Iatrogenic biliary injury following hepatectomy: 
the optimal indication for WallFlex™ Biliary RX Fully 
Covered Stent (12cm long self-expandable metal stent)

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PATIENT HISTORY
A 67-year-old woman initially operated on by sigmoidectomy for colorectal cancer subsequently underwent complementary surgery (right combined with atypical left hepatectomy) for metastatic disease. Unfortunately the intervention was complicated by a biliary fistula creation. Endoscopic Retrograde Cholangiography (ERC) permitted the diagnosis of a complex iatrogenic biliary injury at the level of the common hepatic duct characterized by biliary leak and lack of duct continuity with no visualization of intrahepatic ducts (Fig. 1). After multidisciplinary discussion, and given the complexity of a surgical repair, an extra-anatomic endoscopic radiologic reconstruction of the injured bile duct was proposed in order to reestablish biliary continuity*. Written consent was provided from the patient.

DESCRIPTION OF PROCEDURE
A percutaneous transhepatic cholangiography (PTC), showing a complete cut off at the level of the junction between the left hepatic duct and the common bile duct (Fig. 2), was first performed, followed by a “rendezvous”, which allowed the re-establishment of biliary continuity after endoscopic placement of a guidewire (Hydra Jagwire™) in the right hepatectomy area. The guidewire was then grasped with a dormia basket inserted into the left bile duct transheptically (Fig. 3 a-b-c-d). A transhepatic duodenal catheter was left in place for 15 days (Fig. 4), before stenting was attempted. The fistula having been healed, two 15 cm long plastic stents were delivered (Fig. 5) in order to consolidate and calibrate the biliary reconstruction. One week later the patient was readmitted to the hospital with fever and cholestasis. ERC showed spontaneous migration of the stents and reformation of the collection in the hepatopancreatic space (Fig. 6). We then decided to deploy a 12 cm fully covered self-expandable biliary stent (FCSEMS) in order to definitively occlude the fistula and dilate the biliary reconstructed tract. The choice of using a long stent was taken given the particular local anatomy (“S” shape) and in order to avoid technical difficulties in the case of intra-choledocal stent delivering. It is important to note that biliary balloon dilatation (up to 6 mm) and the use of a Wallstent™ super stiff guidewire, were necessary for successful placement of the FCSEMS (Fig 7,8,9,10).

OUTCOME
The patient was discharged in good general condition the following day. Liver function was soon normalised and she is now completely asymptomatic. Abdominal X-ray taken 15 days later confirmed the good placement of FCSEMS. We scheduled the removal, or replacement of the stent, two months later.

CONCLUSION
To our knowledge this is the first report about the use of a 12 cm WallFlex Fully Covered Self-Expandable Biliary Stent. It is a useful tool in the treatment of biliary leaks and benign biliary stenosis following iatrogenic surgical injuries in specific situations such as major hepatectomy procedures. For optimal stent positioning it is highly recommended to combine balloon dilatation along with super stiff guidewire use. Particular attention should also be paid during stent deployment, to avoid obstruction of biliary side branches.