

Non-animal endoscopic training models are also effective for simulation of endoscopic submucosal dissection with adaptive traction strategy

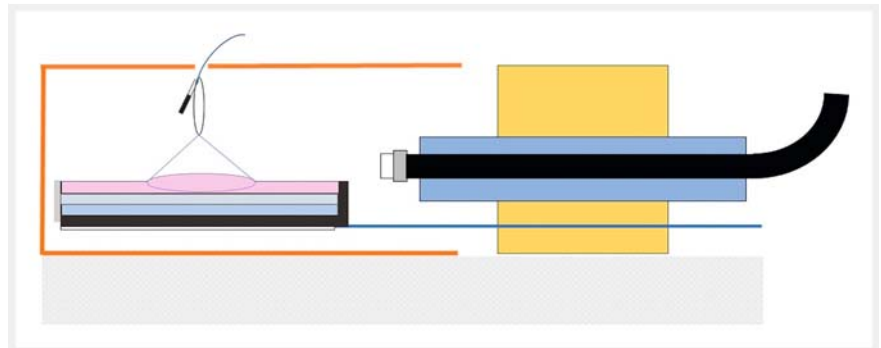


EndoGel (Fujifilm, Tokyo, Japan) is a new non-animal training model for endoscopic submucosal dissection (ESD) that seems a good option for initial training. The European Society of Gastrointestinal Endoscopy developed an ESD curriculum recommending at least 20 simulated ESD procedures on animal and/or ex vivo models before human practice. However, this training strategy creates ethical, ecological, and economical challenges (e.g. need for dedicated scopes, devices, and rooms). Additionally, there is a low but non-negligible risk of cross contamination.

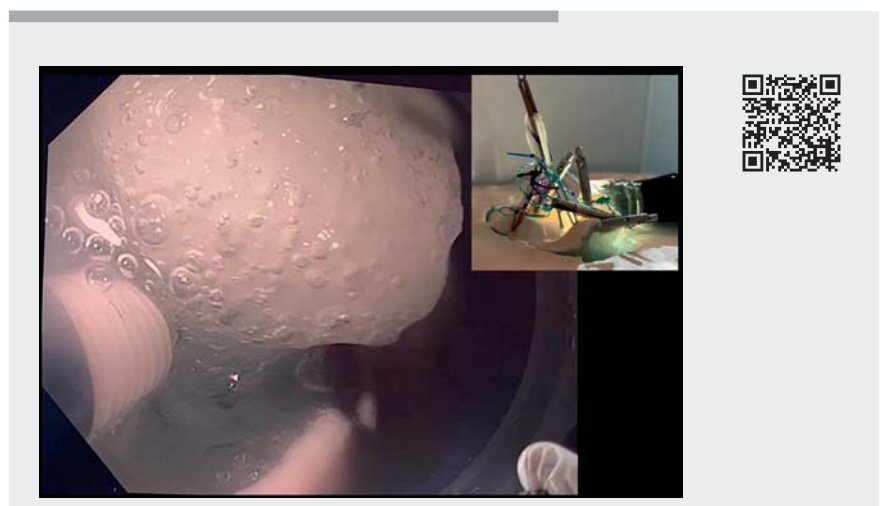
EndoGel is made with nonbiological materials presented in a cardboard box and simulates the texture of human tissue in these kinds of procedures to help provide a life-like simulation (► **Fig. 1**) without any animal use. The users can perform all steps of the conventional ESD procedure. In recent years, traction-assisted ESD has become the reference method as the traction device facilitates the procedure and reduces the procedure time. However, training in the use of the traction device is also essential for ensuring accurate placement of the device elements. We report the use of EndoGel to perform ESD with an adaptive traction system (A-TRACT 4).

After marking and submucosa injection, circumferential incision and trimming were performed. The four loops of A-TRACT 4 were fixed on lateral edges by clips. The rubber band was fixed to a loop hanging through the top of the cardboard box (► **Fig. 1**) to create 90° traction (► **Video 1**). Submucosal dissection was performed, with optimal submucosal exposure ensured by tightening the A-TRACT 4.

The procedure was performed by experts who confirmed good reproducibility and analogy with the real-life experience.



► **Fig. 1** Schematic representation of the EndoGel device (Fujifilm, Tokyo, Japan) with the adaptive traction system.



► **Video 1** EndoGel device for training in traction-assisted endoscopic submucosal dissection.


We hypothesize that such a dedicated model, which is ecologically acceptable with no animal components, could facilitate ESD training with adaptive traction strategies. The model allows human scopes to be used in nondedicated rooms without the risk of scope contamination with animal tissue.

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Competing interests

J. Jacques, L.J. Masgnaux, T. Wallenhorst, and M. Pioche are co-founders of the A-TRACT devices and company. E. De Cristofaro, P. Lafeuille, and C. Yzet declare that they have no conflict of interest.

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Bibliography

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