TECHNICAL NOTE

DOI

Total resection of the colorectal wall using the FTRD® device

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The author declares no conflicts of interest.

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ABSTRACT

Endoscopic resection of the entire thickness of the colorectal wall using the Ovesco FTRD® device (Full Thickness Resection Device) system is a technique that allows removing a colorectal lesion along with the entire wall where it sits, by colonoscopy. This is done using a modified Ovesco (Over-the-scope) clip and the main advantage is that it allows an adequate histopathological analysis of the resected specimen. It is mostly performed on an outpatient basis and can be an alternative to surgical treatment in selected cases.

**Keywords:** FTRD; Colonoscopy; Colorectal wall

INTRODUCTION

Endoscopic full thickness resection of the colorectal wall with the OvescoFTRD® System (Full Thickness Resection Device) is a relatively new and minimally invasive transluminal resection technique. This device was approved for use in the colon in September 2014 and became available in Argentina at the end of 2017.

It is used in lesions that cannot be resected by other endoscopic techniques, such as mucosal resection or endoscopic submucosal dissection1.

It has precise indications for:

1. Resection of:1-3

- Lesions with sign the non-elevation sign due to fibrosis or scarring, as occurs in recurrent adenomas.

- Early colorectal cancers (T1 Sm1).

- Adenomas in difficult locations (diverticula, appendicular orifice).

- Small submucosal lesions.

2. Transmural biopsy for the diagnosis of patients with motility disorders, such as Hirchsprung's disease.

It is contraindicated in:1-3

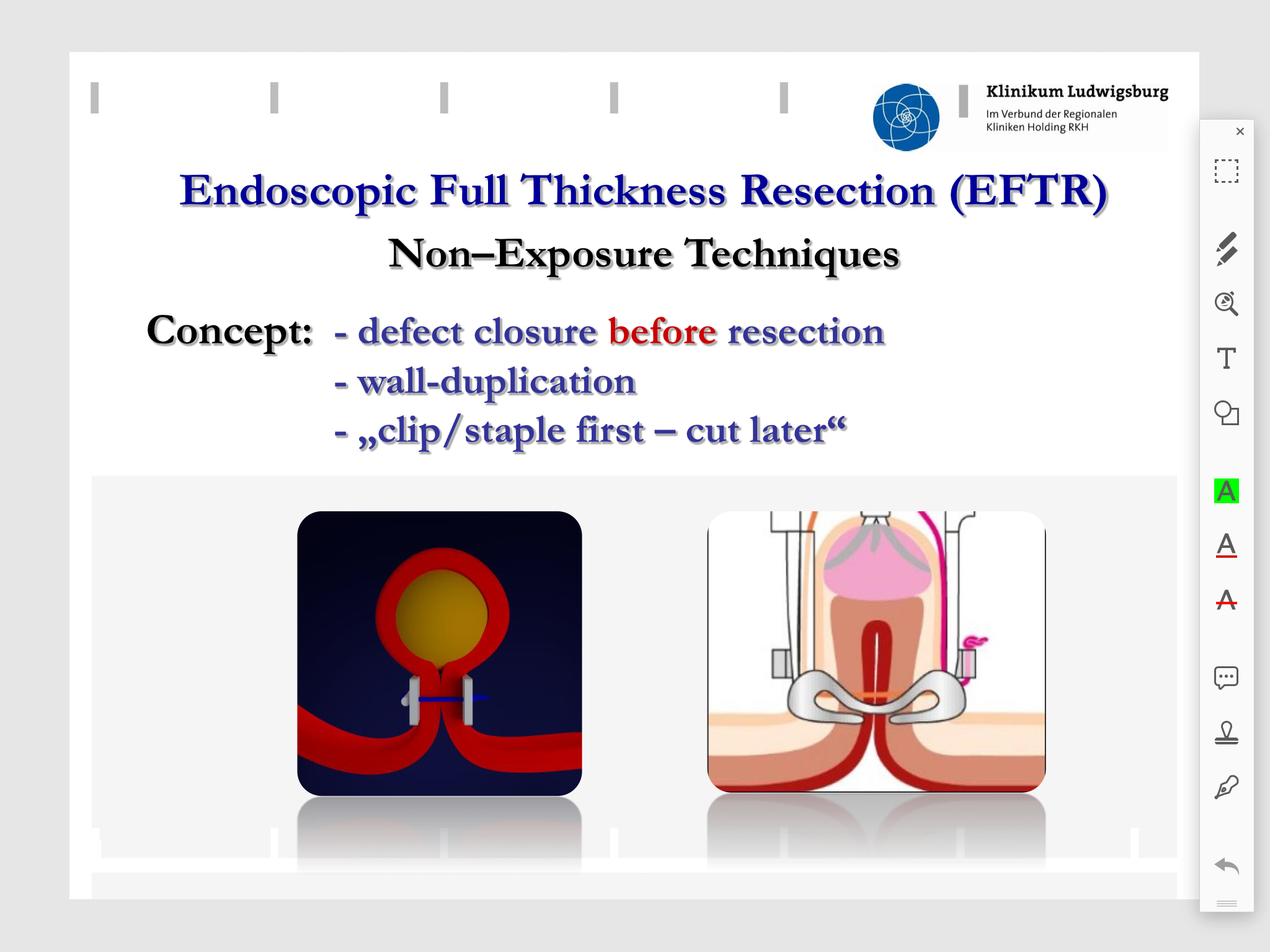
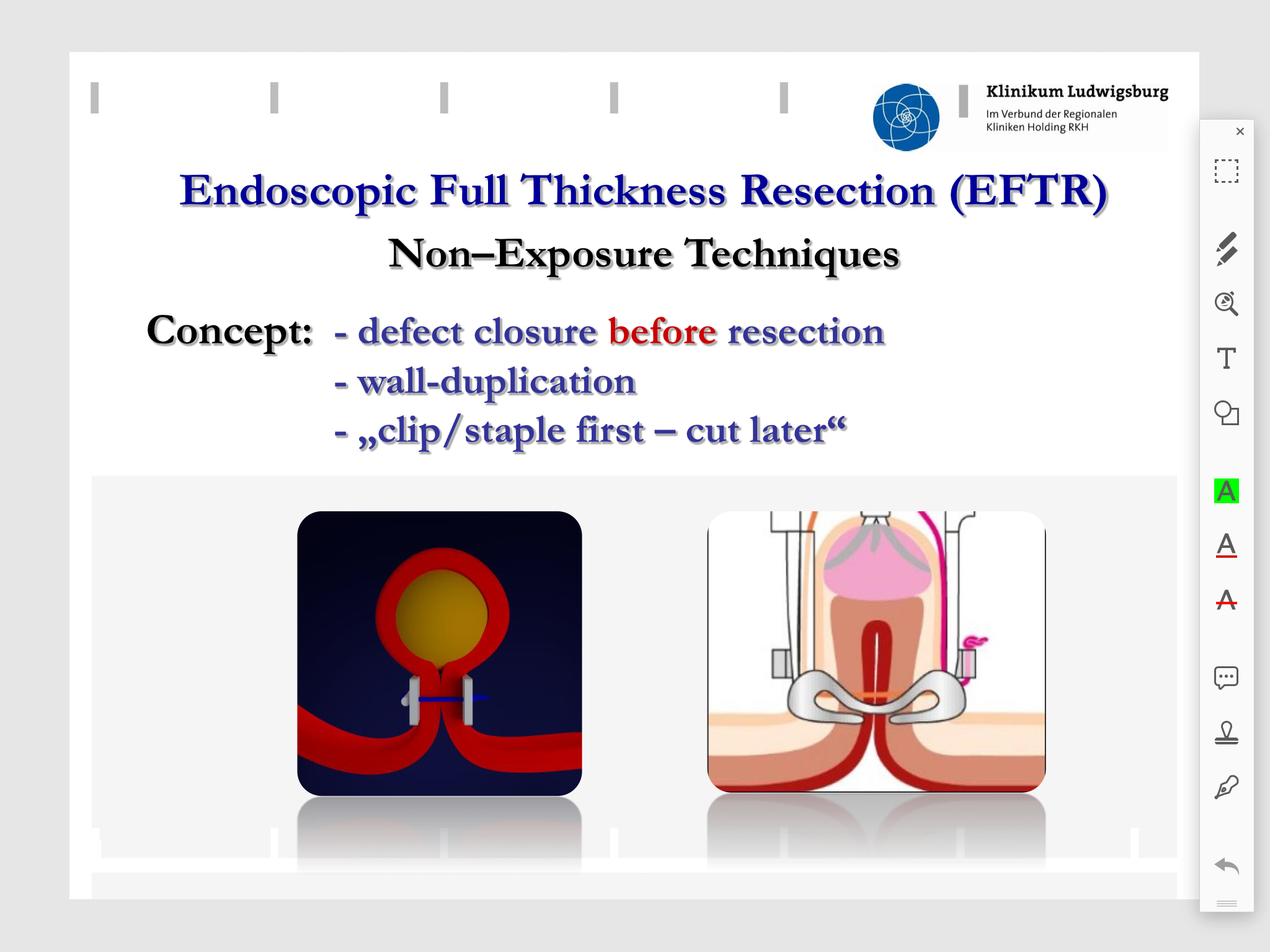
- Lesions greater than 30 mm, due to the size of the device.

- Invasive carcinomas.

- Cases of colorectal stenosis, and where the lesion to be resected is located proximally, since it will be difficult to advance the device.

METHODS

Endoscopic resection of the entire wall is based on the basic concept of closing the defect before resecting.1 For this, the colonic wall must be duplicated, generating a pseudopedicle where the clip will be placed. Above it, the snare is closed and the lesion is resected with electrocoagulation (Fig. 1).



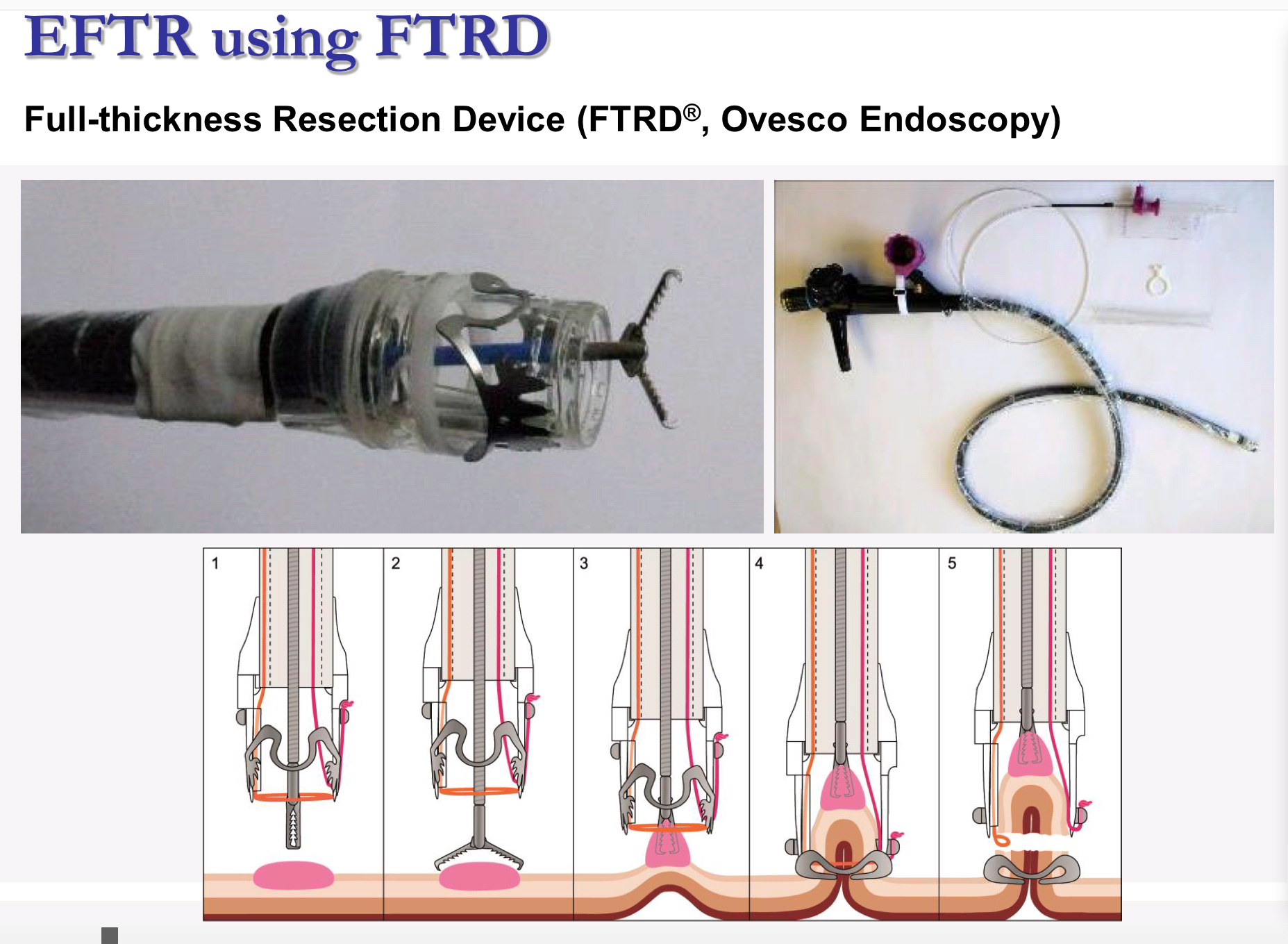
**Figure 1.** Wall duplication diagram, clip and snare closure.

The FTRD® device (Fig. 2) is a modified 14mm ovesco clip, mounted on a cap that is placed on the tip of the colonoscope. This cap has a length of 23mm and an external diameter of 21mm.1

The monofilament snare is located at the inner end of the cap and runs inside a plastic sleeve that is attached and taped to the colonoscope stem as an accessory channel.

The grasper is passed through the working channel to pick up the lesion.

The fully assembled device has a clip-firing system similar to that of the band ligator set, which is positioned at the proximal end of the endoscope's working channel.



**Figure 2.** Device mounted on the colonoscope.

Figs. 3 and 4 show the steps of the technique.1 Two colonoscopes are required.

With the first colonoscope:

1. The lesion is localized.

2. The entire circumference of the lesion is marked with coagulation points 2 to 3 mm from the edge. This mark must be included within the cap at the time of resection.

With the second colonoscope that has the device mounted:

3. The lesion is properly faced. correctly addressed.

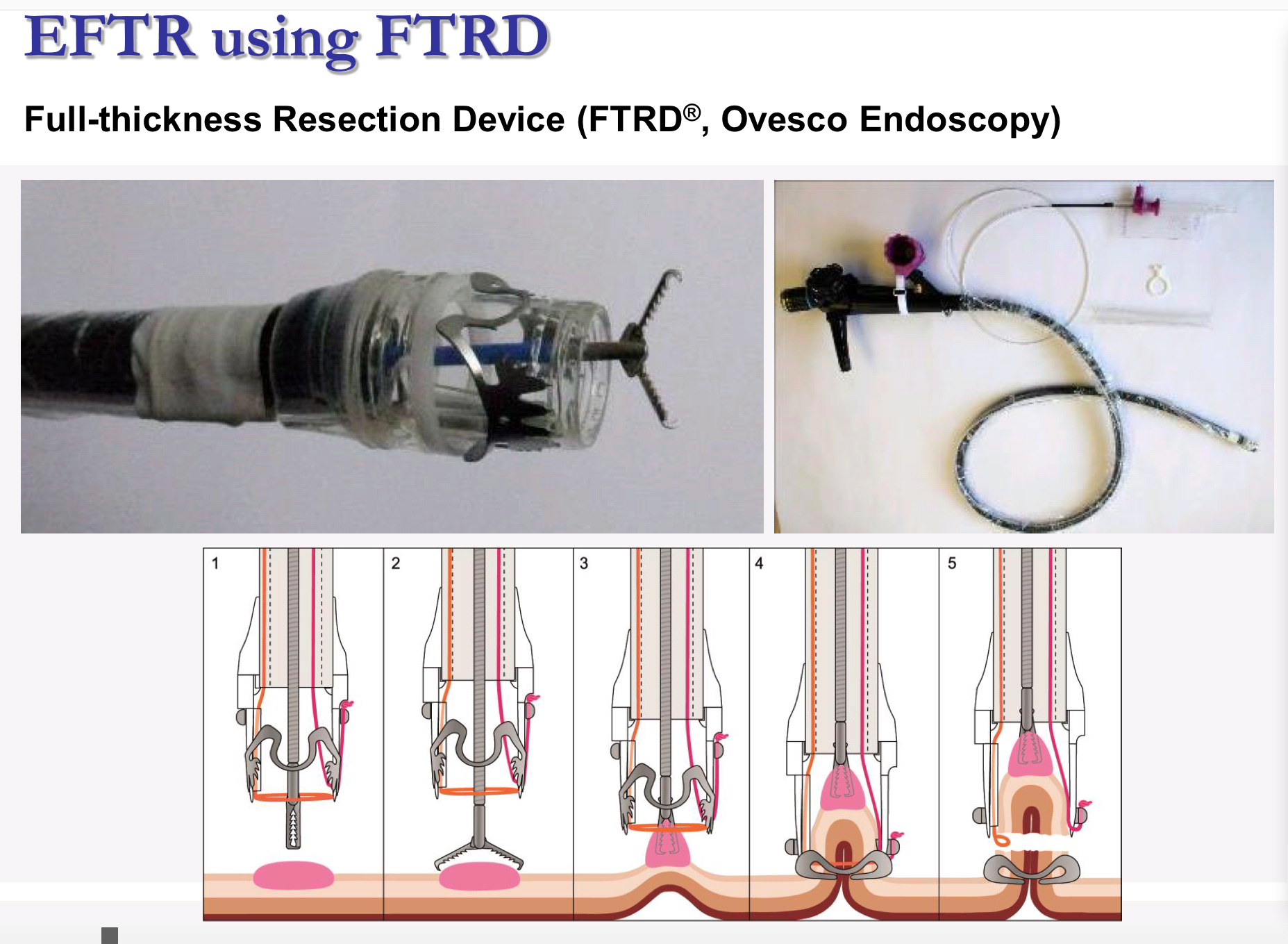
4. It is grasped with forceps and inserted into the cap with gentle traction and WITHOUT suction to avoid incorporation of adjacent organs into the clip.

5. The clip is fired and closed, and the snare immediately closes on it.

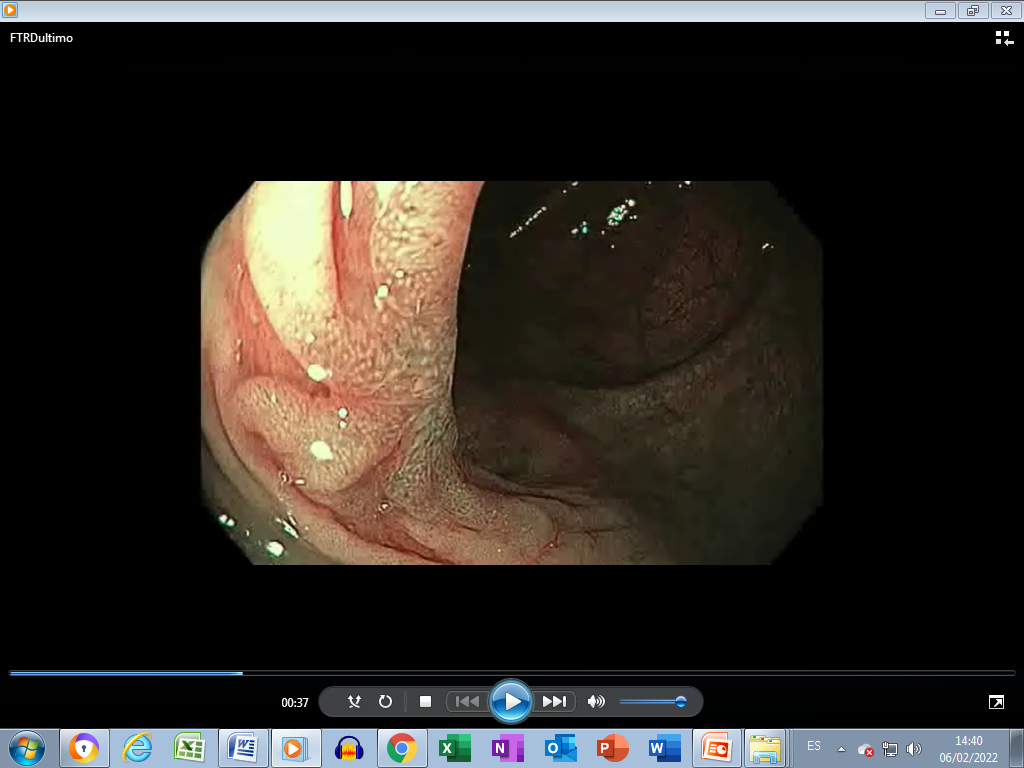
6. The cut is made, removing the lesion.

7. The surgical specimen is removed along with the endoscope.

The first colonoscope is re-inserted to control the resection site, specifically checking that there is no bleeding or perforation and that the entire wall has been removed.



**Figure 3.** Scheme of the resection: **1.** Confrontation of the lesion. **2.** Take it with the grasper. **3.** Introduction in the cap. **4.** Closure of the FTRD clip and snare. **5.** Section of the lesion.



**Figure 4 a.** Technique: Identification and marking of the lesion.



**Figure 4 b.** Technique: Confrontation, taking the lesion and introduction into the chap.



**Figure 4 c.** Technique: Closure of the clip and the snare, section and extraction of the specimen, review of the resection site.

Before performing the procedure, the patient must sign the informed consent and perform the colonic preparation. This procedure is performed under anesthetic sedation and antibiotic prophylaxis is administered immediately before starting it.

Endoscopic control should be performed at 3 months.

DISCUSSION

The Wall Resect Study1 was the original study conducted in 9 German centers and included 181 patients. They had a mean completion time of 50 (3-190) min, 89.5% technical success and 76.9% R0 resection.

The complication rate was 9.9% and included perforations, acute appendicitis, and 1 enterocolonic fistula. This rate seems high, but it is acceptable considering that the method is used for difficult lesions that cannot be removed with other techniques.

In the literature, rates of en bloc resection of 94-95%, total wall resection of 83-89.5% and R0 resection of 78.8-84.9% are recorded.1,4-8 Adverse events were bleeding (2-2.2%), perforation (<0.1-0.19%) and post-polypectomy syndrome (0.9-2.3%).

During follow-up, it is important to assess the presence of residual or recurrent lesion (8.5-12.6%) at the resection site. The requirement for surgery varies between 6.3 and 7%, including that indicated due to adverse events, persistence of the pathology and non-curative FTRD.1,4-8

CONCLUSION

Although more studies are needed, endoscopic resection of the full thickness of the colorectal wall using the Ovesco FTRD® device may be an alternative to surgery in selected cases.

It is an effective technique with a high technical success rate, but it requires prior training to be carried out safely in patients.

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