



# REVISTA DE GASTROENTEROLOGÍA DE MÉXICO

[www.elsevier.es/rgmx](http://www.elsevier.es/rgmx)



## SCIENTIFIC LETTER

### Subcapsular hepatic hematoma after endoscopic retrograde cholangiopancreatography; a rare intraoperative finding<sup>☆</sup>



### Hematoma hepático subcapsular posterior a la colangiopancreatografía retrógrada endoscópica, un hallazgo intraoperatorio inusual

Endoscopic retrograde cholangiopancreatography (ERCP) should be an exclusively therapeutic procedure, for both pancreatic and biliary pathologies. The knowledge and understanding of its complications have advanced considerably over the past decade. A standardized consensus of definitions of the complications has been developed, and several multicenter and multivariate studies have provided a clearer comprehension of the risks associated with the patient and the risks associated with the technique *per se*.<sup>1</sup>

Complications can encompass a broad spectrum, including pancreatitis, bleeding, cholecystitis, bowel perforation, and cardiovascular events, in approximately 0.8–10% of cases.<sup>2</sup> There are risk factors for developing a complication, such as the number of cannulation attempts, portal hypertension, coagulopathy, anatomic anomalies of the papilla, bile duct obstruction, and biliary tract malignancy.<sup>3</sup> It is important to understand that a successful procedure with minor, or even moderate, complications can be preferable to a failed procedure with no complications, given that the latter scenario often implies the need for major surgery or advanced interventional radiology procedures, both carrying their own morbidity and mortality risks, which are often greater than those of ERCP.<sup>4</sup>

The most common complications are usually the consequence of bile duct cannulation or sphincterotomy. However, the inadequate use of accessories can result in rare, but potentially catastrophic, complications. Such is the case of subcapsular hepatic hematoma, which is described in only a few case reports in the medical literature. Those patients usually present with abdominal pain, hemodynamic instability, and a decrease in hemoglobin. Diagnosis commonly requires imaging studies (tomography or ultrasound) within

the first 5 days of the event.<sup>5</sup> No case diagnosed in an intraoperative procedure following an ERCP has been reported in the literature.

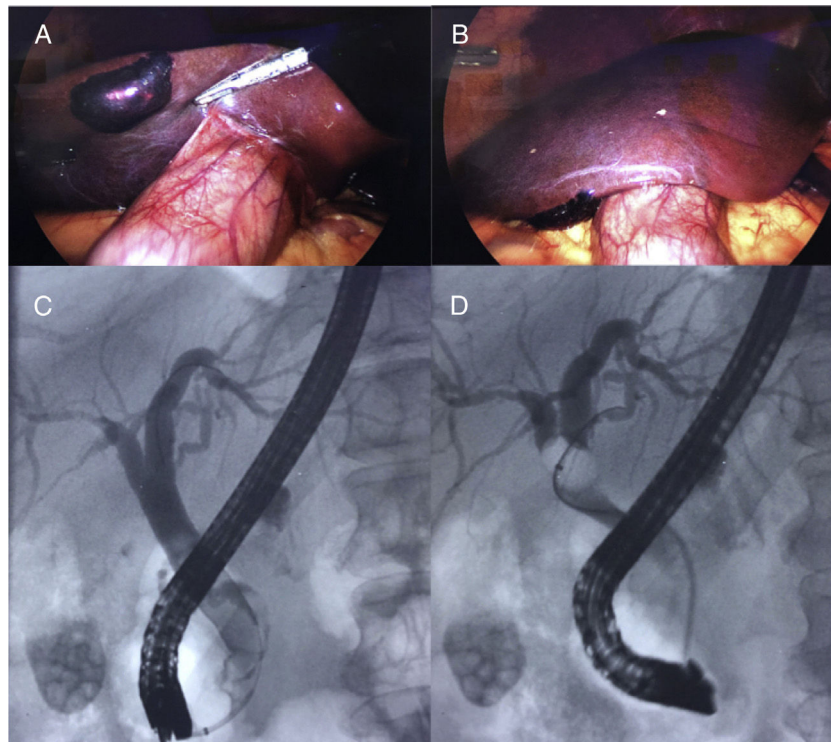
There are 2 hypotheses as to cause. The first involves the laceration of small vessels of the hepatic parenchyma, as a result of intrahepatic duct or capsular perforation by a hydrophilic guidewire. In the second, traction force exerted on the common bile duct by an extraction balloon is the cause.<sup>6</sup> In general, the majority of patients recover through conservative management. Prophylactic antibiotic administration is of vital importance, given that those patients are thought to be at an increased risk for infection due to bacteria gaining access into the biliary tract.<sup>7</sup>

We present herein the case of a 30-year-old man, with no past history related to his current illness, who presented with sudden colicky, abdominal pain located in the right hypochondrium radiating to the back, jaundice, and fever. An abdominal ultrasound study identified gallstones and a 10 mm dilation of the extrahepatic bile duct. The patient's total bilirubin level was 6 mg/dl, with no coagulation alterations. He was diagnosed with cholangitis and at high risk for choledocholithiasis. Antibiotic therapy was begun and ERCP was performed. The bile duct was selectively cannulated with a hydrophilic guidewire (Hydra Jagwire™, Boston Scientific, USA). Cholangiography showed an approximately 8 mm dilation of the intrahepatic bile duct, an 11 mm dilation of the extrahepatic bile duct, with multiple repletion defects, and stones in the gallbladder. Wide biliary sphincterotomy of 15 mm in diameter was carried out. All stones were then extracted with a balloon extractor (Extractor™ Pro XL, 15 mm/8 mm Boston Scientific, USA), for 1 min, resolving the choledocholithiasis (Fig. 1).

One day after the ERCP, the patient was asymptomatic. Early laparoscopic cholecystectomy was then performed, identifying a nonexpanding subcapsular hepatic hematoma at the level of segment V, measuring approximately 4 cm × 3 cm, that was reported as a complication of the ERCP study. The procedure was completed with no complications. Treatment of the subcapsular hepatic hematoma was surveillance and follow-up with imaging studies (Fig. 1). The patient was released on postoperative day 3, to continue surveillance in the outpatient setting. At one month, we report a survival rate of 100%, mortality rate 0%, and complication rate 0%.

The number of cases required to maintain optimum surgical skill is not known, but most likely is 50–100 cases per year for routine biliary procedures and 200–250 per year for advanced pancreatic procedures. Finding the optimum balance between the risks and benefits for each patient is key for every endoscopist and the endoscopist's ability and

<sup>☆</sup> Please cite this article as: Fernández-Enríquez ER, Bada-Yllán O, López y López MA, Delano-Alonso R, Herrera-Esquivel JJ. Hematoma hepático subcapsular posterior a la colangiopancreatografía retrógrada endoscópica, un hallazgo intraoperatorio inusual. Revista de Gastroenterología de México. 2021;86:92–94.



**Figure 1** (A and B) Laparoscopic view of the subcapsular hematoma, as an intraoperative finding. (C and D) Image of the cholangiography during the ERCP.

experience must also be taken into account. Nevertheless, complications can still occur.<sup>8</sup>

Treatment is conservative for stable patients with a non-compressive, peripheral, limited subcapsular hepatic hematoma. Control hemoglobin counts and verification through abdominal computed tomography are advisable. Whenever there is hemodynamic instability with active bleeding and contrast medium extravasation, immediate treatment should be radiologic or surgical. The data in the literature are in favor of conservative treatment (43.5%), percutaneous embolization (26%), drainage (17.4%), and surgery (13%).<sup>9</sup>

### Financial disclosure

No financial support was received in relation to this study/article.

### Conflict of interest

The authors declare that there is no conflict of interest.

### Acknowledgements

The authors wish to thank the entire general surgery and gastrointestinal endoscopy services for the daily support and care of our patient that was performed with unequalled effort and dedication.

### References

1. Fei BY, Li CH. Subcapsular hepatic haematoma after endoscopic retrograde cholangiopancreatography: an unusual case. *World J Gastroenterol.* 2013;19:1502–4.
2. Sommariva C, Lauro A, Pagano N, Vaccari S, D’Andrea V, Marino IR, et al. Subcapsular hepatic hematoma post-ERCP: case report and review of the literature. *Dig Dis Sci.* 2019;64:2114–9.
3. García-Támez A, López Cossio JA, Hernández-Hernández G, González Huevo MS, Rosales Solís AA, Esquivel EC, et al. Subcapsular hepatic hematoma: an unusual, but potentially life-threatening post-ERCP complication. Case report and literature review. *Endoscopia.* 2016;28:75–80.
4. Andriulli A, Loperfido S, Napolitano G, Niro G, Valvano MR, Spirito F, et al. Incidence rates of post-ERCP complications: a systematic survey of prospective studies. *Am J Gastroenterol.* 2007;102:1781–8.
5. Baudet JS, Arguiñarena X, Redondo I, Tadeo E, Navazo L, Mendiz J, et al. Subcapsular hepatic hematoma: an uncommon complication of endoscopic retrograde cholangiopancreatography. *Gastroenterol Hepatol.* 2011;34:79–82.
6. Del-Moral-Martínez M, Delgado-Maroto A, Cervilla-Sáez-de-Tejada ME, Casado Caballero FJ, Salmerón Escobar FJ. Hepatic hematoma after ERCP: two new case reports. *Rev Esp Enferm Dig.* 2017;109:470–3.
7. Zizzo M, Lanaia A, Barbieri I, Zaghi C, Bonilauri S. Subcapsular hepatic hematoma after endoscopic retrograde cholangiopancreatography: a case report and review of literature. *Medicine (Baltimore).* 2015;94:e1041.
8. Imperatore N, Micheletto G, Manes G, Redaelli DG, Reitano E, de Nucci G. Systematic review: features, diagnosis, management and prognosis of hepatic hematoma, a rare complication of ERCP. *Dig Liver Dis.* 2018;50:997–1003.

9. Zappa MA, Aiolfi A, Antonini I, Musolino CD, Porta A. Subcapsular hepatic haematoma of the right lobe following endoscopic retrograde cholangiopancreatography: case report and literature review. *World J Gastroenterol.* 2016;22:4411–5.

E.R. Fernández-Enríquez\*, O. Bada-Yllán, M.A. López y López, R. Delano-Alonso, J.J. Herrera-Esquivel

*División de Cirugía General y Endoscópica, Hospital General Dr. Manuel Gea González, Mexico City, Mexico*

\*Corresponding author at: Calzada de Tlalpan 4800, Col. Sección XVI Tlalpan, C.P 4800, Mexico City, Mexico. Tel.: +55 44 41 40 93 28; fax: +55 4000 3000.

E-mail address: [dr.enriquefdez@gmail.com](mailto:dr.enriquefdez@gmail.com) (E.R. Fernández-Enríquez).

2255-534X/ © 2019 Asociación Mexicana de Gastroenterología. Published by Masson Doyma México S.A. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Transgastric drainage of a liver abscess through endoscopic ultrasound in a patient with multiple organ failure<sup>☆</sup>



### Drenaje transgástrico por ultrasonido endoscópico de un absceso hepático en paciente con disfunción multiorgánica

Liver abscesses are defined as single or multiple encapsulated collections of purulent material, in the hepatic parenchyma.<sup>1</sup> Etiology is varied and can be pyogenic and/or amoebic. Infections due to other microorganisms are less frequent. The estimated prevalence of liver abscesses is low, but according to reports in the literature, the mortality rate is high, ranging from 8 to 31%.<sup>2-3</sup> Patient progression depends on etiology, comorbidities, and the interval of time from diagnosis to treatment. There are numerous therapeutic strategies: medical management with antibiotics, surgical drainage, and more recently, drainage through endoscopic ultrasound in selected cases,<sup>4-6</sup> and said advances have helped decrease morbidity and mortality in those patients.

A 54-year-old woman from a rural area, with an unremarkable pathologic history, sought medical attention for pain of 10-day progression in the right hypochondrium, associated with bilious vomiting, fever, and general symptoms. The emergency room evaluation revealed fever, abdominal pain, low blood pressure, tachycardia, and hypoxemia. The patient was transferred to the special care unit to begin vasopressor support. Hospital admission laboratory test results reported elevated CRP (27 mg/dl), thrombocytopenia (77,000 mm<sup>3</sup>), elevated creatinine (5.21 mg/dl), and ureic nitrogen of 103.6 mg/dl. There was compromised liver function, with ALT 357 U/l, AST 309 U/l, total bilirubin 3.01 mg/dl, alkaline phosphatase 360 U/l, and metabolic acidemia with hyperlactatemia. An abdominal ultrasound study identified a large 10.05 × 10.21 cm hepatic lesion not suitable for percutaneous drainage due to its apparently dense consistency (Fig. 1A). The patient received support measures and empiric antibiotic treatment, but her clinical

progression did not improve, and she presented with multiple organ failure involving 4 systems: renal, ventilatory, circulatory, and hematologic. Her liver profile tests revealed a cholestatic pattern, and bacteremia due to multidrug resistant *Klebsiella pneumoniae* was also reported. The patient had a score of 16 points on the SOFA and 36 points on the APACHE II sepsis severity scales, predicting high in-hospital mortality.

Due to her clinical conditions, the surgical team did not consider the patient to be a candidate for surgical drainage. A hepatic-biliary-pancreatic endosonography study was performed that ruled out choledocholithiasis and confirmed the presence of a dense, heterogeneous liver collection, 10 cm in diameter, located between segments IV-V of the liver that was suitable for endosonography-guided transgastric drainage (Fig. 1B).

The procedure was carried out, with the patient under general anesthesia. The transgastric puncture was performed using a linear echoendoscope with a 19 G (Expect™) needle, obtaining 20 ml of pus that was sent for microbiologic study (Fig. 1C). Contrast medium was then injected to delimit the collection and rule out biliary tract leakage, to then be able to introduce a fluoroscopic and endosonographic guidewire. A 0.035 mm Jagwire hydrophilic guidewire was advanced under fluoroscopic and endosonographic guidance. A Rigiflex 6 Fr cystotome was advanced over the guidewire. Using a 30W cutting current, a tract was created and dilated, and a 10 mm × 60 mm fully covered self-expanding metallic stent was then inserted (Fig. 1D). The most proximal portion of the stent was dilated with an 8 mm CRE balloon to allow the passage of an 8.5 Fr × 7 cm coaxial double-pigtail drain into the metallic stent (Fig. 1E and F). The drainage of abundant, thick pus from the metallic stent was observed. At the end of the procedure, an endoclip was placed to fix the proximal end of the stent to the gastric wall to prevent its migration.

After the drainage, the patient's general status improved rapidly. The inflammatory response decreased and the ventilatory and hemodynamic parameters improved, as did kidney function and coagulation. Two days after the drainage, the vasopressor and ventilatory support was withdrawn. The patient was released one week after the transgastric drainage and she completed oral antibiotic treatment in 4 weeks.

At 3 months, a control abdominal CAT scan showed complete resolution of the abscess and the presence of the metallic stent with the coaxial double-pigtail, which were then endoscopically removed with no complications (Fig. 2).

<sup>☆</sup> Please cite this article as: Carvajal JJ, Betancur Salazar K, Mosquera-Klinger G. Drenaje transgástrico por ultrasonido endoscópico de un absceso hepático en paciente con disfunción multiorgánica. *Revista de Gastroenterología de México.* 2021;86:94–96.