

Study assesses placement of multiple endoscopic stents for postoperative biliary strictures

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Researchers from Italy have reported results from more than 10 years of follow-up showing that the placement of multiple endoscopic stents for the treatment of postoperative biliary strictures remains excellent with a low rate of stricture recurrence after this lengthy period of time. When strictures do recur, they can be safely and successfully retreated endoscopically. The study appears in the September issue of *GIE: Gastrointestinal Endoscopy*.

Most patients with biliary strictures, also called bile duct stricture, remain asymptomatic until the lumen of the bile duct is narrowed to cause resistance to the flow of bile. Bile is a fluid secreted by the liver via the bile ducts and is concentrated in the gallbladder before moving into the intestines. With the advent of laparoscopic cholecystectomy (gallbladder removal), the incidence of bile duct injuries has increased significantly. There are approximately 750,000 cholecystectomies performed in the United States each year. Although biliary strictures may be asymptomatic, if ignored, they can cause life-threatening complications. While strictures of the bile duct can be benign or malignant, approximately 80 percent of benign strictures occur following injury during a cholecystectomy.

Three kinds of treatment for biliary strictures are available: surgical, endoscopic and percutaneous. In 2001, a method for endoscopic management of postoperative biliary strictures was reported that

included the placement of multiple stents until stricture resolution. A stent is a short narrow metal or plastic tube in mesh form that is inserted into the lumen of an anatomical vessel (such as an artery or bile duct) to keep a previously blocked passageway open. The initial results of this method were very promising, with a mean patient follow-up of four years.

"We first described endoscopic dilation of postoperative biliary strictures using an increasing number of stents in 2001. A group of 42 patients from that study underwent systematic follow-up, with the last follow-up by telephone in 2009," said study lead author Guido Costamagna, MD, Digestive Endoscopy Unit, Catholic University, Rome, Italy. "Our current study of these patients confirmed very good results of endoscopic treatment by insertion of multiple plastic stents after a follow-up period of more than 10 years. The stricture recurrence rate was low; if recurrence does occur, it may be safely and successfully retreated by endoscopic retrograde cholangiopancreatography."

Patients and Methods

The study objectives were to verify results of endoscopic treatment of postoperative biliary strictures at a very long-term follow-up. The study was conducted at a single tertiary-care academic referral center in Italy. A group of 42 patients from the researchers' 2001 study who had undergone endoscopic dilation of postoperative biliary strictures with a technique employing placement of multiple endoscopic stents, underwent systematic follow-up. The patients were asked to undergo liver function tests and transabdominal ultrasound every six months from the end of treatment, and a telephone interview was done yearly to assess the occurrence of cholangitis (inflammation of the bile duct) and to evaluate the results of liver function tests and ultrasound. These study endpoints were consistent throughout the study period starting from the first series. During the yearly follow-up, patients were asked to provide

the researchers with the reports of liver function tests and ultrasound. The last telephone follow-up was done in September 2009. The main outcomes were the occurrence of cholangitis and liver function test evaluation during the follow-up period.

Results

Of the 40 patients who were alive at the end of the study published in 2001, five patients (12.5 percent) died of unrelated causes after a mean of 6.7 years from the end of treatment, without further biliary symptoms. The overall mean follow-up time for the remaining 35 patients was 13.7 years. Seven patients (20 percent) experienced recurrent acute cholangitis after a mean of 6.8 years from the end of treatment. All seven of these patients underwent endoscopic retrograde cholangiopancreatography (ERCP). Four of the seven patients had postoperative biliary stricture recurrence (11.4 percent of the 35 patients) that was retreated endoscopically with the placement of stents, and the other three patients had common bile duct stones (8.6 percent of the 35 patients) that were extracted. No stricture or bile duct stone recurrences after retreatment were recorded after a mean follow-up period of an additional 7.1 years. Twenty-eight patients (80 percent) remained asymptomatic with normal [liver function](#) test results and abdominal ultrasound results after a mean follow-up period of 13.7 years.

The researchers noted that the main limitations of endoscopic treatment of postoperative biliary strictures by the multiple endoscopic stenting method are the need for multiple ERCPs and repeated hospitalizations, leading to high costs and potentially limited patient compliance. In the researchers' experience, after the risks and benefits of the possible treatments were explained to the patient, with the help of the hepatobiliary surgeon, patients asked for endoscopic treatment and retreatment, if needed.

The researchers concluded that endoscopic stenting with the aim of inserting multiple plastic stents is a reasonable, first-line approach in the treatment of postsurgical strictures; results of the aggressive endoscopic approach to postoperative biliary stricture management after a mean follow-up period of 13.7 years are very good, with 80 percent of patients having excellent results and an 11.4 percent stricture recurrence rate after more than six years from the end of initial treatment. Furthermore, cholangitis in these patients is not always related to postoperative biliary stricture recurrence, but can be secondary to stone formation, as occurred in three of seven (43 percent) of the patients reported in this study.

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