ERCP for Biliary Strictures Associated with Chronic Pancreatitis

Pietro Familiari, MD, PhD, Ivo Boškoski, MD, PhD, Vincenzo Bove, MD, Guido Costamagna, MD*

KEYWORDS

• Chronic pancreatitis • Benign biliary strictures • ERCP • Plastic stent
• Self-expandable metal stent • Dilation • Surgery • Pancreatic cancer

KEY POINTS

- The vast majority of chronic pancreatitis (CP)-related biliary strictures occur as a consequence of progressive fibrosis of pancreatic parenchyma and should be considered as permanent. CP-related biliary strictures are more resistant to endoscopic dilation than other benign biliary strictures.
- Surgical drainage is considered the gold standard for the definitive treatment of CP-related biliary strictures.
- Endoscopic biliary stenting is initially recommended in patients who present with jaundice, especially occurring after an acute exacerbation of pancreatitis, because this may resolve with the resolution of the acute inflammation.
- Endoscopic stenting may be indicated in patients unfit for surgery or in those who refuse surgery.
- Removable, fully covered self-expandable metal stents (FCSEMSs) seem to be a promising alternative for common bile duct strictures related to CP.

INTRODUCTION

A stricture of the intrapancreatic common bile duct (CBD) will develop in approximately 3% to 46% of patients with CP[1–8] and can seriously compromise the clinical course of the disease. Biliary strictures usually complicate a long-lasting disease, as a result of severe fibrosis of the pancreatic head parenchyma, which compresses and narrows the distal CBD. However, CP-related CBD strictures may also be seen in patients with a recently diagnosed disease.

Digestive Endoscopy Unit, Gemelli University Hospital, Università Cattolica del Sacro Cuore, Rome 00167, Italy
* Corresponding author. Digestive Endoscopy Unit, Gemelli University Hospital, 8 Largo Gemelli, Rome 00167, Italy.
E-mail address: gcostamagna@rm.unicatt.it

Gastrointest Endoscopy Clin N Am 23 (2013) 833–845
http://dx.doi.org/10.1016/j.giec.2013.06.007 giendo.theclinics.com
1052-5157/13/$ – see front matter

The real incidence of CP-related biliary strictures is unknown. Many patients remain asymptomatic for years before the stricture will cause increasing cholestasis, jaundice, or cholangitis, and this may contribute to underestimate their incidence. Furthermore, many patients with CP have a history of alcohol addiction, being less compliant to medical care and follow-up.

The management of CP-related biliary strictures is still controversial. Traditionally, a surgical bypass, choledochoduodenostomy, choledochojejunostomy, or hepaticojejunostomy, was the only treatment option. Despite the benefits of a definitive solution, because of the morbidity and mortality associated with surgery, alternative drainage techniques have been investigated, especially endoscopic biliary stent placement. Both treatments, endoscopic and surgical, have, as usual, advantages and disadvantages.

Despite some CP-related biliary strictures resolving with time, the vast majority of clinically significant strictures should be considered as permanent. These strictures are usually more resistant to endoscopic dilation than other benign biliary strictures, especially those occurring after biliary surgery or orthotopic liver transplantation.[9,10] Furthermore, patients with CP have a risk of pancreatic cancer substantially higher than the general population.[11] Cancer usually occurs many years after the clinical onset of CP. Therefore, in certain circumstances, surgery might also be recommended to rule out cancer.[12,13]

Many patients potentially curable with surgery are not good candidates because of their compromised general status, adverse local conditions (ie, postoperative adhesions, portal vein thrombosis with portal hypertension, consequences of severe necrotizing pancreatitis, and so on) or refusal of surgery. Endoscopic drainage offers a chance to this selected group of patients or may be considered as a bridge to surgery.

The pathogenesis of CP-related biliary strictures, the diagnostic workup, the indication to endoscopic treatment, the results of endotherapy, and the future developments in this field are discussed in this review.

PATHOGENESIS

Different mechanisms contribute to the development of biliary strictures in patients with CP. The strictures usually involve the distal third of the CBD, which passes through the pancreatic head before it reaches the papilla of Vater and the duodenum. The intrapancreatic portion of the CBD varies in length from 1.5 to 6 cm, and this accounts for the variability of stricture length seen in clinical practice.[14]

The vast majority of biliary strictures associated with CP occur as a consequence of progressive fibrosis of the pancreatic parenchyma due to recurrent acute or chronic inflammation, which may eventually result in permanent periductal fibrosis. Parenchymal fibrosis in CP is a slow, irreversible process, and these strictures usually occur late in the natural history of the disease. The strictures occurring in patients with calcified pancreatic stones are particularly fibrotic and thus resistant to dilation.[15–17] CBD strictures can also develop earlier in the course of the disease and be the result of an acute pancreatic inflammation as an exacerbation of the chronic illness: the edema of the pancreatic head compresses the CBD, usually between one to few days after the acute bout. These strictures may resolve spontaneously, few days or weeks after the clinical onset, or, in more severe cases, be persistent and require biliary drainage.

Biliary strictures can also be caused by the extrinsic compression of the CBD from a pancreatic retention cyst, a pseudocyst, or a walled-off pancreatic necrosis.[18] These strictures are usually reversible and are managed by draining the pancreatic fluid collection. However, 2 or more mechanisms may contribute to the development of