Initial validation of a simple, nonbiological, mechanical ERCP training model for cannulation and stent placement

Few models are available for hands-on training in endoscopic retrograde cholangiopancreatography (ERCP). Moreover, the key aspect of learning ERCP properly is the acquisition of manual and visual skills [1,2]. Although performing ERCP procedures in human beings eventually leads to expertise, both experts and endoscopy societies strongly encourage that some of the key skills be acquired with the use of training models [3]. Herein, we show a simple ERCP model for training endoscopists in scope insertion, wheel handling, cannulation, and stent insertion. The model consists of a metal cage, which serves to hold synthetic elements that comprise a model of the upper gastrointestinal and pancreaticobiliary tracts (Fig. 1, Video 1). The esophagus, stomach, and duodenal sweep are constructed from a plastic tube (Fig. 2a). The papillae are made of latex, and the bile ducts are made of plastic. The pancreaticobiliary tree can be attached to the cage at various levels of difficulty (Fig. 2b).

The model was placed on a table, and ERCP was then performed by five trainees and by five endoscopists with and without ERCP experience (Video 1). An Olympus duodenoscope (TJF-Q180V; Olympus America, Center Valley, Pennsylvania, USA) was used. The endoscopists were filmed, observed, and guided by two ERCP experts (Fig. 3, Video 1). The endoscopists also filled out questionnaires on various aspects of the model, including endoscope handling, visual realism, usefulness, and performance. The model was useful for performing and training in the
including inserting a self-expanding metal stent.

The ERCP trainer was provided to our department for testing and training at no cost by Cook Medical, Winston-Salem, North Carolina, USA. The ERCP model was developed by Ivo Boškoski, MD, and Guido Costamagna, MD. Klaus Mönkemüller, MD, PhD, FASGE, is the 2014 recipient of an American Society of Gastrointestinal Endoscopy (ASGE) Endoscopic Research Award and has received honoraria from Cook Medical for lectures and hands-on training sessions given at Digestive Disease Week, which in 2015 was held in Washington, DC, USA. Ivan Jovanovic, MD, PhD, FASGE (a 2015 Fulbright Scholar) and Marco Aurelio D’Assunção, MD, are visiting professors at the University of Alabama at Birmingham, Birmingham, Alabama, USA. This work was done in part during their stay at the Basil I. Hirschowitz Endoscopic Center of Excellence of the University of Alabama at Birmingham.

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