A novel endoscopic submucosal dissection training model using skinned chicken meat with gel

Gastric endoscopic submucosal dissection (G-ESD) is performed worldwide. However, some trainees are not offered sufficient opportunities to perform G-ESD. Therefore, hands-on seminars using porcine stomachs are actively held, serving as valuable learning opportunities for trainees [1]. However, preparing porcine stomachs is time-consuming and effort-intensive, and leads to problems related to sanitation and pollution. To address these issues, we developed a new G-ESD training model using skinned chicken meat with gel involving the following steps (Video 1). (1) An electrode is attached to the chicken meat on the skinless slide (Fig.1). (2) The chicken meat is placed in a 2-L polyethylene terephthalate bottle (Fig.1). (3) Circular marks are made to mimic a virtual tumor region (Fig.2). (4) The first injection solution is made by mixing 40mL of clear-type polyvinyl alcohol glue with 30 mL of water. The second injection solution is made by dissolving 3 g of borax in 50 mL of warm water and adding 3 g of sodium hydrogen carbonate. These two solutions are injected subcutaneously, and skin lifting is observed, similarly to that of the gastric mucosa (Fig.3). (5)
The skin is cut using a knife, and the cut is gradually widened (Fig. 4, Fig. 5). The two liquids are mixed and injected under the chicken skin (to mimic the submucosal layer). The greatest advantages of this model are that i) skinned chicken meat can be purchased from any supermarket, ii) there is a low infection risk for hepatitis E virus or other zoonotic infections, and iii) it is a low-cost model ($1.50 – 1.70). Chicken meat preparation is fast, simple, and inexpensive compared with porcine model preparation. Therefore, G-ESD training using this novel model is feasible, efficient, and may be widely available for trainees who do not have the chance to practice G-ESD or attend hands-on seminars.

Competing interests

The authors declare that they have no conflict of interest.

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