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1 **Prevesical peritoneum interposition to prevent risk of rectovaginal fistula after en bloc**
2 **colorectal resection with hysterectomy for endometriosis: results of a pilot study.**

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25 to disclose.

1 **Abstract.**

2 **Objective:** To evaluate the risk of rectovaginal fistula after en bloc hysterectomy and
3 colorectal resection (H-CR) for endometriosis using prevesical peritoneum interposition.

4 **Study Design:** A retrospective study conducted at Tenon University Hospital, expert center in
5 endometriosis, from June 2016 to June 2018. Patients undergoing H-CR with prevesical
6 peritoneum interposition without protective defunctioning stoma were included.

7 **Results:** Of the 160 patients who underwent surgery with colorectal resection for
8 endometriosis during the study period, 27 had H-CR (15 with segmental and 12 with discoïd
9 colorectal resection) and were included. The median age (range) was 45 years (41-47.5).
10 Eight patients (13%) were nulliparous. All procedures were performed by laparoscopy.
11 Parametrial resection was performed in 14 cases (52%). Associated bowel procedures were
12 ileocecal resection (n=5) and appendectomy (n=2). Median follow-up (range) was 14.6
13 months (10.5-20.2). Nine (33.3%) patients experienced intra- or postoperative complications
14 including one grade I, four grade II, two grade IIIA and two grade IIIB complications (Clavien-
15 Dindo classification). Seven patients (26%) experienced postoperative voiding dysfunction.
16 One suspicion of rectovaginal fistula associated with pelvic abscess was diagnosed 4 weeks
17 after surgery but not confirmed during a second operation.

18 **Conclusion:** Despite the small sample size, the present pilot study supports the practice of
19 prevesical peritoneum interposition to limit the risk of rectovaginal fistula in patients who
20 undergo H-CR for deep endometriosis.

21 **Keywords.**

22 Bowel endometriosis ; Colorectal resection ; Deep infiltrating endometriosis (DE) ;

23 Hysterectomy ; Rectovaginal fistula

24 **Introduction.**

25

26 Endometriosis is a benign gynecologic disorder defined by the presence of
27 endometrial glands and stroma outside the uterus (1). It affects 3% of the general female
28 population and about 10% of women of reproductive age (1,2). Bowel endometriosis is
29 estimated to occur in 5.3% to 12% of women with endometriosis overall (3,4) but in as many
30 as 35% of women with deep endometriosis (DE) managed in specialized centers (5).

31 The classic treatment of colorectal endometriosis is based on hormonal therapy (6).
32 However, this approach is frequently associated with side effects and incomplete symptom
33 relief and surgery is often required. In this specific setting, various surgical techniques have
34 been advocated such as rectal shaving and discoid or segmental colorectal resection
35 depending on the location, the size of the lesion and the multifocality (7–9).

36 For patients with no desire to preserve fertility and with associated uterine disorders
37 including myomas and/or adenomyosis, radical surgery including en bloc hysterectomy and
38 colorectal resection (H-CR) is an option. This approach improves symptoms and quality of
39 life (10,11) and limits the risk of recurrence. Around 12% of patients with endometriosis
40 require a hysterectomy (12).

41 In addition to the risk of voiding dysfunction, H-CR particularly involving the rectum
42 and the recto-sigmoid junction exposes patients to the need for defunctioning stoma to limit
43 the risk of rectovaginal fistula even if the effectiveness of this surgical procedure remains a
44 matter of debate (13–15). Other surgical techniques have been suggested to reduce the risk
45 of rectovaginal fistula such as omental flap interposition (epiploplasty). However, this
46 procedure is not always feasible due to the anatomical characteristics of the omentum.
47 Moreover, the efficacy of epiploplasty in the context of concomitant opening of the vagina
48 and colorectal resection of endometriosis is questionable.

49 Therefore, the objective of this pilot study was to evaluate the potential role of
50 prevesical peritoneum interposition between the vagina and the colorectum after H-CR for
51 DE to limit the risk of rectovaginal fistula while avoiding systematic defunctioning stoma.

52 **Material and Methods.**

53 The present retrospective pilot study was based on the analysis of a prospective
54 database of patients who underwent colorectal surgery for DE from June 2016 to June 2018
55 at Tenon University Hospital, Expert Center in Endometriosis (Paris), Sorbonne University.
56 We identified all patients who had undergone H-CR with prevesical peritoneum interposition.

57 All the patients had given their informed consent for H-CR surgery after being
58 informed about the risk of protective defunctioning stoma.

59

60 *Preoperative Assessment of DE*

61 DE was diagnosed clinically by two experienced surgeons (E.D. and S.B.) on the
62 basis of the following criteria: visible dark blue nodules on the posterior vaginal fornix at
63 speculum examination or infiltration associated with palpable induration at vaginal and digital
64 rectal examination. Patients were then referred to the Department of Radiology for
65 confirmation of the diagnosis. All the patients underwent transvaginal ultrasonography
66 followed by magnetic resonance imaging (MRI) to assess the presence of colorectal lesions,
67 the uni- or multifocality of bowel endometriosis, and location of associated DE lesions
68 (2,13,16).

69 The anatomical locations of endometriosis and extent of colorectal endometriosis
70 were also recorded especially evaluating external adenomyosis and the presence of uterine
71 myomas. All the patients underwent pelvis ultrasonography, MRI, and rectal endoscopic
72 sonography before surgery. DE was diagnosed according to the morphology of the lesions
73 observed by imaging techniques and in accordance with previously described criteria (17–
74 21). Colorectal endometriosis was defined as DE with infiltration of at least the rectal
75 muscularis (14). Associated adenomyosis was defined as previously published by Bazot et
76 al. (18). The ENZIAN classification was used to described MRI distribution of lesions (22).

77

78

79

80 *Surgical Procedure*

81 All the patients received GnRH analogues for 3 months before surgery and were
82 operated on under general anesthesia in the dorsolithotomy position. The abdominal and
83 pelvic cavities were explored to identify all locations of endometriosis to evaluate the ENZIAN
84 Score. All the colorectal resections were laparoscopically assisted and performed with the
85 objective of complete resection, as previously described associating both hysterectomy and
86 colorectal resection (13,23). Procedures included adnexal surgery (ovarian cystectomy or
87 salpingo-oophorectomy); uterosacral ligament, parametrium, or vaginal resection;
88 ureterolysis; and ureteral reimplantation when required. No omental flap interposition was
89 used between the vaginal suture and rectal staple line.

90 To prevent the risk of rectovaginal fistula and to avoid protective defunctioning stoma,
91 a prevesical peritoneum interposition was performed between the vaginal and digestive
92 scars. For this procedure, the prevesical peritoneum was mobilized then sutured to the
93 posterior vaginal wall by absorbable stitches over the vaginal suture.

94 For the colorectal resection, lesions under 3 centimeters in diameter underwent a
95 discoid resection after removal of the exophytic portion keeping the infiltrating portion on the
96 rectum. Discoid resection was then performed using an automatic transanal stapler
97 (CDH33A, Endo-Surgery, Ethicon, France). The vagina was sutured with absorbable sutures.

98 For the segmental colorectal resection consisted of sectioning with endo GIA 60 by
99 laparoscopy (Auto Suture; Tyco S.A., Elancourt, France) after mobilizing the rectum and left
100 colon. The uterus was extracted by the vaginal route and the vagina then closed with
101 absorbable sutures. The median suprapubic trocar was withdrawn and the incision enlarged
102 to 3 cm to allow resection of the colorectum and placement of the anvil of the automatic
103 stapler (CCEA forceps, Auto Suture; Tyco S.A., France).

104

105 *Study Variables*

106 Data including epidemiologic characteristics age, body mass index (BMI), previous
107 surgery, details of radiologic and surgical findings were recorded from the patients' medical

108 records. The distribution of DE lesions was scored according to the ENZIAN classification.
109 The size of the histological specimen was also recorded. All intra- and postoperative
110 complications were recorded. In accordance with the Clavien-Dindo classification,
111 complications were classified as minor when of grade I-II (deviation from the normal
112 postoperative course without the need for surgical, endoscopic or radiological interventions)
113 and major when of grade IIIa (requiring surgical, endoscopic or radiological intervention
114 without general anesthesia), IIIb (requiring surgical, endoscopic or radiological intervention
115 under general anesthesia), IV (life-threatening complication, including central nervous
116 system complications or requiring intermediate or intensive care unit management) and V
117 (death). In addition, de-novo voiding dysfunction requiring self-catheterization lasting more
118 than 1 month was considered a major complication. The Ethical Review Committee
119 (CEROG) approved this study (CEROG 2018-GYN-0201). Written informed consent was
120 obtained from all patients.

121

122 *Statistical Analysis*

123 Quantitative variables were expressed in median and interquartile range (IQR) and
124 nominal variables in proportion. Univariate analysis was performed using the Wilcoxon test
125 for continuous variables and the Fisher exact test for categorical variables. All reported p
126 values were 2-sided. The significance threshold was set at .05. All statistical analysis was
127 performed using commercially available software JMP v.13.0.0 software © (SAS Institute
128 Inc., Cary, NC, United-States).

129

130

131 **Results.**

132

133 *Epidemiological and surgical characteristics of the population*

134 During the study period, 160 patients with DE underwent surgery for colorectal
135 endometriosis. Among them, 27 patients (16.8%) underwent an H-CR with prevesical
136 peritoneum interposition.

137 The characteristics of the study population are summarized in Table 1. The median
138 age was 45 years (IQR 41-47.5), and median BMI was 25.6 kg/m² (IQR 22.7-28.9). Thirty-
139 seven percent of the patients (n=10) had a history of surgery for endometriosis: 19% (n=5)
140 for DE and 26% (n=7) for ovarian endometriosis.

141 The main symptoms of the population were dysmenorrhea (96%), dyspareunia (63%),
142 transit disorder (44%), chronic pelvic pain (44%), pain on defecation (26%) and dysuria
143 (11%). Thirty percent (n=8) of the patients were nulliparous and 30% (n=8) had a prior
144 history of IVF. The median gravidity was 1 (IQR 0-2) and the median parity was 1 (IQR 0-2).

145 According to the ENZIAN classification based on MRI description (Table 2), absence
146 of vaginal involvement (A0) was found in 56% of the patients (n=15), involvement of the
147 lateral compartment between 1 and 3 cm (B2) in 59% (n=16), and rectal involvement
148 between 1 and 3 cm (C2) in 33% (n=9). Bladder endometriosis was described in one patient
149 (4%), and ureter endometriosis in one patient (4%). Associated adenomyosis was found in
150 52% of the patients (n=14) and other intestine involvement (sigmoid, caecum, appendix and
151 ileum) in 15%.

152 All procedures were performed by the laparoscopic route. Laparoscopic and MRI evaluation
153 of the ENZIAN score were recorded (Table 2).

154 Segmental resection and discoid excision were performed in 15 (56%) and 12
155 patients (44%), respectively (Table 3). Ninety-three percent (n=25) of the patients underwent
156 a torus or uterosacral ligament resection. Bilateral ureterolysis was performed for all the
157 patients. Parametrial resection was performed in 14 cases (52%) (unilateral in six cases and
158 bilateral in eight). Associated procedures were ovarian cystectomy in 12 cases (44%),

159 appendectomy in two (7%), ileocecal resection in five (19%), and a partial bladder resection
160 in one (4%) (Table 3). No patients had primary protective defunctioning stoma.
161 Endometriosis was confirmed by surgery and histology in all the patients. The median size of
162 the rectal nodules on the histological specimen was 15 mm (IQR 10-25).

163

164 *Surgical complications and follow-up*

165 The median length of hospital stay was 7 days (IQR 6.5-10.5). Median follow-up was
166 14.6 months (IQR 10.5-20.2). **No patient was lost to follow-up.**

167 Nine (33.3%) patients experienced intra- or postoperative complications. One patient
168 (3.7%) experienced a Clavien-Dindo grade I complication (parietal abscess), four (15%) a
169 grade II complication (two urinary infections treated by antibiotics, one pelvic abscess
170 requiring a treatment by antibiotics and one vesicovaginal fistula requiring a prolonged
171 bladder drainage by a Foley catheter for 21 days), two (7.4%) a grade IIIA complication
172 (pelvic abscess requiring radiological drainage, ureteral injury requiring a double-J stent),
173 and two (7.4%) a grade IIIB complication requiring a second surgery (due to a hemorrhage
174 linked to ureteral vessel injury in one case, and for multiple pelvic abscesses with suspicion
175 of rectovaginal fistula in the other) (Table 4). No grade IV-V complications occurred.

176 The patient with a suspicion of rectovaginal fistula underwent both rectal shaving and
177 colorectal resection associated with bilateral salpingectomy, bilateral ureterolysis and left
178 parametrectomy. She experienced chest pain in the early postoperative period and was
179 investigated by an angio CT scan. No emboli were detected but pneumothorax with
180 mediastinal emphysema was found. As the patient did not have a diaphragmatic location of
181 endometriosis or a high intraabdominal pressure, the presumed diagnosis was esophageal
182 injury linked to the nasogastric tube. Thoracic drainage was performed with a favorable
183 outcome. Scanner guided drainage of a pelvic collection was also performed on
184 postoperative day 8. The patient was re-hospitalized 3 weeks after this procedure for vaginal
185 discharge with complete vaginal dehiscence. CT scan exhibited multiple pelvis abscesses
186 with suspicion of a rectovaginal fistula. A second surgery was required by laparoscopy with

187 conversion to laparotomy with extensive adhesiolysis, drainage of multiple pelvic abscesses
188 and resection of 25 cm of the small bowel. No signs of rectovaginal fistula were found on
189 rectal examination and intraoperative rectal blue test. Pathological analysis of the small
190 bowel revealed an inflammatory reaction. A protective defunctioning stoma was performed.
191 Three months later, the vagina had healed and the stoma could be closed after a CT scan
192 confirmed absence of rectovaginal fistula.

193 Seven (26%) patients experienced postoperative voiding dysfunction and required
194 self-bladder catheterization: five patients for less than 1 month, one for 45 days and one for
195 90 days).

196

197 **Discussion.**

198 This pilot study supports the practice of prevesical peritoneum interposition between
199 the vagina and the colorectum after H-CR for DE as a simple and reproducible procedure
200 which may avoid systematic digestive defunctioning stoma.

201 In a sub-analysis of a randomized study, H-CR was associated with a significant
202 improvement in dysmenorrhea, dyspareunia and asthenia (10). A trend for improvement was
203 found for diarrhea and back pain, while no improvement in constipation, bowel movement
204 pain or cramping, and dyschesia was observed (10). No difference in urinary function was
205 observed pre- and postoperatively (10). All the SF-36 quality-of-life items apart from physical
206 functioning were significantly improved by surgery (10).

207 However, an important question that deserves to be addressed is whether our results
208 reflect a real and reproducible benefit of prevesical peritoneum interposition in this setting or
209 rather a coincidence due to the relatively low prevalence of the complication. We hypothesize
210 the interest of this simple technique since we found no case of rectovaginal fistula after
211 segmental or discoid colorectal resection in a subgroup of so-called high-risk patients. In
212 these patients the rate of rectovaginal fistula can be as high as 10%, justifying the use of
213 systematic protective defunctioning stoma for several authors (24). In the present study, the
214 only case of suspected rectovaginal fistulae was observed after rectal shaving associated

215 with a segmental colorectal resection complicated by a pelvic abscess with subsequent
216 vaginal dehiscence. No fistula was seen intraoperatively.

217 In a review published in 2008, Vercellini et al reported that the incidence of
218 rectovaginal fistula after rectovaginal septum surgery (with and without colorectal resection)
219 was between 2 and 10% depending on the series and the surgical procedure (25). In a meta-
220 analysis of 49 series focusing on colorectal resection, Meuleman et al observed that the
221 incidence of rectovaginal fistula was 2.7% after segmental resection and 0.7% for the mixed
222 group composed of patients undergoing rectal shaving or discoid resection (26). Finally, in a
223 recent systematic review of the literature involving 3079 colorectal resections, Balla et al
224 reported similar results with 2.4% of rectovaginal fistula overall (2.8% for the open approach,
225 2.2% for the laparoscopic approach and 7.4% for the robotic approach) (27). However,
226 despite the interest of these reviews, it is difficult to evaluate the true incidence of
227 rectovaginal fistula in routine practice as most publications are from experienced teams and
228 this could constitute a selection bias. In a French multicenter study involving 56 departments
229 of gynecology with 1135 colorectal resections performed in 2015, Roman H. on behalf of the
230 FRIENDS group reported a similar rate of rectovaginal fistula (28). However, a sub-analysis
231 of data from the FRIENDS group by Bendifallah et al showed that this rate varied according
232 to the hospital case volume: 4.95% of rectovaginal fistula for centers managing fewer than 10
233 procedures per year and 2.77% for centers with more than 40 procedures per year, with a
234 significant cut-off at more than 20 procedures per year (29).

235

236 *Several surgical procedures have been advocated to decrease the risk of rectovaginal*
237 *fistulae after colorectal resection. Belghiti et al reported that protective defunctioning stoma*
238 *was associated with a decrease in the number of rectovaginal fistulas in women undergoing*
239 *partial colectomy and low colorectal resection for endometriosis from 27% to 15% but*
240 *without reaching significance (13). However, in this specific setting, the new French*
241 *guidelines for the management of colorectal endometriosis stated that, due to the lack of*
242 *sufficient high-level evidence, no recommendation for a systematic protective defunctioning*

243 *stoma cannot be formulated (30). In a prospective randomized study including 126 patients,*
244 *Agnifili et al suggested that omentoplasty seemed to be effective in lowering the rate and the*
245 *severity of anastomotic leakage after colorectal surgery. However, they reported a high*
246 *incidence of anastomotic leakage of 14.3% in the whole population (6.4% in the*
247 *omentoplasty group vs 21.9% in the non-omentoplasty group) (14). Conversely, in a*
248 *prospective randomized study of 712 patients undergoing colonic or rectal resection, Merad*
249 *et al demonstrated that omentoplasty decreased neither the rate nor the severity of*
250 *anastomotic failure (15). Finally, a meta-analysis showed that no statistically significant*
251 *difference was found between the omentoplasty group and the no omentoplasty group in*
252 *radiological anastomotic leakage (RR 0.76, 95% CI 0.41 to 1.40), death (RR 1.01, 95% CI*
253 *0.55 to 1.86), and repeat operation (RR 0.60, 95% CI 0.35 to 1.05) except for clinical*
254 *anastomotic leakage (RR 0.36, 95% CI 0.16 to 0.78) (31). The authors stated that there was*
255 *not enough evidence to say whether or not omentoplasty should be used to reduce*
256 *anastomotic leakage after colorectal resection (31).*

257

258 Despite the high feasibility rate of prevesical peritoneum interposition between the
259 vagina and the colorectum, the technique is not feasible in patients undergoing partial
260 colectomy with uterine conservation and is difficult in those with a concomitant bladder
261 resection or with vesico-uterine fold endometriosis imposing extensive peritoneal resection.
262 In this specific setting, several surgical techniques to minimize the risk of rectovaginal fistula
263 have been advocated (13–15,31). For instance, some authors recommend a subtotal
264 hysterectomy although this surgical option is associated with a risk of endometriosis
265 recurrence requiring a second surgery (32,33). Another option is the use of a protective
266 stoma. However, this technique is often poorly accepted by patients and requires a second
267 surgery. Akladios et al suggested that, in the absence of partial colectomy, ileostomy may
268 be omitted in patients with low colorectal anastomosis which were more than 5 cm from the
269 anal verge, and with no adverse intraoperative events (34). After multivariate regression
270 analysis and adjusting for major clinical, demographic, and surgical characteristics, Milone et

271 al underlined that the only factor associated with complicated cases was the distance of the
272 endometriotic localization from the lower rectum (35). In a large series of patients undergoing
273 colorectal resection for endometriosis, Belghiti et al confirmed that all rectovaginal fistulas
274 occurred in patients with a low colorectal anastomosis ($p < .001$) and 88% in patients with a
275 partial colectomy ($p < .001$) (13). Protective defunctioning stoma was associated with a
276 decrease, albeit non-significant, in the number of rectovaginal fistulas in women undergoing
277 partial colectomy and low colorectal resection (from 27% to 15%) (13). Data from
278 randomized trials evaluating the contribution of epiploplasty in limiting the risk of digestive
279 complications after colorectal resection in indications other than endometriosis, are
280 controversial (14,15). However, in a meta-analysis, Hao et al emphasized that there is not
281 enough evidence to claim whether or not epiploplasty should be used to reduce complication
282 rates after colorectal resection (31).

283 From another point of view, it has been stated that this major complication can be
284 avoided by leaving the uterus in situ (24), with the risk of postoperative recurrence due to
285 incomplete removal of endometriosis (23). The most recent French guidelines suggest that
286 hysterectomy is an option after failure of conservative medical and surgical therapies or in
287 cases of associated uterine disorders such as myomas and external and internal
288 adenomyosis (16,36). This may explain why more than half of our population operated on for
289 colorectal endometriosis underwent an H-CR. Although highly selected, 19 of the 27 women
290 (70%) in our series had had a previous pregnancy with a median gravidity of 1 (IQR 0-2)
291 underlining our center's policy concerning radical hysterectomy.

292 Some limits of this pilot study deserve to be mentioned. First, the low sample size
293 could imply a selection bias as our subgroup of patients were at high risk of complications
294 due to associated disorders such as both internal and external adenomyosis (36,37).
295 Second, comparison with the literature is difficult as few data have focused on this specific
296 population. In a previous study, we found a high risk of complications in this subpopulation of
297 patients with colorectal endometriosis (11). Third, our surgical procedure is not applicable in
298 certain cases, for example: in patients with concomitant large bladder involvement or

299 extensive vesico-uterine fold involvement requiring removal of the prevesical peritoneum;
300 and in patients requiring a colpectomy without associated hysterectomy which represents the
301 vast majority of patients with vaginal endometriosis.

302 Despite the small sample size, the present pilot study supports the practice of
303 prevesical peritoneum interposition to limit the risk of rectovaginal fistula in patients who
304 undergo H-CR for deep endometriosis. Further studies are necessary to confirm these
305 results and to identify good candidates for this simple technique.

306 Disclosure statement: The authors declare that they have no conflicts of interest and nothing
307 to disclose.

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418

Table 1. Epidemiological characteristics of the population.

<u>Characteristics</u>	<u>Population (n=27)</u>
Age median, years (IQR)	45 (41-47.5)
BMI median, kg/m ² (IQR)	25.6 (22.7-28.9)
History of prior surgery for endometriosis, n (%)	10 (37)
- Deep endometriosis	5 (19)
- Ovarian endometriosis	7 (26)
- Both	3 (11)
Symptoms related to endometriosis, n (%)	
- Chronic pelvic pain	12 (44)
- Dysmenorrhoea	26 (96)
- Dyspareunia	17 (63)
- Transit disorder	12 (44)
- Constipation	11 (41)
- Diarrhoea	4 (15)
- Pain at defecation	7 (26)
- Dysuria	3 (11)
- Pain when urinating	1 (4)
- Menorrhagia	3 (11)
Age at the first period, median, years (IQR)*	12.5 (12-13)
Gestivity, median (IQR)	1 (0-2)
Parity, median (IQR)	1 (0-2)
Number of nulligest patients	8 (30)
Prior history of IVF	8 (30)
AMH value, mean, ng/mL **	0.56

** Data missing for 2 patients*

*** Data available only for 5 patients*

Table 2 : MRI description of endometriotic lesions according to ENZIAN classification

ENZIAN classification	MRI evaluation	Laparoscopic evaluation
	Population n=27 (%)	Population n=27 (%)
<u>A (Rectovaginal space, Vagina)</u>		
A0	15 (56)	5 (18)
A1 (<1 cm)	3 (11)	13 (48)
A2 (1-3 cm)	5 (18)	5 (18)
A3 (>3 cm)	4 (15)	4 (15)
<u>B (Sacrouterine ligaments, Cardinal ligaments, Pelvic sidewall, External ureter, Compression)</u>		
B0	0 (0)	0 (0)
B1 (<1 cm)	4 (15)	0 (0)
B2 (1-3 cm)	16 (59)	20 (74)
B3 (>3 cm)	7 (26)	7 (26)
<u>C (Rectum)</u>		
C0	4 (15)	1 (4)
C1 (<1 cm)	6 (21)	7 (26)
C2 (1-3 cm)	9 (33)	11 (41)
C3 (>3 cm)	8 (31)	8 (31)
<u>Uterine and other types of extragenital deep infiltration endometriosis</u>		
F0	9 (33)	10 (37)
FA (Adenomyosis)	14 (52)	14 (52)

FB (Bladder)	1 (4)	1 (4)
FU (Ureter, intrinsic)	1 (4)	1 (4)
FI (Intestine, others (sigmoid, coecum, appendix and ileum))	4 (15)	4 (15)
FO (Other regions of localization: lung, diaphragm, inguinal region)	0 (0)	0 (0)

Table 3. Surgical procedures.

<u>Surgical characteristics</u>	<u>Population (n=27)</u>
Laparoscopic	27/27 (100)
Operating time, median, minutes (IQR)	200 (155-230)
Colorectal procedure, n (%)	
- Segmental resection	15 (56)
- Disc excision	12 (44)
Torus or uterosacral ligament resection, n (%)	25 (93)
Urétérolysis	27 (100)
- unilateral	0 (0)
- bilateral	27 (100)
Parametrial resection, n (%)	14 (52)
- unilateral	6 (22)
- bilateral	8 (30)
Ovarian ablation, n (%)	12 (44)
Ileo-caecal resection, n (%)	5 (19)
Appendicectomy, n (%)	2 (7)
Partial bladder resection, n (%)	1 (4)

Table 4 : Complications according to the Clavien-Dindo classification.

<u>Clavien-Dindo classification</u>	<u>Population n=27 (%)</u>
No complication	18 (66.7)
Grade I	1 (3.7)
Grade II	4 (15)
Grade IIIa	2 (7.4)
Grade IIIb	2 (7.4)
Grade IV-V	0