Over-the-scope clip system is effective for the closure of post-endoscopic submucosal dissection ulcer, especially at the greater curvature

The technique of endoscopic submucosal dissection (ESD) has been coming into widespread use and gradually becoming a standard treatment for early gastric cancers. However, perforation is a serious complication with peritonitis and the need for emergency surgery [1]. Performing ESD on lesions at the greater curvature is especially difficult, and perforation tends to occur easily [2]. We report our experience of three cases of mucosal gastric cancer at the greater curvature which were treated by ESD.

In the first case, in a 71-year-old man, perforation occurred during the ESD procedure. We tried to close the perforation site using conventional clips, but this induced further separation of the muscle layer. The patient underwent surgery (Fig. 1).

In the second case, in a 74-year-old man, iatrogenic perforation after ESD occurred (Fig. 2a). We used over-the-scope clips (OTSC Clips; Ovesco Endoscopy GmbH, Tübingen, Germany) to successfully close the perforation site at close range (Fig. 2b).

In the third case, in an 82-year-old woman, successful closure was achieved without any complication by using over-the-scope clips to prevent perforation due to the thin muscle layer remaining after ESD (Fig. 4). After 2 months, esophagogastroduodenoscopy in both cases revealed the clips remaining in place with complete closure of the post-ESD ulcer, without any complication. There are several reasons for the vulnerability to perforation at the greater curvature during and after an ESD procedure.
One reason is its typical anatomy [3–5]. The muscularis mucosae is thin at the greater curvature compared to other parts of the stomach, and the submucosal vascular networks are larger than in the other parts. To perform ESD at the greater curvature, typically we need to retroflex the endoscope because of the location of the lesion. This applies firm pressure to the stomach wall, which may cause elongation and separation of muscle layers in the greater curvature (Fig. 6). These technical difficulties also increase the risk of perforation.

To the best of our knowledge, our two cases are the first in which complete closure of post-ESD gastric ulcer using over-the-scope clips is reported. Comparing our three reported cases, we consider that complete closure of post-ESD ulcers at the greater curvature using over-the-scope clips is an effective measure to prevent perforation, especially of the thin muscle layer remaining after ESD.

Competing interests: None

References

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Fig. 6 Retroflexed endoscope during endoscopic submucosal dissection (ESD) at the greater curvature. ESD at the greater curvature typically requires retroflexion of the endoscope because of the location of the lesion. This applies firm pressure to the stomach wall, which may cause elongation and separation of muscle layers in the greater curvature.