The wing stent facilitates repeat bile duct cannulation for multiple stent insertion

The primary disadvantage of conventional plastic biliary stents is their short patency rate [1], as they are prone to biofilm build-up within the central lumen of the stent, resulting in impaired bile flow [2]. The wing stent (ViaDuct; GI Supply, Camp Hill, Pennsylvania, USA) was engineered to overcome this problem (Fig. 1).

The wing stent is a lumenless stent in which bile is channeled along the exterior winged grooves, theoretically reducing the risk of occlusion (Fig. 1) [3, 4]. Computer modeling studies have shown that the wing stent offers a larger surface area for flow, a higher flow velocity, and increased flow rates compared with conventional plastic stents. A pilot study reported the successful use of the wing stent for endoscopic biliary drainage in five patients with malignant biliary obstruction, all of whom experienced a significant decline in bilirubin at 2 weeks and resolution of biliary dilation by radiologic imaging [3].

The endoscopic placement of multiple stents over time for patients with benign biliary strictures has been shown to be an effective therapy for stricture resolution [5]. The placement of multiple stents can be technically challenging for a number of reasons, including failure of repeat biliary cannulation after the first stent insertion. This can occur if a small biliary sphincterotomy was performed and/or the positioning of the first stent prevents the necessary angulation of the biliary cannula or sphincterotome. This problem can be overcome by initially placing a 7-Fr or 10-Fr wing stent into position using a push catheter until the radiopaque black marker at the distal end of the stent is visualized at the biliary orifice. Subsequently, rapid repeat biliary cannulation is achieved by advancing a guidewire into the groove between two wings of the in-situ wing stent and into the proximal bile duct. A conventional plastic stent is then placed over the wire and advanced into the bile duct. Additional stents can then be placed in similar manner (Fig. 2, Video 1).

Competing interests: None

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References


Video 1

After the wing stent is placed in the bile duct, the wire is placed in the channel between two wings of the stent and advanced into the bile duct. A second stent can subsequently be placed over the wire in the standard fashion.

Fig. 1 Wing stent (10 Fr, 12 cm) with soft pliable retention flaps and a radiopaque black marker for accurate placement. The stent channels fluid along its winged perimeter, which may increase its patency rates.

Fig. 2 a After the wing stent is placed in the bile duct, the wire is placed in the channel between two wings of the stent, b The wire is then advanced into the bile duct. c A second stent can subsequently be placed without difficulty over the wire in standard fashion.