Benign biliary strictures are challenging to manage. They often affect young patients, and although they have a good long-term prognosis, they frequently recur and patients remain at risk of life-threatening cholangitis and liver cirrhosis. Older patients may not be fit for surgery or multiple procedures, but permanent stent insertion has a poor outcome.

Balloon dilation often only results in short-term improvement. Long-term patency can be improved by “splinting” the stricture endoscopically with multiple plastic stents [1], but biliary dilation is extremely painful and repeated endoscopic retrograde cholangiopancreatography (ERCP) is expensive and associated with significant morbidity. Temporary stenting with removable metal stents is a promising new strategy [2], however, these require removal.

A new biodegradable stent theoretically allows long-term dilatation without the need for removal. It is woven from a monofilament of specially treated polydioxanone (Fig. 1), a resorbable suture and implant material that has been in use for over 20 years [3]. Degradation occurs by hydrolysis [4]. The monofilament loses 50% of its breaking strength after 3 weeks and is absorbed within 6 months [5]; a reduced pH hastens hydrolysis. Larger stent versions are already available for benign esophageal strictures. We describe the first use of 10-mm stents in the biliary tree.

Two patients (74 and 70 years) who had undergone bilioenteric anastomosis for stone disease presented 2 years after surgery with intrahepatic biliary strictures causing new stone formation and chronic cholangitis. Percutaneous balloon dilation, cholangioscopy, and lithotripsy were carried out and biodegradable Ella-DV biliary stents (ELLA-CS, Hradec Kralove, Czech Republic) inserted to prevent stricture recurrence (Figs. 2–6).

The patients developed transient cholangitis as stent fragments were passed three months later. However, no further intervention was required, and 2 years after implantation the patients remain asymptomatic with normal liver function.

The optimal aftercare to prevent cholangitis at stent disintegration needs further investigation, but initial results regarding stent insertion and stricture patency are encouraging.

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J. Petrtýl¹, R. Brůha¹, L. Horák², Z. Zádorová³, J. Doseděl⁴, H.-U. Laasch⁵
¹ 1st Faculty of Medicine, Charles University, Prague, 4th Department of Internal Medicine, General Teaching Hospital, Prague, Czech Republic
² 3rd Faculty of Medicine, Charles University, Prague, Department of General Surgery, Faculty Hospital Kralovské Vinohrady, Prague, Czech Republic
³ 3rd Faculty of Medicine, Charles University, Prague, 2nd Department of Internal Medicine, Faculty Hospital Kralovské Vinohrady, Prague, Czech Republic
⁴ Department of Internal Medicine, Hospital of Saint Charles of Boromej, Prague, Czech Republic
⁵ Department of Radiology, The Christie NHS Foundation Trust, Manchester, UK

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Corresponding author
Dr. H.-U. Laasch, MRCP, FRCP
Consultant Radiologist
The Christie NHS Foundation Trust
Wilmslow Road
Manchester M20 4BX
UK
Fax: +44 161 4468505
HUL@christie.nhs.uk

Fig. 5 Introduction of the stent delivery system. The stent is radiolucent, but identified by the radiopaque markers (arrows).

Fig. 6 Deployed stent. The site of the stricture is fully dilated (arrow) and there is free drainage of the contrast through the mesh of the stent into the common bile duct and duodenum.