Balloon-Expandable Metallic Biliary Stent for Treatment of Extrahepatic Biliary Obstruction in 5 Dogs and 3 Cats

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Introduction: Extrahepatic biliary obstruction (EHBO) in dogs and cats can be challenging to manage surgically. Reported surgical techniques for decompression include luminal choledochal stenting and cholecystoenterostomy. The authors experience with balloon-expanding metallic stents suggests that these stents provide an effective method of decompression of the extra hepatic biliary tree. Stent deployment is rapid and provides a less complex alternative to cholecystoenterostomy techniques.

Objective: The purpose of the study was to describe the operative technique, complications, and results associated with the use of a balloon-expandable metallic biliary stent for surgical management of canine and feline EHBO.

Materials and Methods: EMR were searched for patients in which balloon-expanding metallic choledochal stents were placed. Signalment, history and clinical signs, pre-operative laboratory findings and diagnostic imaging, surgical findings, histopathology findings, microbiology findings, post-operative laboratory findings, diagnostic imaging, and complications were recorded. Long-term follow up results were collected through recheck appointments or communication with owners and referring veterinarians. In all cases stents was deployed in retrograde fashion through the major duodenal papilla following duodenotomy.

Discussion: This study documents the use of a metallic balloon-expandable mesh stent as an alternative to luminal choledochal stenting for treatment of EHBO. Results suggest the metallic stent can maintain common bile duct patency without the risk of reobstruction that is reported with luminal stenting. Stent location and stent luminal size can be controlled by the surgeon and stent deployment is relatively uncomplicated.

The use of balloon-expandable mesh stents offers a significant advantage for patients following cholecystectomy where 1) luminal stenting offers only transient extrahepatic decompression and 2) cholecystoenterostomy procedures are not possible.

Results: All patients presented with clinical signs and serum biochemistry findings suggestive of EHBO. Abdominal ultrasound findings were supportive of EHBO in all cases. Four patients had EHBO due to cholelithiasis. Two patients had EHBO due to pancreatitis. Two patients had EHBO due to malignant etiology. Significant intraoperative complications were not encountered and all patients had normalization of TB values postoperative. Medtronic biliary racer stents were used in all cases.

Figure 1: Pediatric balloon-expanding biliary racer stent

Figure 2: Necropsy findings 15 months post stent deployment