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Reply to Letter to the Editor Endoscopic ultrasonography-guided cholecystogastrostomy in a patient with pancreatic cancer: the first case in Colombia

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The treatment of choice for biliary obstruction of neoplastic origin is endoscopic retrograde cholangiopancreatography (ERCP), even though it may fail in 5-10% of cases due to anatomical alterations of the ampulla of Vater, intradiverticular papilla, neoplastic infiltration into the duodenum with stenosis, or altered anatomy. Usually, in these cases, the second choice is to perform a percutaneous transhepatic biliary drainage (PTBD); however, this procedure is associated with a high rate of complications (up to 33%), including bleeding, infections, catheter displacement, and bile leakeage, which have a significant impact on the patient's quality of life (1-3).

Recently, endoscopic ultrasound-guided biliary drainage (EUS-DB) has emerged as an alternative to PTBD, with a high technical and clinical success rate, low risk of complications, and better quality of life for the patient. There are two techniques: choledochoduodenostomy (EUS-CDS) and hepaticogastrostomy (EUS-HGS) (4, 5).

EUS-DB was first described by Giovannini *et al.*in 2001 (6) and since then, many studies have been published showing high rates of technical and clinical success (95% and 97%, respectively), as well as a low risk of complications (1, 4).

The development of dedicated devices, such as *lumen-apposing metal stents* (LAMS) and others such as Giobor®, has displaced the use of *self-expandable metal stents* (SSMS) and plastic stents, which increased the risks of complications such as biliary leakage, stent migration, and pneumoperitoneum; therefore, this procedure can be carried out with greater safety and lower risks (3, 7, 8).

Biliary stenosis of neoplastic origin implies a poor short-term prognosis because most patients receive their diagnosis in an advanced stage of the disease. This limits treatment with curative intent and leads to the initiation of a palliative approach that seeks to improve the patients' quality of life, taking into account that the signs and symptoms they suffer (such as jaundice, pruritus, and bowel obstruction) can significantly deteriorate their overall health status (7, 9, 10).

The main intervention carried out around the world in these cases is biliary drainage with *stent* placement in the common bile duct by means of ERCP. This method has a percentage of technical failure in cases in which neoplastic infiltration into the papilla does not allow cannulation and, therefore, biliary drainage, leading to the need to perform procedures such as PTBD, which is associated with a higher percentage of morbidity (1, 2, 10).

PTBD is the most common biliary drainage procedure in cases of malignant biliary disease and duodenal disease with subsequent obstruction of the biliary tree, which prevents the technical success of ERCP; it is also useful in elderly patients, with multi-

ple comorbidities and unresectable cancer with a limited life expectancy.

Even so, percutaneous access to the biliary tree has a percentage of comorbidity that must be considered due to the need for constant care of the bile drain, as it requires constant washing and replacement, in addition to the discomfort of carrying it permanently, which implies the risk of involuntary removal that could cause sepsis, bleeding and, consequently, infection of the insertion site, altering the quality of life in an attempt to improve it (1).

Regarding surgery, biliary drainage by hepaticojejunostomy, hepaticoduodenostomy, and choledochoduodenostomy, among others, play an important role in cases in which percutaneous drainage of the biliary tree is not possible. Unfortunately, the surgical approach, whether open or laparoscopic, in this group of patients with a high frailty index does not offer the best outcomes since it has high rates of morbidity related to anastomotic leak, organ or space infection, and perioperative mortality (1, 2, 9).

Over the last decade, the development of endoscopic ultrasonography (EUS) has provided an alternative for biliary drainage and decompression in cases of failed ERCP, and has demonstrated certain advantages over PTBD, such as the possibility of performing it during the same intervention when ERCP is not possible, as well as less pain and infection (2, 9).

The clinical success of biliary drainage by EUS-CDS has been exposed in multiple series with the use of different stents and devices, to the point of being proposed as the first-line option (2). Initially, EUS-CDS was performed using plastic stents, obtaining clinical success demonstrated in several studies, such as that of Hara et al., who reported a technical and clinical success of 94% and 100%, respectively, but with a percentage of stent occlusion at 163 days of 66.7% (7).

On the other hand, the risk of bile leakage and cholangitis implied a significant morbidity rate, which led to the use of metal stents to perform EUS-CDS (7). Thus, studies such as the one by Gupta et al., in which the incidence of cholangitis in patients treated with plastic stents and patients treated with metal stents was compared, have found a much higher incidence in the group treated with plastic stents, with a similar incidence of bile leakage (7). However, over time, the most dangerous complication of using coated metal stents was found to be stent migration from the puncture site, since it leaves a major defect open (7).

Finally, EUS-CDS with LAMS (Hot Axios) was introduced (3); it was first used for cases of pancreatic pseudocyst drainage before being adopted for biliary drainage. In particular, the drainage device used for this procedure is characterized by having a short length and the shape of a "dumbbell" with wide flanges, which allows it to be anchored through non-adherent structures, explaining its antimigration capacity and the lower risk of bile leakage (7). Another important and very novel property is the inclusion of an electrocautery-enhanced delivery system and stent release, which eliminates over-the-wire exchanges of instruments, thus reducing the number of complications (7, 10).

The first multicenter study to report the experience with cases of EUS-CDS with anti-migratory stent (Hot Axios) was conducted by Tsuchiya et al., who demonstrated a technical and clinical success of 100 % and 95 %, respectively. However, 5 of the 19 patients included in the study had stent blockage within the next 184 days and anticipated the need for further EUS-CDS (7).

With what has been reviewed in the literature, on the one hand, it can be concluded that the performance of EUS-CDS has an approximate percentage of adverse events of 16%, mainly constituted by infection, pneumoperitoneum, bile leakage, bleeding, abdominal pain, perforation, and stent migration; the most common complication is pneumoperitoneum, which is treated conservatively with a good prognosis for the patient (4, 8). On the other hand, the use of Doppler is convenient for the endoscopist when ruling out the presence of vascular stricture and avoiding complications (5). However, there are reports of cases such as that of Mangas-Sanjuan et al., in which they expose a case of accidental puncture of the portal vein at the time of performing an EUS-CDS, a complication that they were able to resolve by the same route, controlling the bleeding and achieving clinical and technical success for biliary drainage (5, 8).

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