



EDITORIAL

## Endoscopic Submucosal Dissection of Early Gastric Cancer: Yes, We Need to Calculate Procedure Times!



## Dissecção Endoscópica da Submucosa para Carcinomas Gástricos Iniciais: Sim, É Preciso Estimar o Tempo de Procedimento!

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The incidence of gastric cancer has steadily declined over many decades, yet it remains worldwide one of the most common malignancies.<sup>1</sup> Most gastric cancers arise as a result of lifelong colonization with *Helicobacter pylori*, inducing chronic active gastritis. An abundance of research over the past 20 years has yielded endoscopic and non-invasive methods to recognise both this infection as well the various stages of the cascade leading from chronic gastritis via atrophic gastritis, intestinal metaplasia and dysplasia to early and advanced gastric cancer. This research has led to the common identification of patients with dysplasia and early cancer of the stomach, a development which likely will be further enhanced by the recent introduction of a guideline for surveillance of patients with intestinal metaplasia and dysplasia of the stomach, in particular when present in both antrum and body.<sup>2</sup>

Endoscopic resection has become the treatment of choice for early gastric cancer (EGC) with endoscopic submucosal dissection (ESD) being superior compared to endoscopic mucosal resection (EMR) when it comes to curative, *en bloc* resection rates and overall recurrence-free rates.<sup>3</sup>

Endoscopic submucosal dissection (ESD) was originally developed in Japan for the local treatment of superficial EGC limited to the mucosal layer or with a minimal invasion of the submucosal layer. The main goal of submucosal dissection is

to retrieve the lesion *en bloc* for precise histopathological staging and to minimise the chance for local recurrence.

Although ESD is the preferred technique for the endoscopic removal of EGC, it is well known that ESD is a very complex interventional procedure involving several high risks. It is a technique that requires a large amount of training and dedication and should not be undertaken lightly. This has recently been discussed by a panel of experts in Europe.<sup>4</sup> Like many of the complex medical procedures; the outcome is not only dependant on the skills of the endoscopist, but of the complete team involved with the procedure, high quality equipment and expert pathological assessment.

One of the important issues around the procedure itself is the necessary allocated procedure time to perform and finish the *en bloc* ESD. And although probably every endoscopist immediately agrees with this statement, in reality we often find ourselves performing these procedures during a busy endoscopy list with a shortage of time. Even though we are trained to perform well under pressure and in emergency situations, personally, I cannot believe that this time pressure has no influence on the performance of the endoscopy team and by extension the final result and patient's benefit. I would like to argue that the more complex the procedure is, the more effort we put in optimizing the circumstances that we perform them in. Theoretically, time pressure is one of the easiest factors to influence and eradicate.

The necessary procedural time for early gastric cancer is roughly influenced by four factors: (I) The lesion itself, (II)

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the operator's experience, (III) the type of equipment used and (IV) the 'not-anticipated' factor.

In recent years, several lesion characteristics have been identified that clearly influence procedural times. In large cohort studies from Japan and South Korea tumour size, location, submucosal fibrosis and ulceration appear to be consistent findings associated with increased procedure times.<sup>5-7</sup> Goto et al demonstrated that it is very well possible to predict the necessary time to finish the procedure in a fairly simple formula, purely based on the lesion characteristics.<sup>6</sup> A drawback of these studies is that all data are from high volume centres in Asia with expert endoscopists having a much higher case-load than the average European expert endoscopist. The operator's experience is also a clear predictor for procedural time during a learning phase.<sup>8</sup>

A recent study by Zhou et al demonstrated a significant shorter procedure time for ESD procedures where a so-called hybrid knife instrument was used combining submucosal injection and cutting in a single instrument.<sup>9</sup> The difference in procedure times is probably best explained by the need to exchange instruments during the entire procedure when using non-hybrid instruments. The 'not-anticipated' factor merely entails the unforeseen and undesirable events during the procedure that take up more time than anticipated. The best examples are intra-procedural perforations or hard-to-control bleedings. Of course one could argue that the risks of these events actually occurring are related to the type of lesions and anatomical locations; they will contribute to poor time management.

The study by Ribeiro-Mourão et al<sup>10</sup> in this issue of the Portuguese Journal of Gastroenterology is an excellent example that the prediction of procedural times using the same formula as described by Goto et al<sup>6</sup> can also be used in European centres with ample ESD-experience. They also found a strong correlation between size of the lesion, anatomical location and procedure time. The ASA-classification was not independently associated and I agree with the authors discussion that this association is probably best explained by the fact these patients require more anaesthesiological care resulting in longer procedure times.

The use of total time of anaesthesia seems logical and might make time management easy, still I would argue to record procedure times from the point of endoscopic assessment until finishing inspection of the resection site and retrieving the resected specimen. This allows for an equal comparison between centres and endoscopists and might be useful in a prospective setting. The use of very different

types of sedation; from conscious sedation to the increasing use of propofol or general anaesthesia, might influence procedural times.

In conclusion I would strongly recommend that more centres in Europe predict and register their procedure times; it can really make life easier.

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