

Endoscopic approaches for the management of giant colonic polyps

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See “Endoscopic management of giant colonic polyps: a retrospective Italian study” by Paolo Quitadamo, Sara Isoldi, Germana De Nucci, et al., Clin Endosc 2024;57:501–507.

Advances in endoscopic devices and techniques have led to improvements in the management of large colorectal neoplasms. However, managing large colorectal polyps, typically those ≥ 2 cm and especially giant polyps ≥ 3 cm, remains challenging. The challenge arises primarily from the need to accurately assess the risk of malignancy before attempting removal because the risk of a polyp being malignant increases as its size increases. Moreover, the complexity of these procedures requires endoscopists with advanced skills and experience in endoscopic techniques to ensure complete polyp removal and effective management of complications. Additionally, a well-prepared surgical team should be ready to intervene if complications arise that cannot be managed endoscopically.

A comparative analysis of the relationship between polyp size and invasive cancer involving 11,380 colorectal adenomas showed that polyps >25 mm had a significantly higher risk of malignancy than smaller lesions, with an odds ratio of 2.97 (95% confidence interval, 2.34–3.77).¹ Therefore, large or giant

polyps encountered during colonoscopy should be evaluated by electronic chromoendoscopy (CE) techniques, such as narrow-band imaging, i-scan, flexible spectral imaging color enhancement, or blue light imaging, as well as dye-based CE, to estimate the risk of malignancy and depth of invasion.² Based on the results, the optimal polypectomy technique can be selected.

Polypectomy techniques for large or giant polyps vary depending on the polyp morphology. For large non-pedunculated polyps, including laterally spreading tumors of the flat or sessile type, endoscopic piecemeal resection, modified endoscopic mucosal resection (EMR) including precut EMR and tip-in EMR, and endoscopic submucosal dissection (ESD) are typically performed. Meanwhile, for large pedunculated polyps, hot-snare polypectomy is the most frequently used technique.

Removing a pedunculated polyp endoscopically, even if the polyp head is large, is generally easier than removing flat or sessile lesions. This is because the cutting point of the snare is typically at the middle or lower part of the stalk, which has a smaller diameter than the head. Therefore, if the snare passes properly around the polyp head, removal is straightforward. However, endoscopists must be aware of the risk of immediate bleeding after polypectomy because the stalk of a pedunculated polyp contains a feeding blood vessel.

In a randomized controlled trial (RCT) evaluating 238 large pedunculated polyps (≥ 10 mm head diameter), the rates of overall post-polypectomy bleeding (PPB) (4.2% vs. 12.6%,

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$p=0.33$) and immediate PPB (2.5% vs. 10.9%, $p=0.017$) were significantly lower in the clip arm than the control arm.³ In an RCT involving 203 large pedunculated polyps (heads ≥ 10 mm and stalks ≥ 5 mm in diameter), the use of clips and endoloops resulted in non-significantly different decreases in the PPB rate.⁴ To decrease the rates of adverse events related to procedural bleeding, guidelines recommend prophylactic measures, including clipping, injection of diluted epinephrine, or ligation with detachable-loop devices prior to hot-snare resection, particularly for pedunculated polyps with heads ≥ 20 mm and/or stalks ≥ 5 mm in diameter.²

For malignant pedunculated polyps, sufficient resection includes a free margin of ≥ 1 mm. Polyps should be transected low on the stalk to allow for sufficient resection margins and pathological evaluation. Pedunculated polyps with a resection margin < 1 mm have significantly higher rates of adverse outcomes, such as recurrence, local cancer, or lymph node metastasis, than those with a margin ≥ 1 mm (19.7% vs. 0%).⁵ Therefore, the United States Multi-Society Task Force recommends surgery for pedunculated polyps with a cancer-free margin of < 1 mm.⁶

However, some large pedunculated polyps are difficult to endoscopically resect or subject to prophylactic hemostasis. These particularly problematic situations include cases in which the polyp head is too large for the polypectomy snare to pass through or its passage cannot be ensured; when the stalk is short or very wide, making it difficult to properly place prophylactic hemoclips or an endoloop; and when ensuring a sufficient resection margin is challenging. In such cases, successful endoscopic *en bloc* or complete resection is not guaranteed.

Expert groups have demonstrated the feasibility and safety of ESD for 36 large pedunculated colorectal carcinomas (mean size, 34.1 mm). The *en bloc* and complete resection rates were 97%. The rate of severe peri-procedural bleeding was 11%, all of which were controlled endoscopically.⁷ Nevertheless, ESD is a challenging and time-consuming procedure and has a high risk of complications, making it difficult for most endoscopists.⁸ As a means of overcoming these limitations, a case series of three pedunculated lesions (≥ 30 mm) was performed, which demonstrated that injecting 4 to 8 mL of 1:10,000 epinephrine solution into both the polyp head and stalk reduced polyp size, facilitated *en bloc* resection, and reduced the PPB.⁹

In this issue of *Clinical Endoscopy*, Quitadamo et al.¹⁰ reported an epinephrine volume reduction (EVR) method for managing giant sessile or mostly pedunculated polyps. The EVR method involves injecting 4 to 8 mL of 1:10,000 epinephrine

solution into two to four sites on the head of the polyp, followed by at least two injections of 2 to 4 mL each into the stalk. After 3 to 5 minutes, the volume of each was markedly reduced. Although it can be difficult to precisely measure the polyp size, they estimated an overall volume reduction of 25% in the diameter of the sphere, implying an almost 60% reduction in volume. Consequently, this method reduced the volume of giant pedunculated polyps, making endoscopic removal technically easier and safer than EMR using an endoloop or clip.

However, the study was retrospective, involved a single center, and was based on a small case series rather than a prospective comparative analysis. *En bloc* resection of pedunculated polyps is generally easier than resection of flat or sessile lesions. In this study, although most giant polyps were pedunculated, *en bloc* resection using the endolooping and clipping method was successful in only five of nine cases (55.6%), which seems low. Therefore, whether this technique can be compared with the EVR method remains questionable.

Giant polyps usually have a high risk of malignancy and thus require *en bloc* resection, mandating detailed pathological evaluation. However, epinephrine injection may cause tissue inflammation or necrosis, potentially interfering with the pathological evaluation. Accurate pathological assessments and adequate resection margins are especially important when stalk invasion occurs in pedunculated polyps. In this study, no cases of stalk invasion were observed; therefore, further verification is required to determine whether this effect exists.

Patients with giant colonic polyps who require complete resection and have a high risk of complications are typically referred to advanced centers, increasing the financial and emotional burden on these patients. The EVR method can be performed in non-advanced centers by inexperienced endoscopists, and results in reduction in polyp volume, even in cases of giant polyps, thereby facilitating endoscopic removal.

Nevertheless, the removal of giant colonic polyps still requires not only endoscopic resection, but also accurate pathological evaluation, the ability to manage complications endoscopically, a well-prepared surgical team, and follow-up monitoring. Therefore, giant colonic polyps should ideally be removed in advanced care centers. Prospective comparative studies are needed to establish the effectiveness of EVR for giant colonic polyps, particularly given the availability of various endoscopic resection techniques and hemostatic devices.

Conflicts of Interest

Yunho Jung is currently serving as a section editor for *Clinical Endoscopy*; however, he was not involved in the peer reviewer selection, evaluation, or decision process of this article.

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