Pancreatic Endotherapy for Chronic Pancreatitis

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KEYWORDS

- Painful chronic pancreatitis • Pancreatic calculi • Stricture • Pseudocyst
- Endoscopic retrograde cholangiopancreatography
- Extracorporeal shock wave lithotripsy • Multiple plastic stent • Metal stents

KEY POINTS

- Extracorporeal shock wave lithotripsy (ESWL) is recommended as the first-line therapy for large (>5-mm) obstructive pancreatic ductal stones.
- Dominant pancreatic duct strictures should be initially managed with a wide-bore single plastic stent with 3 monthly exchanges for a year, even in asymptomatic patients.
- Recent studies have evaluated multiple plastic and self-expanding covered metal stents for refractory pancreatic ductal stricture.
- Pancreatic pseudocysts (PPs) should be treated endoscopically with or without endoscopic ultrasound (EUS) guidance.

INTRODUCTION

Intractable abdominal pain and associated morphologic abnormalities in the pancreatobiliary system are the major determinants of interventional therapy in chronic pancreatitis (CP). Pain mechanisms in CP are multipronged, and recent experimental evidence suggests that pancreatic ductal hypertension can activate pancreatic stellate cells, which in turn can generate oxidative stress and subsequent inflammation.[1] The penultimate phenotype of pain in CP emanates from a composite of chronic inflammation and oxidative stress–induced nociception, mechanical allodynia and inflammatory hyperalgesia, pancreatic neuropathy, and peripheral and central neuroplasticity.[2] Complications, such as PPs, gastric outlet obstruction, biliary obstruction, and pancreatic cancer, are important contributors to pain in CP. The evidence that pancreatic ductal

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hypertension can result in inflammation and pain justifies ductal decompression for amelioration of pain. Decompression can be performed using endoscopic and surgical approaches, with endoscopic approach currently recommended as the first-line modality by the European Society of Gastrointestinal Endoscopy (ESGE).[3]

It is mandatory to perform a meticulous morphologic evaluation for assessment of the disease magnitude and confounding local anatomic alterations prior to endotherapy. It is also mandatory to rule out pancreatic cancer, especially in patients over age 50 years, of female gender, of white race, with presence of jaundice and overt exocrine insufficiency, and with absence of pancreatic calcifications.[4,5] Size and distribution of pancreatic ductal calculi can be best evaluated by CT, even though transabdominal ultrasonography also provides a fairly good assessment. Presence of pancreatic ductal strictures, biliary strictures, and anatomic variants, such as pancreas divisum, can be best identified with magnetic resonance cholangiopancreatography (MRCP). MRCP is also advantageous over EUS and CT in differentiating a PP from a walled-off necrosis (in patients with CP with recent acute exacerbation).[6,7]

INDICATIONS AND CONTRAINDICATIONS OF PANCREATIC ENDOTHERAPY

Intractable pain is the single most common and compelling indication for pancreatic endotherapy in patients with CP, and the modality of choice depends on the morphology.

- Presence of small stones can be extracted by endoscopic retrograde cholangiopancreatography (ERCP) with pancreatic sphincterotomy using Dormia baskets and balloons. Stones larger than 5 mm can be best fragmented by lithotripsy with or without pancreatic ductal stenting. Currently, ESWL has been recommended as the first choice by the ESGE.[3] **Box 1** depicts the contraindications of ESWL.
- Pancreatic ductal strictures can be managed by pancreatic sphincterotomy and stenting with or without dilatation.
- PPs should be treated in the presence of pseudocyst infection, symptomatic intracystic bleeding, biliary obstruction, gastric outlet obstruction, early satiety, abdominal pain, weight loss, and enlarging pseudocyst size.[3] It has been suggested that prophylactic treatment of asymptomatic pseudocyst may be considered in the presence of compression of major vessels, pancreaticopleural fistula, pseudocyst size greater than 5 cm that does not regress after 6 weeks, and pseudocyst wall thickness of greater than 5 mm.[8,9]
- EUS finds a place in the drainage of the dilated pancreatic duct using rendezvous techniques when transpapillary access is not possible.
- Treatment of pain refractory to standard intervention can be attempted with EUS-guided celiac plexus block.

Box 1
Contraindications for extracorporeal shock wave lithotripsy

- Stones all along the MPD
- Isolated calculi in tail region
- Multiple MPD strictures
- Presence of moderate to massive ascites
- PP
- Pancreatic head mass