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Case Report

Clinical characteristics and surgical outcomes of 72 cases of intestinal and urinary tract deep infiltrating endometriosis

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Abstract: The diagnosis and treatment of intestinal and urinary tract deep infiltrating endometriosis (DIE) remain challenging due to its multiple lesions and nonspecific symptoms and signs. This study retrospectively analyzed 72 cases of intestinal and urinary tract DIE, including the clinical characteristics, diagnosis, and treatment outcomes. Among these cases, 11 presented without clinical symptoms, while 61 exhibited obvious clinical symptoms, primarily dysmenorrhea (58.3%, 42 cases) and chronic pelvic pain (50.0%, 36 cases), followed by anal bulge (44.4%, 32 cases), dyspareunia (31.9%, 23 cases), and constipation (16.7%, 12 cases). In terms of diagnosis, combining carbohydrate antigen 125 (CA125) testing with MRI enhanced the detection rate of DIE in the intestine and urinary tract. High-definition laparoscopic surgery was the primary treatment approach in these cases, revealing that intestinal and urinary tract DIE often coexist with ovarian endometriotic cysts, uterosacral ligament involvement, and, less frequently, rectovaginal septum and vaginal lesions. Postoperative follow-ups demonstrated significant symptom relief. In conclusion, intestinal and urinary tract DIE frequently involve multiple sites, and CA125 combined with MRI is an effective diagnostic tool. High-definition laparoscopic surgery offers a definitive treatment for intestinal and urinary tract DIE.

Keywords: Intestines, urinary tract, deep infiltrating endometriosis, clinical characteristics, surgery

Introduction

Endometriosis (EMs) is a gynecologic condition characterized by the presence of endometrial glands and stroma outside the uterine cavity, often resulting in chronic pain and infertility [1]. According to statistics, about 10% to 15% of women of childbearing age are affected by EMs [2]. EMs is classified into three subtypes according to pathology and anatomy: superficial endometriosis, ovarian endometriotic cyst, and deep infiltrating endometriosis (DIE). DIE refers to a lesion that invades a depth ≥5 mm below the peritoneum [3] and frequently involves the uterine ring, uterosacral ligament, intestinal tract, urinary tract and other parts. Clinical diagnosis and treatment of DIE are challenging and require a multidisciplinary approach. Studies show that intestinal involvement occurs in about 5% to 12% of women with EMs [4], though their clinical symptoms are not specific. Clinical symptoms in EMs can vary, including dysmenorrhea, dyspareunia, diarrhea, constipation, and rarely, intestinal obstruction; however, some cases of intestinal DIE are asymptomatic. Surgical treatment can effectively alleviate pain in intestinal EMs, particularly in cases involving intestinal obstruction [5].

For EMs with multiple organ involvement, complete surgery may be challenging. The bladder and ureter are the most commonly affected organs in urinary tract DIE, with symptoms such as frequent urination, dysuria, and hematuria, though some patients may remain asymptomatic. Bladder EMs is rare in clinical practice but accounts for the largest proportion of urinary tract DIE. Among urinary system cases, the

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prevalence of ureteral EMs is about 10% [6], with approximately 50% of ureteral EMs patients exhibiting no symptoms [7]. Ureteral surgery is the primary method for the treatment of ureteral EMs. While successful cases of ureteral EMs surgery have been documented [8], uncertainties about remain regarding the restoration of ureteral fibrosis and the impact on renal function following unsuccessful surgery.

Accurate preoperative diagnosis of intestinal and urinary tract DIE is challenging, primarily relying on histopathologic examination of tissue obtained through intraoperative exploration and specimen resection. Surgical resection remains the primary treatment option, but there is limited information on the postoperative outcome of DIE surgery. To this end, we analyzed 72 cases of intestinal and urinary tract DIE, examining the clinical characteristics, diagnostic method, and treatment outcome to provide clinicians with insight for managing it.

Materials and methods

Research subjects

This retrospective study collected data on EMs patients who visited the gynecology, gastroenterology, urology, and gastroenterology departments of the First Affiliated Hospital of Suzhou University from January 2019 to October 2023.

Inclusion criteria: (1) EMs diagnosis confirmed through biopsy, with pathology confirming invasive disease [9]; (2) All patients underwent resection of intestinal and urinary tract DIE lesions; (3) Patients with postoperative pathologic diagnosis of intestinal and urinary tract DIE; (4) Lesion diameter ≥5 mm. Exclusion criteria: (1) Combined with endometrial cancer, ovarian cancer, cervical cancer or other malignant tumors; (2) Patients with immune or acute infectious diseases; (3) Incomplete postoperative follow-up data.

Research methods

Data collection: By logging into the hospital information system of the First Affiliated Hospital of Soochow University, the electronic medical records of included patients were reviewed. Data collected included clinical symptoms (such as dysmenorrhea, chronic pelvic pain, dyspareunia, anal bulge, defecation pain, constipation, hematochezia, hematuria, diarrhea), auxiliary examination methods, surgical methods, intraoperative findings, postoperative pathology and American Society of Reproductive Medicine proposed the Revised Endometriosis Staging Method (r-ASRM) for staging.

Positive criteria for auxiliary examinations: ① Carbohydrate antigen 125 (CA125) >35 u/ml in peripheral blood was considered positive. ② Bimanual or Triple Combined Examination: hard nodules palpable in the posterior vaginal fornix or rectovaginal septum were considered indicative. ③ TransVaginal Sonography (TVS): signs included thickening and reduced echogenicity at the root of the uterosacral ligament if involved, an “Indian headdress sign” if the intestinal tract was affected, and low echogenicity in the vaginorectal septum and nodular low echogenicity when the vaginal wall was involved. ④ B-ultrasound of the urinary system: enhanced echo observed at the posterior wall and the periphery of the bladder apex, with kidney and the proximal ureter dilation if the ureter was affected. ⑤ Kidney-Ureter-Bladder (KUB) plain film + Intravenous Pyelogram (IVP): following intravenous contrast injection, filtration concentration in the renal parenchyma, renal pelvis, calyx, ureter, or bladder was observed as the contrast agent passed through the urinary tract. ⑥ Double-contrast barium enema radiography (DCBE): DIE was indicated by narrowing from the sigmoid colon to the anus, associated with mucosal fine lines or contour burrs causing luminal stenosis. ⑦ Ureteroscopy + transurethral ureteroscopy ureteral biopsy: Ureteral stricture with local mucosal thickening or elevation was observed, and biopsy confirmed the presence of ectopic endometrial tissue.

Gynecologic examination (double or triple examination), CA125 testing and TVS were routinely performed in patients. Some patients also underwent CT and MRI scans for further assessment, and a small number of patients underwent colonoscopy to exclude colonic tumors or KUB + IVP to exclude urinary system tumors.

r-ASRM classification: Accurate and consistent classification of DIE is crucial for both clinicians and patients. The r-ASRM scoring system is currently the most widely accepted classification method for DIE internationally [10]. Details of the classification method are provided in **Table 1**.

Table 1. r-ASRM staging score table

Category	Ectopic focus				Adhesion				Obturation of rectal uterine depression	
	Position	Size (cm)			Degree	Wrapping range			Part	Full
		<1	1-3	>3		<1/3	1/3-2/3	>2/3		
Peritoneum	Superficial	1	2	3	-	-	-	-	-	-
	Deep layer	2	4	6	-	-	-	-	-	-
Ovary	Right side, superficial	1	2	4	Right side, light	1	2	4	-	-
	Right side, deep	4	16	20	Right side, heavy	4	8	16	-	-
	Left side, superficial	1	2	4	Left side, light	1	2	4	-	-
	Left side, deep	4	16	20	Left side, heavy	4	8	16	-	-
Fallopian tube	-	-	-	-	Right side, light	1	2	4	-	-
	-	-	-	-	Right side, heavy	4	8	16	-	-
	-	-	-	-	Left side, light	1	2	4	-	-
	-	-	-	-	Left side, heavy	4	8	16	-	-
Obturation of rectal uterine depression	-	-	-	-	-	-	-	-	4	40

Postoperative follow-up: Postoperative follow-up was conducted through a combination of telephone inquiry and outpatient follow-up. Patients were followed up once within first month after discharge, then once between 1-3 months, 1-2 times between 3-12 months, and annually thereafter, with standardized follow-up content each time.

Statistical methods

The statistical analysis was performed using SPSS 27.0 software. Measured data conforming to normal distribution were expressed as (*Mean* ± *SD*), and comparisons between two groups were made using the t-test. Multiple group comparisons were conducted using one-way ANOVA. The measured data of skewed distribution were expressed as median [*M* (*P25-P75*)], and the Mann-Whitney *U* test was used for comparisons. Categorical data were expressed as the number of cases and percentage (%), and the χ^2 test was used. $P<0.05$ indicated a significant difference.

Results

Clinical characteristics

Among the 72 patients with intestinal and urinary tract DIE, 57 patients sought treatment in the gynecology department, 11 in gastrointestinal surgery, 3 in urology, and 1 in gastroenterology. The average age of the 72 patients was 40.3 years old. Among them, 11 were asymptomatic, while 61 exhibited obvious clinical symptoms, primarily dysmenorrhea and chronic pelvic pain, followed by anal prolapse, painful intercourse, and constipation (**Table 2**).

Auxiliary examinations

For patients with intestinal and urinary tract DIE, preoperative assessments included CA-125 testing, double and triple diagnosis examinations, TVS, urinary B-ultrasound, pelvic CT and MRI, colonoscopy, KUB+IVP, DCBE, ureteroscopy with transurethral biopsy, and CA-125+ MRI for additional diagnostic support. As shown in **Table 3**, the combination of CA-125+MRI improved the positive detection rate in cases where intestinal and urinary tract DIE is suspected but unconfirmed preoperatively. A one-way ANOVA test was conducted to compare CA125 levels across r-ASRM stages, revealing no significant difference ($F=1.111$, $P=0.352$), see **Table 4**.

Surgical methods

Of the 72 patients, 69 patients underwent high-definition laparoscopic surgery, 1 case underwent open surgery, 1 case underwent transurethral resection of bladder lesions (TUR), and 1 case received endoscopic submucosal dissection (ESD). Surgical records confirmed complete lesion removal in all cases. Among them, patients who seek gynecological treatment mainly underwent resection of lesions in the intestinal wall muscle layer; Patients seeking treatment in gastroenterology and gastroenterology mainly received segmental intestinal resection and anastomosis; Patients in urology mainly underwent ureteral stricture release surgery. A comparison of surgical methods across three

Table 2. Clinical symptom characteristics of patients with intestinal and urinary tract DIE

Clinical symptom characteristic	Gynecologic treatment (*n*=57)	Gastrointestinal Surgery + Gastroenterological treatment (*n*=12)	Urological treatment (*n*=3)	Total (*n*=72)	*P* value
Asymptomatic	10 (17.5)	1 (8.3)	0 (0.0)	11 (15.3)	0.274
Dysmenorrhea	36 (63.2)	4 (33.3)	2 (66.7)	42 (58.3)	<0.001
Chronic pelvic pain	27 (47.4)	8 (66.7)	1 (33.3)	36 (50.0)	<0.001
Dyspareunia	17 (29.8)	6 (50.0)	0 (0.0)	23 (31.9)	<0.001
Anal bulge	20 (35.1)	11 (91.7)	1 (33.3)	32 (44.4)	<0.001
Defecation pain	2 (3.5)	4 (33.3)	0 (0.0)	6 (8.3)	<0.001
Constipation	7 (12.3)	5 (41.7)	0 (0.0)	12 (16.7)	<0.001
Hematochezia	1 (1.8)	3 (25.0)	0 (0.0)	4 (5.6)	<0.001
Hematuria	2 (3.5)	0 (0.0)	1 (33.3)	3 (4.2)	<0.001
Diarrhea	3 (5.3)	4 (33.3)	0 (0.0)	7 (9.7)	<0.001

Note: DIE, deep infiltrating endometriosis.

Table 3. Auxiliary examinations of intestinal and urinary tract DIE

Inspection Method	Number of cases examined	Positive detection cases	Positive detection rate (%)
CA125	62	42	67.7
Double check and triple check	48	9	18.8
TVS	59	3	5.1
B-ultrasound of urinary system	2	1	50.0
Pelvic CT	29	11	37.9
Pelvic MRI	26	20	76.9
Enteroscopy	15	9	60.0
KUB+IVP	2	0	0.0
DCBE	2	1	50.0
Ureteroscopy + transurethral ureteroscopy biopsy	2	2	100.0
CA125+MRI	23	22	95.7

Note: CA125, carbohydrate antigen 125; TVS, trans vaginal sonography; CT, computed tomography; MRI, magnetic resonance imaging; KUB, Plain film of kidney-ureter-bladder; IVP, intravenous pyelogram; DCBE, double-contrast barium enema radiography; DIE, deep infiltrating endometriosis.

Table 4. Differences in CA125 performance across various r-ASRM staging

r-ASRM staging	*N*	Average value	Standard deviation	Minimum value	Maximum value	*F* value	*P* value
Phase I	4	62.33	83.56	17.90	187.60	1.111	0.352
Phase α	7	83.23	106.25	15.50	318.80		
Phase β	15	54.39	48.67	8.10	189.60		
Phase χ	34	105.84	108.90	8.90	468.10		

Note: r-ASRM, revised endometriosis staging method.

groups of patients showed significant differences ($P<0.001$), as presented in **Table 5**.

Intraoperative exploration situation

Intraoperative exploration was performed in 69 patients using high-definition laparoscopy, with 1 patient undergoing laparotomy and the remaining 2 not receiving intraoperative exploration. The median operation time of intraoperative exploration was 167.5 min, and the median intraoperative blood loss was 50 ml. According to the r-ASRM staging score table, stage IV was the most prevalent among patients (**Table 6**). Intraoperative exploration of ectopic endometrium mainly involved the rectum, followed by the sigmoid colon, see **Table 7**. Pathologic analysis showed that intestinal and urinary tract DIE often co-occurred with ovarian endometriotic cysts. Lesions commonly involved the uterosac-

Table 5. Surgical methods for 72 patients with intestinal and urinary tract DIE

Surgical method	Gynecological treatment (n=57)	Gastrointestinal Surgery + Gastroenterological treatment (n=12)	Urological treatment (n=3)	Assemble (*n*=72)	*P* value
Resection of seromuscular lesions of intestinal wall	47 (82.5)	0 (0.0)	0 (0.0)	47 (65.3)	<0.001
Segmental bowel resection and anastomosis	7 (12.3)	11 (91.7)	0 (0.0)	18 (25.0)	<0.001
Prophylactic terminal ileostomy	1 (1.8)	2 (16.7)	0 (0.0)	3 (4.2)	<0.001
ESD endoscopic resection	0 (0.0)	1 (8.3)	0 (0.0)	1 (1.4)	<0.001
Ureteral stenosis lysis	6 (10.5)	0 (0.0)	2 (66.7)	8 (11.1)	<0.001
Segmental ureteral resection + end-to-end ureteral anastomosis	1 (1.8)	0 (0.0)	1 (33.3)	2 (2.8)	<0.001
Ureteral segmental resection + ureteral bladder replantation	0 (0.0)	0 (0.0)	1 (33.3)	1 (1.4)	<0.001
Transurethral resection of bladder lesion	0 (0.0)	0 (0.0)	1 (33.3)	1 (1.4)	<0.001

Note: ESD, Endoscopic submucosal dissection; DIE, deep infiltrating endometriosis.

Table 6. Surgical status of patients with intestinal and urinary tract DIE

Item	n=70	Range
Operative time (min)	167.5 (115-241.5)	40-495
Surgical bleeding volume (mL)	50 (50-150)	5-1000
r-ASRM staging		
Phase I	4 (5.7)	-
Phase α	9 (12.9)	-
Phase β	18 (25.7)	-
Phase χ	39 (55.7)	-

Note: r-ASRM, revised endometriosis staging method; DIE, deep infiltrating endometriosis.

Table 7. Involved sites found by intraoperative exploration in patients with intestinal and urinary tract DIE

Affected area	n=70
Left ureter	8 (11.4)
Right ureter	3 (4.3)
Bilateral ureters	2 (2.9)
Bladder	11 (15.7)
Rectum	48 (68.6)
Sigmoid colon	15 (21.4)
Colon	9 (12.9)
Ileum	3 (4.3)

Note: DIE, deep infiltrating endometriosis.

ral ligament and the rectovaginal septum, while vaginal involvement was rare, see **Table 8**.

Postoperative follow-up

The median postoperative follow-up time for the 72 patients was 35 months (4-60 months). During this follow-up period, all patients experienced varying degrees of symptom relief compared to preoperative conditions, see **Table 9**.

Discussion

The clinical manifestations of intestinal and urinary tract DIE include dysmenorrhea, chronic pelvic pain, dyspareunia, and anal bulge, and can also manifest as gastrointestinal or urinary tract symptoms [11-13]. Among the 72 DIE patients in this study, 57 who were treated in gynecology had a high prevalence of dysmenorrhea, with EMs symptoms as their main manifestation. The 12 patients treated in gastrointestinal surgery and gastroenterology primarily reported symptoms like anal bulge, defecation pain, constipation, hematochezia, and diarrhea. The three patients seen in urology mostly experienced hematuria and other urinary tract symptoms. This suggests that DIE symptoms vary depending on the medical department where patients seek treatment, likely due to the lesion location and infiltration depth.

Studies indicate that rectal DIE is often associated with symptoms of anal prolapse and swelling, while involvement of the sigmoid colon, ileocecal region, or ascending colon may present with chronic abdominal pain and diarrhea. Appendiceal involvement generally causes abdominal pain, and bladder involvement can manifest as hematuria [14]. For ureteral DIE, symptoms depend on whether the lesion is endogenous or exogenous; endogenous cases may present with cyclic hematuria, lower back pain, recurrent urinary infections, and impaired renal

Table 8. Pathological characteristics of intestinal and urinary tract DIE

Category	Ureter (n=9)	Bladder (n=11)	Intestinal tract (n=66)
Left ovarian endometriotic cyst	5 (55.6)	7 (63.6)	38 (57.6)
Endometriotic cyst of the right ovary	6 (66.7)	4 (36.4)	27 (40.9)
Bilateral ovarian endometriotic cysts	4 (44.4)	4 (36.4)	22 (33.3)
Left uterosacral ligament	6 (66.7)	7 (63.6)	40 (60.6)
Right uterosacral ligament	3 (33.3)	4 (36.4)	36 (54.5)
Bilateral uterosacral ligaments	3 (33.3)	4 (36.4)	33 (50.0)
Rectovaginal septum	5 (55.6)	7 (63.6)	41 (62.1)
Vagin	0 (0.0)	0 (0.0)	3 (4.5)

Note: DIE, deep infiltrating endometriosis.

Table 9. Postoperative symptom recovery of 72 patients with intestinal and urinary to DIE

Clinical symptoms	*n*	Complete remission	Initial remission	Non-remission
Dysmenorrhea	42	26 (61.9)	11 (26.2)	5 (11.9)
Chronic pelvic pain	36	22 (61.1)	11 (30.6)	3 (8.3)
Dyspareunia	23	13 (56.5)	8 (34.8)	2 (8.7)
Anal bulge	32	18 (56.3)	10 (31.3)	4 (12.5)
Defecation pain	6	4 (66.7)	2 (33.3)	0 (0.0)
Constipation	12	7 (58.3)	3 (25.0)	2 (16.7)
Hematochezia	4	2 (50.0)	1 (25.0)	1 (25.0)
Hematuria	3	3 (100.0)	0 (0.0)	0 (0.0)
Diarrhea	7	3 (42.9)	1 (14.3)	3 (42.9)

Note: DIE, deep infiltrating endometriosis.

function, while exogenous cases are often asymptomatic [15].

In this study, 68.6% of the cases involved the rectum, with anal bulge being common. Additionally, half of the patients had chronic pelvic pain, while 15.3% had no symptoms, indicating that the rectal DIE commonly presents with anal distension and chronic pelvic pain but may sometimes be asymptomatic. Among urinary tract DIE cases, 15.7% involved the bladder, 12.9% involved the ureter, but only 4.2% of patients had hematuria, likely due to the predominance of exogenous lesions in the ureter and bladder.

Pelvic gynecological examination is a low-cost and effective diagnostic tool for detecting DIE [16]. The pain and varying tactile sensations caused by palpation can help evaluate the infiltration site and depth of the lesion. In this study, 48 patients were examined by double or triple examinations before operation, and 9 cases showing palpable hard nodules in the posterior vaginal fornix and rectovaginal septum, suggesting a diagnostic value. CA125 is considered a biomarker for EMs, typically decreasing after surgery and rising again during disease recurrence or progression. Hirsch et al. [17] proposed that a peripheral blood CA125 level of ≥30 U/mL in symptomatic EMs patients is highly predictive of EMs lesions. However, studies have shown that signs, symptoms, and markers are not directly related to EMs severity [18]. In this study, 67.7% of patients had a preoperative CA125 >35 u/ml, showing a high positive detection rate. After 1-3 months of follow-up, 31 patients' CA125 levels returned to normal, and 11 showed significant decreases, indicating a correlation between CA125 and EMs.

In terms of imaging diagnosis, TVS is a commonly used and cost-effective diagnostic method for identifying EMs lesions. In this study, 59 cases were examined by TVS before operation, but only 3 cases of intestinal and urinary tract DIE were detected, indicating a low detection rate that may relate to operator experience and machine clarity. MRI is widely used in EMs imaging for its high diagnostic accuracy. Literature reports that MRI has a sensitivity of

88%, specificity of 98%, positive predictive value (PPV) of 95%, negative predictive value (NPV) of 96%, and an overall diagnostic accuracy of 96% [19]. Although CT may lack specific characteristics, lesion size and infiltration depth (e.g., wall thickening, solid nodules or masses) can guide diagnosis [20-22]. The sensitivity of CT in the diagnosis of ectopic lesions is lower than that of MRI, resulting in lower preoperative diagnostic accuracy. In this study, MRI had a detection rate of 76.9%, whereas CT had a detection rate of 37.9%. It may be related to intestinal peristalsis or not using contrast agent to enhance signal. The combined use of CA125 and MRI achieved a detection rate of 95.7%, suggesting that CA125 + MRI is advantageous in preoperative detection of intestinal and urinary tract DIE.

The main advantage of colonoscopy is the ability to visualize the intestinal cavity and take a biopsy, which can clearly exclude intestinal tumors. In this study, 15 patients underwent colonoscopy, with 9 cases confirmed by pathologic examination, making colonoscopy valuable for lesion localization and differentiation from tumors. DCBE has more advantages in preoperative evaluation of suspected intestinal DIE lesions. Literature suggests that DCBE has an accuracy rate of nearly 90% [23], fully displaying intestinal stenosis and providing valuable guidance for deciding on intestinal resection. However, in this study, only 2 patients underwent DCBE, with 1 indicating intestinal DIE, limiting verification of DCBE's accuracy.

Currently, minimally invasive surgery represented by laparoscopy, is the gold standard for treating DIE. Among the 72 patients in this study, only one patient underwent open surgery, while the rest underwent laparoscopic minimally invasive surgery. Intraoperative exploration found that intestinal and urinary tract DIE were often accompanied by ovarian endometriotic cyst, uterosacral ligament involvement, and rectovaginal septum lesions, with vaginal involvement being rare. The goal of DIE surgery is to balance complete lesion eradication with preservation of anatomic structure and function wherever feasible. Therefore, most patients with intestinal DIE in this study chose to remove the seromuscular lesions from the intestinal wall, which could preserve organ function to the greatest extent. Research has shown that segmental bowel resection and anastomosis carry high risks of complications, including anastomotic dehiscence, rectovaginal fistula, peritonitis, and pelvic abscess [24-26]. However, 18 patients undergoing segmental bowel resection in this study, only 1 case of rectovaginal fistula occurred, which required additional surgery, and only 2 patients experienced postoperative intestinal obstruction. This relatively low complication rate may be attributed to surgeon expertise, effective postoperative management, or sample size.

In urinary tract DIE surgery, the objective is to minimize intraoperative ureteral injury and reduce the risk of postoperative recurrence. Among the 9 patients with ureteral DIE in this study, 8 patients underwent ureteral stricture release, 2 patients underwent ureteral segmental resection with end-to-end anastomosis, 1 patient underwent ureteral segmental resection with bladder replantation, and 3 patients had preoperative or intraoperative ureteral stent placement, mainly to prevent ureteral injury. The surgical treatment of bladder EMs mainly removes superficial lesions under laparoscopy. For patients with full-thickness lesions, partial cystectomy can be performed. In this study, 9 of the 11 patients with bladder DIE only involved serous layer lesions and underwent laparoscopic resection. One patient underwent partial cystectomy, and one patient underwent TUR surgery. Postoperative follow-up revealed that all 11 patients experienced resolution of urinary symptoms with no recurrence.

Following surgery, all 72 patients in this study reported alleviated pain, gastrointestinal symptoms, and urinary symptoms compared to their preoperative condition. Patients who underwent resection of lesions in the intestinal plasma muscle layer reported significant improvement in intestinal symptoms within 1-3 months post-surgery. However, the average recovery time for intestinal symptoms was longer in patients who underwent segmental intestinal resection than in those who had resection of seromuscular lesions alone. Additionally, symptoms such as anal bulge, defecation pain, constipation, and hematochezia were alleviated in four patients postoperatively.

This study also has limitations. Due to the small sample size, it was difficult to accurately analyze the incidence of postoperative complica-

tions and the related factors affecting prognosis and recurrence in patients. Future research should focus on expanding the sample size. Additionally, prospective studies are needed to further compare the advantages of drug treatment and surgical treatment.

Conclusion

Intestinal and urinary tract DIE often presents with multiple lesions. The combination of CA125 and MRI improves the detection rate of intestinal and urinary tract DIE. These lesions are frequently associated with ovarian endometriosis cyst, uterosacral ligament involvement, and rectovaginal septum involvement, while mere vaginal involvement is rare. Laparoscopic surgery is effective in the treatment of intestinal and urinary tract DIE.

Disclosure of conflict of interest

None.

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