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Letters to the Editor

Efficacy of Fibrin-collagen Sealant for Reducing the Incidence of Biliary Fistulae After Laparoscopic Exploration of the Bile Duct[☆]



Eficacia del sellante de fibrina-colágeno para reducir la incidencia de fístulas biliares tras la exploración laparoscópica de la vía biliar

Dear Editor,

We read with interest the article by Drs. Parra-Membrives et al.,¹ published in *CIRUGÍA ESPAÑOLA* in August 2018, and we share their opinion that laparoscopic exploration of the bile duct in patients with choledocholithiasis and gallbladder *in situ* is the approach of choice. This fact is included in the NICE guidelines in the United Kingdom² and has recently been supported by 2 extensive meta-analyses^{3,4}; it has been our standard practice since 1998.⁵

However, we believe that the choledochotomy approach should be abandoned, circumstances allowing, due to the associated complications, as shown in their article. We initiated the use of common bile duct closure over an antegrade stent in 2000,^{6,7} and after 150 cases we abandoned its routine use in favor of primary closure. In an attempt to further minimize morbidity, the transcystic approach has been gradually introduced into our daily practice to become the technique of choice (performed in 88% of the 100 most recent cases). It should be noted that, in a total of 158 transcystic approaches, only one patient had a bile leak, which was controlled with ambulatory treatment. These results are in contrast with the 4 fistulae in 45 primary closures of the common bile duct.

It is evident that transcystic exploration is technically more complex than transcholedochal, and we believe that we have reached such a high rate of transcystic explorations due to the following 4 factors:

In the first place, the complete dissection of the gallbladder from its hepatic bed, remaining joined with the bile duct exclusively through the cystic duct, which allows for correction of the cystic/choledochal angle at a right angle. This facilitates intubation and proximal access using the 'wiper blade

maneuver'. Second, the use of 3-mm choledochoscopes facilitates access in cases of non-dilated cystic ducts. Third, the use of a holmium laser for transcystic fragmentation of the lithiasis ducts, due to their size, cannot not pass through the cystic ducts.⁸ Fourth, the trans-infundibular approach that provides safe access to the bile duct in cases of significant inflammation of the Calot triangle and the common bile duct.⁹

Regarding the authors' results, we are surprised by the absence of acute pancreatitis related with the stent, which in our experience occurred in 12%¹⁰ and was the main reason why we stopped using this technique in favor of primary closure. Finally, we observed a high rate of fistulae despite using stents, perhaps associated with the use of 4-0 suture, which in our series sometimes caused fistulae at the point of entry of the needle. In case of choledochotomy, we recommend the closure with continuous 5-0 suture.

In conclusion, we fully agree with the indication for laparoscopic exploration of the bile duct in patients with gallbladder *in situ*, and we recommend the routine use of the transcystic approach, which, in our series of 400 patients, has been associated with lower morbidity and better results.

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Eficacia del sellante de fibrina-colágeno para reducir la incidencia de fístulas biliares tras la exploración laparoscópica de la vía biliar

Dear Editor,

We appreciate the comments about our study by Dr. Martínez-Isla et al.¹ We share his interest in the transcystic approach, which has indeed demonstrated a reduction in the incidence of biliary fistulae.² Our transcystic exploration cases are not included in the article we published, since our objective was to try to establish the reduction in biliary leaks after choledochorraphy using sealants. However, we feel that transcystic exploration is more complex, often technically impossible, and does not guarantee complete exploration of the bile duct. There is a 10%-25% variation in the implantation of the cystic duct, running parallel to the bile duct or inserting into the left side of the common bile duct.^{3,4} This makes access difficult, so that complete dissection of the cystic duct can lead to injury to common bile duct vascularization. As a result, the risk/benefit balance does not clearly lean toward the transcystic approach.

Under these conditions, exploration of the bile duct proximal to the cystic implantation is not always possible, so the removal of stones in this area can be hindered. Furthermore, in our setting there is a significant amount of choledocholithiasis that are much larger than the cystic duct, preventing extraction by this route. Fragmentation is difficult, as most hospitals do not have lasers. In addition, we do not share the indication of its use, as it increases the number of extraction maneuvers necessary and the risk of residual lithiasis. The size of the cystic duct or calculi and the number of stones and their location have been shown to be predictors of failed transcystic exploration.⁵ On occasion, we have used pneumatic dilatation of the cystic duct to facilitate the insertion of the choledochoscope and extraction of the calculus, but this maneuver can cause cystic ischemia, delayed necrosis and the appearance of biliary peritonitis. Lastly, excessive manipulation of 3-mm fiber optic choledo-

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