Endoscopic ultrasonography-guided gallbladder drainage procedures: Is the glass half-full or half-empty?

The curvilinear (convex) echoendoscope enables real-time sonographic observation of the needle when accessing a target lesion either for tissue sampling or intervention. Endoscopic ultrasonography (EUS)-guided drainage was first reported for the treatment of pancreatic pseudocysts.\(^1\) Its application has now expanded to include drainage of obstructive pancreatic and biliary ductal systems not accessible by endoscopic retrograde cholangiopancreatography (ERCP).\(^2,3\) More recently, the range of its applications has been widened to include gallbladder drainage in poor-risk surgical candidates with gallbladder disease.\(^4,5\) This is particularly relevant for patients in whom transpapillary and percutaneous approaches to gallbladder drainage has failed or is technically difficult. In this edition of the Journal, Widmer and colleagues conducted a review of the literature of patients who underwent EUS-guided gallbladder drainage and reported a technical success rate of 96.6% in 90 patients.\(^5\) Patients in whom the procedure was technically successful also had equivalent treatment success rates.\(^5\) Complications occurred in 12.2%.\(^5\) These outcomes appear comparable to EUS-guided biliary drainage (technical success rate: 94–96%, complication rate: 15–18%) and certainly superior to pancreatic ductal drainage (technical success rate: 77–92%, complication rate: 64%).\(^2,5\)

EUS-guided drainage involves four intricate steps.\(^1-5\) The first step is to identify an appropriate route. The second step is to puncture the drainage target with a needle. The third step is dilation of the transmural tract. The fourth step is insertion of drainage tubes to facilitate drainage. In general, for EUS-guided gallbladder drainage, the transgastric route provides access to the body of the gallbladder and the transduodenal route to the neck of the gallbladder.\(^5\) Although the procedural outcomes can possibly be improved further by determining the ideal route for drainage, no comparative studies to this effect have been undertaken so far.\(^1-5\)

The procedural technique as outlined earlier involves multiple steps. A one-step device that enables puncture, transmural dilation and stent deployment would minimize the risk of guidewire dislodgement and potential complications such as bile leak.\(^3,5\) Recently, there is a growing advocacy for the placement of self-expandable metal stents (SEMS) in patients undergoing EUS-guided drainage. This is mainly because of the premise that SEMS seals the ‘gap’ better between the stent and fistula thereby minimizing the chances for leak and pneumoperitoneum.\(^3,5\) Also, the wider lumen of the covered SEMS (CSEMS) facilitates other interventions such as gallstone removal in patients not undergoing a cholecystectomy. Several prototypes with flanges and flares are currently in development to minimize the possibility of stent migration and preliminary reports appear promising.

While the review by Widmer et al. focuses mainly on clinical outcomes, there is a serious paucity of data on how EUS-guided gallbladder drainage compares with percutaneous drainage. In the only randomized trial conducted to date, EUS-guided gallbladder drainage was comparable to percutaneous techniques in terms of technical feasibility, efficacy and safety.\(^4\) It is also very likely that EUS-guided gallbladder drainage, unlike percutaneous catheters, by virtue of being internal, is unlikely to dislodge, is not associated with skin infections, and provides for better quality of life. However, this crucial assumption has not been investigated so far. The glass unfortunately is half empty.

Although technological innovations and technical refinements have steadily improved the rates of procedural success and decreased complications associated with EUS-guided drainage procedures, much more needs to be done. While it is important to conduct well-designed, prospective, randomized trials comparing the different procedural techniques and devices under development for this indication, multidisciplinary studies comparing EUS to percutaneous techniques and/or surgery is essential to move the discipline forward. These studies should not only focus on the technical and treatment outcomes but also on quality of life and cost. Right now, the glass is only half-full.

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