

## Biliary Stent Migration to Hepatic Duct—Case Report of a Late Complication

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**ABSTRACT:** Endoscopic retrieval of proximally migrated biliary plastic stents may be technically challenging and sometimes unsuccessful. Here we report the case of a 59-year-old woman with a migrated biliary stent in the right hepatic duct, which was diagnosed after the patient presented with cholangitis. The patient presented with constant abdominal pain in the right upper quadrant lasting for two days, along with nausea and bilious vomiting. The stent was retrieved by a polypectomy snare after failure of biliary basket and forceps. We performed a novel procedure for extraction of a migrated plastic stent, by using a polypectomy snare.

**KEYWORDS:** biliary stent, hepatic duct, migration, polypectomy snare

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### Case Report

In May 2014, a 59-year-old woman presented with right abdominal pain, radiating to the right shoulder, accompanied by fever, jaundice and bilious vomiting. Her symptoms had started two days previously, in a colicky pattern, and gradually became constant. Physical examination was remarkable for tenderness in the right upper quadrant of the abdomen. Initial laboratory evaluation revealed mild elevations of aspartate aminotransferase (AST) and alkaline phosphatase (ALP).

Three months earlier, the patient had been admitted for cholangitis; therefore, endoscopic retrograde cholangiopancreatography (ERCP) and sphincterotomy were undertaken. Using balloon and basket extraction, three stones were removed and a 7 cm, 10F plastic biliary stent was placed. The patient was encouraged to undergo an elective cholecystectomy.

At the time of her readmission in May, abdominal sonography revealed a slightly dilated common bile duct containing a visible stent. ERCP was performed to resolve the

problem. Obstruction of the stent either by retained stone or by plugging and distal dislocation were considered as possible causes of the patient's cholangitis. ERCP revealed that the stent had migrated toward the right hepatic duct. Attempts to extract the stuck stent with both biliary retrieval basket and foreign body forceps were unsuccessful (Fig. 1). Eventually the stent was retrieved after two attempts in one session employing a polypectomy snare (Fig. 2). There was no biliary leakage after the procedure.

### Discussion

Here, we reported the case of a 59-year-old woman with diagnosis of a migrated plastic stent to the right hepatic duct, treated by a novel procedure for extraction using a polypectomy snare. Dilated intrahepatic ducts were shown by sonography. We suspected that this was due to obstruction of the left hepatic duct by the migrated stent and also obstruction of the right hepatic duct by sludge inside the migrated stent. ERCP confirmed these theories.



**Figure 1.** The stent was migrated to right hepatic duct.

Proximal migration of a biliary stent is an uncommon event, and its management can present a technical challenge to the endoscopist.<sup>1-3</sup> Proximal and distal stent migration of a biliary stent have been described in 5% and 6% of biliary stent patients, respectively. Malignant strictures, larger diameter stents, and shorter stents have been found to be significantly associated with proximal biliary stent migration.<sup>4,5</sup> As a result, these patients should be monitored for stent migration and stents should be removed endoscopically.<sup>6</sup>

Despite the widespread use of such stents, there are few reports on the technique for retrieval of migrated stents. In a study by Tarnasky et al, 68% of 44 cases of proximal migration of biliary stent were extracted successfully.<sup>1</sup> Besides guide wire, various accessories were used to withdraw the stents, the Soehendra Stent Retriever (Cook Medical) being the most popular. The authors concluded that cannulating the stent lumen with a wire is often the best approach in patients with a biliary stricture or a nondilated duct. An over-the-wire accessory can then be used to secure the stent. In patients with a dilated duct, indirect traction with a balloon or direct grasping of the stent with a wire basket, snare, or forceps is usually successful.<sup>1</sup>

Lahoti et al reviewed 33 proximally migrated bile duct stents and 26 proximally migrated pancreatic duct stents over a 10-year period.<sup>2</sup> Over 80% of proximally migrated bile duct and pancreatic duct stents in that study were extracted endoscopically with a basket or balloon. Few patients required surgery. Another study, by Chaurasia et al, on 41 proximally migrated stents showed that the choice of a retrieval technique is dependent on several factors, including biliary duct

dilatation, depth of stent migration, distal stent impaction and biliary stricture distal to the migrated stent. The retrieval techniques included Dormia basket, balloon, ball tip catheter, forceps, and Soehendra Stent Retriever. The authors also suggested that the placement of an additional stent alongside an irretrievable stent is a satisfactory alternative to retrieval.<sup>3</sup>

There have been reports of more serious complications following proximal migration of biliary stents. Two cases of fistula have been reported, one in the bile duct-duodenum secondary to proximal migration of a biliary stent, and one pancreatic-gastric fistula secondary to a pancreatic stent.<sup>6</sup> Cases of pleurobiliary fistula following intrahepatic biliary stent migration have also been reported.<sup>7</sup> A hepaticogastric fistulation has been described as a late complication from a proximally migrated long biliary stent.<sup>8</sup> A case of hepatic perforation has been reported in the anterosuperior part of the right lobe of the liver, caused by a migrated stent.<sup>9</sup>

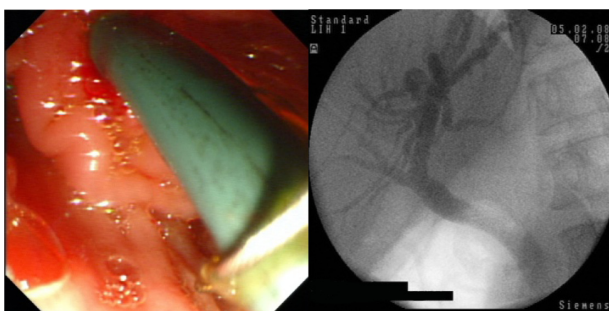
In the current case, several attempts by basket and forceps failed to retrieve the stent. So we decided to try once again utilizing a snare. A report describing two cases of using a transhepatic snare into the bile ducts to retrieve proximally migrated stents is documented.<sup>10</sup> To the best of our knowledge, there has been no report of late migration of biliary stents in Iran so far.

### Author Contributions

Conceived and designed the experiments: AHMA. Analyzed the data: KD. Wrote the first draft of the manuscript: MK. Contributed to the writing of the manuscript: SB. Agree with manuscript results and conclusions: AHMA. Jointly developed the structure and arguments for the paper: AHMA. Made critical revisions and approved final version: MRZ. All authors reviewed and approved of the final manuscript.

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**Figure 2.** The stent was retrieved by a polypectomy snare.