## **CASE REPORT – OPEN ACCESS**

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# Hepatic ductoplasty for iatrogenic Bismuth type 2 bile duct stricture: A case report





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## ABSTRACT

*INTRODUCTION:* Biliary enteric anastomosis is a well-known biliary reconstruction method. Anastomosis stricture is one of the complications of this procedure that occurs in some patients over the long-term. We report a successful case of hepatic ductoplasty combined with hepaticojejunostomy (H–J) for the treatment of iatrogenic Bismuth type 2 stricture.

*PRESENTATION OF CASE*: The patient was a 68-year-woman who had undergone choledochojejunostomy (C–J) 6 years earlier due to bile duct injury after laparoscopic cholecystectomy for cholelithiasis. She complained of recurrent chills and upper back pain. Cholangiography and computed tomography revealed a C–J anastomotic stricture with hepatolithiasis. The diagnosis was reflux cholangitis with hepatolithiasis due to C–J stricture and a fistula between the reconstructed jejunal limb and duodenum. Exploration was performed, and she underwent hepatic ductoplasty with H–J and hepaticolithotripsy. Surgery was performed uneventfully and the patient has remained well subsequently.

DISCUSSION AND CONCLUSION: We propose hepatic ductoplasty as a useful technique for the treatment of selected patients with a C–J stricture or narrow hepatic duct.

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#### 1. Introduction

Cholecystectomy (open or laparoscopic) is the most frequent abdominal operation and one of the most common causes of biliary tract injury. The incidence of biliary tract injury is documented to be 0% to 0.5% with open cholecystectomy, while it increases to between 0.07% and 0.95% with laparoscopic procedures [1,2].

Choledochojejunostomy or hepaticojejunostomy with a Rouxen-Y(R–Y) limb are well known conventional biliary reconstruction methods for management of bile duct injury [3]. However, these procedures are also associated with some complications, including anastomotic stricture, which sometimes leads to reflux ascending cholangitis and stone recurrence. In such cases, interventional therapy like percutaneous trans-hepatic biliary drainage (PTBD) and endoscopic therapy like endoscopic retrograde sphincterotomy (EST) or balloon dilatation may be indicated, but use of such methods may be impossible because of the long efferent limb of the reconstructed jejunum.

Bismuth classified bile duct strictures according to their anatomical level [4]. In the laparoscopic era, another classification of biliary injury was proposed by Strasberg [5]. Both classifications

are useful for assessment of bile duct injury and/or stricture. Choledochojejunostomy (C–J) or hepaticojejunostomy (H–J) used to be employed for treatment of these difficult strictures, but hepatic ductoplasty is a useful method in patients with hilar hepatic duct stricture [6,7].

Here we report a patient in whom hepatic ductoplasty was effective for iatrogenic Bismuth type 2 anastomotic stricture. The work has been reported in line with the SCARE criteria [13].

### 2. Case report

The patient was a 68-year-old woman who underwent laparoscopic cholecystectomy for chronic cholecystitis with gallbladder stones and suffered intraoperative bile duct injury requiring diversion of the common bile duct (Strasberg E2) about 6 years ago at another hospital. Conversion to open laparotomy and choledochoduodenostomy (C–D) were performed at that time. Two-weeks later, she was found to have leakage of the C–D anastomosis and underwent re-operation with C–J. Subsequently, a biliarycutaneous fistula persisted for two years and eventually healed with conservative treatment. Three years after healing of the fistula, the patient presented to our hospital with back pain and high fever. On examination, there was tenderness in the right subcostal region without muscle guarding.

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Fig. 1. CT shows a dilated left intra-hepatic duct containing a stone or debris (A, white arrow), and a dilated right intra-hepatic duct with a stone or debris (B, white arrow). US displays a right intra-hepatic duct filled with debris (C, thin arrows).



Fig. 2. Cholangiography shows stricture of the hepaticojejunostomy anastomosis (A, long arrow). There is a fistula from the jejunal limb to the duodenum (A, B, red arrow) at the right duodenal wall (A, B, short arrow). Duodenal endoscopy reveals the duodeno-jejunal fistula (C, arrow).

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