



# Early Gastric Cancer and Endoscopic Submucosal Dissection: A Welcome Addition to the Western Endoscopist's Tool Belt?

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## Abstract

ESD was introduced in Japan for the mini-invasive treatment of EGC, as part of national screening program considering high prevalence of disease in these latitudes. Resection of early stage gastric neoplasia, including dysplastic lesions and tumors limited to the mucosa or submucosa, is core business of endoscopists in Eastern world. This technique allows en-bloc curative oncological excision and to obtain in a single step R0-resection, characterization, histological staging and potential cure of the tumor with a very high cost-benefit balance. Over the years, Western endoscopists have adopted ESD achieving good rates of efficacy, long-term improved outcomes and safety with low risk of local recurrence comparable to those obtained in Asian institutes. Despite the lowest prevalence of gastric cancer in Europe, the poor volume data and the limited experience in Western countries, endoscopists have adopted Japanese guidelines and developed a European core curriculum for ESD training. Nowadays, in Western countries ESD is an accepted first-line therapy of superficial gastric neoplasia and surgery can be reserved and used as a rescue therapy. From an ethical point of view, patients should be referred to specialized institutes where advanced diagnostic and therapeutic endoscopy is standardized, there are multidisciplinary teams for appropriate management, and certified training programs are implemented.

**Keywords:** Early gastric cancer; Western countries; Endoscopic submucosal dissection; Training

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## Introduction

Early Gastric Cancer (EGC) represents a frequent tumor in Eastern countries with high socio-economic impact. In the past 40 years in Europe, as well as in Italy, although was observed a reduction in incidence and mortality rates from gastric cancer, its prevalence slowly increased, still representing a problem in our continent. Resection of early stage gastric neoplasia, including dysplastic lesions and tumors limited to the mucosa or submucosa, is the mainstay of endoscopic treatment in Eastern world, unlike the Western colleagues involved more in the removal of colon lesions. Endoscopic Submucosal Dissection (ESD) was first described in 1999 by Gotoda [1] and developed to overcome the limits of traditional Mucosal Resection (EMR), leading to radically oncological removal [2]. ESD has undoubtedly higher level of precision compared to EMR, is more exact, effective and the most appropriate endoscopic therapy for demarcated area within the stomach. This process allows in a single step to obtain R0-curative and histologically resection, optimal diagnosis and staging of the lesion with a very high cost-benefit ratio. ESD is a fascinating technique that requires great concentration and patience with simple, precise and coordinated movements. This challenging technique cannot be compared with any other endoscopic interventional procedure. It requires a continuous work in the "third space" between submucosal and muscular layer (endoscopists are used to working in the gastrointestinal lumen!) where it is easy to lose anatomical landmarks and make complications, the most serious of which is perforation. Many comparative studies between ESD and EMR have been published in the literature in order to balance ECG overall benefit costs. Although, ESD showed a superior efficacy compared to EMR in terms of en-bloc and histological complete resection rates, as well as a lower recurrence frequency, the two methods should be considered complementary in the treatment of superficial neoplastic lesions. Overall, despite the lowest prevalence of gastric cancer in Europe, the poor volume data and the limited experience in Western countries, endoscopists have adopted Japanese guidelines. European Society of Gastrointestinal Endoscopy (ESGE) strongly recommends endoscopic resection in EGC with very low risk of lymph node metastasis or when the risk of metastasis is lower compared to the risk of mortality

possibly related to surgery [3]. The surgery did not show statistically significant differences in oncological outcomes compared ESD. However, it is intuitive surgery was causing of longer operative time, patients hospital stay, more expensive and higher complication rate, potentially altering digestive function. Taken together, these data indicate that ESD should be the first-line therapy for all potentially endoscopically resectable superficial gastric neoplasia and surgery is only reserved as a rescue therapy.

As aforementioned, the limited number of ESDs for EGC in Europe is due above all to the lower incidence of this pathology [4], but real-life experience shows that ESD is feasible, safe and effective in Western settings and affords best chance for EGC treatment. Although in gastric ESD studies there were not meaningful differences between Western and Eastern endoscopists by evaluating the main endpoints such as curative resection and complications [5], outcomes from centers in Asia may not be representative of the Western experience [6]. One possible explanation for this is the high incidence of gastric neoplasia in the Eastern countries led to the implementation of screening and surveillance programs, consequently developing and improving the ESD technique. In Japan, ESD training is well documented and established. Trainees first obtain didactic teaching in ESD, followed by observation of experts. They then proceed to assisting ESD procedures, before finally undertaking ESD under expert supervision on less challenging lesions. ESD training for Western endoscopists may follow the pathway of observership in a high volume Eastern centre, practice on animal models, followed by preceptorship with an expert mentor beginning with resection of smaller antral lesions. Now ESGE have developed a European core curriculum for ESD practice across Europe with the aim of high quality step-up protocol [7]. Certainly, even though we have a significant awareness of the technique, its diffusion in West remains limited by a whole series of factors: Cultural, logistical (in many cases Eastern endoscopists have surgical background that make them more comfortable in taking risks and less afraid of complications), aptitude (they have greater manual skills), technological and last but not least remunerative.

## Conclusion

ESD is widely accepted as a gold standard treatment of superficial pre-malignant and malignant epithelial tumors, allowing a high

rate of curative resection, a good safety profile compared with other therapies, opening new frontiers of minimally invasive oncological resection. The optimal treatment strategy must be modulated on a case-by-case, according to the level of local experience and expertise available, in order to identify the ideal candidate who can get the maximum clinical result, carefully balancing risk/benefits ratio. Despite encouraging data from Western countries, considering the scant volume of skill endoscopists and the epidemiological scenario, we believe ESD must be developed in referral institutes where there are multi-disciplinary teams for appropriate management. Thus, it seems reasonable to implement a new level of evidence to ensure certified training programs, reserved for a limited number of junior endoscopists. So, when it is asked whether ESD in EGC is a welcome addition to the Western endoscopist's tool belt the answer is: Yes, but only in high-volume center!

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