Medical Xpress

Placement of removable metal biliary stent in post-OLT anastomotic stricture

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Benign biliary strictures after liver transplantation are usually treated by repeated endoscopic interventions or surgery. A group of researchers in Australia reported the outcome of two patients with refractory anastomotic biliary strictures, who had successful temporary placement of a prototype removable covered self-expandable metal stent.

Endoscopic intervention has emerged to become the first line treatment for benign biliary strictures following liver transplantation. The current endoscopic approach involves repetitive dilatation of the stricture and placement of multiple large-diameter parallel plastic stents with frequent stent exchange to prevent biliary infection. Self-expandable metal stents (SEMSs) have been used for malignant biliary strictures, however SEMS placement for benign biliary conditions like post-transplantation have not been widely accepted due to tissue in-growth leading to long-term complications.

A research article to be published on July 28, 2010 in the World Journal of Gastroenterology described a preliminary experience with a prototype removable covered SEMS in two patients with refractory benign anastomotic biliary strictures.

The article described two patients who had similar clinical scenarios: recurrent biliary infection secondary to anastomotic biliary stricture, and failure of conventional placement of plastic stent in the common bile duct to alleviate biliary stricture. As a result, their liver function tests were persistently abnormal.

The prototype removable covered SEMS is a Niti-S biliary stent which consists of an implantable metal stent and a flexible introducer system (Taewoong Medical Co Ltd., Korea). The stent is a semi-rigid, flexible and expandable tubular device made of nitinol (nickel titanium alloy) wire. Upon deployment, the removable covered SEMS imparts an outward radial force on the luminal surface of the biliary duct to establish patency. There are two characteristic features of this prototype stent. Firstly, a 10 cm radio-opaque nylon string is incorporated into the distal end of the stent to facilitate endoscopic retrieval. Secondly, it has a waist which is 2 mm narrower than each end. The removal of RCSEMS was performed using a standard endoscopy biopsy forceps by grasping the string attached at the distal end of the RCSEMS and then pulling it via the working channel of the scope.

Following the placement of SEMS, the two patients had improved liver function. The stent remained in situ for 42 and 70 d and no stent migration was observed. Images of bile ducts post-SEMS removal demonstrated good patency with an improvement in diameter of more than 50% at the strictured area. Patients were followed up after the SEMS removal for 14 and 18 months respectively. During follow-up, liver function tests remained stable. No further episode of jaundice and infection and no further procedure was indicated.

This article described a new trend in managing benign biliary strictures. The authors believe that with this prototype stent, it could bring about a paradigm shift in the management of post-liver transplantation biliary strictures.

More information: Tee HP, James MW, Kaffes AJ. Placement of removable metal biliary stent in post-orthotopic liver transplantation anastomotic stricture. World J Gastroenterol 2010; 16(28): 3597-3600
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