

# **The learning curve of colorectal endoscopic submucosal dissection (ESD): a case study of the path to the success.**

Authors: Aleksander Skulimowski<sup>1</sup>, Piotr Bednarski<sup>1</sup>, Adam Dziki<sup>2</sup>, Michał Spychalski<sup>1</sup>

Presenting author: Aleksander Skulimowski<sup>1</sup>

1. Department of General Surgery , Multidisciplinary Hospital Brzeziny , Brzeziny , Poland
2. Department of General and Colorectal Surgery , Medical University of Lodz , Lodz , Poland.

## **Introduction**

Endoscopic submucosal dissection (ESD) is an acknowledged endoscopic technique for the management of early gastrointestinal neoplasia. Nevertheless, the proper ESD management of colorectal lesions requires an extensive number of carried out procedures from the endoscopist. Due to limited opportunities to learn ESD in the European countries, up to date there are a few studies describing the outcomes of ESD learning.

## **Study description**

A retrospective analysis of 347 cases (277 primary lesions and 70 recurrent lesions) performed by a single endoscopist was carried out.

The aim of this study is to analyse the clinical outcomes of the management of primary and recurrent colorectal lesions and their learning curves.

In the first part of the study, we analyse only the clinical outcomes of primary lesions as the beginning of ESD learning. The first 38 procedures were accompanied by the lowest R0 resection rate of 52,36%. After completing 76 procedures, the resection rate surged to 86%.

As recurrent lesions require a greater skill in endoscopic procedures, they were managed only after completing first 50 colorectal ESD.

Evaluating learning curves for both primary and recurrent lesions, the clinical outcomes (R0 resection rate, complications rate, duration of procedure) and lesions' characteristics (diameter, histopathology) were taken into account.

Regarding the most important factor, that is R0 resection rate, primary lesions had around 9% higher rate (86,84% vs. 78,51,  $p=0,091$ ). On multivariate analysis, the presence of recurrent lesion, lengthy procedure ( $\geq 150$  min) are risks factors of R1 resection, while the rectal localization of lesion was associated with lower risk of R1 resection. The cumulative R0 of 80% has been achieved at 36th procedure in the primary lesions group, while for the recurrent lesions it has been reached at 50th procedure.

## **Conclusions**

Our study describes the most important factors leading to the successful learning in the colorectal ESD. Our results underline the significance of the proper lesion's qualification "tailored" to the endoscopist's current capabilities. Moreover, we show that the recurrent lesions should be managed only after achieving good results in primary lesions. Yet, even after the completion of high volume of primary lesions, first recurrent lesions can pose a challenge. To conclude, our final

outcomes are promising, as the complications do not pose a serious risk and high R0 resection rate can be achieved in a reasonable timeframe.

**Kategoria:** K4. Chirurgia kolorektalna – nowe metody i techniki operacyjne / Chirurgia minimalnie inwazyjna w nowotworach narządowych / Powikłania w chirurgii minimalnie inwazyjnej / Colorectal surgery – new methods and surgical techniques / Minimally invasive surgery in organ tumors / Complications in minimally invasive surgery