Blind-eye cannulation as a new method for ERCP training: Can we do more than merely teach?

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ABSTRACT

Background and study aims Endoscopic retrograde cholangiopancreatography (ERCP) requires extensive hands-on training. Currently in ERCP training there are two very important problems that need attention: lack of standardized commands for communication, and misunderstanding between the trainee and the trainer.

Methods A method of "blind-eye" cannulation was developed with two paired trainees using the Boškoski-Costamagna ERCP Trainer. The trainee who was holding the duodenoscope was blind-folded and the other trainee gave instructions on what maneuvers were necessary to achieve cannulation, under the supervision of a trainer. Before starting cannulation, a standard list of commands was agreed by the operators.

Results The blind-eye method of cannulation teaches the operator trainee to listen and the assistant trainee to teach. Trainees use standardized commands. During the training session the two trainees swapped roles.

Conclusions Currently, we do not have proof that this type of training is useful, therefore, scientific studies are needed for confirmation. However, we believe that this ERCP model may provide an entirely safe means of improving communication and technical proficiency.

Endoscopic retrograde cholangiopancreatography (ERCP) is among the most technically demanding and high-risk procedures in gastrointestinal endoscopy. ERCP is currently taught through supervised hands-on training on patients, mostly due to the lack of training programs for novices or absence of structured training on simulators [1]. The advent of simulators for ERCP is slowly changing the training process. In many countries preclinical simulator training is obligatory before performing procedures on patients. With that, trainees gain sufficient hands-on training without compromising patient safety and further progression is done in a safe learning environment [2]. Today there are several different and useful platforms for ERCP training, however, limited data are available on the impact of simulators in ERCP training [3–9]. Currently, there are two very important but still poorly addressed problems that need attention. The first one is lack of standardized commands for communication between the trainee and the trainer. The second is

that trainees may not adequately listen to, understand or respond to what the trainer is suggesting/requiring. Misunderstanding between a trainee and a trainer could lead to poor outcome or complications. Correct communication between trainee and trainer is therefore essential. This problem may be overcome by agreeing to a list of "commands" prior to a trainee commencing a procedure. Better still would be gaining agreement on validated commands within the ERCP training community to be used during structured ERCP training.

A fundamental of ERCP training is that both trainee and trainer "speak the same language." It is vital that the action expected from a particular command is understood by both parties before training procedures are undertaken. In ▶ **Table 1** we propose some examples of the commands. There can be some variation around these, but absolute clarity is essential. The second problem is more difficult to solve. The great majority of ERCP training has traditionally been on patients, and a com-
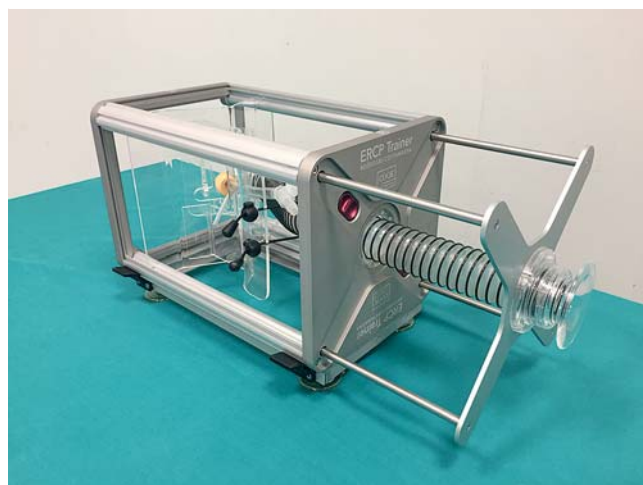
▶ **Table 1** Examples of proposed commands to be used during ERCP training.

Command	Meaning
Straight	Straighten the scope
"Tip up" or "big wheel up"	Bring the scope tip towards the papilla
"Tip down" or big wheel down	Bring the scope tip away from the papilla
"Push out"	Push the accessory out from the scope towards the papilla
"Pull in"	Pull the accessory into the scope, far from the papilla
Open the elevator	Bridge down
Close the elevator	Bridge up
Scope in	Push the scope into the patient
Scope back	Pull the scope out
Turn left	Refers to rotating small wheel
Turn right	Refers to rotating small wheel
Body/wrist joint left	Is different from moving the small wheel
Body/wrist joint right	Is different from moving the small wheel

▶ **Fig. 1** The Boškoksi-Costamagna ERCP Trainer (Cook Medical, Limerick Ireland).

▶ **Fig. 2** Standard setting of the ERCP Trainer with simulated fluoroscopy (camera on the top of the ERCP Trainer).

bination of trainee anxiety about succeeding immediately and time pressure may lead to trainees responding to an instruction to make a maneuver (for example, to "turn the small wheel to the left") by doing exactly the opposite. This may have important clinical implications (e.g. procedure failure or complications). A third challenge is that trainers may be highly skilled at performing ERCP themselves ('unconsciously competent') but poor at verbalizing to trainees the maneuvers necessary to achieve an optimal result. These challenges may be effectively addressed with the Boškoski-Costamagna ERCP trainer (Cook Medical, Limerick Ireland) (▶ **Fig. 1**). This ERCP trainer is capable of reproducing all maneuvers in ERCP, from basic to very advanced, including sphincterotomy and pre-cut, and is also equipped with simulated fluoroscopy. The effect of scope/wheel maneuvers relative to the ampulla can also be directly viewed (▶ **Fig. 2**). It has recently been validated for cannulation as well as for sphincterotomy by the Rotterdam group in two different studies [10, 11].

To improve trainee-trainer communication (including trainees' response to instruction, and trainers' clear verbalizing of what is needed) we developed the method of "blind-eye" cannulation. In this training scenario, two trainees are paired. The trainee who is holding the duodenoscope is blind-folded and the other trainee gives instructions on what maneuvers are necessary to achieve cannulation. All is done under the supervision of a trainer. Before starting cannulation, a standard list of commands is agreed upon between the operators.

Blind-eye cannulation starts with the scope in front of the papilla and the sphincterotome inside the scope, just behind the elevator. On a signal from the supervising trainer, the can-

nulation starts. In this way the operator trainee learns to listen and the assistant trainee to teach. During the training session, the two trainees swap roles (▶ **Fig. 3**). We perform blind-eye cannulation at the end of every ERCP training sessions on the ERCP Trainer and it is always supervised by expert trainers. The blind-folded trainee learns to follow instruction and the assis-

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► **Fig. 3** Blind-eye cannulation for ERCP training.

tant trainee acquires a better understanding of the techniques needed to achieve cannulation. In addition, to the best of our knowledge, this is the first report of an eyes-blinded type of training for all medical and non-medical sciences.

Conclusion

Currently, we do not have proof that this type of training is useful. Therefore, scientific studies are needed to confirm that. However, we believe that this ERCP model may provide an entirely safe means of improving communication and technical proficiency, so that training in ERCP does not involve the "blind guiding the blind"!

Competing interests

Professor Costamagna is a consultant for Olympus, Cook Medical, and Boston Scientific. Dr. Webster has received honoraria for Advisory Boards and lecturing on behalf of Cook Medical, Boston Scientific, and Pentax Medical. Dr. Boškoski is a research grant holder from Apollo Endosurgery and a consultant for Apollo Endosurgery, Cook Medical, and Boston Scientific. Dr. Tringali is a consultant for Boston Scientific.

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