

UTILITY OF THE MANTIS™ CLIP TO FACILITATE EXPOSURE AND RESECTION OF A LESION ON THE ILEOCECAL VALVE

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Abstract

The endoscopic resection of complex colorectal lesions presents a significant technical challenge, particularly for those located on the ileocecal valve, as this structure is mobile in some cases and may be difficult to access and to achieve stable exposure. Suboptimal exposure is a risk factor for incomplete resection and local recurrence. To overcome these difficulties, endoscopists rely on various techniques. We present the clinical case of a female patient with an adenomatous lesion on the ileocecal valve, whose challenging exposure was successfully resolved using the Mantis™ clip as a traction device. This adjustable and repositionable clip, primarily designed for tissue approximation and defect closure, proved to be an effective tool for optimizing lesion exposure, enabling a complete and precise endoscopic mucosal resection (EMR).

Keywords: endoscopic mucosal resection, ileocecal valve, mantis clip.

Introduction

Endoscopic Mucosal Resection (EMR) is the standard technique for managing superficial colorectal lesions. Most polyps detected during screening colonoscopies are small, benign, and easy to manage endoscopically. However, approximately 10–15% of colorectal polyps are classified as complex¹. The term “complex” reflects the varying degrees of difficulty related to size, shape, extent, location, and the presence of scarring, which ultimately contribute to the complexity of resection using conventional endoscopic methods. Complex polyps are generally defined as lesions whose endoscopic resection is technically difficult. These include:

- Size: > 20 mm.
- Flat or depressed morphology.

- Extent: polyps that occupy more than one-third of the circumference of the lumen, that encircle a fold (clam-shell polyps), or that span two haustral folds.

- Location: right colon, ileocecal valve, appendicular orifice, sigmoid colon, dentate line, and the inner curve of the hepatic and splenic flexures.

Resection of complex lesions poses a technical challenge. The ileocecal valve is considered one of the most difficult locations because it is a mobile structure that, in some cases, presents difficulties in terms of access and achieving stable exposure².

The clinical guidelines of the European Society of Gastrointestinal Endoscopy (ESGE) recommend that complex lesions and those located in hard-to-reach areas be managed at referral centers and, if necessary, using advanced resection and visualization techniques³.

To counteract suboptimal exposure, accessories such as caps are used, or techniques such as submucosal injection with low-diffusion agents or mechanical traction (using thread clips or grasping forceps). The use of traction is essential in advanced therapeutic endoscopy, as it transforms the field of view, allowing for constant exposure of the tissue and better identification of the submucosal plane⁴.

The Mantis™ clip is an adjustable, repositionable edge-gripping and approximation system designed for the approximation and closure of large mucosal defects^{5,6}. Due to its anchoring characteristics and strong gripping capacity (TruGrip™ tips), it is considered an advanced traction tool in difficult exposure scenarios such as the one described below.

Clinical case

We present the case of a 68-year-old woman who underwent a screening colonoscopy due to a family history of colorectal cancer. During the examination, a flat, elevated lesion (0-IIa) was identified on the anterior leaflet of the ileocecal valve, extending and protruding into the ileum, with the lesion unable to be fully assessed. An attempt was made to expose the lesion using a cap and alligator forceps; however, these maneuvers provided only temporary exposure before the lesion retracted into the ileum, making it impossible to perform a stable assessment and plan the endoscopic mucosal resection (EMR) appropriately.

Given this limitation, the Mantis™ clip was used, which allowed the mucosa adjacent to the lesion to be secured to a

distal haustra. This clip uses anchoring prongs to maintain a secure grip on the edges of the tissue. In the drag technique, the clip is opened and closed (without releasing it) at the proximal edge of the lesion. It is then gently guided toward the haustra, where it is opened again, closed at the opposite edge, and finally released. Through this controlled traction maneuver, the lesion was successfully brought to the surface in a continuous and stable manner.

The lesion was classified as NICE 2 and measured approximately 19 mm. With the aid of the cap and following elevation with saline, resection was performed using a hot snare, resulting in two fragments. Pathological examination confirmed a tubulovillous adenoma with high-grade dysplasia. The patient experienced no post-procedural complications and was scheduled for endoscopic follow-up to monitor the resection site.

Discussion

Therapeutic endoscopy of lesions at the ileocecal valve requires a high level of technical skill due to the risk of perforation and the challenge of achieving complete resection in an area of high mobility^{2,3}. Our case illustrates the limitations of standard exposure techniques (such as caps or forceps) in mobile or retractable lesions, and the need to resort to advanced traction systems.

The use of the Mantis™ clip as a traction tool is an example of a successful “off-label” application. The traction provided facilitated assessment of the adjacent tissue and allowed for safe and controlled EMR.

Unlike thread-based clips or systems such as the S-O clip (a spring-loaded clip specifically designed for traction)⁷, the Mantis™ clip offers a surgical advantage as a “through-the-scope” (TTS) device that enables the “hold-and-drag” technique without the need for external accessories^{5,6}. Its TruGrip™ tips and rotational capability facilitate a firm anchor in the adjacent healthy mucosa, allowing for stable displacement and exteriorization of the tissue⁵.

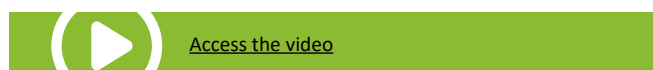
While methods such as cap suction may be useful for small areas that are difficult to elevate, they carry an inherent risk of muscle layer injury if not properly controlled³. In comparison, the Mantis™ clip allows for more precise and controlled traction, serving as a cost-effective alternative to more complex devices such as the over-the-scope (OTS) clip, which, although excellent for closing large defects, lacks the repositioning versatility offered by the Mantis™ during the lesion exposure phase⁸.

This case demonstrates that devices designed for approximation and closure, thanks to their gripping and control mechanisms, can be effectively repurposed as traction tools, expanding the range of tools available to the endoscopist when faced with complex anatomical barriers. The ability to expose the lesion in a stable and safe manner minimizes the risk of incomplete resection, a crucial factor in preventing recurrences.

Prospective studies are needed to compare the efficacy, safety, and cost-effectiveness of the Mantis™ clip with other traction devices available on the market.

Conclusion

The Mantis™ clip proved to be an effective traction tool for exposing hard-to-reach and highly mobile colorectal lesions, such as those located at the ileocecal valve. Its ability to provide continuous, controlled traction optimizes visualization and facilitates the planning and execution of endoscopic resection.



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