

Clinical and environmental implications of a high-density clip closure after endoscopic submucosal dissection: is it worth it?

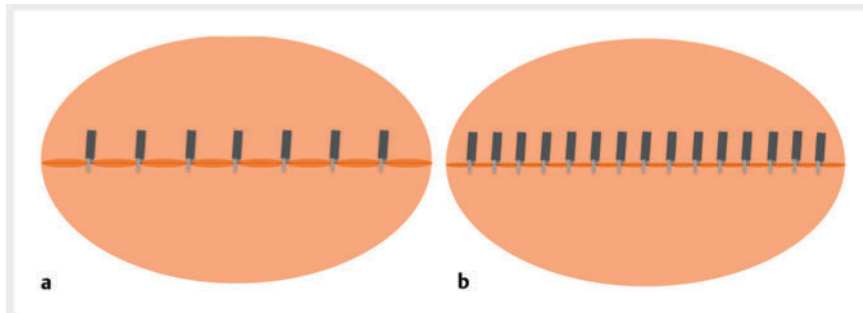


Fig. 1 Two different techniques for closing a mucosal defect after endoscopic submucosal dissection. Panel **a**: Complete closure with standard clip placement and without any visible residual mucosal defect. Panel **b**: Complete closure with high-density clip placement.

Prophylactic clip closure for the prevention of delayed bleeding after endoscopic submucosal dissection (ESD) remains debated. While some retrospective studies have shown a benefit, recent randomized trials have not confirmed it [1–5].

These studies often report the use of many clips to achieve closure, emphasizing tight, high-density placement. However, this practice is not standardized, and such variability raises additional concerns regarding procedural costs and environmental impact. In our clinical practice, closure is considered complete when no visible mucosal defect remains after clip placement (► **Fig. 1**).

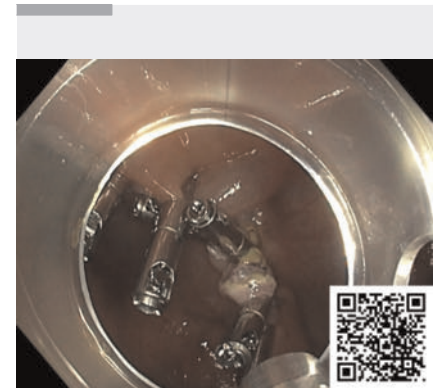
Here, we present the case of a 76-year-old man referred for endoscopic resection of a large (7 cm), non-granular laterally spreading tumor at the hepatic flexure.

Due to the lesion's characteristics, ESD was indicated and successfully performed using an adaptive traction device (A-TRACT) in 70 minutes. The Limoges bleeding risk score was 5 points, indicating high risk. Therefore, complete prophylactic clip closure was performed.

Closure was performed using the clip-anchoring technique, with incisions enhancing a clip grip. Departing from our standard practice, we applied a “Japanese-style” closure with <1 mm spacing between clips. This required 30 additional minutes to close a defect of approximately 8 cm, using 15 reloadable clips with a single-use handle (► **Video 1**). The environmental impact was 50.2 g for the first clip with handle, plus 4 g per clip, for a total of 106.2 g and 1.35 kg CO₂ equivalent. In terms of cost, the use of reloadable clips amounted to a total of 216 euros.

In comparison, 15 single-use clips would have produced 1062 g of waste, 10.9 kg of CO₂ equivalent, and a cost of €600. Considering the extra time, costs, and environmental burden, we hypothesize that this technique should only be widely adopted if future randomized trials confirm its clinical benefit over partial or no closure and over other systems and strategies. Until then, “Japanese-style” prophylactic closure should be carefully reserved for selected scenarios.

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Video 1 Economic and environmental burden of complete clip closure after colonic ESD.

Contributors' Statement

Elena De Cristofaro: Conceptualization, Writing – original draft. Jean Grimaldi: Data curation, Writing – review & editing. Jérémie Jacques: Validation, Writing – review & editing. Jérôme Rivory: Validation, Writing – review & editing. Edoardo Troncone: Validation, Writing – review & editing. Timothée Wallenhorst: Validation, Writing – review & editing. Mathieu Pioche: Conceptualization, Supervision, Validation, Writing – original draft.

Conflict of Interest

Competing interests: Jean Grimaldi, Jérôme Rivory, Timothée Wallenhorst, Jérémie Jacques and Mathieu Pioche are founders of the company ATRACT Device & CO. All other authors have nothing to declare.

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