A novel technique for peroral direct cholangioscopy

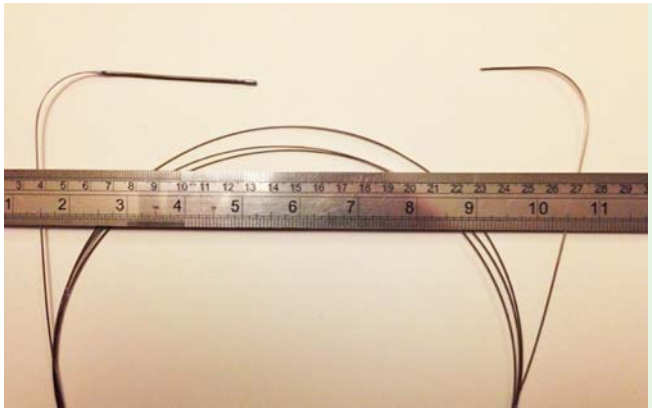

Fig. 1 A typical bend in both the flexible and stiff end of a stiff wire.

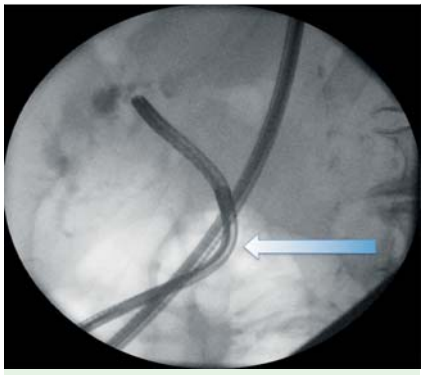

Fig. 2 The nasendoscope in position in the common bile duct (CBD) with the pre-bent wire still in place (arrow). The wire is subsequently removed to allow biopsy and flushing.

Fig. 3 Second-order ducts, stone remnants, and mucus.

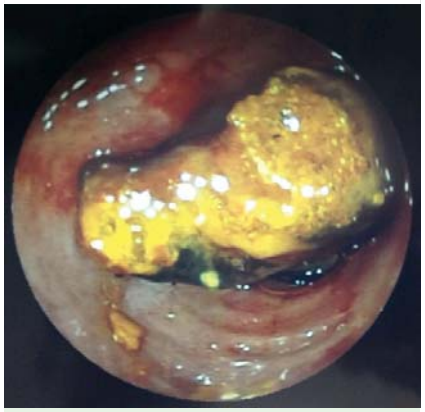

Fig. 4 A ductal stone still in place following a balloon trawl.

Fig. 5 Biopsy forceps in position.

Direct cholangioscopy has been possible since the 1970s [1] but the reliability of the intubation of the common bile duct (CBD) and second-order ducts has limited the applicability of the technique. One of the limitations to accessing the ducts is the acute angulation between the duodenum and the CBD [2]. Various methods have been employed to access the ducts including mother-and-baby endoscopes and balloon assisted intubation [3]. Mother-and-baby systems are expensive, require additional equipment, and provide poorer quality images than standard endoscopes. Balloon-assisted intubation carries a risk of damage to the CBD, and requires specialist equipment with an associated learning curve [4].

We have developed a novel technique that involves the use of a standard stiff wire (SMGW, Marflow AG, Switzerland) bent to the angulation of the duodenum-CBD junction (**Fig. 1**) and passed through the working channel of a standard 5.6-mm Olympus nasendoscope. The technique begins after endoscopic retrograde cholangiopancreatography (ERCP) and sphincterotomy with a nasendoscope passed orally into the duodenum with the tip directed at the sphincter of Oddi. A pre-bent stiff wire is passed through the working channel until the bend in the wire sits within the flexible portion of the endoscope. The nasendoscope is then railroaded over the pre-bent wire into the CBD by advancing the nasendoscope whilst holding the wire fixed (**Fig. 2**). Once the flexible portion of the nasendoscope is completely within the CBD, the wire can be removed to allow full use of the working channel.

Using this technique, we have successfully intubated second-order ducts (**Fig. 3**) and have been able to make reliable in vivo diagnosis using high definition endoscopes, remove difficult stones (**Fig. 4**), and biopsy lesions (**Fig. 5**) under direct vision without complications. The advantages of our technique are its low cost, that no additional equipment is required, and that it has a short learning curve. More research is needed into the technique to determine its limits and the associated risks.

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Competing interests: None

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