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Multimodal treatments of “gallstone cholangiopancreatitis”

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Abstract

Gallstone cholangiopancreatitis is a potentially life-threatening condition, which requires prompt treatment involving endoscopists, surgeons, interventional radiologists, and anesthesiologists, depending on the clinical presentation. The management options are quite varied, especially in the present era of advanced endoscopy, interventional radiology, and laparoscopic surgery. The following management strategies are available: endoscopic sphincterotomy (EST) with stone extraction followed by laparoscopic cholecystectomy; simultaneous endoscopic stone extraction with laparoscopic cholecystectomy (rendezvous technique); combined laparoscopic cholecystectomy and common bile duct (CBD) exploration; open CBD exploration; EST post-cholecystectomy; percutaneous placement of biliary drains for unstable patients, followed by percutaneous cholangioscopy; and lithotripsy with different approaches, including a laser and balloon dilation of the sphincter of Oddi. Each procedure has its advantages and disadvantages, and there is a broad overlap between indications for ideal management of a particular clinical scenario.

Key Words: Cholangiopancreatitis; Common bile duct stones; Endoscopic retrograde cholangiopancreatography; Endoscopic sphincterotomy; Laparoscopic common bile duct exploration; Percutaneous treatment

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Core Tip: Gallstone pancreatitis associated with cholangitis requires urgent biliary decompression. There are different approaches for common bile duct (CBD) clearance. Endoscopic retrograde cholangiopancreatography is not always feasible, especially in the case of poor clinical conditions, large stones, or biliodigestive derivations. We analyzed the different approaches for decompression of the CBD in the case of “cholangiopancreatitis.”

TO THE EDITOR

We read with interest the article by Isogai^[1] about the definition of “gallstone cholangiopancreatitis,” and the etiological and prognostic hypotheses. However, it seems appropriate to report some comments.

It is difficult to distinguish between cholangitis associated with gallstone pancreatitis or onset of multiorgan failure or other concomitant liver disease using alanine aminotransferase alone^[2]. Nevertheless, the reflections expressed in the paper pave the way for future studies to identify methods that better define cholangiopancreatitis from other liver diseases that can compromise the course of a severe acute pancreatitis. Furthermore, even if the article was not intended to address all management strategies, it seems appropriate to make some clarifications.

Gallstone pancreatitis associated with cholangitis requires urgent biliary decompression to ameliorate the disease course. The possibilities of biliary decompression are many, including endoscopic retrograde cholangiopancreatography (ERCP), and depend on the clinical status of the patient, the size of the stones, and any previous biliodigestive derivation. Guidelines recommend urgent ERCP in patients with gallstone pancreatitis with concomitant cholangitis and suggest that ERCP might be beneficial in patients with cholestasis but without cholangitis^[3-5].

Schepers *et al*^[6] showed that urgent ERCP plus endoscopic sphincterotomy (ES) is indicated in patients with acute pancreatitis and cholangitis or persistent cholestasis. The execution of ERCP ensures excellent clearance of the CBD; however, a certain percentage of patients require two or more ERCP treatments. ERCP with sphincterotomy is an invasive procedure that is associated with complications in up to 10% of patients^[7,8], including bleeding, duodenal perforation, cholangitis, pancreatitis, and CBD lesions. In some cases, ERCP is not practical. A previous study suggested that ERCP is associated with increased respiratory complications^[9-13]. In severely ill patients, these respiratory complications might be triggered by conscious sedation and potential aspiration or by temporarily reduced oxygenation associated with sedation. Schepers *et al*^[6] observed more intensive care unit admissions in the urgent ERCP group.

In our clinical practice, we subject critically ill patients, who may not tolerate general anesthesia or deep sedation, to percutaneous placement of biliary drains as a first step with a possible attempt to clear the common bile duct (CBD) with the use of percutaneous cholangioscopy and laser.

The postoperative management of a CBD drainage can present some complications such as displacement, obstruction, and bacterial superinfection. At the same time, it offers the advantage of an easy cholangiographic check in the follow-up, and being useful for documenting the absence of residual stones and patency of the biliary tract in its entirety. After stabilization of the clinical picture, we proceed to surgery and rendezvous ERCP; if it is not possible to perform ERCP plus ES, laparoscopic CBD exploration (LCBDE) is performed. Aawsaj *et al*^[14] showed that laparoscopic bile duct exploration can be successfully performed in both emergency and elective settings. A transcystic approach should be used when possible. Cholecystectomy within the same admission might prevent recurrent gallstone pancreatitis.

A previous review^[15] showed no difference between open surgery *vs* ERCP in clearance, morbidity, and mortality. The open surgery group had significantly fewer retained stones than the ERCP group (6% *vs* 16%; $P = 0.0002$). Comparing laparoscopic cholecystectomy (LC) + LCBDE *vs* two-staged pre-operative ERCP plus LC or LC plus post-operative ERCP, there were fewer retained stones in the single-stage group (8%) compared with the two-stage group (14%) ($P =$ not significant). In the study by Ding *et al*^[16], at longer-term follow-up, recurrent CBD stones were seen more often in the two-stage group (9.5% *vs* 2.1%; $P = 0.037$). The endoscopic group had a significantly greater number of procedures per patient ($P < 0.001$) and a higher cost ($P = 0.002$). In the study by Bansal *et al*^[17], the two groups did not significantly differ in terms of major complications, but the single-stage strategy was better in terms of shorter hospital stay.

Balloon dilation is a valid alternative to endoscopic sphincterotomy and can be performed both percutaneously and endoscopically. Compared to sphincterotomy, it is simpler to perform and leads to a lower percentage of bleeding and lesions of the sphincter of Oddi, but it is also less effective in ensuring correct clearance of the

CBD^[18,19]. In the era of multimodal treatments where endoscopic techniques offer significant diagnostic and therapeutic advantages for the treatment of CBD obstruction, laparoscopic treatment may represent the technique of choice in clinically stable patients with larger CBDs and a history of previous bariatric surgery or other biliodigestive derivations, and in patients in whom the endoscopic route has proven unsuccessful^[20-22]. In addition, the laparoscopic approach guarantees the possibility of performing only one anesthesia. Exploration of the main biliary tract by choledochoscopy and the simultaneous removal of stones from the choledochus in a single-stage procedure is an effective, safe, and minimally invasive method for the treatment of gallstone cholangiopancreatitis, provided that it is performed in reference centers and by operators with adequate experience. It also reduces the anesthetic risks associated with two subsequent procedures, and reduces the average hospital stay and the cost of multiple hospitalizations.

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