

Palliation for Malignant Biliary Obstruction with Zilver[®] Metal Stent and Fusion[®] Titan[™] Balloon



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Introduction: We evaluated the clinical efficacy and technical feasibility of the Zilver stent (Cook Medical), an endoscopically inserted self-expandable nitinol stent for palliation of malignant biliary obstruction. Eighty-seven patients with malignant tumors involving the intra- or extrahepatic bile duct who presented with obstructive jaundice underwent biliary dilation (Fusion Titan Biliary Dilation Balloon, Cook Medical) and endoscopic insertion of a Zilver self-expandable nitinol stent at our institution. We present a case of obstructive jaundice and a hilar stricture that was successfully palliated with endoscopic placement of a Zilver stent.

Case Summary: A 64-year-old patient had jaundice and itching all over the body for five months and was referred for further evaluation of obstructive jaundice. Blood test showed: Total Bilirubin 14.6mg/dl, AST 86U/L, ALT 174U/L, ALP 478U/P, TLC 10,600/mm³. The initial ERCP showed a stricture at the hilar region causing the cholestasis, which was temporarily drained with a nasal biliary tube. Brush cytology was taken during the ERCP. A subsequent CT scan revealed a hilar mass with liver metastasis. The brush cytology was positive for malignant cells. The patient was scheduled for biliary SEMS placement.

Case: The patient was placed in a semiprone position and, after administration of propofol anaesthesia, the duodenoscope was passed into the second part of the duodenum. Cannulation was successful using a Cook Medical DomeTip[®] sphincterotome (Tri-Tome pc[®], Cook Medical) and the nasal biliary stent was removed manually. A cholangiogram was obtained, which revealed a tight stricture in the hilar region (Figure 1). The left and right hepatic ductal confluence was patent. A .035" Tracer Metro[®] (Cook Medical) wire guide was then passed into the left system through the Tri-Tome sphincterotome. After assessing the length of the stenotic lesion as 4 cm, the sphincterotome was withdrawn. The stricture was dilated using a 6 mm x 4 cm Titan balloon (Figures 2a and 2b) for 60 seconds. A Zilver metal stent was inserted over the Tracer Metro wire guide. The stent was deployed smoothly and successfully without any complications (Figures 3a and 3b). Bile and contrast were released immediately. The patient continues to show no signs of bile duct obstruction or stent dysfunction after follow up for eight months.

Discussion: Management of hilar strictures poses a difficult challenge to gastroenterologists. Tight strictures in hilar regions are difficult to treat because it is difficult to pass accessories through the narrow strictures. Stricture dilation makes it easier to perform biliary stenting. The Fusion Titan low-profile balloon delivers the expected radial force to achieve successful dilation outcomes. The device has a low-friction surface for effortless advancement. It has a multiport balloon catheter that enhances anchoring during dilation within the stricture and potentially minimizes balloon movement during dila-

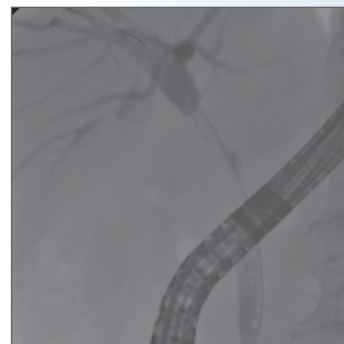


Figure 1



Figure 2a



Figure 2b

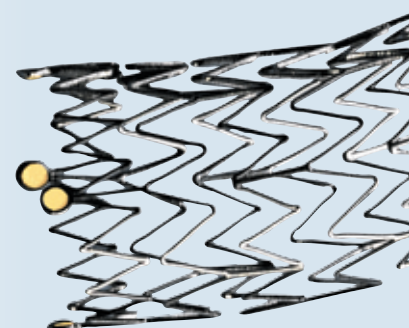


Figure 3a



Figure 3b

tion, especially in the case of a tight stricture. The tapered tip with an integrated kink-resistant catheter aids passage through difficult anatomy while allowing placement over a .035" wire guide.

After stricture dilation, the next step is to place a biliary stent. A nonforeshortening and conformable stent with a thinner delivery system is desirable in this situation to allow precise and uncomplicated delivery of the stent. The Zilver biliary stent is laser cut from solid nitinol tubing with an open-cell design. The stent's "Z" configuration applies uniform radial strength evenly to the biliary duct. Nitinol, which is inherently kink resistant, allows the stent to conform to the ductal wall while providing reliable patency. The stent ends are atraumatic, potentially reducing the risk of ulceration or perforation. Four gold markers on each end of the zero-percent-foreshortening stent assist in precise positioning of the stent. The Zilver stent is available with the market's smallest introducer platform (6 Fr), making it ideal for accurate navigation through tighter strictures. ■