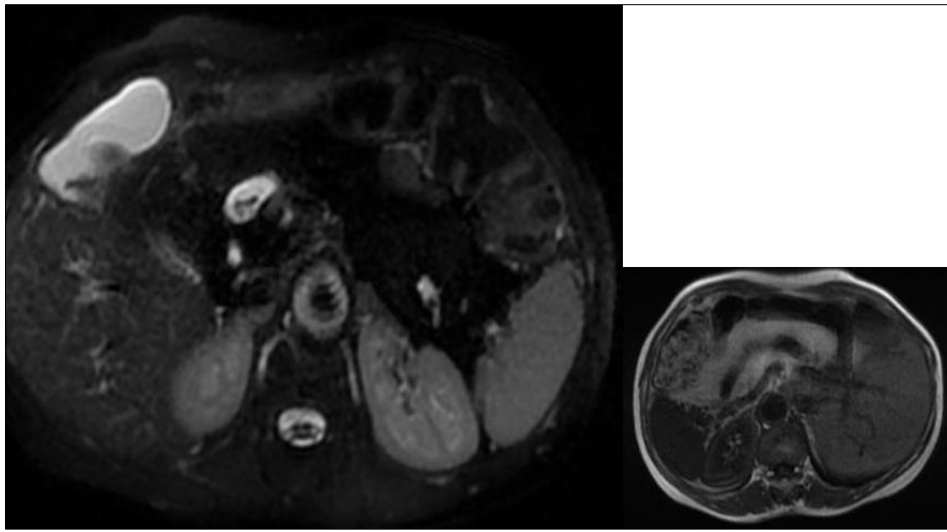
Radiological Imaging: Pre-procedural MRI (utilizing T1-weighted in-phase and out-of-phase sequences) demonstrated a complete loss of signal intensity in the pancreatic parenchyma, confirming total lipomatosis. Contrast-enhanced CT scans revealed severe atrophy of the gland with massive macro-calcifications, the largest measuring 22 mm, located at the preampullary level, causing significant obstruction and dilatation of the Wirsung duct (13 mm).

Clinical Course: Due to the severity of the obstruction and the persistence of pain, the patient underwent ERCP. During the procedure, despite careful technical

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execution, the patient developed immediate clinical signs of peritonitis. Emergency CT imaging confirmed a retroperitoneal duodenal perforation, evidenced by

significant extraluminal air tracking along the pancreatic bed.



DISCUSSION

The management of patients with advanced chronic calcific pancreatitis requires a meticulous assessment of the pancreaticoduodenal junction. This case provides critical insights into the limitations of current endoscopic management in the face of pancreatic lipomatosis.

The Role of Imaging in Predicting Tissue Fragility

Lipomatosis acts as a radiological 'red flag'. While the fatty tissue itself is soft, its presence in the context of CP implies a long-standing history of inflammation, leading to dense periductal fibrosis and decreased elasticity of the duodenal wall. The literature suggests that the combination of macro-lithiasis and parenchymal fatty atrophy serves as a strong predictor of endoscopic complexity [3].

Implications for Clinical Strategy

In our patient, the perforation likely occurred due to the reduced compliance of the duodenum secondary to the adjacent sclerotic and atrophic pancreatic changes. As indicated in recent studies, when stone burden exceeds 20 mm in an atrophic gland, the procedural risks of ERCP often outweigh the potential benefits [4]. In such clinical scenarios, early referral for surgical drainage or resection is frequently the safer, more definitive management option, as it avoids the risks

associated with multiple endoscopically-directed sessions in compromised tissue.

CONCLUSION

Total pancreatic lipomatosis should be recognized as a marker of significant structural fragility rather than a simple incidental finding. Clinical teams should maintain a low threshold for surgical consultation when radiological evidence of parenchymal atrophy is severe, particularly when complex lithiasis is present. Proactive identification of these 'high-risk' anatomical profiles is essential to reducing the incidence of catastrophic procedural complications such as duodenal perforation.

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