Endoscopic and Percutaneous Approaches to the Treatment of Biliary Tract and Primary Liver Tumors: Controversies and Advances

Kevin N. Shah, MD, Bryan M. Clary, MD*

KEYWORDS

• Cholangiocarcinoma • Hepatocellular carcinoma • Biliary stenting • Ampullectomy
• Radiofrequency ablation

KEY POINTS

- Primary tumors of the bile ducts and liver often carry unfavorable prognoses and present several clinical and therapeutic challenges.
- Advances in percutaneous and endoscopic techniques have improved preoperative selection and optimization, as well as offering alternatives to traditionally morbid surgical therapies.
- However, these advances are controversial and include questions about the role of routine preoperative biliary drainage, endoscopic versus surgical resection of ampullary tumors, and the use of ablative techniques to treat primary liver tumors.

INTRODUCTION

Primary tumors of the bile ducts and liver often carry unfavorable prognoses and present several clinical and therapeutic challenges. Selecting the correct intervention to perform is only part of this challenge, because many of these patients have underlying comorbidities that exacerbate the already high morbidity of potentially curative operations. Careful selection of patients and preoperative optimization are therefore important considerations. Further complicating management is that individual diseases like cholangiocarcinoma and hepatocellular carcinoma (HCC) do not represent a uniform disease. Variations in location, size, and multicentricity mandate tailored approaches. Although these are serious and difficult diseases to cure, new technologies have added to the armamentarium, offering some less invasive alternatives to traditionally

Division of Surgical Oncology, Duke University Medical Center, 10 Searle Drive, 485 Seeley Mudd Building, DUMC 3247, Durham, NC 27710, USA
* Corresponding author.
E-mail address: bryan.clary@dm.duke.edu

Surg Oncol Clin N Am 23 (2014) 207–230
http://dx.doi.org/10.1016/j.soc.2013.10.003 **surgonc.theclinics.com**
1055-3207/14/$ – see front matter

morbid therapeutic options. This article highlights controversies and recent advances in the use of endoscopic and percutaneous approaches to the treatment of bile duct and liver tumors. The following issues are discussed:

1. The role of preoperative biliary drainage: the arguments for and against its routine use, as well as the best modality for performing it (percutaneous or endoscopic approaches, plastic or metal stents).
2. Local resections of ampullary tumors: the role endoscopic ampullectomy (EA) plays in the treatment of ampullary neoplasms, technical issues and strategies to minimize post-EA complications, and the role of surgical ampullectomy in the era of advanced endoscopic techniques.
3. Endoluminal treatments like photodynamic therapy as a palliative option for patients with unresectable cholangiocarcinoma.
4. The use of ablative therapies in the treatment of primary liver tumors: evaluation of popular thermal ablative types, percutaneous versus laparoscopic approaches, and the efficacy of ablation relative to surgical resection.

BILIARY DRAINAGE

Indications for Preoperative Biliary Drainage

Among patients with obstructive jaundice who have unresectable patterns of disease or are otherwise not candidates for surgery, biliary drainage, either endoscopic or percutaneous, has become a mainstay of palliation. In treating resectable disease, there are also several situations in which there is little controversy regarding the importance of preoperative biliary drainage (PBD). For example, PBD plays an essential role in the treatment of cholangitis and severe hepatic/renal dysfunction related to obstructive jaundice. Preoperative drainage is also required in any situation that results in a delay to surgery, whether it is planned neoadjuvant therapy, a delay while awaiting patient transfer to a high-volume center, or issues related to scheduling. Although PBD is indicated in several situations, the role of universal PBD in patients who are candidates for resection is the subject of some controversy. Several small studies published in the 1980s indicated that PBD resulted in lower postoperative morbidity.[1–5] These data, along with the increasing availability of both endoscopic and percutaneous methods of biliary drainage, have led to the adoption of routine preresection biliary drainage at some centers. However, the data regarding universal PBD are heterogeneous, and most modern reports do not support indiscriminant PBD. A meta-analysis by Sewnath and colleagues[6] analyzed 5 randomized controlled trials (RCTs) and 18 nonrandomized reviews of PBD versus early surgery and did not find convincing evidence that PBD was beneficial. There was no clear difference in postoperative morbidity between the PBD group and the early surgery group. Furthermore, when drainage-related complications were added, the rate of morbidity was in favor of the non-PBD group. There are several criticisms of this study that should be noted when interpreting its results. Some clinicians have criticized the randomized trials included in this meta-analysis (all from the 1980s) because they were all small studies without the methodological rigor marked by more modern randomized trials.[7] In addition, these conclusions are difficult to interpret, because most of the included studies did not distinguish between proximal and distal biliary strictures. Because the issues surrounding the management of proximal and distal bile duct strictures are distinct, the use of PBD is best understood by discussing the management of distal obstructing lesions and more proximal lesions separately.