

Stenting in Malignant Biliary Obstruction



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KEYWORDS

- Malignant • Stents • Bile duct malignancy • Pancreas malignancy
- Gallbladder malignancy • Jaundice • Palliative care

KEY POINTS

- Routine preoperative biliary drainage is associated with negative outcomes.
- Endoscopic palliative biliary drainage has been associated with an improvement in quality of life.
- Antibiotic administration is prudent in patients in whom there is failure or suspicion of failure to drain the targeted biliary system.
- It is unnecessary to perform a sphincterotomy in patients with pancreatic cancer requiring biliary stenting.
- In patients with short survival, there is no significant difference in the total cost per patient between plastic stents and self-expandable metal stents (SEMSs).

INTRODUCTION

It is estimated that in 2014, a total of 46,420 cases of pancreatic cancer were diagnosed in the United States,¹ as well as 10,650 cases of gallbladder and other biliary tumors with a trend toward a higher incidence of intrahepatic compared with extrahepatic cholangiocarcinomas.^{2–8} The median survival of all patients with biliary tract cancers is 4.8 months with 1-year and 5-year survival rates of 31% and 10%, respectively.³

Given this poor prognosis, in a significant proportion of these patients biliary drainage is required because a palliative approach is indicated.

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This review covers stenting of the biliary system in different clinical scenarios: patients with either palliative or resectable malignant biliary obstruction located either proximally or in the distal biliary tree. After a succinct discussion on drainage strategy, the authors focus on comparative data available to address technical and periprocedural considerations. This article does not cover issues pertaining to the evaluation, diagnosis, or treatment other than stenting or treatments incorporated within stents even if they are performed endoscopically (eg, photodynamic therapy or radiofrequency ablation).

WHO SHOULD UNDERGO BILIARY DRAINAGE?

Any biliary drainage is associated with possible complications, the risk of which has to be weighed against benefits in any given clinical situation (**Table 1**). Meta-analyses have suggested more frequent negative outcomes in patients undergoing routine preoperative biliary drainage^{9–11} before surgery for potentially resectable distal malignant biliary obstruction. Therefore, biliary drainage is usually performed only in surgical patients who are candidates for neoadjuvant therapies, in patients with acute cholangitis, or in patients with intense pruritus or in whom surgery will be delayed.¹²

When drainage is attempted for patients scheduled to receive neoadjuvant therapies, a plastic or short intrapancreatic covered SEMS is preferred,¹² with recent data favoring SEMS insertion in this clinical situation because of premature plastic stent clogging^{13–15} in the face of a paucity of adequately controlled data for this clinical situation. In the case of hilar cholangiocarcinoma, a meta-analysis of observational studies has noted that in those with resectable tumors, the use of preoperative biliary drainage was also associated with greater overall postoperative complication and infectious rates⁹; the investigators did not differentiate between percutaneous and endoscopic approaches. Endoscopic palliative biliary drainage has also been associated with an improved quality of life as demonstrated in a randomized controlled trial (RCT)¹⁶ and in a real-life setting.¹⁷

BILIARY DRAINAGE FOR UNRESECTABLE DISTAL BILIARY LESIONS

In the case of unresectable pancreatic and peripancreatic tumors in which palliation is the goal, a meta-analysis of RCTs comparing surgical drainage procedures with an endoscopic approach has demonstrated a lower rate of recurrent biliary obstruction (relative risk [RR], 0.14; 95% confidence interval [CI], 0.03–0.63) with surgery and no difference in major complications or mortality, but endoscopy was associated with a shorter hospital stay.¹⁸ Of note, 4 of the 5 studies in this meta-analysis used plastic stents as definitive endoscopic drainage method, limiting the contemporary interpretation of these results¹⁸ in the era of metal stents. Issues related to actual patient resectability in an unselected group, coupled with the availability of timely surgery and the recent encouraging responses to preoperative neoadjuvant therapies for locally advanced tumors that become resectable, are perhaps the principal reasons why an endoscopic approach is currently the preferred method of drainage in the palliative setting in spite of these data. A more recent factor is the increasing effectiveness of triple chemotherapy for pancreatic cancer, which has introduced the possibility of downstaging of the tumor in several patients initially deemed unresectable and palliative.

BILIARY DRAINAGE OF HILAR LESIONS: MAPPING AND MINIMIZING RISK OF ENDOSCOPIC DRAINAGE

The optimal strategy involved in the biliary drainage of patients who present with hilar lesions is particularly complex owing to 3 main factors: the possible contamination of

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