Clinical Policy Title: Mucosal and submucosal endoscopic resection of colorectal polyps

Clinical Policy Number: CCP.1328

Effective Date: October 1, 2017
Initial Review Date: August 17, 2017
Most Recent Review Date: October 1, 2019
Next Review Date: February 2021

ABOUT THIS POLICY: Prestige Health Choice has developed clinical policies to assist with making coverage determinations. Prestige Health Choice's clinical policies are based on guidelines from established industry sources, such as the Centers for Medicare & Medicaid Services (CMS), state regulatory agencies, the American Medical Association (AMA), medical specialty professional societies, and peer-reviewed professional literature. These clinical policies along with other sources, such as plan benefits and state and federal laws and regulatory requirements, including any state- or plan-specific definition of "medically necessary," and the specific facts of the particular situation are considered by Prestige Health Choice when making coverage determinations. In the event of conflict between this clinical policy and plan benefits and/or state or federal laws and/or regulatory requirements, the plan benefits and/or state and federal laws and/or regulatory requirements shall control. Prestige Health Choice's clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. Prestige Health Choice's clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, Prestige Health Choice will update its clinical policies as necessary. Prestige Health Choice's clinical policies are not guarantees of payment.

Coverage policy

Endoscopic mucosal resection is clinically proven and, therefore, medically necessary for the complete resection or en bloc histologic staging of large (typically 10 mm to 20 mm), sessile, and laterally spreading or complex colorectal polyps with limited submucosal involvement (< 1,000 µm) when performed by an experienced endoscopist in a specialty center.

Endoscopic submucosal dissection is clinically proven and, therefore, medically necessary for the complete resection or en bloc histologic staging of large (typically > 20 mm) colorectal lesions with limited submucosal involvement (< 1,000 µm) for which complete resection or en bloc histologic staging cannot be achieved by standard polypectomy or endoscopic mucosal resection when performed by an experienced endoscopist in a specialty center (Ferlitsch, 2017; Maple, 2015).

Limitations:

Colorectal lesions with advanced endoscopic imaging characteristics of deep submucosal invasion is considered investigational for endoscopic treatment, and cases should be referred for surgery.
Coverage determinations are subject to benefit limitations and exclusions as delineated by the state Medicaid authority. The Florida Medicaid website may be accessed at http://ahca.myflorida.com/Medicaid/.

**Alternative covered services:**

- Surgical (open or laparoscopic) resection.
- Transanal endoscopic microsurgery.
- Standard endoscopic polypectomy.

**Background**

Colon polyps are slow-growing protrusions into the colon lumen that most commonly occur sporadically or as part of other syndromes (Meseeha, 2017). The colon consists of the same four layers that are present in most parts of gastrointestinal tract: the mucosa, submucosa, muscularis propria, and serosa (Cohen, 2013). Most polyps arise from the most superficial mucosal layer of the colon, are less than 10 mm in diameter, and carry a small risk of malignancy, but confer an important predisposition to colorectal cancer.

Polyps are classified according to size and appearance. Size classifications are diminutive if the polyps are \( \leq 5 \text{ mm} \) in diameter, small if they are 6 to 9 mm, or large if they are \( \geq 10 \text{ mm} \) in diameter. Their appearance can be described as depressed (on the surface), flat, pedunculated (with a stalk), or sessile (no stalk, broad base). Histologic descriptions include adenomatous, serrated (sessile or traditional), or non-neoplastic (hyperplastic and juvenile), and tubular (the most common), villous, and tubulovillous with a degree of dysplasia. Increased cancer risk is associated with large adenomas containing a substantial villous component or high-grade dysplasia (Meseeha, 2017).

The incidence and mortality of colorectal cancer have been decreasing for several decades. From 1985 to 2015, the U.S. annual mortality rate fell 48 percent, from 26.93 to 13.99 deaths per 100,000, and annual incidence fell 43 percent, from 66.30 to 37.55 cases per 100,000 (Noone, 2018). This trend has occurred in part to endoscopic removal of adenomatous polyps (Zauber, 2012). Along with improved treatments of diagnosed cancers, the number of Americans who have survived colorectal cancer is now about one million Americans (American Cancer Society, 2019). The risk of submucosal invasion and subsequent lymph node spread is central to managing early colorectal neoplasia, as those with increased risk of nodal metastasis require surgical staging with lymph node dissection and pathologic evaluation.

Endoscopically treatable colorectal cancer is typically defined as lesions localized to the mucosal or submucosal layers with no nodal metastases, based on endoscopic or endosonographic findings that
predict a curative resection. They correspond to Stage 0 or 1 according to Tumor, Node, Metastasis staging (American Joint Committee on Cancer, 2009):

<table>
<thead>
<tr>
<th>Stage</th>
<th>Stage grouping</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Tis, N0, M0</td>
<td>Carcinoma in situ or intramucosal carcinoma (Tis). The cancer is in its earliest stage and has not grown beyond the mucosa of the colon or rectum.</td>
</tr>
<tr>
<td>1</td>
<td>T1 or T2, N0, M0</td>
<td>The cancer has penetrated through the muscularis mucosa into the submucosa (T1), and it may also have grown into the muscularis propria (T2). It has not spread to nearby lymph nodes (N0) or distant sites (M0).</td>
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</table>

Endoscopic polypectomy techniques continue to evolve to improve the rate of complete resection and reduce the need for formal surgical resection (Fyock, 2010). The most common techniques use snares and forceps with electrocautery (hot) or none (cold). Submucosal injection, tattooing, and endoloops may increase procedural success. Endoscopic ultrasound, high-definition colonoscopy, chromoendoscopy, and narrow band imaging can enhance optical diagnosis of T1 colorectal cancer or deep-invasion polyp detection beyond gross morphologic features on standard white-light colonoscopy (Backes, 2017). Transanal minimally invasive techniques can improve the resectability of rectal polyps. Other less-invasive options include combined endoscopic and laparoscopic polypectomy, endoscopic mucosal resection, and endoscopic submucosal dissection, which may obviate the need for formal surgical resection in many patients.

**Endoscopic mucosal resection** was first developed in Japan to histologically stage and remove large superficial neoplasms from the digestive tract that have limited submucosal invasion (Hwang, 2015). Several procedural variations exist, but all apply specialized devices to identify, demarcate, and lift the lesion (with a submucosal injection) for endoscopic snare resection. The lesion may be removed as a single piece or piecemeal.

Endoscopic submucosal dissection uses a specialized electrocautery knife that allows for en bloc removal of the submucosa under the target lesion (Maple, 2015). Endoscopic submucosal dissection involves demarcating the perimeter of the lesion, submucosal injection around the perimeter, and mucosal excision, followed by injection of the submucosa beneath the target lesion and dissection. Ancillary tools, such as distal caps, dyes, and injecting agents, may improve visualization and tissue retraction. Endoscopic submucosal dissection enables resection of larger (typically > 20 mm), non-pedunculated, and potentially deeper lesions with a curative intent and easier detection of noncurative resections.

The goals of endoscopic resection are to achieve complete resection in the safest minimum number of pieces, with adequate margins, and without need for adjunctive ablative techniques (Ferlitsch, 2017). The choice of when to use endoscopic mucosal resection, specifically piecemeal endoscopic mucosal resection, versus endoscopic submucosal dissection depends on whether the lesion is an adenoma or a
carcinoma and whether the lesion needs en bloc excision. Lesions with an average diameter up to 20 mm can be definitively treated with en bloc snare endoscopic mucosal resection. A non-lifting sign after submucosal injection is indicative of deep submucosal invasion, unless non-lifting is thought to be a consequence of submucosal fibrosis related to previous manipulation. Larger lesions can be definitely treated using piecemeal endoscopic mucosal resection without affecting the pathological diagnosis, but piecemeal dissection is associated with lower radical resection rates and higher recurrence rates.

**Searches**

Prestige Health Choice searched PubMed and the databases of:
- UK National Health Services Centre for Reviews and Dissemination.
- Agency for Healthcare Research and Quality.
- The Centers for Medicare & Medicaid Services.
- The Cochrane library.

We conducted searches on August 2, 2019. Search terms were: “colonoscopy,” “endoscopic mucosal resection” and “endoscopic submucosal dissection.”

We included:
- **Systematic reviews**, which pool results from multiple studies to achieve larger sample sizes and greater precision of effect estimation than in smaller primary studies. Systematic reviews use predetermined transparent methods to minimize bias, effectively treating the review as a scientific endeavor, and are thus rated highest in evidence-grading hierarchies.
- **Guidelines based on systematic reviews**.
- **Economic analyses**, such as cost-effectiveness, and benefit or utility studies (but not simple cost studies), reporting both costs and outcomes — sometimes referred to as efficiency studies — which also rank near the top of evidence hierarchies.

**Findings**

A 2008 guideline from the British Society of Gastroenterology on polypectomy recommended that endoscopic mucosal resection is preferred for sessile polyps > 20 mm (Riley, 2008). A 2017 guideline on colorectal polypectomy and endoscopic mucosal resection from the European Society of Gastrointestinal Endoscopy recommends the procedure for lesions ≤ 20 mm in the colon and ≤ 25 mm in the rectum, and advanced endoscopic imaging for sessile polyps ≥ 10 mm (Ferlitsch, 2017). Another guideline was a technology status report on treatment of early rectal cancer, including by endoscopic submucosal dissection (Maple, 2015). Another guideline from the British Society of Gastroenterology concluded that endoscopic mucosal resection is the most viable first-line option for polyp removal if no features indicative of malignancy are present (Rutter, 2015).
When performed in a specialty setting, evidence suggests endoscopic mucosal resection and endoscopic submucosal dissection are safe, effective, and potentially cost-effective for resecting large, distal, premalignant, and early stage malignant colorectal lesions with limited submucosal involvement (<1,000 µm) (Hwang, 2015).

Endoscopic mucosal resection has been found to be safe and effective in removing large polyps. A study of 479 people with lesions > 20 mm (average, 35.6 mm) found 89.2 percent were fully removed and 83.7 percent avoided surgery. No deaths were reported (Moss, 2011).

Limited evidence from indirect comparisons suggests both procedures compare favorably with other minimally invasive options, such as laparoscopic resection of colon polyps and transanal endoscopic microsurgery for rectal lesions, but these results need confirmation in randomized controlled trials. Surgical resection should be reserved for polyps with characteristics predictive of deep submucosal invasive cancer (> 1,000 µm), those likely to result in an incomplete resection (e.g., > 40 mm or located at the ileocecal valve), or recurrent polyps after one year of attempted endoscopic resection.

We identified a number of systematic reviews and meta-analyses, which determined the following outcomes-based results for types of endoscopic resection of colorectal polyps:

- Endoscopic submucosal dissection has high resection rates and low rates of perforation, major bleeding, and recurrence (Akintoye, 2016).
- Endoscopic mucosal resection, compared to endoscopic submucosal dissection, has higher recurrence and perforation rates and lower en bloc resection rates (De Ceglie, 2016).
- For early rectal cancers, endoscopic submucosal dissection (compared to local excision) has a lower average length of stay and lower recurrence rate, with no difference in en bloc resection and complication rates (Wang, 2016).
- For rectal neuroendocrine tumors < 16 mm, endoscopic (and modified) mucosal resection have high complete resection rates compared to conventional mucosal resection; endoscopic submucosal dissection is more time consuming than modified and conventional mucosal resection (Zhang, 2016).
- A high proportion (88 percent) of recurrences after endoscopic mucosal resection occur within six months of the procedure (Belderbos, 2014).
- Endoscopic mucosal resection, compared to endoscopic submucosal dissection, has a lower rate of en bloc resection and is less time consuming, with no difference between the groups in resection rates (Wang, 2014).
- The polyp recurrence rate after endoscopic mucosal resection was significantly greater after piecemeal resection (Ortiz, 2014).
- For laterally spreading colorectal tumors, achievement of complete resection was similar between techniques. Endoscopic submucosal dissection achieved higher curative resection rates and lower recurrence rate; it also had a higher perforation risk, but less bleeding. Both approaches are considered safe and effective (Russo, 2019).
Outcomes of endoscopic submucosal dissection of large and complex colorectal lesions, measured in terms of en bloc resection rate, perforation rate, bleeding rate, and recurrence rate, were considered effective and safe, with room for improvement (Thorlacius, 2019).

A systematic review and meta-analysis compared outcomes for 71 studies in Asia and 26 in other countries on endoscopic submucosal dissection of colorectal lesions. Significantly superior outcomes were observed in Asian nations for R0 resection rates (higher in Asia, 85.6 percent versus 71.3 percent); en bloc resection rate (higher in Asia, 93 percent versus 81.2 percent); cases that required surgery (higher in Asia, 3.1 percent versus 0.8 percent) (Fuccio, 2017).

A meta-analysis for endoscopic submucosal dissection included 238 studies (n = 89,502), all but 2,216 performed in Asia, of patients with gastrointestinal lesions. Asian studies had significantly higher rates of curative en bloc (82 percent versus 71 percent) and R0 (89 percent versus 74 percent) resection. The perforation rate requiring surgery was significantly greater outside Asia (0.53 percent versus 0.01 percent). Non-Asian nations had longer average procedure times (110 minutes versus 77 minutes) (Daoud, 2018).

A large (n = 525) randomized controlled trial determined that endoscopic mucosal resection was significantly superior to cold snare polypectomy for achieving complete endoscopic resection of small colorectal polyps (Zhang, 2018).

Within these systematic reviews and other research, the evidence for endoscopic mucosal resection (largely injection-assisted) and endoscopic submucosal dissection primarily consists of retrospective case series and case-control studies. We found no randomized controlled trials reporting results, although a multicenter randomized trial is underway in the Netherlands (clinicaltrials.gov identifier: NCT02657044).

The medical literature provides evidence for predicting certain outcomes, including adverse ones. For example, a study of 302 endoscopic mucosal resections was able to identify factors that significantly elevated risk of bleeding, including right colon location, use of aspirin, and age (Metz, 2011).

Policy updates:

A total of four peer-reviewed references were added to, and one guideline/other and one peer-reviewed reference removed from this policy in August 2019.

References

Professional society guidelines/other:

American Joint Committee on Cancer. Colon and Rectum Cancer Staging. 7th edition. 


Peer-reviewed references:


**Centers for Medicare & Medicaid Services National Coverage Determinations:**

No National Coverage Determinations identified as of the writing of this policy.

**Local Coverage Determinations:**

No Local Coverage Determinations identified as of the writing of this policy.

**Commonly submitted codes**
Below are the most commonly submitted codes for the service(s)/item(s) subject to this policy. This is not an exhaustive list of codes. Providers are expected to consult the appropriate coding manuals and bill accordingly.

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**Appendix**

No additional information was identified for this section during the writing of this policy.