

# Effectiveness of covered metallic stents of benign biliary stricture resolution

Enliang Li, Wenjun Liao, Linquan Wu

Department of Hepatobiliary Surgery, the Second Affiliated Hospital of Nanchang University, Nanchang 330001, China

*Correspondence to:* Professor Linquan Wu. Department of Hepatobiliary Surgery, the Second Affiliated Hospital of Nanchang University, Nanchang 330001, China. Email: Wulqnc@163.com.

*Provenance:* This is an invited Commentary commissioned by Editor-in-Chief Yilei Mao (Department of Liver Surgery, Peking Union Medical College Hospital, Chinese Academy of Medical Sciences, Beijing, China).

*Comment on:* 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;315:1250-7.

Submitted Dec 18, 2016. Accepted for publication Jan 10, 2017.

doi: 10.21037/hbsn.2017.02.01

**View this article at:** <http://dx.doi.org/10.21037/hbsn.2017.02.01>

Benign biliary stricture has become common and increasing. The reasons of benign biliary stricture include liver transplantation, laparoscopic hepatobiliary surgery, chronic pancreatitis, sclerosing cholangitis, etc. (1,2). Biliary stricture leads to biliary obstruction, cholestasis, and biliary cirrhosis, and the clinical treatment has been difficult. In this situation, the current and commonly used treatment methods include: surgical biliary drainage, mainly by Roux-en-Y cholangioenterostomy; percutaneous transhepatic cholangiography dilatation method; ERCP method. Endoscopic biliary stent placement with minimally invasive showed reduced complications, shorter hospital stays (3). ERCP that is placed in the stent was widely used in malignant biliary stricture, and has become the main indication for benign biliary stricture (4).

Biliary stricture with fibrosis requires endoscopic methods to place different sizes of plastic stents can significantly improve the rate of biliary stricture (5). Few clinical studies have shown that fully covered, self-expandable metallic stents (cSEMS) can lead to radial expansion of the bile duct isotonic stenosis, so as to achieve the effect of multiple plastic stents, and were less prone to cholestasis obstruction (6,7).

Coté and colleagues (8) reported the results of a multicenter, open-label, parallel, randomized clinical trial. They explored the efficacy of cSEMS and plastic stents in relieving the benign biliary strictures. The study included a total of 112 patients with benign biliary strictures. Patients

were randomized to receive multiple plastic stents or a single cSEMS. The primary outcome of their study was the rate of biliary stricture resolution within 12 months after endoscopic treatment. The results demonstrated: compared with the plastic stent group (41/48, 85.4%), biliary stricture resolution rate was significantly increased in the cSEMS group (50/54, 92.6%), was ( $P < 0.001$ ), and the mean number of biliary strictures removed by ERCP was significantly reduced in cSEMS (2.14) compared to plastic stent (3.24) ( $P < 0.001$ ). In addition, there were no statistically significant differences in the recurrence rate of biliary stricture between the two groups during the study period. Fully covered self-expanding metal stents are gaining acceptance for the treatment of benign biliary strictures. Further, in a large prospective multinational study, success rate in the removal of cSEMS after extended indwell and stricture resolution were achieved for approximately 75% of patients (7).

Stenosis recurrence is a difficult problem in the treatment of postoperative biliary stricture. Although this study demonstrates the feasibility of cSEMS for benign biliary strictures, as suggested by the present study, follow-up of 12 months may not be sufficient to determine the recurrence rate of biliary stricture. A systematic evaluation of metallic endobiliary stents placed 2 years later showed only 38% of the remained unobstructed, 3-year patency rate was 25%. Metallic endobiliary stents were not recommended for patients with benign stenosis who are

expected to have a survival time of more than 2 years (9). Therefore, if we can combine the cause of benign biliary stricture, long-term stent-induced complications, and extended follow-up time to further analyze the results, then the application of cSEMS treatment for benign biliary stricture becomes more convincing.

The results of this study provided a basis for the application of cSEMS in the benign biliary stricture. Compared with plastic stents, cSEMS showed a high rate of stricture resolution and fewer endoscopic procedures. Therefore, cSEMS was widely used and accepted for the treatment of benign biliary stricture (7,10). However, the endoscopic placement of stents to relieve biliary stricture should take into account the causes of biliary stricture, stricture resolution rate, stricture recurrence rate, stent migration, which may cause complications.

## Acknowledgements

None.

## Footnote

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

## References

1. Dumonceau JM, Devière J, Delhaye M, et al. Plastic and metal stents for postoperative benign bile duct strictures: the best and the worst. *Gastrointest Endosc* 1998;47:8-17.
2. Perri V, Boškoski I, Tringali A, et al. Fully covered self-expandable metal stents in biliary strictures caused by chronic pancreatitis not responding to plastic stenting: a prospective study with 2 years of follow-up. *Gastrointest Endosc* 2012;75:1271-7.
3. Tocchi A, Mazzoni G, Liotta G, et al. Management of benign biliary strictures: biliary enteric anastomosis vs endoscopic stenting. *Arch Surg* 2000;135:153-7.
4. Dumonceau JM, Tringali A, Blero D, et al. Biliary stenting: indications, choice of stents and results: European Society of Gastrointestinal Endoscopy (ESGE) clinical guideline. *Endoscopy* 2012;44:277-98.
5. Costamagna G, Pandolfi M, Mutignani M, et al. Long-term results of endoscopic management of postoperative bile duct strictures with increasing numbers of stents. *Gastrointest Endosc* 2001;54:162-8.
6. Haapamäki C, Kylänpää L, Udd M, et al. Randomized multicenter study of multiple plastic stents vs. covered self-expandable metallic stent in the treatment of biliary stricture in chronic pancreatitis. *Endoscopy* 2015;47:605-10.
7. Devière J, Nageshwar Reddy D, Püspök A, et al. Successful management of benign biliary strictures with fully covered self-expanding metal stents. *Gastroenterology* 2014;147:385-95; quiz e15.
8. 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;315:1250-7.
9. Siriwardana HP, Siriwardena AK. Systematic appraisal of the role of metallic endobiliary stents in the treatment of benign bile duct stricture. *Ann Surg* 2005;242:10-9.
10. Tarantino I, Mangiavillano B, Di Mitri R, et al. Fully covered self-expandable metallic stents in benign biliary strictures: a multicenter study on efficacy and safety. *Endoscopy* 2012;44:923-7.

**Cite this article as:** Li E, Liao W, Wu L. Effectiveness of covered metallic stents of benign biliary stricture resolution. *HepatoBiliary Surg Nutr* 2017;6(1):55-56. doi: 10.21037/hbsn.2017.02.01