

A peroperative analysis of rectal vascularization after the shaving technique: an innovative method to avoid fistula?



Whatever the technique used to treat rectovaginal septal endometriotic lesions with muscular layer infiltration, the procedure has to be considered as highly complex and it requires multidisciplinary peroperative evaluation of the best surgical approach. Recommendations for the surgical treatment of deep endometriosis have been published recently by a working group of experts, concentrating on the peroperative management and surgical technique depending on the location and extent of disease (1).

Three surgical techniques have been described to manage bowel endometriosis: rectal shaving, disc excision, and segmental colorectal resection. All of these procedures are associated with complications such as bowel perforation and fistulas but their rate appears lower after rectal shaving. Presurgical evaluation of bowel infiltration using various imaging techniques is, therefore, of utmost importance to choose the right technique for the patient (2).

In their preliminary study, Bourdel et al. (3) evaluated a new laparoscopic procedure consisting of the evaluation of the rectal vascularization of the treated area by using indocyanine green (ICG), named “indocyanine green in deep infiltrating endometriosis” (INDIE). The authors claimed that rectal wall ischemia, secondary to the deep shaving, could be responsible for the fistula formation and suggested that the observation of a decreased vascularization of the rectal wall at the end of surgery could alert the surgeon. This type of mechanism, ischemia followed by a secondary fistula, is well described in ureteral surgery and related to the tissue damage caused by electrocautery. They postulated that the rate of postoperative complication such as fistula could decrease if the rectal vascularization can be considered as nonaffected after the rectal shaving.

Analyzing the rectal wall vascularization using ICG as suggested by the authors after a deep shaving is of great interest. In fact, exclusion of thermal damage using macroscopic evaluation of the anterior rectal wall is difficult, especially with injuries due to monopolar electrosurgery, often not recognized during the operation.

Iatrogenic perforation of the bowel during pelvic surgery is mainly the consequence of inadvertent thermal lesion or improper use of electrosurgery, but it also occurs during adhesiolysis or excessive traction with incorrect intestinal handling. In the specific case of rectal shaving that does not require vascular pedicle dissection or clamping, the fistula can be the consequence of a misdiagnosed peroperative bowel microperforation. The latter occurs after excessive resection of the nodule, which thickness peroperatively was underestimated. Therefore, the rectal air test or the injection of methylene blue into the rectum at the end of the procedure may be used to control the absence of rectal perforation.

Indocyanine green, detecting the neovascularization of endometriotic lesions, was used by De Neef et al. (4), to delimit intraoperatively the exact extension of the rectal nodule that should be resected. Therefore, under the condition of a correct presurgical assessment, ICG could be interesting to avoid iatrogenic bowel perforation by identifying the limits of the nodule. This also would allow physicians to shave the vagina rather than opening it, as we know that the vagina opening is a major risk factor for serious intestinal complications.

This emphasizes that peroperative imaging is mandatory to evaluate the involvement of the bowel muscularis and the distance between the inferior border of the lowest bowel lesion and the anal verge. These parameters are expected to have an impact on the type of surgery that will be performed. Ultrasonography is one of imaging modalities for bowel endometriosis assessment that can identify accurately the extension of the muscular layer infiltration and corresponding thickness in addition to nodule length and thickness (5).

In cases of rectal infiltration by endometriosis, as recently recommended, the dissection of the endometriotic lesion from the anterior wall of the rectum has to be obtained using blunt dissection or using low-thermic energy sources (e.g., CO₂ laser or plasma) with minimal collateral thermal spread (1). In the technique of rectal shaving performed by Bourdel et al., previously described in 2011, the monopolar electrocautery was used to perform the dissection of the rectal wall.

If monopolar electrocauterization is still used instead of low-thermic energy sources (such as ultrasonically coagulating shears) or even cold scissors, the peroperative evaluation of the rectal wall vascularization probably is required to be aware of the possible postoperative complications related to ischemia.

In case of decreased rectal vascularization observed using INDIE at the end of the surgery, the question is if we could suture only the anterior rectal wall as described in the article by Bourdel et al. or if we should perform a diverting stoma or a segmental colorectal resection according to the size of the resected nodule.

In conclusion, whatever the type of energy used during the rectal dissection, the suggestion of Bourdel et al. of evaluating the rectal vascularization with ICG after a deep rectal shaving is innovative. It could be applied in all cases to evaluate the risk of postoperative complication and to make the appropriate peroperative decision. Counseling for patients will have to be adapted according to the peroperative evaluation of rectal infiltration.

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REFERENCES

1. Working group of ESGE, ESHRE, and WESKeckstein J, Becker CM, Canis M, Feki A, Grimbizis GF, et al. Recommendations for the surgical treatment of endometriosis. Part 2: deep endometriosis. *Hum Rep Open* 2020;1:1–25.
2. Nisolle M, Brichant G, Tebache L. Choosing the right technique for deep endometriosis. *Best Pract Res Clin Obstet Gynaecol* 2019;59:56–65.
3. Bourdel N, Jaillet L, Bar-Shavit Y, Comptour A, Pereira B, Canis M, Chauvet P. Indocyanine Green Infiltrating Endometriosis (INDIE): a preliminary feasibility study to examine vascularization after rectal shaving. *Fertil Steril* 2020;114:367–73.
4. De Neef A, Cadière G-B, Bourgeois P, Barbieux R, Dapri G, Fastrez M. Fluorescence of deep infiltrating endometriosis during laparoscopic surgery: a preliminary report on 6 cases. *Surg Innov* 2018;25:450–4.
5. Malzoni M, Casarella L, Coppola M, Falcone F, Luzzolino D, Rasile M, et al. Preoperative, ultrasound indications determine excision technique for bowel surgery for deep infiltrating endometriosis: a single, high-volume center. *J Minim Invasive Gynecol* 2020; <https://doi.org/10.1016/j.jmig.2019.08.034>, in press.