

# EndoRotor EPR™

(Endoscopic Powered Resection)



## Challenges associated with Endoscopic Mucosal Resection

### Incomplete Resection:

*Incomplete resection rate increases with polyp size and lesion type:*

- 5-9 mm 6.8%<sup>1</sup>
- 10-20 mm 17.3%<sup>1</sup>
- Sessile serrated adenomas 20-30%<sup>1,2</sup>

### Fibrosis/Scarring from Previous Manipulation:

*Previous endoscopic manipulation (partial snare resection/ incomplete resection) is an independent predictor of:*

- Inability to perform complete resection without ablation<sup>3</sup>
- Lesion recurrence<sup>3</sup>

*Fibrosis prevents the separation of lumen wall layers and lifting of lesions<sup>2</sup>  
 Non-lifting lesions are difficult to grasp and resect with a snare, sometimes making standard EMR impossible to perform<sup>3</sup>*

### Fibrotic/Scarred Recurrent Lesions

*Difficulty defining when endoscopic treatment of recurrence has been achieved because there is a high incidence of multiple recurrences after endoscopic resection for recurrent adenomas<sup>3</sup>*

- Patients with recurrence require endoscopic resections<sup>2-7</sup>
- 7% of inconspicuous polypectomy scars contain residual adenoma<sup>5</sup>

### Anatomical Location

*Peri-appendiceal lesions*

- Poor visualization of lateral margins<sup>6</sup>
- Vertical approach of endoscopic devices and absence of muscle layer (higher risk of perforation)<sup>6</sup>

### AnoRectal junction

- Poor endoscopic access and visualization<sup>7</sup>
- Recurrence: up to 22%<sup>7</sup>

## EndoRotor EPR™ Safety and Efficacy

Safety	%
Delayed bleeding	2% <sup>8-11</sup>
Perforation	0% <sup>8-11</sup>
Other (appendicitis, enterocolonic fistula, thermal injury)	0% <sup>8-11</sup>
<b>TOTAL</b>	<b>2%</b> <sup>8-11</sup>
Efficacy	%
Complete resection	97% <sup>8-11</sup>
Lesion size limitations	No limit <sup>8-11</sup>
Hinderance of future endoscopic intervention	None <sup>8-11</sup>
Curative rate	84% <sup>8-11</sup>

## Therapeutic Challenges Associated with Removal of Scarred/Fibrotic Lesions

### Endoscopic Full Thickness Resection

#### Resection size limitations<sup>12</sup>

- 16% of patients experience technical failure<sup>13</sup>

#### Major adverse events<sup>12</sup>

- Appendicitis, delayed perforation, enterocolonic fistula<sup>12</sup>

#### Difficulty navigating through anatomy<sup>12</sup>

- Technical learning curve lowers curative rate (80%)<sup>14</sup>

### Argon Plasma Coagulation

#### Higher rate of recurrence<sup>16</sup>

- Patients who are treated with APC to ablate residual tissue post-EMR experience a 20% recurrence rate<sup>16,17</sup>

#### Should not be used on macroscopically visible tissue<sup>12</sup>

- APC use at the time of polypectomy has been shown to be an independent predictor of residual adenoma at follow-up colonoscopy up to 40%<sup>12,17</sup>

### Salvage Endoscopic Submucosal Dissection

#### Difficulty creating adequate submucosal lift<sup>12</sup>

- Salvage ESD due to recurrent lesions carries a 10.7% AE rate vs a 3.8% AE rate for primary ESD<sup>15</sup>

#### Lower curative rate (83%)<sup>12</sup>

#### Procedural inefficiency<sup>15</sup>

- Salvage ESD due to recurrent lesions has a significantly longer mean dissection and procedure time compared to primary (naïve) ESD (78 minutes vs 55 minutes)<sup>15</sup>

### Avulsion

#### Hot Avulsion:

- Risk of deep mural injury and thermal destruction of tissue<sup>12</sup>
- Recurrence rate when using hot avulsion as an adjunct therapy is higher than EMR without hot avulsion (17.52% vs. 16.02%)<sup>18</sup>

#### Cold Avulsion:

- Risk for deep muscle injury<sup>12</sup>
- Recurrence rate of 15%<sup>12</sup>

<sup>1</sup> Pohl, Heiko, et al. Incomplete Polyp Resection During Colonoscopy—Results of the Complete Adenoma Resection (CARE) Study. *Gastroenterology*, vol. 144, no. 1, 2013, doi:10.1053/j.gastro.2012.09.043.

<sup>2</sup> Kim, Myung Hee, et al. The Incidence and Risk Factors of Sessile Serrated Adenomas in Left Side Colon Cancer Patients after Curative Surgery. *Medicine*, vol. 99, no. 29, 2020, doi:10.1097/md.00000000000020799.

<sup>3</sup> Kim H, Friedland S, et al. Effect of prior biopsy sampling, tattoo placement, and snare sampling on endoscopic resection of large nonpedunculated colorectal lesions. *GIE*. 2015. Volume 81, No. 1.

<sup>4</sup> Emmanuel A, Haji A, et al. Risk factors for early and late adenoma recurrence after advanced colorectal endoscopic resection at an expert Western center. *GIE*. 2019. Volume 90, No. 1.

<sup>5</sup> Knabe M, Shumacher B, et al. Standardized Long-Term Follow-Up After Endoscopic Resection of Large Nonpedunculated Colorectal Lesions: A Prospective Two-Center Study. *Am J Gastro*. 2014. Volume 109, No. 2.

<sup>6</sup> Song E M, Byeon J, et al. Endoscopic Resection of Cecal Polyps Involving the Appendiceal Orifice: A KASID Multicenter Study. *Dig Dis Sci*. 2017. 62:3138-3148.

<sup>7</sup> Holt B A, Bourke M J, et al. Advanced mucosal neoplasia of the anorectal junction: endoscopic resection technique and outcomes (with videos). *GIE*. 2014. Volume 79, No. 1.

<sup>8</sup> Kandiah K, et al. A novel non-thermal resection tool in endoscopic management of scarred polyps. *EIO*. 2019; 07: E974-E978.

<sup>9</sup> Emmanuel A, Haji A et al. The incidence of microscopic residual lesion left after apparent complete wide-field EMR of large colorectal superficial neoplastic lesions: evidence for the pathophysiological mechanism of recurrence superficial neoplastic lesions: *DDW Poster Session 2018*.

<sup>10</sup> Ayub K, Kaul V et al. SAFETY & EFFICACY OF THE NOVEL ENDOROTOR® MUCOSAL RESECTION SYSTEM: FIRST MULTICENTER USA EXPERIENCE. *American College of Gastroenterology* 2020.

<sup>11</sup> Knabe M, May, A et al. Non-thermal ablation of non-neoplastic Barrett's esophagus with the novel EndoRotor® resection device. *United European Gastroenterology Journal* 0(0) 1–6 2018.

<sup>12</sup> Trindade, A. J., Kumta, N. A., Bhutani, M. S., Chandrasekhara, V., Jirapinyo, P., Krishnan, K., . . . Lichtenstein, D. R. (2020). Devices and techniques for endoscopic treatment of residual and fibrotic colorectal polyps (with videos). *Gastrointestinal Endoscopy*, 92(3), 474-482. doi:10.1016/j.gie.2020.03.018

<sup>13</sup> Ichkhanian, Y., et al. A Large Multicenter Cohort on the Use of Full-Thickness Resection Device for Difficult Colonic Lesions. *Surgical Endoscopy*, 2020, doi:10.1007/s00464-020-07504-9.

<sup>14</sup> von Helden, Annabell et al. Endoscopic full-thickness resection using an over-the-scope device for treatment of recurrent / residual colorectal neoplasia: a single-center case series. *BMC gastroenterology* vol. 19,1 121. 10 Jul. 2019, doi:10.1186/s12876-019-1043-8

<sup>15</sup> Jung, Da Hyun et al. Secondary endoscopic submucosal dissection for locally recurrent or incompletely resected gastric neoplasms. *World journal of gastroenterology* vol. 24,33 (2018): 3776-3785. doi:10.3748/wjg.v24.i33.3776

<sup>16</sup> Moss A, et al. Long-term adenoma recurrence following wide-field endoscopic mucosal resection (WF-EMR) for advanced colonic mucosal neoplasia is infrequent: results and risk factors in 1000 cases from the Australian Colonic EMR (ACE) study. *Gut* 2015;64:57–65.

<sup>17</sup> Moss, Alan, et al. Endoscopic Mucosal Resection Outcomes and Prediction of Submucosal Cancer From Advanced Colonic Mucosal Neoplasia. *Gastroenterology*, vol. 140, no. 7, 2011, pp. 1909–1918., doi:10.1053/j.gastro.2011.02.062.

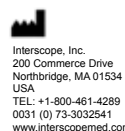
<sup>18</sup> Kumar, Vinod et al. Safety and efficacy of hot avulsion as an adjunct to EMR (with videos). *Gastrointestinal endoscopy* vol. 89,5 (2019): 999-1004. doi:10.1016/j.gie.2018.11.032

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