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# Endometriosis: Clinical features, evaluation, and diagnosis

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## INTRODUCTION

Endometriosis is defined as endometrial glands and stroma that occur outside the uterine cavity. The lesions are typically located in the pelvis but can occur at multiple sites including the bowel, diaphragm, and pleural cavity. While endometriosis is a common and nonmalignant process, ectopic endometrial tissue and resultant inflammation can cause dysmenorrhea, dyspareunia, chronic pain, and infertility. Symptoms can range from minimal to severely debilitating. Endometriosis is an estrogen-dependent, benign, inflammatory disease that affects females during their premenarcheal, reproductive, and postmenopausal hormonal stages.

This topic will review the clinical presentation and diagnosis of endometriosis. Information on the epidemiology and treatment of endometriosis is presented separately.

- (See "Endometriosis: Pathogenesis, epidemiology, and clinical impact".)
- (See "Endometriosis: Treatment of pelvic pain".)
- (See "Endometriosis: Surgical management of pelvic pain".)
- (See "Endometriosis: Long-term treatment with gonadotropin-releasing hormone agonists".)

In this topic, when discussing study results, we will use the terms "woman/en" or "patient(s)" as they are used in the studies presented. However, we encourage the reader to consider the specific counseling and treatment needs of transgender and gender diverse individuals.

## CLINICAL FEATURES

Females with endometriosis classically present during their reproductive years with symptoms including pelvic pain (including dysmenorrhea and dyspareunia), infertility, or an ovarian mass [1-3].

**Age distribution —** The peak prevalence of endometriosis occurs in those 25 to 35 years of age [4,5]. The disease has occasionally been reported in premenarcheal girls [6] and postmenopausal females [7].

- (See "Endometriosis in adolescents: Diagnosis and treatment".)
- (See "Endometriosis: Pathogenesis, epidemiology, and clinical impact", section on 'Postmenopause'.)

**Presenting symptoms**

- **Common symptoms –** Common presenting symptoms of endometriosis include chronic abdominal/pelvic pain and/or pressure, severe dysmenorrhea, dyspareunia, heavy menstrual bleeding, and infertility [2,8,9]. Pelvic pain is typically chronic and described as dull, throbbing, sharp, and/or burning [10]. Symptoms can occur alone or in combination; an increased number of symptoms has been associated with increased likelihood of endometriosis [8,11].

  Additional endometriosis symptoms include bowel and bladder dysfunction (eg, pain, urgency, frequency), abnormal uterine bleeding, low back pain, and chronic fatigue [2,3,12,13].

- **Symptom constellation –** In a cohort study comparing over 600 women with endometriosis with reference women, those with endometriosis were more likely to report five to seven symptoms compared with unaffected women (20 versus 2 percent) [11]. The seven visceral symptoms associated with endometriosis included abdominal pain with no relation to menstruation, pain during urination, pain during defecation, constipation or diarrhea, irregular bleeding, nausea or vomiting, and feeling tired or lacking energy. While increasing number of symptoms is associated with increasing likelihood of endometriosis, symptom constellations cannot accurately diagnose endometriosis [13].

- **Asymptomatic individuals –** Individuals with endometriosis can be asymptomatic [14]. Such individuals are often diagnosed at the time of surgery for another indication.

**Symptoms as predictor of endometriosis type —** The type of endometriosis can be suggested by the main presenting symptoms. Examples include:

- **Dyspareunia** – Dysparuenia can suggest presence of peritoneal or deep endometriosis lesions. (See "Endometriosis: Pathogenesis, epidemiology, and clinical impact", section on 'Lesion phenotypes'.)

  - **Proximal (deep) dyspareunia** – Deeply infiltrating endometriosis lesions can occur on the uterosacral and cardinal ligaments, pouch of Douglas, posterior vaginal fornix, and anterior rectal wall and contribute to deep sexual pain [15]. (See "Female sexual pain: Differential diagnosis", section on 'Deep dyspareunia (proximal sexual pain)'.)

  - **Distal (superficial) dyspareunia** – Distal (ie, introital or superficial) dyspareunia can result from lesions of the cervix [16,17], hymen [18], perineum [19], and episiotomy scars [20-22]. (See "Female sexual pain: Differential diagnosis", section on 'Superficial dyspareunia (distal sexual pain)'.)

- **Urinary frequency, urgency, and/or painful micturition** – Bladder endometriosis typically presents with nonspecific urinary symptoms of frequency, urgency, and pain at micturition [23]. Symptoms can be worsened with menses. Ureteral endometriosis can be asymptomatic or associated with colicky flank pain or gross hematuria. (See "Endometriosis of the bladder and ureter", section on 'Bladder endometriosis' and "Endometriosis of the bladder and ureter", section on 'Ureteral endometriosis'.)

- **Diarrhea, constipation, and/or abdominal cramping** – Women with bowel endometriosis can present with diarrhea, constipation, dyschezia, and bowel cramping [24,25]. Patients with deeply infiltrating endometriosis implants of the posterior cul-de-sac and rectovaginal septum typically present with dyspareunia and painful defecation [26,27]. Rectal bleeding may occur but is rare. (See "Endometriosis: Clinical manifestations and diagnosis of rectovaginal or bowel disease", section on 'Clinical manifestations'.)

- **Abdominal wall pain** – Patients with endometriosis of the abdominal wall typically present with a painful abdominal wall mass; the pain may be cyclic with menses or continuous [28]. Bleeding may also occur. Cyclic bleeding has also been reported with vulvar endometriosis [29].

- **Chest pain, hemoptysis, and/or pneumothorax** – Individuals with thoracic endometriosis can present with chest pain, pneumothorax or hemothorax, hemoptysis, or scapular or cervical (neck) pain [30,31]. The symptoms are often catamenial. (See "Clinical features, diagnostic approach, and treatment of adults with thoracic endometriosis".)

**Natural history** — The number of peritoneal areas affected by endometriosis appears to increase during adolescence until the early 20s [32]. However, not all disease progresses. Factors that cause endometriosis to progress, regress, or remain stable are not yet known.

- In studies where second-look laparoscopy was performed 6 to 12 months after a diagnostic laparoscopy confirmed endometriosis, disease progressed in 29 to 45 percent of untreated women, regressed in 22 to 29 percent, and remained stable in 33 to 42 percent [33-35].
- In a prospective study that followed 88 asymptomatic women with rectovaginal disease for one to nine years, fewer than 10 percent of the women had disease progression, defined as development of symptoms or increase in lesion size [36].

## EVALUATION

**Physical examination** — Physical examination findings in persons with endometriosis are variable and depend upon the location and size of the implants [37].

- **Suggestive findings** – Findings suggestive of endometriosis include focal tenderness on vaginal examination, nodules in the posterior fornix, adnexal masses, and immobility or lateral placement of the cervix or uterus ( figure 1) [1]. Rarely, an endometriosis lesion will be visualized on the cervix or vaginal mucosa ( picture 1).
- **Lack of findings** – While physical examination findings are helpful, the examination can also be normal; lack of findings does not exclude the disease. The approach to the pelvic examination is reviewed in detail separately. (See "The gynecologic history and pelvic examination", section on 'Components of the examination'.)

**Laboratory** — There are no pathognomonic laboratory findings for endometriosis. While several urinary and endometrial biomarkers have been studied for the noninvasive diagnosis of disease, none are clinically useful, including serum cancer antigen (CA) 125 and interleukin 6 (IL-6) [13,38-40].

CA 125 concentration can be elevated in individuals with endometriosis (ie, greater than 35 units/mL) [41,42]. However, serum CA 125 concentrations are not routinely ordered in individuals being evaluated or treated for endometriosis because other diseases, notably ovarian carcinoma, also elevate the serum CA 125 concentration ( table 1). (See "Adnexal mass: Role of serum biomarkers in diagnosing epithelial carcinoma of the ovary, fallopian tube, or peritoneum", section on 'Cancer antigen 125'.)

**Imaging** — While imaging does not replace histologic diagnosis, typical imaging findings make the diagnosis highly likely [43-48]. Additionally, imaging findings can help guide

surgical planning.

**Modalities —** Transvaginal ultrasound is commonly used to evaluate individuals with suspected endometriosis. If not appropriate or available, other routes of ultrasound (transabdominal or transperineal) or magnetic resonance imaging (MRI) may be helpful. Transvaginal ultrasound is generally preferred as it is more readily available and lower cost compared with MRI although the sensitivity and specificity are similar, particularly for rectovaginal endometriosis [49]. However, the sensitivity and specificity of ultrasound is dependent, in part, upon the sonographer. (See "Overview of ultrasound examination in obstetrics and gynecology", section on 'Gynecologic sonography'.)

**Findings**

- **Pelvic endometriosis –** Imaging findings suggestive of pelvic endometriosis include ovarian cysts (endometriomas) ( image 1A-B), nodules of the rectovaginal septum, and bladder nodules ( image 2). Transvaginal sonography is preferred for detection of deeply infiltrating endometriosis lesions of the rectum or rectovaginal septum [49,50]. Endometriomas are generally easily classifiable on sonography but can also be viewed with MRI [51-53].
  - (See "Overview of ultrasound examination in obstetrics and gynecology", section on 'Gynecologic sonography'.)
  - (See "Endometriosis: Clinical manifestations and diagnosis of rectovaginal or bowel disease", section on 'Approach to imaging'.)
  - (See "Endometriosis: Management of ovarian endometriomas", section on 'Perform imaging'.)
- **Abdominal wall endometriosis –** Abdominal wall endometriosis appears as a hypoechoic, vascular, and/or solid mass (although cystic changes can be present) on ultrasound [54]. Margins are irregular, often spiculated, and may appear to infiltrate adjacent tissues [55].
- **Thoracic endometriosis –** While both computed tomography ( image 3) and MRI can identify thoracic endometriosis [30,56], MRI will accurately diagnose thoracic endometriosis in up to 95 percent of cases [30,57-59]. MRI performed during menses is more sensitive in detecting diaphragmatic implants [56]. (See "Clinical features, diagnostic approach, and treatment of adults with thoracic endometriosis".)

## DIAGNOSIS

**Our approach —** The surgical diagnosis of endometriosis has been the gold standard, particularly before initiating treatments with significant negative side effects such as gonadotropin-releasing hormone (GnRH) agonists or antagonists, which are rapidly replacing agonists for the treatment of endometriosis. However, presumptive clinical diagnosis based on symptoms, physical examination, and imaging has gained favor, especially for starting low-risk and low-cost interventions such as hormonal contraceptives or progestins, as presumptive diagnosis is less invasive, lower risk, and reduces treatment delay [60]. Studies that directly compare the two diagnostic approaches using patient-important endpoints, such as reduced pain and improved fertility, are lacking [13]. Thus, clinicians and patients should discuss the potential risks, benefits, costs, and availability of each diagnostic option. The approach is determined by patient preferences.

After the above discussion and accounting for patient preferences, we take the following general approach:

- **Presumptive diagnosis –** We favor presumptive diagnosis for individuals without endometriomas; with mild to moderate symptoms; who desire a trial of low-risk medications, including nonsteroidal anti-inflammatory drugs, acetaminophen/paracetamol, and hormonal contraception (estrogen-progestin contraceptives and progestins); and who prefer to avoid surgery. Individuals whose symptoms or preferences change can proceed with surgical diagnosis at any time. However, the presence or absence of a response to empiric treatment cannot be construed as definitive confirmation or exclusion of the diagnosis [61]. (See 'Presumptive clinical diagnosis' below.)

- **Surgical diagnosis –** We favor surgical diagnosis with tissue biopsy for individuals with severe symptoms, those who have not responded adequately to the low-risk therapies above, and those who value definitive confirmation of the disease. One advantage of surgery is that endometriosis can be treated at the same time as diagnosis. (See 'Definitive surgical diagnosis' below.)

**Presumptive clinical diagnosis —** The combination of symptoms, signs, and imaging findings can be used to make a presumptive, nonsurgical diagnosis of endometriosis [13,62,63]. This approach requires clinicians with significant skill in the examination, sonography, and cystoscopy of individuals with endometriosis.

**Components —** Components of a nonsurgical diagnosis include [64]:

- Ultrasonographic finding of ovarian endometrioma
- Visual inspection of the posterior vaginal fornix and biopsy of rectovaginal lesions
- Cystoscopic evaluation and biopsy of visible detrusor lesions

- Physical examination findings of rectovaginal endometriosis that are confirmed with imaging

**Treatment response is not definitive diagnosis —** A clinical diagnosis can be sufficient to initiate therapy that is low risk and easily tolerated (eg, estrogen-progestin contraceptives for individuals with pelvic pain or dysmenorrhea who are not trying to conceive). However, the presence or absence of a response to empiric treatment cannot be construed as definitive confirmation or exclusion of the diagnosis [61]. (See "Endometriosis: Treatment of pelvic pain".)

**Potential role of microRNA —** MicroRNA (miRNA) analysis shows promise as a noninvasive diagnostic test for endometriosis. While an initial study reported test sensitivity and specificity of > 95 percent, this finding needs to be replicated in additional studies [65]. MicroRNA tests are not commercially available.

**Definitive surgical diagnosis —** Surgery, which is usually performed laparoscopically, allows both definitive diagnosis and treatment.

**Indications, timing, and technique**

- **Indications –** Typical indications for surgical exploration include:
  - Evaluation of severe pain or other symptoms that limit function
  - Persistent pelvic pain that does not respond to medical therapy (See "Endometriosis: Treatment of pelvic pain".)
  - Treatment of anatomic abnormalities, such as symptomatic ovarian cysts, rectovaginal nodules, or bladder lesions.
    - (See "Endometriosis: Management of ovarian endometriomas", section on 'Surgery'.)
    - (See "Endometriosis: Treatment of rectovaginal and bowel disease", section on 'Surgical treatment'.)
    - (See "Endometriosis of the bladder and ureter", section on 'Surgical'.)
- **Timing of surgical exploration –** Given that endometriosis lesions (excluding endometriomas) can regress in response to hormonal treatment, laparoscopy is not typically performed during initial hormone treatment for patients with a clinical diagnosis of endometriosis to minimize the risk of underdiagnosis of disease [66].
- **Surgical technique –** The technique for laparoscopic exploration for individuals with suspected endometriosis is discussed in detail separately. (See "Endometriosis: Surgical

management of pelvic pain", section on 'Exploration and diagnosis'.)

**Tissue biopsy versus visualization** — Endometriosis is definitively diagnosed by histologic evaluation of a lesion biopsied during surgery (typically laparoscopy) ( picture 2 and picture 3 and picture 4 and movie 1) [67,68]. While visual confirmation of endometriosis without biopsy is considered diagnostic by some, visual confirmation alone is of limited value because the accuracy is impacted by the stage and location of endometriosis as well as surgeon's expertise [13,69-71].

**Visual appearance of lesions** — The gross appearance and size of the implants are quite variable at the time of surgery [72]. During laparoscopy, areas of peritoneal endometriosis appear as raised flame-like patches, whitish opacifications, yellow-brown discolorations, translucent blebs, or reddish or reddish-blue irregularly-shaped islands ( picture 3 and picture 4 and movie 1). The appearance of some blue-brown lesions has been described as "powder burns." The peritoneal surface can be scarred or puckered, have defects (Allen-Masters syndrome), or give rise to nodules or cysts. Rarely, endometriosis appears as a polypoid mass, which may mimic the appearance of malignant tumor. Dense fibrous adhesions signify severe disease.

**Accuracy of biopsy** — The accuracy of laparoscopic diagnosis depends upon the location and type of the lesion, the experience of the operator, and the extent of disease [73,74]. In a study of 976 women who underwent laparoscopy and biopsy for pelvic pain and/or infertility, the laparoscopic findings had a sensitivity of 98 percent, specificity of 79 percent, positive predictive value of 72 percent, and negative predictive value of 98 percent in diagnosing endometriosis compared with histology alone [75].

- **Visual lesions but negative histology** – Individuals with classic endometriosis lesions at laparoscopy but negative histology are treated for endometriosis because negative biopsies can result from inadequate sampling and do not definitively exclude disease [13].

- **Absence of visual and histologic disease** – Laparoscopy that does not demonstrate visual or histologic disease is highly reliable for excluding endometriosis [70], although occult microscopic submesothelial implants can be present in normal-appearing peritoneum. It is not known if these implants cause symptoms. While endometriosis can be present in the absence of an apparent lesion [76,77], it is not standard practice to perform random biopsies during laparoscopy.

**Surgical staging of disease** — Surgical staging is performed at the time of diagnostic laparoscopy and typically follows the revised American Society for Reproductive Medicine (ASRM) scoring system ( form 1 and figure 2), particularly in research settings, although

other staging systems exist [67,78-80]. The Endometriosis Fertility Index is useful in guiding postoperative fertility treatment [81].

- **Stages –** Components of the ASRM scoring system include [67]:
  - **Stage I –** Minimal disease is characterized by isolated implants and no significant adhesions.
  - **Stage II –** Mild endometriosis consists of superficial implants that are less than 5 cm in aggregate and are scattered on the peritoneum and ovaries. No significant adhesions are present.
  - **Stage III –** Moderate disease exhibits multiple implants, both superficial and deeply invasive. Peritubal and periovarian adhesions may be evident.
  - **Stage IV –** Severe disease is characterized by multiple superficial and deep implants, including large ovarian endometriomas. Filmy and dense adhesions are usually present.
- **Clinical implications –** The utility of the classification system is that it provides a standard approach for reporting operative findings. The stage of endometriosis does not correlate with the occurrence or severity of pain symptoms [15,37,82]. However, studies have reported an inverse correlation between advanced stages of endometriosis and the prognosis for fertility treatments [83,84]. (See "Endometriosis: Treatment of infertility in females".)

**Reasons for delay of surgical diagnosis —** Definitive diagnosis of endometriosis is often delayed because the symptoms of endometriosis are vague, the symptoms overlap with multiple gynecologic and gastrointestinal processes, and a surgical diagnosis entails risk. Studies have reported an average diagnostic delay of 7 to 12 years in women with endometriosis [85-89].

## DIFFERENTIAL DIAGNOSIS

Many of the symptoms of endometriosis overlap with other sources of chronic pelvic pain in females, including gastrointestinal, urinary, musculoskeletal, and neurologic conditions ( table 2).

- (See "Chronic pelvic pain in nonpregnant adult females: Causes".)
- (See "Chronic pelvic pain in adult females: Evaluation".)

## RESOURCES FOR PATIENTS AND CLINICIANS

- www.endometriosis.org – A nonprofit website dedicated to information about endometriosis and treatment.
- European Society of Human Reproduction and Embryology Guideline: Endometriosis – Includes patient information in multiple languages as well as management guidelines for clinicians.
- American College of Obstetricians and Gynecologists – Frequently asked questions about endometriosis.
- Center for Young Women's Health – An informational site sponsored by Boston Children's Hospital.
- American Society for Reproductive Medicine – Provides free materials on reproductive health issues for patients.
- The Endometriosis Association – An independent, nonprofit, self-help organization of women with endometriosis, clinicians, and others interested in the disease.

## SOCIETY GUIDELINE LINKS

Links to society and government-sponsored guidelines from selected countries and regions around the world are provided separately. (See "Society guideline links: Endometriosis".)

## INFORMATION FOR PATIENTS

UpToDate offers two types of patient education materials, "The Basics" and "Beyond the Basics." The Basics patient education pieces are written in plain language, at the 5$^{th}$ to 6$^{th}$ grade reading level, and they answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials. Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are written at the 10$^{th}$ to 12$^{th}$ grade reading level and are best for patients who want in-depth information and are comfortable with some medical jargon.

Here are the patient education articles that are relevant to this topic. We encourage you to print or e-mail these topics to your patients. (You can also locate patient education articles on a variety of subjects by searching on "patient info" and the keyword(s) of interest.)

- Basics topic (see "Patient education: Endometriosis (The Basics)")
- Beyond the Basics topic (see "Patient education: Endometriosis (Beyond the Basics)")

## PATIENT PERSPECTIVE TOPIC

Patient perspectives are provided for selected disorders to help clinicians better understand the patient experience and patient concerns. These narratives may offer insights into patient values and preferences not included in other UpToDate topics. (See "Patient perspective: von Willebrand disease".)

## SUMMARY AND RECOMMENDATIONS

- **Clinical features –** Individuals with endometriosis classically present during their reproductive years with symptoms including pelvic pain (including dysmenorrhea and dyspareunia), infertility, or an ovarian mass. Less common symptoms include bowel and bladder dysfunction (eg, dyschezia and dysuria), abnormal uterine bleeding, low back pain, or chronic fatigue. The peak prevalence of endometriosis occurs in those 25 to 35 years of age, although it can also occur in premenarcheal and postmenopausal individuals. (See 'Clinical features' above.)
- **Evaluation of individuals with suspected endometriosis**
  - **Physical examination –** Physical examination findings in persons with endometriosis are variable and depend upon the location and size of the implants. Suggestive findings include posterior vaginal fornix tenderness; palpable tender nodules; lateral displacement of the cervix; fixation of the cervix, adnexa, or uterus; and/or a tender adnexal mass. (See 'Physical examination' above.)
  - **Laboratory findings –** There are no pathognomonic laboratory findings for endometriosis. Serum cancer antigen (CA) 125 levels are not useful in the primary diagnosis of endometriosis as multiple other processes can elevate the level ( table 1). (See 'Laboratory' above.)
  - **Imaging findings –** Imaging findings suggestive of endometriosis include ovarian endometriomas ( image 1A-B), deep nodules of the rectovaginal septum (deeply infiltrating endometriosis), and bladder detrusor lesions ( image 2). (See 'Imaging' above.)
- **Diagnostic approaches and shared decision-making –** While definitive diagnosis requires histologic confirmation of tissue biopsy (typically obtained during

laparoscopy), presumptive diagnosis has gained favor. As comparative studies that assess patient-important end points are lacking, the choice of approach depends upon patient preferences after informed counseling. (See 'Diagnosis' above.)

- **Presumptive clinical diagnosis –** Presumptive diagnosis is based on symptoms, signs, and imaging findings. This approach requires clinicians with significant skill in the examination, sonography, and cystoscopy of individuals with endometriosis. (See 'Presumptive clinical diagnosis' above.)

- **Definitive surgical diagnosis –** Endometriosis is definitively diagnosed by histologic evaluation of lesions biopsied during surgery, typically laparoscopy. During surgery, endometriosis is staged according to the revised American Society for Reproductive Medicine (ASRM) scoring system ( form 1 and figure 2). (See 'Definitive surgical diagnosis' above.)

- **Differential diagnosis –** The differential diagnosis of chronic pelvic pain in females is broad and includes gastrointestinal, urinary, musculoskeletal, and neurologic conditions in addition to endometriosis ( table 2). (See 'Differential diagnosis' above.)



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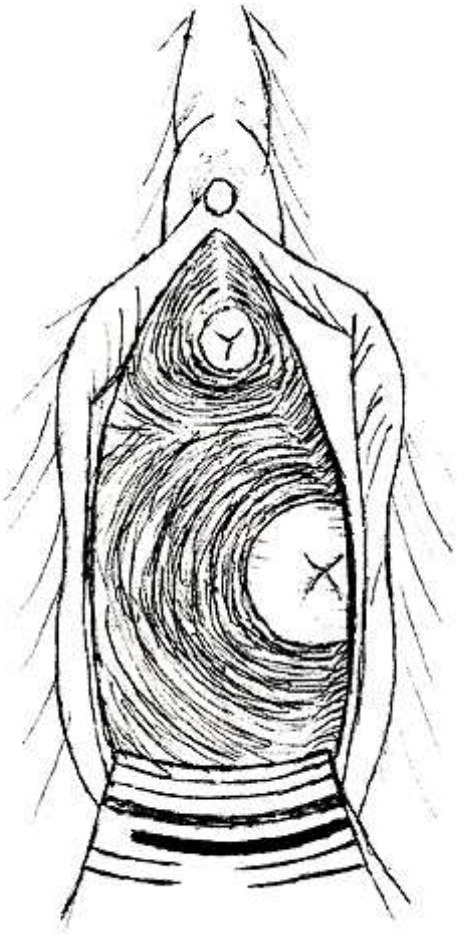
Topic 134970 Version 7.0

## GRAPHICS

# Endometriosis can be associated with lateral displacement of the cervix



Lateral displacement of the cervix, which can be documented by visual examination of the cervix on speculum examination or by digital examination, is probably caused by the asymmetric involvement of one uterosacral ligament by endometriosis, causing one ligament to shorten and pull the cervix to that side of the body.

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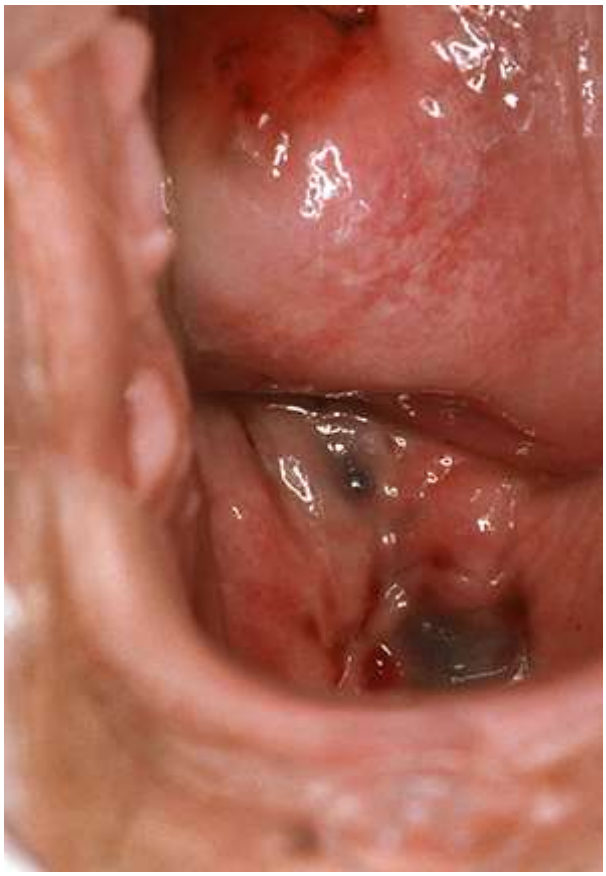
Graphic 59765 Version 5.0

## Endometriotic lesion of the posterior vaginal fornix



These endometriotic lesions (dark lesions) infiltrate the vaginal mucosa and are visible on speculum examination of the posterior vaginal fornix.

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Graphic 80415 Version 1.0

## Conditions associated with an elevated serum CA 125 concentration

| Gynecologic malignancies |
| --- |
| Endometrial cancer |
| Epithelial ovarian, fallopian tube, and primary peritoneal cancers |
| **Benign gynecologic conditions** |
| Adenomyosis |
| Benign ovarian neoplasms |
| Endometriosis |
| Functional ovarian cysts |
| Meig syndrome |
| Menstruation |
| Ovarian hyperstimulation |
| Pelvic inflammatory disease |
| Pregnancy |
| Uterine leiomyomas |

| Nongynecologic conditions |
| --- |
| Ascites |
| Appendicular abscess |
| Cirrhosis and other liver disease |
| Colitis |
| Cystic fibrosis |
| Diverticulitis |
| Heart failure |
| Myocardial infarction |
| Myocardiopathy |
| Pancreatitis |
| Pericardial disease |
| Pleural effusion |
| Pneumonia |
| Pulmonary embolism |
| Recent surgery |
| Renal insufficiency |
| Sarcoidosis |
| Systemic lupus erythematosus |
| Tuberculosis peritonitis |
| Urinary tract infection |
| **Nongynecologic cancers** |
| Breast |
| Colon |
| Gallbladder |
| Hematologic malignancies |
| Liver |
| Lung |
| Pancreas |

CA: cancer antigen.

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*Data from:*

1. *Buamah P. Benign conditions associated with raised serum CA-125 concentration. J Surg Oncol 2000; 75:264.*
2. *Miralles C, Orea M, Espana P, et. al. Cancer antigen 125 associated with multiple benign and malignant pathologies. Ann Surg Oncol 2003; 10:150.*
3. *Moss EL, Hollingworth J, Reynolds TM. The role of CA125 in clinical practice. J Clin Pathol 2005; 58:308.*

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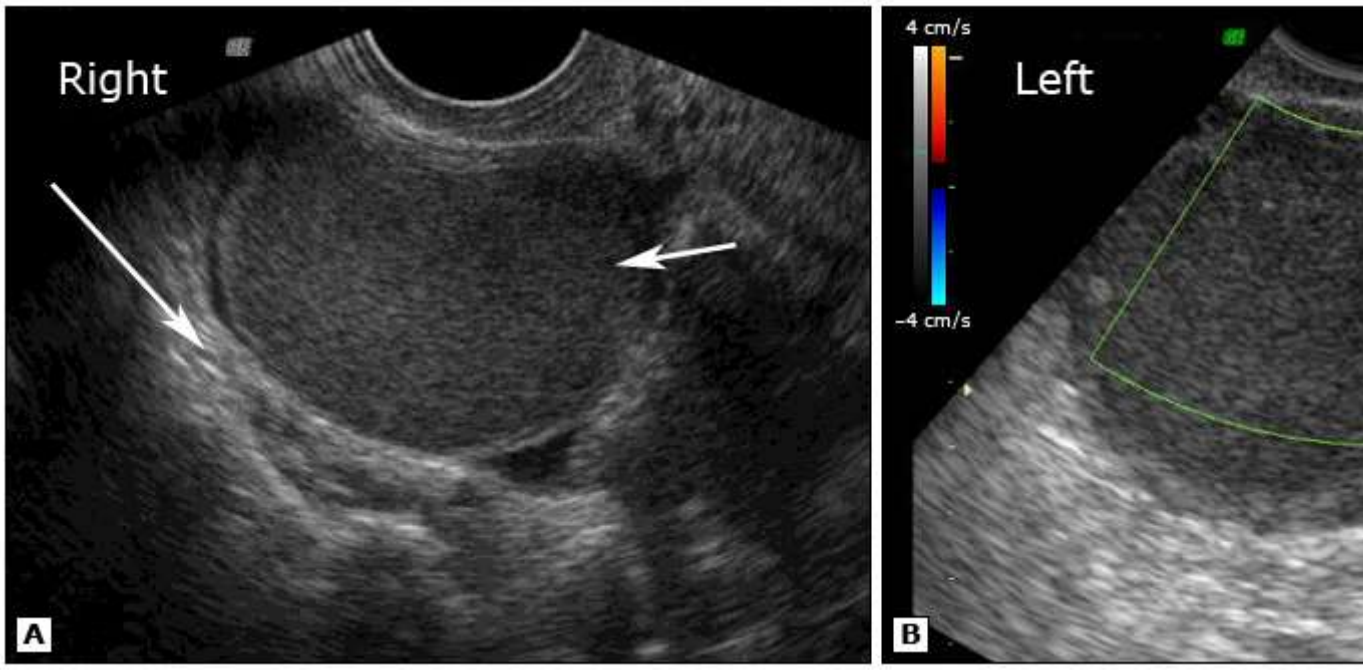
Graphic 81621 Version 8.0

## Endometrioma




(A) Transvaginal ultrasound image of the right adnexa showing an endometrioma. The homogeneous ec
contents (ie, "ground-glass" appearance) is characteristic of an endometrioma (short arrow); the cystic n
is also indicated by the post-cyst enhancement (long arrow).

(B) Transvaginal ultrasound with color Doppler image of the left adnexa showing a benign endometriom
with color Doppler imaging. No flow within the cyst can be demonstrated; however, blood flow is demon
the cyst in the ovarian tissue itself (long arrow). Also identified within the left ovary is a small follicle (sho

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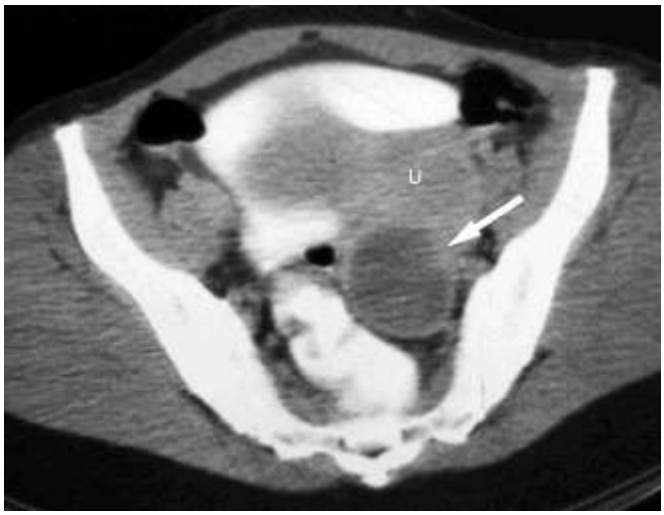
Graphic 77161 Version 4.0

## Endometriosis of the ovary




Axial CT scan of the pelvis in a 29-year-old woman demonstrates a well-circumscribed, low attenuation mass (arrow) in the left pelvis immediately posterior to the uterus. This mass was found to be an endometrioma of the left ovary at surgery.

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CT: computed tomography.

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*Courtesy of Jonathan Kruskal, MD.*

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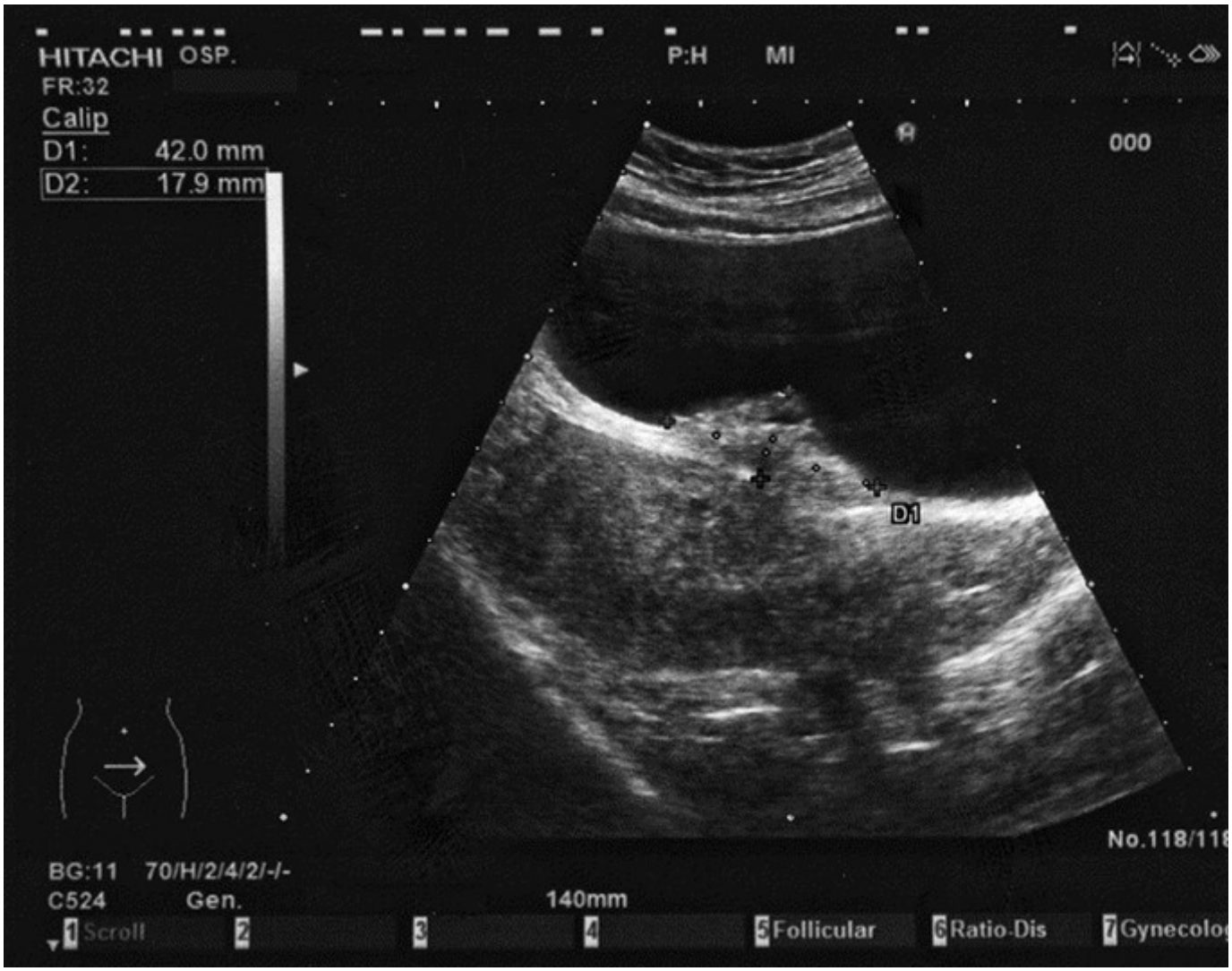
Graphic 82183 Version 3.0

# Transabdominal ultrasound image of bladder endometriosis




Transabdominal sagittal pelvic ultrasonography showing a heterogeneous endometriotic nodule protruding from the posterior wall of the bladder into the vesical lumen.

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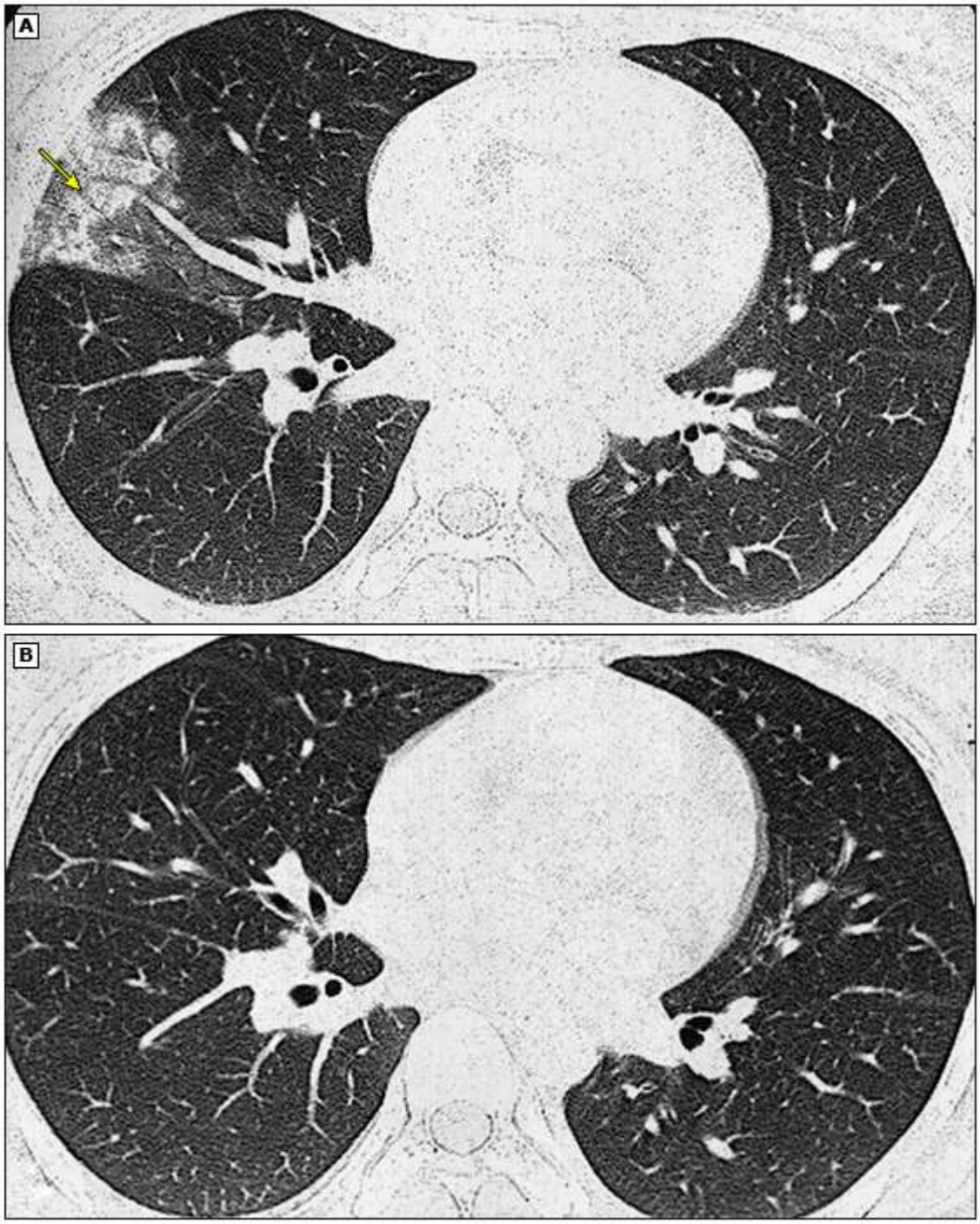
Graphic 105235 Version 3.0

## Chest computed tomography of a patient with thoracic endometriosis




Computed tomogram (CT) of the chest showing opacities in the right lower lobe (arrow) in a young woman with chest pain during menstruation (panel A). The opacities have completely resolved two weeks later after menstruation (panel B), illustrating the importance of obtaining imaging when patients with suspected thoracic endometriosis are symptomatic peri-menstruation.

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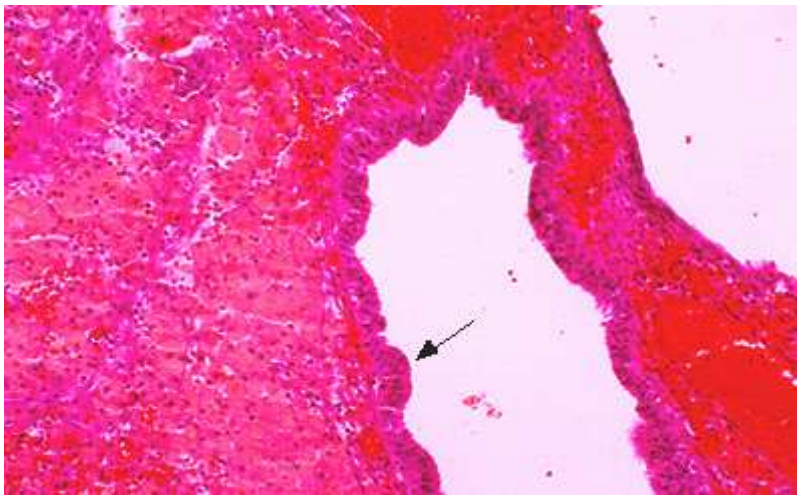
Graphic 100735 Version 5.0

## Peritoneal endometriosis



Light micrograph of peritoneal endometriotic implant shows endometrial glandular epithelium (arrow) and surrounding stroma.

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*Courtesy of Robert Schenken, MD.*

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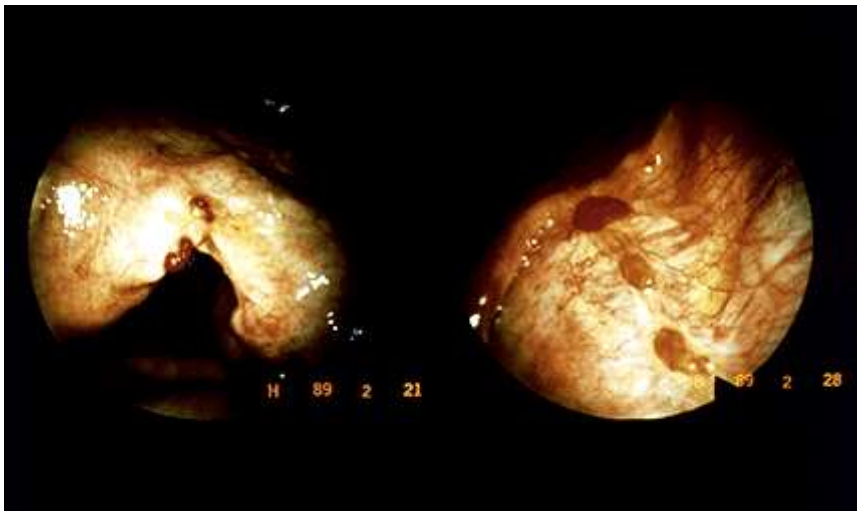
Graphic 71136 Version 2.0

## Peritoneal endometriosis




The peritoneum in this woman with endometriosis is studded with reddish, irregularly shaped implants.

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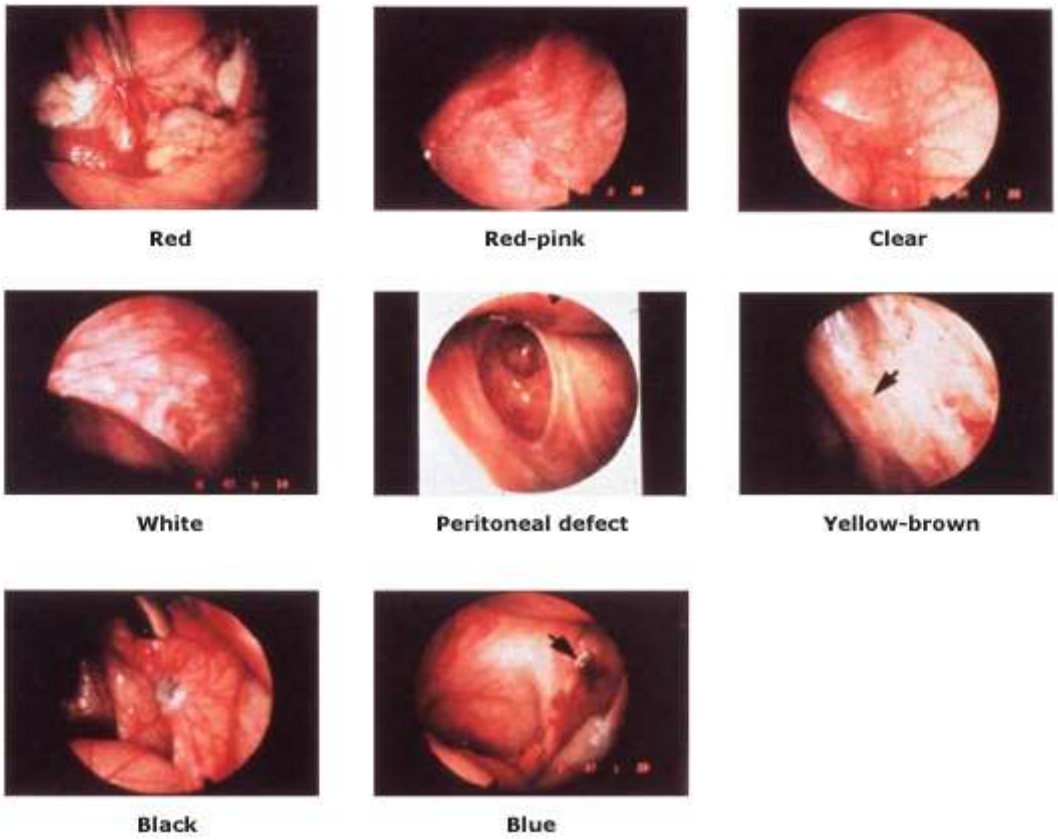
Graphic 61500 Version 1.0

**The top, middle, and bottom series are representative of red, white, and black implants, respectively**

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Graphic 65789 Version 1.0

## Table for calculating American Society for Reproductive Medicine revised classification of endometriosis

Patient's name _____ Date _____

Stage I (minimal) _____ 1 to 5

Stage II (mild) _____ 6 to 15

Stage III (moderate) _____ 16 to 40

Stage IV (severe) _____ >40

Total _____

Laparoscopy _____

Laparotomy _____

Photography _____

Recommended treatment _____

_____

Prognosis _____

| | | | | |
|---|---|---|---|---|
| Peritoneum | Endometriosis | <1 cm | 1 to 3 cm | >3 cm |
| | Superficial | 1 | 2 | 4 |
| | Deep | 2 | 4 | 6 |
| Ovary | R superficial | 1 | 2 | 4 |
| | Deep | 4 | 16 | 20 |
| | L superficial | 1 | 2 | 4 |
| | Deep | 4 | 16 | 20 |
| | Posterior cul-de-sac obliteration | Partial | | Complete |
| | | 4 | | 40 |
| Ovary | Adhesions | <1/3 enclosure | 1/3 to 2/3 enclosure | >2/3 enclosure |
| | R filmy | 1 | 2 | 4 |
| | Dense | 4 | 8 | 16 |
| | L filmy | 1 | 2 | 4 |
| | Dense | 4 | 8 | 16 |
| Tube | R filmy | 1 | 2 | 4 |
| | Dense | 4* | 8* | 16 |
| | L filmy | 1 | 2 | 4 |
| | Dense | 4* | 8* | 16 |

* If the fimbriated end of the fallopian tube is completely enclosed, change the point assignment to 16. Denote appearance of superficial implant types as red ([R], red-pink, flamelike, vesicular blobs, clear vesicles), white ([W], opacifications, peritoneal defects, yellow-brown), or black ([B], black, hemosiderin deposits, blue). Denote percent of total described as R__ percent, W__ percent, and B __ percent. Total should equal 100 percent.

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*Original figure modified for this publication. Revised American Society for Reproductive Medicine classification of endometriosis: 1996. Fertil Steril 1997; 67:817. Illustration used with the permission of Elsevier Inc. All rights reserved.*

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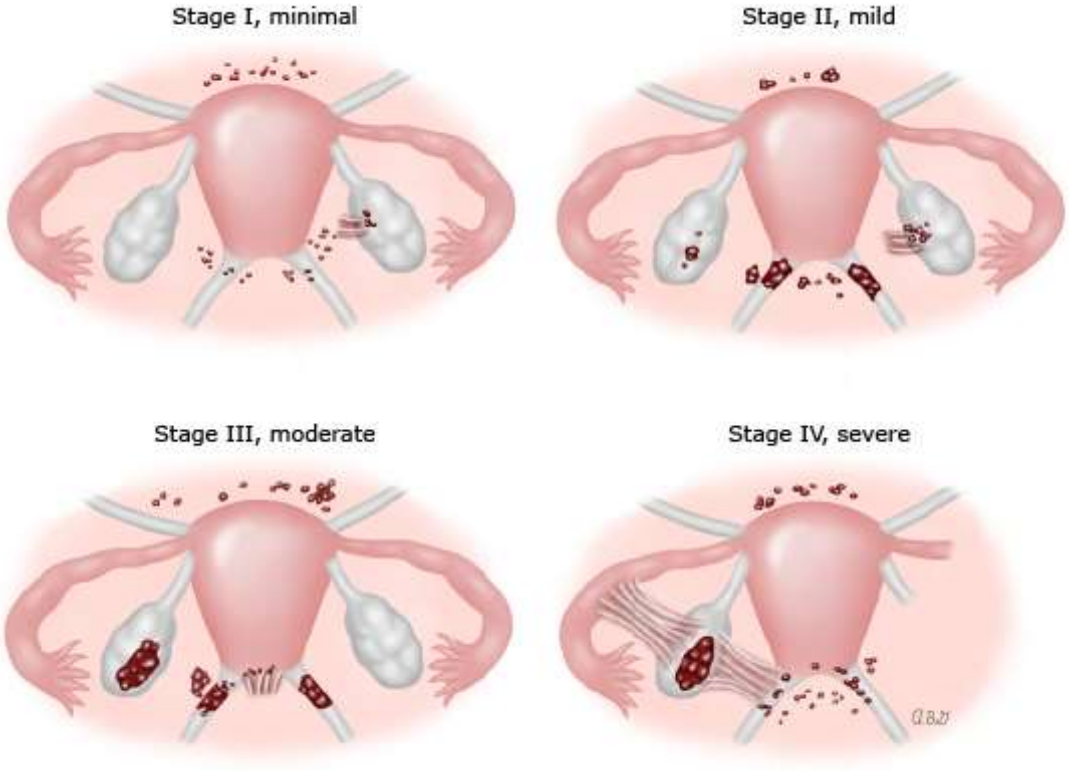
Graphic 89648 Version 3.0

## Examples of the anatomic distribution of disease in the revised classification of endometriosis

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Graphic 66366 Version 3.0

## Common conditions associated with chronic pelvic pain in females

| Gynecologic |
| --- |
| ▪ Endometriosis*<br>▪ Leiomyoma*<br>▪ Adenomyosis*<br>▪ Recurrent ovarian cysts<br>▪ Hydrosalpinx<br>▪ Ovarian remnant syndrome*<br>▪ Pelvic inflammatory disease*<br>▪ Pelvic adhesive disease<br>▪ Post-tubal insert pain syndrome<br>▪ Malignancy |
| **Urologic** |
| ▪ Interstitial cystitis/painful bladder syndrome*<br>▪ Radiation cystitis*<br>▪ Bladder cancer*<br>▪ Urethral syndrome<br>▪ Recurrent cystitis<br>▪ Recurrent/chronic urolithiasis |
| **Gastroenterologic** |
| ▪ Irritable bowel syndrome*<br>▪ Inflammatory bowel disease*<br>▪ Colorectal carcinoma*<br>▪ Celiac disease<br>▪ Abdominal/pelvic hernias |
| **Musculoskeletal** |
| ▪ Abdominal wall myofascial pain (including trigger points)*<br>▪ Pelvic floor tension myalgia*<br>▪ Fibromyalgia*<br>▪ Coccygodynia*<br>▪ Piriformis syndrome |
| **Neurologic** |
| ▪ Abdominal wall cutaneous nerve entrapment (ilioinguinal and iliohypogastric)*<br>▪ Pudendal neuralgia<br>▪ Central sensitization of pain* |
| **Vascular** |

- Vulvar varicosities
- Pelvic congestion syndrome

* Conditions with level A evidence of a causal relationship to chronic pelvic pain.

---

*Data from:*


*1. Howard FM. Chronic pelvic pain. Obstet Gynecol 2003; 101:594.*

*2. Lamvu G, Carrillo J, Ouyang C, Rapkin A. Chronic Pelvic Pain in Women: A Review. JAMA 2021; 325:2381.*


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## Contributor Disclosures

**Robert S Schenken, MD** Equity Ownership/Stock Options: Evestra [Endometriosis, fibroids]. Grant/Research/Clinical Trial Support: Evestra [Endometriosis, fibroids]. Consultant/Advisory Boards: Mitsubishi Tanabe [Endometriosis, fibroids]. All of the relevant financial relationships listed have been mitigated. **Robert L Barbieri, MD** No relevant financial relationship(s) with ineligible companies to disclose. **Kristen Eckler, MD, FACOG** No relevant financial relationship(s) with ineligible companies to disclose.

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