



Role of advanced endoscopic resection techniques in the management of colorectal lesions

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Over-treatment of colorectal lesions with standard oncological resection even when the lesion is benign has led the way to advanced endoscopic resection methods. Endoscopic submucosal dissection (ESD) allows *en bloc* removal of the lesion and this permits accurate histopathological evaluation (1). Combined endoscopic-laparoscopic surgery (CELS) is performed in more advanced cases where the resection is not feasible without manipulating the colon and/or when additional interventions are required to close the defect after endoscopic resection. Eventually CELS can facilitate wedge resections when pure endoscopic excision is not feasible.

In the United States ESD and CELS are becoming more widely performed and we have recently published the results of our early experience (2). In our study, we reported the results of 110 patients with advanced endoscopic surgery. Only 9.1% had cancer in the final pathology and the *en bloc* resection rate was 88.2% (2). With a 16-month median follow-up no interval cancers were reported in the follow-up colonoscopy and only two patients had adenoma recurrence. Our results support that advanced endoscopic surgery can be safely applied with curative intent and low recurrence rates.

CELS was used in 28 patients and in 23 ESD was combined with laparoscopic repair of the defect (2). CELS is an evolving method and is beneficial when endoscopic resection is not sufficient for removal especially for scarred lesions with multiple failed attempts. Using laparoscopic instruments give the surgeon the ability to intervene if a complication occurs and to control the defect from the

abdominal angle.

It is evident that these approaches are invaluable to avoid unnecessary colectomies. In line with this, our previous study reported 439 patients who underwent colectomy due to having an adenoma not amenable to endoscopic resection. Only 8% had cancer in the postoperative pathology (3). Performing advanced endoscopic surgery for benign appearing polyps appears to have acceptable cure and complication rates and helps avoid colon resections.

As the authors mentioned in their editorial, another important aspect of advanced endoscopic surgery is its use for suitable lesions. In the preoperative evaluation, especially laterally spreading lesions that appear malignant such as those with central depression, non-granular morphology, and pit pattern of type 5 should be assessed carefully and may undergo standard oncological resection instead (4,5). Weighing the benefits/disadvantages of endoscopic resection versus laparoscopic colectomy is of particular significance. A case-match comparison from our institution of advanced endoscopic surgery *vs.* laparoscopic colectomy showed that ESD had lower complications and had a 43% cost-reduction advantage (6). Lesions considered high risk for malignancy should be judged carefully.

As the technology improves, advancements in tissue closure with metal single clips and over-the-scope clips (OTSC) makes it possible to acquire the benefits of ESD and also manage the complications in a non-invasive fashion. In our institution we prefer clip closure for defects after ESD when necessary.

ESD and CELS has the aforementioned benefits,

however they still remain rather difficult to perform due to limited experience and demanding technical skills. Endoscopist controls the scope and also performs intraluminal resection by applying surgical principles during ESD. Novel endoluminal platforms are being developed to facilitate these technically challenging procedures by application of surgical principles such as retraction/counter-traction during ESD. Increased use of novel technologies may help ESD to be more widely used. We believe, in this era organ preservation and avoiding unnecessary admissions and associated costs are of utmost importance, thus advanced endoscopic resection methods need to be studied further to achieve excellence.

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