

## Deep Pelvic endometriosis with rectal or rectosigmoid involvement

---

**Paola De Nardi**  
**Dipartimento di Chirurgia**  
**Istituto Scientifico San Raffaele**  
**Milano**

---

Deep pelvic endometriosis (DPE) is a specific entity defined by the presence of an endometriotic lesion extending more than 5 mm underneath the peritoneum. DPE includes many rectovaginal lesions as well as infiltrative forms that involve bowel, ureters and bladder. Endometriosis may affect the bowel in 3% to

37% of all cases of the disease and in 90% of these cases the rectum, sigmoid, or both are involved. This form of DPE is considered the most severe and represents one of the most complex problems in the management of this disease.

---

### Diagnosis

Symptoms of pelvic endometriosis are extremely non specific and variable, with considerable overlap with other benign or malignant conditions. Approximately three quarters of symptomatic patients experience pelvic pain and/or dysmenorrhoea; other common symptoms are dyspareunia, cyclical or perimenstrual gastrointestinal symptoms, pain at defecation, chronic fatigue. These symptoms are also present in other disorders such as pelvic inflammatory disease, irritable bowel syndrome, interstitial cystitis, adenomyosis, ovarian neoplasms, pelvic adhesions, colon cancer, and diverticular disease as well as in unaffected women. Consequently misdiagnosis and diagnostic delay are common and well documented in the literature. As commonly observed by the patients, pelvic pain may be chronic, but is often more severe during menses or at ovulation; usually severe deep dyspareunia and painful defecation during menses are suggestive of posterior infiltration.

Physical findings are variable and depend upon the location and size of the implants. There are often no abnormal findings or lesions may be visualized on the posterior vaginal fornix, infiltration or a nodule can be detected on vaginal examination and infiltration or a mass can be diagnosed on rectal digital examination. The accuracy of physical examination is usually higher if performed during menstruation; however it has limited value in the prediction of extension of the disease. Bazot correlated the result of physical examination to other non invasive diagnostic techniques and found that physical

examination correctly diagnosed DPE in 81.5% of women, however specific involvement of recto-sigmoid or rectum was only diagnosed in 40.2% of cases.

Laparoscopy is considered the gold standard for the diagnosis and evaluation of extent of abdominal endometriosis, however rectovaginal endometriosis can hardly be diagnosed by laparoscopy alone. In presence of adhesion, operative laparoscopy, with opening of the sub peritoneal space, may be required. Even so, the real extension of the disease, especially rectal wall infiltration, may not be accurately predicted.

Since accurate mapping of intestinal involvement, particularly infiltration of the rectal wall, is essential in view of surgical treatment, imaging methods are mandatory. To date, no definitive guidelines exist for the preoperative assessment of deep pelvic endometriosis. Abdominal ultrasound and Transvaginal sonography are the initial investigations and may be adequate when a medical treatment is recommended. When a more precise definition of extent of the disease is needed, in view of surgical resection, other imaging modalities are employed; computed tomography scan, colonoscopy and double contrast barium enema offer little help, or expose the patients to excessive irradiation, whereas endorectal ultrasound (EUS) and magnetic resonance imaging (MRI) are nowadays increasingly used.

EUS is highly accurate in the diagnosis of rectal endometriosis with an elevated sensitivity and specificity in the definition of the involved intestinal layer, in particular the



infiltration of the muscularis propria. Besides the exact distance between the rectal lesion and the anal margin can be evaluated. This information is essential to plan the surgical resection and to correctly inform the patients on possible complications and sequelae. However its employment is still restricted to some centres, the equipment and expertise for this test are not yet widespread available, the costs are high and, as other ultrasonographic tests, its reproducibility is low.

MRI represents an optimal 'all in one' exam to diagnose and define the exact extent of DPE;

since this represents a multifocal disease, an imaging method, able to cover the entire pelvis to diagnose all possible lesions, is required. High contrast resolution, multiplanarity, and greater field of view are the main advantages of MRI. On the other hand the widespread fibrosis often contained in the nodules, which can be viewed as iso-intense to the muscle in both T1- and T2-weighted images, and the duration of the exam, which may be altered by artefacts due to intestinal peristaltic movements, are the principal limitations.

---

## Surgery

There is a general consensus that surgical resection is the treatment of choice for DPE infiltrating the bowel wall. One peculiar feature of this form of DPE is that even though the activity of the disease may be controlled by medical treatment, the regression of the nodule in the muscular tissue will eventually cause fibrosis and scar tissue that result in narrowing and distortion of the bowel lumen, leading to persistence or even worsening of intestinal symptoms.

The main indications to surgery are acute or chronic intestinal obstruction or doubtful diagnosis with suspect of bowel malignancy. In all the other cases the choice of surgical treatment in patients with DPE and bowel invasion, is difficult and candidates should be fully informed about the risks of all possible complications.

Given the wide range of anatomical pictures, the therapeutic plan is extremely flexible and should be adapted to the individual case. In simpler cases excision of the endometriotic nodule is feasible and is considered the proper solution. Nevertheless most complex cases require resection of intestinal wall. Since the treatment of all endometriotic lesions should be preferably achieved by a single operation, the cooperation of different specialists is warranted. When planning surgery, after careful evaluation of size and distance from the anal margin of digestive involvement as well as depth of bowel wall infiltration, other parameters should be considered such as previous surgical procedures and presence and diffusion of adhesions. Once surgery has been planned 3 different options can be chosen: superficial excision, full disc excision, formal bowel resection. The choice is based mainly on the extent of bowel involvement however the optimal treatment is not yet established.

Superficial lesions involving only the serosa can be "shaved off", better by scissor to avoid thermal damage to the bowel wall causing delayed fistula. Superficial excision has the advantage of preventing intestinal opening however carries the risk of possible micro-perforation with subsequent pelvic sepsis.

When invasion of the bowel wall is present a full thickness disc excision can be adopted. The decision to perform disc excision or bowel resection is generally made case by case since no guidelines exist whether to perform a nodulectomy rather than resection. Both size and depth of infiltration play a role, and most authors agree that planned bowel resection is carried out only if invasion involves more than 50% of the bowel circumference, in case of multiple nodules, or for nodule greater than 3 cm. However the studies by Remorgida, Anaf, Abrao, and Kavallaris demonstrated that disc excision leads to incomplete disease removal in a high percentage of cases, due to multifocal lesions that can be found at distance from the principal nodule.

Recto-sigmoid resection for endometriosis is acknowledged to be very challenging and radicality has always to be balanced with the risk of complications. Many retrospective studies have demonstrated the symptomatic beneficial effect of bowel resection in 60-100% of patients. It seems that laparoscopic and laparotomic resection achieves the same results in terms of pain control. These studies however are heterogeneous and difficult to compare and serious concerns persist about the suitability and safety of the laparoscopy colorectal resections in patients with deep pelvic endometriosis. Some authors consider safer and more radical the laparotomic approach and suggest that in all cases in which recto sigmoid involvement is proven laparotomy should be routinely chosen. On the



contrary other authors, mainly colorectal surgeons, consider laparoscopic resection as first line treatment even if difficult and time consuming. The only randomized studied by Darai et Al., compared open to laparoscopically assisted colorectal resection, in 2 groups of 26 patients, focusing on complications, symptoms, quality of life and fertility. Symptoms relief and quality of life were similar in both groups with a significant improvement of digestive, gynaecological and general symptoms however the laparoscopically assisted group showed a faster post operative recovery, less complications and higher pregnancy rate.

Laparoscopy carries the risk of conversion that can be as high as 20% and depends from experience and skills of the surgeons, body mass index of the patient, intraoperative complications and difficult dissection for adhesion or previous surgical operations, particularly when ureteral involvement is found. Main reason for conversion are

intraoperative complication such as bleeding, damage to the bladder, ureter or colon, or malfunctioning of the surgical stapler. Cases of advanced endometriosis with severe adhesion have the higher risk of intraoperative complications: for these reasons some authors suggest that patients with these features may not be good candidates to laparoscopic surgery

Irrespective of the technique of bowel resection, early post operative complications include: anastomotic dehiscence, recto-vaginal fistula, pelvic abscess, and bleeding. Most of them require surgical management.

Dysfunctional digestive symptoms are rarely studied, however they should be a major concern in young and otherwise healthy women. Functional problems are not infrequent being reported in up to 55% of cases and, although they may improve with time, tend to be permanent in a large percentage of patients.

---

## Conclusion

Symptomatic rectal or recto-sigmoid endometriosis often requires surgical treatment and, based on extent of disease, intestinal resection may be needed. Formal bowel resection, along with complete excision of the infiltrating pelvic endometriosis, can obtain significant improvement of both digestive and gynaecological symptoms.

Laparoscopic resection is possible and can be highly successful; compared with open technique, seems to achieve the same

outcome in terms of improvement of symptoms and quality of life, with lower surgical trauma, however, this surgery is time consuming, challenging and requires training and experience.

In our opinion accurate preoperative assessment and a multidisciplinary approach involving the skills of colorectal and gynecological surgeon may improve surgical decision making and possibly patient's outcome.

---

## References

1. Vercellini P, Frontino G, Pietropaolo G, Gattei U, Daguati R, Crosignani PG. Deep endometriosis: definition, pathogenesis, and clinical management. *J Am Assoc. Gynecol Laparosc.* 2004;11:153-61.
2. Kennedy S, Bergqvist A, Chapron C, D'Hooghe T, Dunselman G, Greb R, Hummelshoj L, Prentice A, Saridogan E; ESHRE Special Interest Group for Endometriosis and Endometrium Guideline Development Group. ESHRE guideline for the diagnosis and treatment of endometriosis. *Hum Reprod.* 2005;20:2698-704.
3. Bazot M, Lafont C, Rouzier R, Roseau G, Thomassin-Naggara I, Darai E. Diagnostic accuracy of physical examination, transvaginal sonography, rectal endoscopic sonography, and magnetic resonance imaging to diagnose deep infiltrating endometriosis. *Fertil Steril* 2009;92:1825-33.
4. Chapron C, Vieira M, Chopin N, Balleyguier C, Barakat H, Dumontier I, Roseau G, Fauconnier A, Foulot H, Douset B Accuracy of rectal endoscopic ultrasonography and magnetic resonance imaging in the diagnosis of rectal involvement for patients presenting with deeply infiltrating endometriosis.



- Ultrasound Obstet Gynecol 2004;24:175-9.
5. De Nardi P, Osman N, Ferrari S, Carlucci M, Persico P, Staudacher C. Laparoscopic treatment of deep pelvic endometriosis with rectal involvement Dis Colon Rectum 2009;52:419-24
  6. Jerby BL, Kessler H, Falcone T, Milsom JW. Laparoscopic management of colorectal endometriosis. Surg Endosc 1999;13:1125-8
  7. Bailey HR, Ott MT, Hartendorp P. Aggressive Surgical Management for Advanced Colorectal Endometriosis. Dis Colon Rectum 1994;37:747-752
  8. Remorgida V, Ferrero S, Fulcheri E, Ragni N, Martin DC. Bowel Endometriosis: Presentation, Diagnosis, and Treatment Obstet Gynecol Surv 2007;62:461-470
  9. Duepre HJ, Senagore AJ, Delaney CP, Marcello PW, Brady KM, Falcone T. Laparoscopic Resection of Deep Pelvic Endometriosis with Rectosigmoid Involvement. J Am Coll Surg 2002;195:254-58
  10. Marpeau O, Thomassin I, Barranger E, Detchev R, Bazot M, Daraï E. Résection coelioscopique du colon-rectum pour endométriose: résultats préliminaires. J Gynecol Obstet Biol Reprod 2004;33:600-606
  11. Daraï E, Dubernard G, Coutant C, Frey C, Rouzier R, Ballester M. Randomized Trial of Laparoscopically Assisted Versus Open Colorectal Resection for Endometriosis Morbidity, Symptoms, Quality of Life, and Fertility. Ann Surg 2010;251:1018-23.