Endoscopic Nasogallbladder Drainage in Patients with Acute Cholecystitis: What's Predictive Factor for Technical Success?

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See "Feasibility, Efficacy, and Predictive Factors for the Technical Success of Endoscopic Nasogallbladder Drainage: A Prospective Study" by Kei Yane, et al. on page 239, Vol. 9. No. 2, 2015

Although cholecystectomy is the treatment of choice in patients with acute cholecystitis, nonsurgical gallbladder decompression may be preferable for patients of advanced age or underlying comorbidities such as liver cirrhosis or cardiopulmonary disease. Percutaneous and endoscopic drainage procedures are recommended as nonsurgical gallbladder drainage. Percutaneous transhepatic gallbladder drainage (PTGBD) is the most established technique for gallbladder drainage in patients unresponsive to medical treatments or who are at high risk for cholecystectomy, with clinical response rates of 90% to 100%.¹⁻³ However, PTGBD may be not suitable for patients with massive ascites or coagulopathy or an inaccessible gallbladder location such as Chilaiditi syndrome. Adverse events related to PTGBD including puncture-induced hemorrhage, pneumothorax, and bile peritonitis was reported in 2.8% to 12% of patients.¹⁻³

Endoscopic gallbladder drainage technique has been proposed as alternative therapy to PTGBD, including transpapillary nasogallbladder drainage (ENGBD), transpapillary gallbladder stenting, or endoscopic ultrasound-guided transmural gallbladder drainage (EUS-GBD). ENGBD has been proposed as an alternative method to PTGBD more than 20 years ago. The reported technical success rates of ENGBD were 64% to 89%, which is lower than that reported for the percutaneous transhepatic approach.⁴ ENGBD exhibits a low technical success rate as a result of technical challenging in cystic duct (CD) cannulation. The difficult reasons in negotiating the CD with the guidewire are as follows: First, the CD tortuosity and stricture caused by inflammation and gallstone impaction can block the advancement of the guidewire. Second, the point at which the CD takes off from the common bile duct (CBD) is frequently not visible on cholan-

giograms. SpyGlass cholangioscopy has significant advantages over endoscopic retrograde cholangiopancreatography in allowing the direct visual examination of bile ducts and obtaining targeted CD cannulation. The recent study reported SpyGlass-assisted ENGBD is useful in patients with acute cholecystitis even when the CD is invisible on the cholangiograms.⁵ Complications of ENGBD are mainly related to CBD cannulation (pancreatitis) and sphincterotomy (perforation and bleeding).⁶ CD cannulation can be difficult due to the cystic duct's corkscrew profile and narrow caliber, and the presence of Heister's valves. Despite the use of hydrophilic guidewire, CD injury that the guide wire penetrates through the cystic duct wall can occur.^{6,7}

EUS-GBD is recently introduced as an alternative therapy of acute cholecystitis in high-risk patients. The advantages of EUS-GBD are the avoidance of external drainage unlike PTGBD and the risk of procedure related pancreatitis or cholangitis unlike ENGBD. The pooled overall success rate for EUS-GBD was 97.3% and the adverse event rate was 9.5%.⁸ Adverse events included abdominal pain, pneumoperitoneum, bile leakage, perforation, and stent migration. Theoretically, the main risk is bile leakage or bile peritonitis after procedure because of a gap between gallbladder wall and the fistulous tract. However, there was no significant bile leakage after EUS-GBD, which may have been caused by the adherence of an inflamed gallbladder wall to the adjacent gut wall, thus preventing bile leakage through the puncture site. In addition, a self-expandable metal stent (SEMS) can seal the gap between the stent and the transmural tract by expanding, thus reducing the risk of bile leakage.⁹ Recent study about the long-term outcomes of EUS-GBD using SEMS was reported. During long-term follow up (median, 275 days; range,

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40 to 1,185 days), 54 of 56 patients (96.4%) had no recurrence of cholecystitis without any additional intervention, such as stent exchange. The overall rate of reintervention was only 3.6% (2/56). This result suggests that it may be possible to leave the stent in place after EUS-GBD without scheduled stent revision unless clinical symptoms or adverse events occur.¹⁰ Although success rate and long-term data reported in the literature are favorable, some obstacles were overcome to be widely used as alternative method for managing acute cholecystitis at high risk patients for cholecystectomy. The methods and devices used for EUS-GBD need to be standardized. Furthermore, an experienced endoscopist and a well-equipped facility are required for EUS-GBD.

ENGBD can be still recommended as an attractive treatment in center which EUS-GBD is not available. The technical success rate of ENGBD performed even by experienced endoscopists was insufficient. To overcome low success rate, the factors that affect the technical difficulty of the procedure are required to be clear. Most of the previous reports have demonstrated the only feasibility and efficacy of ENGBD, based on results of retrospective studies. The factors that affect the technical difficulty and success rate of ENGBD remain unclear. In the current issue of *Gut and Liver*, Yane *et al.*⁷ reported prospective data about the feasibility, clinical efficacy and predictive factors for technical success of ENGBD. The gallbladder wall thickness and age were suggested as factors associated with the technical failure of ENGBD. Acute cholecystitis with a thick gallbladder may make cystic duct cannulation more difficult because a thicker gallbladder wall tends to have more severe inflammation. The reason why age may affect technical failure is thought that the elderly patients are hard to endure the longer endoscopic procedure because of their general condition. The CBD diameter and CD direction were suggested as possible predictive factor only in univariate analysis. Theoretically, the CBD diameter and cystic duct direction may cause technical difficulty during cystic duct cannulation. The discordance between this assumption and their result may be due to the small sample size of the study.

In conclusion, ENGBD is a safe and reliable treatment method in patients who cannot undergo emergency cholecystectomy. It could be recommended as the first-choice method in only selected patients because of a limited success rate and technical difficulty. Further collection of large-scaled, prospective data is

needed to clarify factors that associate improvement of technical success rate.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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