

# Foreign Body Reaction Following Use of Submucosal Lifting Agent for Endoscopic Resections

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## INTRODUCTION

- In endoscopic mucosal resection, a lifting solution is injected into the submucosal layer to separate the submucosa from muscularis propria to facilitate resection of the targeted lesion.
- ORISE™ gel (Boston Scientific) is one of the lifting solutions that was recently approved by the Food and Drug Administration in 2018.
- While ORISE gel has become the popular solution, there is a concern that it could affect histologic findings. We report a foreign-body reaction associated with ORISE™ gel injection.

## CASE

- A 72-year-old male with a past medical history of Barrett's esophagus was first found to have duodenal adenoma in the 3rd portion in 2017.
- In 2021, EMR was attempted and the 4mL ORISE gel was injected, however, the procedure was aborted because the center of the polyp was fixed and could not be lifted. Biopsies showed unchanged duodenal adenoma with no evidence of dysplasia.
- 2 months later, the patient underwent repeat EGD. ORISE gel injection was attempted, however the lesion could not be lifted due to severe fibrosis thus hybrid EMR was used to excise the lesion and 25mm of mucosa was resected.
- Pathologic examination revealed fragments of adenoma. In addition, submucosa showed foreign material with associated foreign giant cell reaction, consistent with the site prior to the procedure.

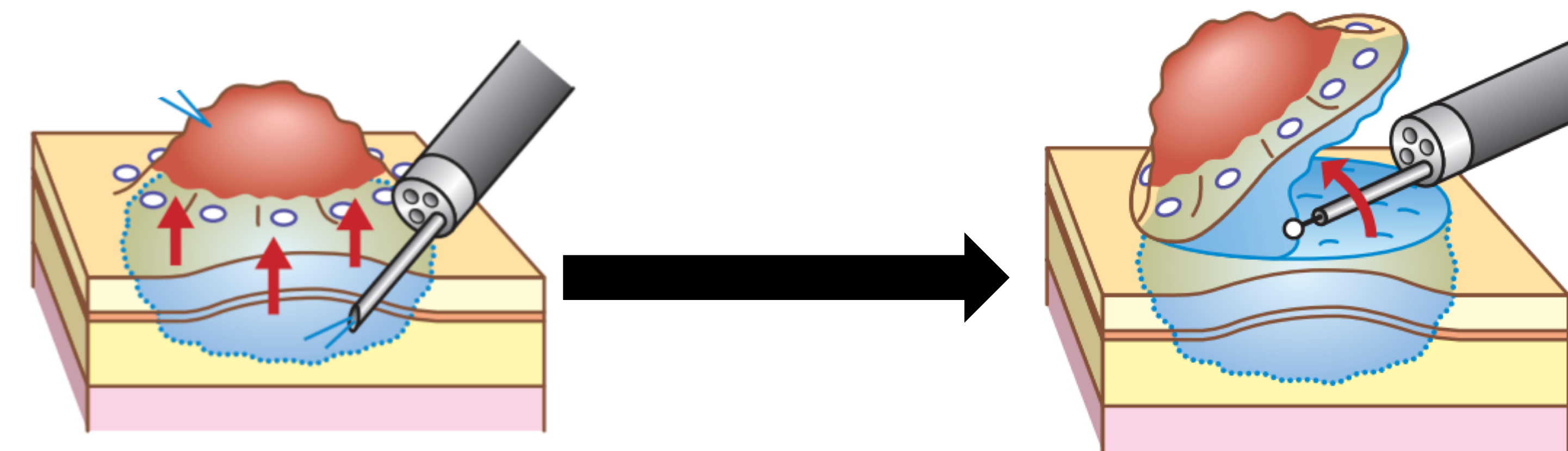


Figure 1. Elevation of a polyp with lifting solution and resection using a needle-knife.

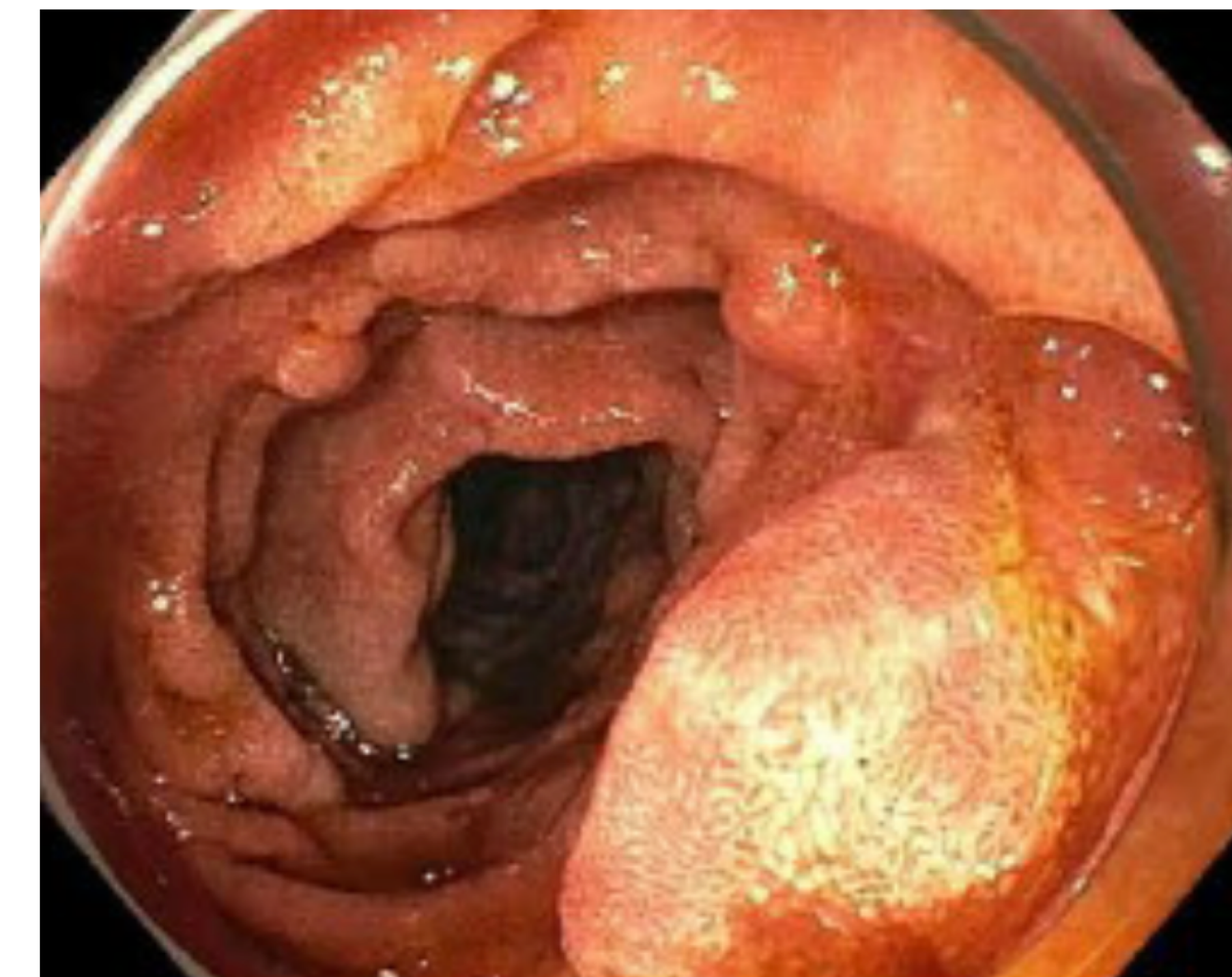


Figure 2-A. Duodenal adenoma at EGD.



Figure 2-B. Duodenal hybrid EMR showing foreign body reaction in the submucosal layer.

## DISCUSSION

- In this case, we report a foreign giant cell reaction followed by ORISE gel use.
- The foreign body cell reaction occurs when particles are large (sizes > 10µm) enough so that macrophages induce the foreign body giant cell formation to degrade the material. These changes can be seen as early as 3 weeks later and also seen as late as 5 months later.
- One of the biggest advantages of ORISE gel is that it is a long-lasting mucosal lift but this may have backfired.
- Given the severe foreign body reaction into the submucosal layer, the lesion is recommended to be completely removed after injection of ORISE gel.
- In addition, longer-term observation is needed to ascertain whether histologic changes affect subsequent mucosal resection.

## REFERENCES

1. Westbrook LM, Henn PA, Cornish TC. Lifting Agent Granuloma: Histologic Findings Following Use of ORISE Gel for Endoscopic Resections in the Gastrointestinal Tract. *Am J Clin Pathol* 2020;153:630-638.
2. Colak Y, Hasan B, Tandon K, Khan S, Wadhwa V, Bejarano PA, et al. Potential clinical complications of Orise gel use, a new submucosal lifting agent: experience from a tertiary care center and review of the literature. *Ann Gastroenterol* 2022;35:407-413.