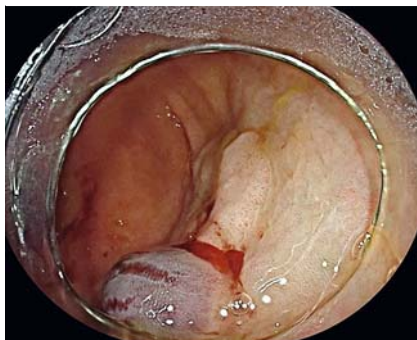


## A hematoma caused by an excessively superficial injection: go under the red bleb!



► **Fig. 1** Granular-type laterally spreading tumor in the right colon.



► **Fig. 2** Hematoma resulting from an excessively superficial injection.



► **Fig. 3** Endoscopic submucosal dissection under the hematoma.

Effective submucosal injection is key for efficient and safe endoscopic resection, such as endoscopic mucosal resection (EMR) or endoscopic submucosal dissection (ESD). Deep injection into the muscularis propria is dangerous and may result in a false non-lifting sign. A too superficial injection in the muscularis mucosae is a classic issue, associated with rapid poor lifting and a hematoma of the muscularis mucosa caused by injury to the extensive vascularization. Such a situation complicates many endoscopic resections [1]. During EMR, the scenario may compromise technical success because the lesion is not lifted. During ESD, the difficulty increases because of major bleeding and loss of the dissection plan.

We report a simple trick that greatly assists such a situation. A 2-cm-diameter, granular, laterally spreading tumor of the right colon (► **Fig. 1**) was scheduled for standard EMR. The first injection was too superficial and triggered a major hematoma of the muscularis mucosae that complicated safe and efficient EMR (► **Fig. 2**). We switched to ESD with traction of the dissection plane under the hematoma. We performed a second injection 1 cm distant from the hematoma. We then created a mucosal incision no closer than 1 cm from the hematoma. After dissection of the first submucosal fibers, we installed our previously report-



► **Video 1** A hematoma caused by an excessively superficial injection: go under the red bleb!

ed double-clip traction device using two clips and a rubber band [2, 3]. The resultant good positioning of the submucosal plane allowed access to the deep submucosal plane under the red bleb caused by the first excessively superficial injection (► **Fig. 3**). Extension of the margin and a descent under the red bleb allowed us to avoid major bleeding and perform rapid successful ESD of a 2-cm-diameter adenoma exhibiting low-grade dysplasia (► **Video 1**).

In conclusion, if a submucosal hematoma develops because an injection is too superficial, performing deep ESD under traction after extending the margin under the red bleb facilitates endoscopic resection in this well-known, challenging situation.

Endoscopy\_UCTN\_Code\_CPL\_1AH\_2AZ

## Competing interests

Mathieu Pioche: scientific consultant for Olympus, Boston and 3D matrix, ESD training with Cook and Olympus. Véronique Loustaud-Ratti: advisory board and speaking for Gilead and Abbvie. Sophie Geyl: speaking for Abbvie and Ipsen, invitation (conference) for Amgen. Jérémie Jacques and Romain Legros: scientific consultant for Boston and Olympus, ESD training for ERBE.

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Endoscopy 2021; 53: E1–E2  
**DOI** 10.1055/a-1167-1115  
**ISSN** 0013-726X  
**published online** 19.5.2020  
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Georg Thieme Verlag KG, Rüdigerstraße 14,  
70469 Stuttgart, Germany

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