

Closing the Gap: Deployment of an Over-the-Scope Clip after Colonic Endoscopic Mucosal Resection

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Closing the Gap: Deployment of an Over-the-Scope Clip after Colonic Endoscopic Mucosal Resection

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BACKGROUND

- Endoscopic mucosal resection (EMR) is an endoscopic technique employed for removal of neoplasms confined to the mucosa and submucosa of the GI tract.¹
- Injection-assisted EMR is commonly used for resection of large or flat lesions in the colon¹ and local recurrence in this area following EMR is only 3% when removed en bloc.²
- Bleeding occurs in 2-11% of patients after EMR of large colonic polyps¹ and delayed hemorrhage is the most common complication following EMR.³
- Prophylactic clipping of resection sites following EMR of large colorectal polyps has been associated with lower incidence of delayed bleeding.⁴
- Through-the-scope clips are limited by their smaller wingspan and low force of closure which often necessitates the placement of multiple clips for closure of large defects.⁵
- Newer endoscopic over-the-scope clips (OTSC) have been demonstrated to be useful for non-surgical closure of large defects⁵ and fistulas as well as treatment of gastrointestinal bleeding.⁶
- OTSCs have also been employed for prevention of secondary perforation or bleeding with excellent results.^{5,6}

CASE PRESENTATION

A 56 year-old male with a history of polycystic kidney disease underwent initial routine screening colonoscopy which revealed three polyps including an 18mm sessile polyp in the ascending colon. Due to the high risk of bleeding and perforation with piecemeal resection, a mucosal tattoo was placed and the patient returned for repeat colonoscopy with planned EMR of the ascending colon polyp. The lesion was first raised using methylene blue and was then successfully removed en bloc using a graded snare. The location of the defect was in a severely angulated position and multiple attempts were made to close the defect using traditional through-the-scope clips in order to reduce the incidence of delayed hemorrhage. However, due to the low force of closure, several clips broke under the stress of attempting to approximate the edges of the large defect. The colonoscope was withdrawn and a standard adult gastroscope was loaded with an 11mm cap/6mm depth over-the-scope clip. The gastroscope successfully reached the ascending colon and was able to provide improved en face visualization compared to the colonoscope. The over-the-scope clip was deployed resulting in a complete closure of the defect without any post-procedure bleeding or complication.

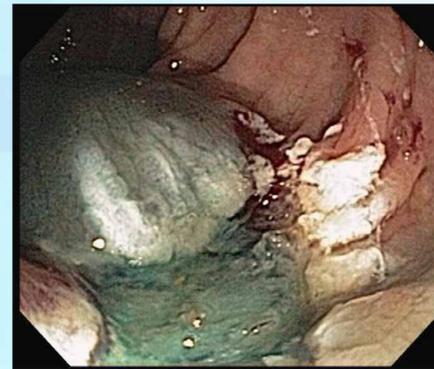


Figure 1: Large ascending colonic defect following EMR of an 18mm sessile polyp.



Figure 2: Broken and bent through-the-scope clips after attempted approximation of the mucosal defect.

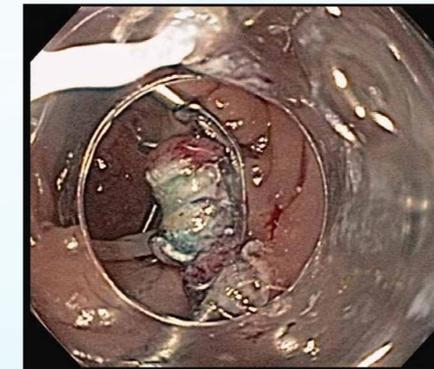


Figure 3: Successful application of the over-the-scope clip.

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DISCUSSION

- Prophylactic closure of polypectomy sites to prevent delayed hemorrhage is a debated topic following a randomized controlled trial in 2003 which found no benefit from prophylactic clipping.⁴
- A 2013 retrospective review of prophylactic clip closure after resection of colonic lesions ≥ 2 cm showed an association between delayed bleeding and lesions which were not clipped with an odds ratio of 6.0 (95% CI 2.0-18.5).⁴
- This study also demonstrated that:
 - Polyps that were not clipped were 6 times more likely to have a bleed and 4.4 times more likely to have any complication compared with polyps that were fully clipped.⁴
 - Increasing polyp size was significantly associated with a risk of bleeding.⁴
 - Proximal polyp location was two times more likely to be associated with a bleed.⁴
 - The mean number of clips placed in patients with any clipping was 3.7.⁴
 - The average charge per clip was \$150.⁴
- One OTSC costs our institution \$559. If using more than 4 clips to close a larger defect, use of an OTSC would provide a cost benefit.
- A 2016 retrospective review of OTSC applications included 18 patients who had OTSC application to prevent secondary perforation and 12 for prevention of secondary bleeding. All 30 patients experienced technical and clinical success.⁶
- Two of the 12 patients in whom an OTSC was placed for prevention of secondary bleeding had the clip applied after standard through-the-scope clips had failed.⁶ This was a similar scenario to our patient where standard clips broke and lead to failure of approximation of the mucosal defect.
- Due to the positioning and angulation of the defect in our patient, it was felt that a gastroscope would provide better visualization. Remarkably, the standard gastroscope equipped with an OTSC was able to reach the ascending colon and provided the desired superior views in order to successfully place the OTSC.

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