Fully covered self-expandable metal stents for benign biliary strictures: an effective alternative

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Bibliography
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Endoscopic treatment for benign biliary strictures (BBSs) has been widely accepted. However, for refractory strictures, especially for hilar anastomotic strictures after living-donor liver transplants and hepaticojejunostomies, endoscopic treatment remains a challenge. The hilar location, with its small caliber ducts, can complicate the insertion of multiple plastic stents. The use of fully covered self-expandable metal stents (FCSEMSs) may be an attractive option in this setting, but this had not, to date, been properly investigated.

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Larger diameter stents seem to facilitate durable stricture resolution. Therefore, treatment with multiple (cumulatively inserted) plastic stents has been widely adopted [1]. Over the last decade, with the introduction of FCSEMSs, which are specifically designed and equipped to allow for removal, the horizon for the application of metal stents in benign disease has expanded. With their large bore diameter, they may offer effective treatment with fewer re-interventions.

In 2014, a large multicenter study involving 187 distal BBSs, with a variety of etiologies, treated with FCSEMSs placed in a transpapillary fashion was published [2, 3]. FCSEMSs were inserted for 10 – 12 months in patients with chronic pancreatitis or cholecystectomy, and for 4 – 6 months in patients who were post orthotopic liver transplant; 75 % could be successfully removed and stricture resolution was achieved in 71 % of these cases. After a median follow-up of 20 months, 15 % of the strictures recurred. Serious adverse events, mostly cholangitis, occurred in 27 % of patients. Interestingly, specifically in the liver transplant group, the migration rate was high at up to 75 % after 6 months.

Recently, the first three randomized controlled trials were published on plastic versus metal stenting for BBSs [4 – 6]. Together, they studied 222 patients, mostly suffering from anastomotic strictures after orthotopic liver transplant. After 6 months of FCSEMS placement, stricture resolution rates ranged from 75 % – 88 % and recurrence rates from 22 % – 32 %. Complications occurred in 23 % – 50 %, but were mostly mild. Migration rates varied widely, from 10 % to 95 %.

In living-donor liver transplant, the biliary anastomosis is more peripheral, smaller, and more complex than after an orthotopic transplant. Therefore, these results may not be applicable to living-donor recipients or patients with other hilar strictures, such as post-hepaticojejunostomy. In this issue of the journal, Tatsuya Sato et al. address this specific group [7].

They present a single-center Japanese study aimed at evaluating the use of FCSEMSs for mostly hilar BBSs. They prospectively treated 29 patients, almost exclusively suffering from postoperative strictures, in whom 6 months of prior plastic stenting had failed, using 90 days of FCSEMS indwelling. Outcomes were remarkably good, considering the short treatment duration and the (well-defined) rescue setting, with a 97 % stricture resolution rate, 11 % recurrence rate after a median of 15 months, and 10 % adverse event rate. The authors conclude that temporary placement of an FCSEMS is a feasible and effective treatment option for refractory BBSs, especially for hilar strictures.

Their low complication rate seems to be explained by a combination of techniques that they applied. In post-hepaticojejunostomy strictures, FCSEMSs were placed using a double-balloon endoscope. Furthermore, routine balloon dilation, but not sphincterotomy, was applied. Cholangitis and stent kinking were prevented by (eventually) routine placement of a second plastic stent, side-by-side as a "rescue" to prevent segmental cholangitis, or inside the SEMS as a "core" to prevent kinking. In addition, the short indwelling time likely contributed to the low stent occlusion rate and prevented stent removal problems. Given the excellent stricture resolution rate, 3 months of treatment may be sufficient, despite it being much shorter than previously advocated. In other studies, indwelling times have ranged from 6 to 12 months and Devière et al. recommended 4 – 6 months in 2014 [2].

While these results are promising, they should be put into the context of a few limitations. Most importantly, the reported follow-up may be too short to allow for strictures to recur, given the results of other studies showing that recurrences occur between 13 – 21 months. Second, these results seem to apply to postoperative strictures only, as chronic pancreatitis or other causes were hardly studied. Also, the studied postoperative strictures form a heterogeneous group.

Treating hilar refractory postoperative strictures is challenging, but the present study shows that treatment with FCSEMSs is feasible when appropriate measures are taken to prevent complications. It seems safe and effective and may provide a chance to reduce treatment duration and interventions, which would benefit the patient and treating physician alike. For this reason, a head-to-head prospective comparison between plastic and metal stenting in this setting is eagerly awaited. Stent migration remains a concern and should be a focus for future developments. Ideally, a migration-resistant stent that degrades spontaneously will be developed.

Competing interests

The author declares that she has no conflict of interest.

References

[1] Dumonceau JM, Tringali A, Papanikolaou IS et al. Endoscopic biliary stenting: indications, choice of stents, and results: European Society of Gastrointestinal Endoscopy (ESGE) clinical guideline. Endoscopy 2018; 50: 910–930

[2] Devière J, Nageshwar Reddy D, Püspök A et al. Successful management of benign biliary strictures with fully covered self-expanding metal stents. Gastroenterology 2014; 147: 385–395

[3] Tringali A, Reddy DN, Ponchon T et al. Treatment of post-cholecystectomy biliary strictures with fully-covered self-expanding metal stents – results after 5 years of follow-up. BMC Gastroenterol 2019; 19: 214

[4] Martins FP, De Paulo GA, Contini MLC et al. Metal versus plastic stents for anastomotic biliary strictures after liver transplantation: a randomized controlled trial. Gastrointest Endosc 2018; 87: 131.e1–131.e13

[5] Tal AO, Finkelmeier F, Filmann N et al. Multiple plastic stents versus covered metal stent for treatment of anastomotic biliary strictures after liver transplantation: a prospective, randomized, multicenter trial. Gastrointest Endosc 2017; 86: 1038–1045

[6] Coté GA, Slivka A, Tarnasky P et al. Effect of covered metallic stents compared with plastic stents on benign biliary stricture resolution: a randomized clinical trial. JAMA 2016; 315: 1250–1257

[7] Sato T, Kogure H, Nakai Y et al. A prospective study of fully covered metal stents for different types of refractory benign biliary strictures. Endoscopy 2020; 5: 368–376