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Endoluminal radiofrequency ablation with SpyGlass™ in the management of cholangiocarcinoma: a case report

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ABSTRACT

Most extrahepatic cholangiocarcinomas are unresectable at the time of diagnosis and even in case of a resectable cancer, surgery is not an option for the elderly or patients with comorbidities (1). Current treatment alternatives in these scenarios are very limited. Biliary stenting with self-expanding metal stents (SEMS) is the mainstay palliative treatment for biliary obstruction (2). However, emerging experience with endoscopic RF ablation (RFA) in this setting has been reported in the literature.

Key words: Endoluminal radiofrequency ablation. SpyGlass™. Cholangiocarcinoma.

CASE REPORT

We present the case of a 38-year-old male with medical history of cryptogenic liver cirrhosis, admitted in May 2018 due to spontaneous bacterial peritonitis (SBP).

Laboratory findings showed total bilirubin 1.58 mg/dl, Alb 3.4 gr/dl, ALT 11 U/l, AST 24 U/l, GGT 299 U/l, Hb 14.7 g/dl, Plt 192,000/ul, INR 1.27, Cr 0.49 and Ur 9 mg/dl. During admission, abdominal magnetic resonance imaging (MRI) was performed that identified hilar cholangiocarcinoma. A transjugular intrahepatic portosystemic shunt was placed two months after admission due to portal hypertension with HVPG at 25 mm Hg and poor clinical improvement. However, there were no clinical changes. Laboratory analysis showed total bilirubin 15.15 mg/dl, direct bilirubin 13.33 mg/dl, Alb 4.2 gr/dl, ALT 10 U/l, AST 30 U/l, GGT 539 U/l, Hb 8.9 g/dl, Plt 246,000/ul, INR 1.55, Cr 0.56 and Ur 10 mg/dl. A study of serum metabolites showed a mild elevation of different metabolic pathways mediated by glutamic acid, serine, glutamine, histidine, alanine, tyrosine, isoleucine and proline.

An endoscopic retrograde cholangiopancreatography (ERCP) was performed in July 2018 to take biopsies of suspicious lesions and biliary stenting using the SpyGlass™. Only one sample could be taken due to easy bleeding and tortuous vessels (Fig. 1). The pathology analysis reported that the lesion was suspicious of cholangiocarcinoma but was not definitive. The patient had a remarkable clinical improvement after this procedure. Positron emission tomography-computed tomography (PET-CT) was performed to confirm a malignant diagnosis, reporting hilar cholangiocarcinoma with perilesional adenopathies and intrahepatic bile duct dilation. Sepsis due to SBP was detected and antibiotic therapy was administered for two months with multiple antibiotic schemes for multi-resistant bacteria. Endocarditis and other endovascular infections were ruled out.

Four months later, the oncology committee requested repeat biopsies in order to obtain biopsies of the perilesional adenopathies. Endoscopic ultrasound with fine needle aspiration (FNA) in August 2018 confirmed metastatic lymphadenopathy. In September 2018, a second ERCP with SpyGlass™ was performed and the endoscopic biopsy samples with SpyBite™ confirmed cholangiocarcinoma.

The clinical findings of the patient were presented to a multidisciplinary committee. However, he did not comply with the Mayo Clinic criteria for liver transplantation. After reviewing the literature, endoluminal radiofrequency with SpyGlass™ was offered as a palliative treatment and cholangioscopy pre-radiofrequency ablation

(RFA) showed progression of the bile duct stenosis and tortuous vessels (Fig. 2A). An 18-mm temperature-controlled RFA catheter (ELRA™ STARmed, Korea) through a duodenoscope working channel was inserted into the papilla of Vater (Fig. 2B). RFA was applied at 10 watts for two minutes with an intraductal temperature of 80 °C. A temperature sensor inside the electrode provided accurate temperature measurements. The power and impedance settings were automatically made from the VIVA™ generator (STARmed™ Korea). After the ablation, we could see immediate ductal changes (Fig. 3). The patient presented mild self-limited abdominal pain for 12 hours after the procedure.

Laboratory analysis eight weeks after the RFA procedure showed total bilirubin 1.12 mg/dl, direct bilirubin 0.8 mg/dl, FA 155 U/l, Alb 4.0 gr/dl, ALT 10U/l, AST 19 U/l, GGT 241 U/l, Hb 8.9 g/dl, Plt 246,000/ul, INR 1.55 and Cr 0.45 mg/dl. The patient was scheduled for a second endoluminal RFA session in four months.

DISCUSSION

The use of peroral cholangioscopy, before and after RFA application inside the bile duct, has been reported in a small retrospective study (3). Currently, only one randomized trial showed that endoscopic biliary RFA can significantly alleviate jaundice, reduce the thickness of tumor lesions, prolong extrahepatic cholangiocarcinoma survival and stent patency, improve the quality of life and does not increase the risk of complications (4).

The successful results of RFA in hepatic tumors and the need for less invasive alternatives have prompted the use of RFA in biliopancreatic tumors. These lesions are usually surrounded by normal parenchyma and thermal injury beyond the hepatic neoplasia does not usually affect important structures. However, pancreatic tumors often encase vessels and the distal bile duct, or are in contact with the gastric or duodenal wall. Some studies have reported frequent and severe complications (5). Thus, we chose this alternative in our patient, despite intraoperative and percutaneous RFA.

At present, there is no consensus on the optimal frequency and interval of RFA therapy. In most studies, RFA therapy was performed regularly every 3-4 months (6).

RFA only acts on local tumors, indicating that this treatment may not have the ability to completely destroy a tumor mass. However, the efficacy of RFA combined with palliative chemotherapy for the treatment of extrahepatic cholangiocarcinoma is not clear (7).

The clinical value of biliary RFA has been recently confirmed in a systematic review and meta-analysis of nine studies. These studies included 505 patients with malignant biliary strictures in whom biliary stenting with self-expanding metal stents (SEMS) was performed, with or without prior RFA application via an endoscopic or percutaneous route. Patients who received RFA had a significantly longer stent patency and survival. The only adverse event that was more frequently encountered in the RFA group was abdominal pain (31% *vs* 20%) (8).

In conclusion, biliary RFA treatment appears to be a promising adjuvant therapy in patients with malignant biliary obstruction. In these patients, the procedure is safe, well tolerated and improves stent patency and survival (9). However, more data with larger patient cohorts are needed.

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Fig. 1. Cholangioscopy compatible with cholangiocarcinoma in the proximal CBD.

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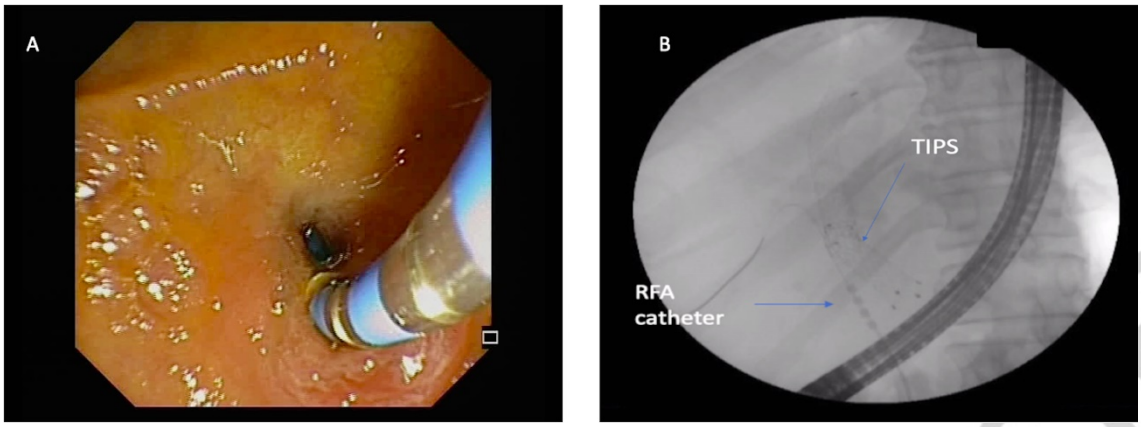

Fig. 2. A. Pre-radiofrequency cholangioscopy. B. Endoluminal radiofrequency therapy catheter.

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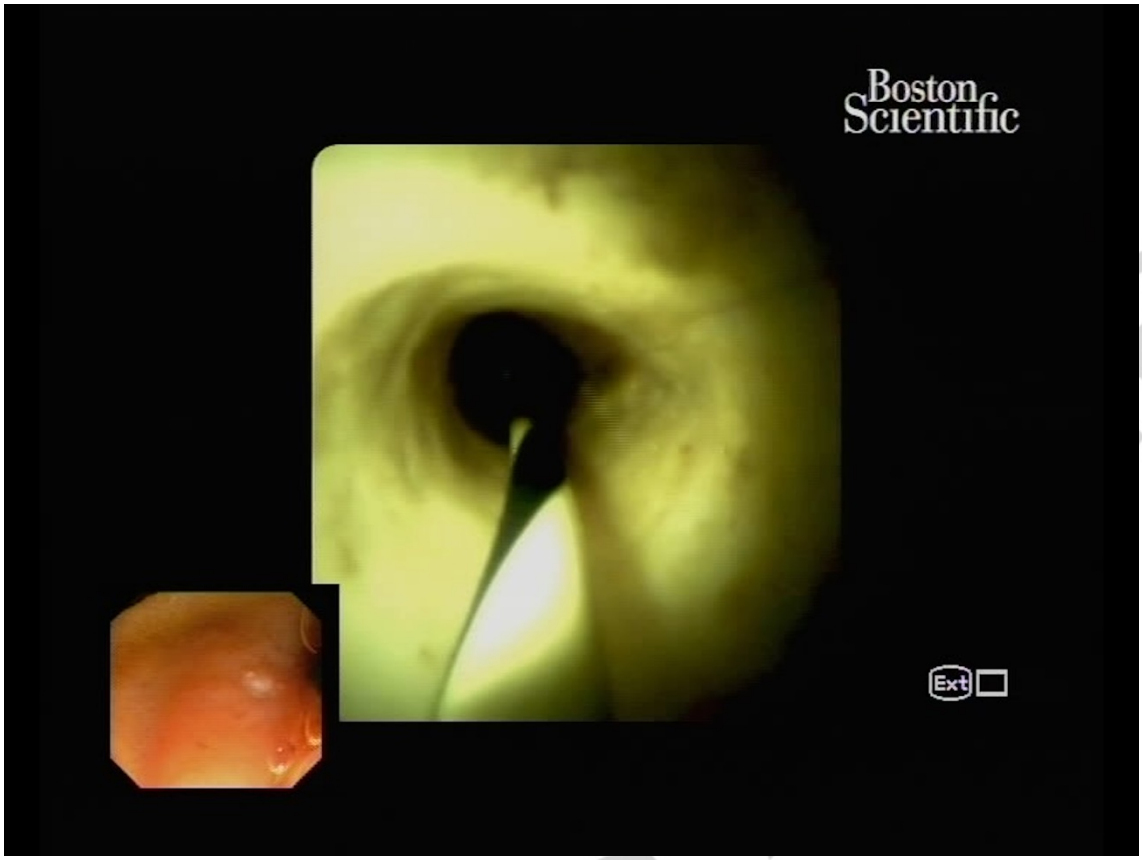

Fig. 3. Cholangioscopy post-RFA with ductal changes during the same procedure.