Commentary (Raijman/Wallace): Management of Malignant Biliary Obstruction: Nonoperative and Palliative Techniques

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The first description of percutaneous biliary drainage in the United States appeared in 1965 [1]. The percutaneously placed catheters were left in the obstructed biliary tract for drainage for up to 5 days. Since then, biliary drainage techniques have advanced substantially, and options have proliferated. Now, the nonsurgical palliation of malignant biliary obstruction, accomplished either endoscopically or percutaneously, is a well-established therapeutic modality.

The aim of palliative therapy is to provide relief of jaundice and pruritus, as well as associated cholangitis, but most importantly to prepare patients for anticancer therapy. Neither the endoscopic nor the percutaneous approach has an advantage with regard to influencing patient survival, and the choice of technique is often a team decision based on the available local expertise. If skilled therapeutic endoscopists and therapeutic radiologists are both available, other factors, such as associated morbidity and mortality, patient comfort, associated postprocedural care, and costs, must be considered when choosing a primary approach. Based on currently available knowledge, and on a growing consensus among units that have experience with both endoscopic and percutaneous stenting techniques [2-5], it could be argued that all patients with malignant obstructive jaundice should be offered palliation by therapeutic endoscopy as the primary approach and that the percutaneous approach should be considered a secondary therapy. Surgery solely for the purpose of accomplishing biliary drainage in patients with malignancy is not recommended.

Endoscopic vs Percutaneous Approaches
A direct comparison between the percutaneous and endoscopic approaches is difficult because of variations in techniques, patient selection, and definition of complications [2]. In addition, the rapid advancement in endoscopic techniques makes previous comparisons invalid. Speer et al [2] described 70 patients with malignant biliary obstruction who were randomized to undergo drainage by either the percutaneous method (33 patients) or endoscopic stenting (37 patients). The success rate of endoscopic stents in relieving jaundice (81%, vs 61% for the percutaneous method) and the complication rate (19% vs 67%) were significantly different in favor of the endoscopic approach. In addition, 30-day mortality in the two groups (15% and 33%, respectively), although very high, also favored patients who were palliated endoscopically.

When either percutaneous or endoscopic stent placement is compared to surgical bypass, the success in relieving jaundice is similar, around 90%; however, the incidence of major complications, 30-day mortality, and the number of hospital days are all lower for the nonsurgical group [6]. In addition, costs are significantly lower with the nonoperative approaches [7].

Endoscopically placed stents are well accepted by patients and can usually be placed in a single session. These stents have a low rate of significant complications during the postprocedural period and require no maintenance care on the part of the patient. When compared to percutaneously placed stents, endoscopically placed prostheses provide greater comfort and quality of life [5,8]. With external catheters, there is a need to adjust to a post-stent placement routine, including periodic maintenance, regular catheter exchanges, and skin care.
Virtually 100% of externally placed catheters are eventually colonized when left in for a prolonged period, and this often results in cholangitis, requiring removal or exchange of the catheter. These complications add substantially to patient care costs. The possible complications of stent occlusion and the need to change the stent periodically occur with stents placed by either approach. For endoscopically placed stents, the mean event-free time using large-bore plastic endoprostheses (12...
French) is 190 days (range, 9 to 450 days) [9], and stent exchange every 6 months may be appropriate [10]. In addition, loss of electrolytes and fluids and pH imbalance may occur with external, but not internal, drainage [11].

**Occlusion**

Stent occlusion remains a significant problem [12]. The advent of expandable metallic stents, placed either endoscopically or transhepatically, has reduced the rate of occlusion of the stent, although occlusion secondary to tumor ingrowth or overgrowth remains a problem. Prospective, randomized studies comparing endoscopically placed expandable metallic stents vs their plastic counterparts have shown an increased patency rate for the metallic stents [12-15]. Placement of similar stents through the percutaneous route has had encouraging results, although the occlusion and early complications rates may be higher compared to rates reported in endoscopic series [16-18]. Some experts advocate that low-lying biliary strictures, such as those produced by pancreatic or ampullary cancers, are best treated by peroral endoscopic stent placement, and those in a more proximal location, such as a Klatskin tumor, are best treated by the percutaneous approach, because the access to the lesion, including placement of bilateral stents, is much more difficult for the endoscopist. The combined endoscopic-percutaneous route has been used successfully by others [14,15,19]. While proximally located strictures undeniably pose more difficulty for the endoscopist, a peroral approach should be tried first, since, in expert hands, successful placement of a stent should be achievable in the majority of patients.

According to the Bismuth classification of biliary strictures [20], type I lesions are easier to treat than type IV lesions, and achieve complete drainage. While complete drainage is favored by some [21] in order to prevent possible cholangitis, others suggest that drainage of one segment of the liver parenchyma is enough in the majority of patients [19,22]. In our experience, placement of a single large-bore endoprosthesis (plastic or metallic) is usually sufficient. For metastatic disease to the liver, we place the stent in the less affected lobe. For bifurcation tumors, we place the stent(s) in the duct that shows the least involvement of more peripheral branches.

In this issue, Dr. Shapiro reports on the interventional management of malignant biliary obstruction. Although an overview on currently available techniques for the nonoperative management of malignant biliary strictures, the article mostly emphasizes the percutaneous approach. In addition, the author summarizes her group's unpublished data on the use of brachytherapy for selected malignant strictures.

Dr. Shapiro states that "high obstruction at the ductal confluence...is beyond the reach of most endoscopists," and adds that "although biliary obstructions are usually complete, it is almost always possible for a trained interventional radiologist to negotiate through a stricture...." Conceptually, the distance between the proximal stricture and the tip of the endoscope adds to the distance the endoscopist needs to negotiate, but adds little when compared to the distance from the stricture to the mouth. A skilled interventional endoscopist should be able to negotiate such proximal obstructions in the majority of patients.

**Not All Patients Require Drainage**

Not all patients with jaundice as a result of advancing regional malignancy qualify for biliary drainage. Only those patients in whom further local, regional, or systemic therapies are planned should be subjected to a drainage procedure. In selecting this approach, the patient's expected survival must be taken into account.

At M.D. Anderson Cancer Center, where we have expert interventional radiologists as well as therapeutic endoscopists, our primary approach is to attempt an endoscopic biliary drainage. This approach is successful in > 90% of patients (unpublished data). If the initial endoscopic drainage fails, a second endoscopic attempt is often tried. If the second attempt also proves unsuccessful, percutaneous palliation is undertaken. This approach has proved to be effective, well tolerated, and well accepted by the overwhelming majority of patients (and their families). We have also been able to endoscopically place internalized stents that had been previously placed percutaneously.

In summary, in the relief of jaundice, pruritus, associated cholangitis, and planning of anticancer therapy, an endoscopic approach to biliary drainage may have advantages. However, the percutaneous approach should also be available in instances where the endoscopic method proves unsuccessful.

**References:**


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