



# Endometriosis

## An overlooked condition

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### Key points

- Endometriosis is often overlooked in women with pelvic pain and causes substantial morbidity.
- It is greatly underdiagnosed, especially in adolescents, with an average delay to diagnosis of eight to 12 years.
- Diagnosis requires the demonstration by laparoscopy and peritoneal biopsy of endometriotic tissue lesions or nodules outside the uterus.
- Clinical presentation of endometriosis is highly variable with respect to age at symptom onset, symptom profile, anatomical site of disease, response to treatment, and likelihood of and time to recurrence.
- Surgical and/or medical management needs to be individualised for optimal management of pain and infertility.
- Pregnancy usually temporarily ameliorates endometriosis symptoms, but is not a cure for the condition.

Endometriosis is a progressive disease in most women and remains a challenging condition. It is greatly underdiagnosed, especially in adolescents, primarily because of its variable presentation and the need for laparoscopy for diagnosis. Management is aimed at relieving pain, increasing fertility and preventing recurrence.

Endometriosis is a common, benign gynaecological condition that may seriously affect health and quality of life. It is not appreciated by all doctors that endometriosis is capable of causing pelvic pain that is intense, debilitating, erratic and sometimes persistent. The condition is histologically defined by the presence of tissue lesions or nodules containing endometrial-like glands and stroma at sites outside the uterus.<sup>1,2</sup> Currently, the incidence and prevalence of endometriosis cannot be accurately determined because of the difficulties of making a definitive diagnosis without laparoscopy. Between 5 and 15% of all women of reproductive age are estimated to have endometriosis, although it may be present in up to half of women presenting with pelvic pain and/or infertility.<sup>2-4</sup>

The aetiology of endometriosis remains

controversial and is almost certainly multifactorial. A strong family history, and hence a genetic influence, has been long recognised, where women with a mother or sister who has proven disease have an eightfold increased risk of developing endometriosis themselves.<sup>5</sup>

### ADENOMYOSIS

Adenomyosis is a 'close cousin' of endometriosis, but a separate entity in its own right. There are two distinct forms of adenomyosis, focal nodules of adenomyosis (adenomyoma) and diffuse adenomyosis. Both of these have areas of endometrial-like glands and stroma located entirely within the myometrium. Patients with adenomyosis can present with abnormal uterine bleeding, secondary dysmenorrhoea, a diffusely or focally enlarged uterus on ultrasound, infertility or a combination of these symptoms

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**THE ENDOMETRIOSIS 'SYMPTOM COMPLEX'**

- Dysmenorrhoea – typically congestive, dragging and backache, overlaid with spasms during menses
- Chronic pelvic pain outside menstruation
- Infertility
- Significant lethargy before and during menses
- Deep dyspareunia
- Premenstrual spotting
- Heavy menstrual bleeding
- Pain with bowel motion, with or without rectal bleeding
- Painful abdominal bloating<sup>9</sup>
- Urinary urgency or pain with urination, with or without haematuria
- Low 'resistance to infection' around menses
- Predisposition to autoimmune conditions (e.g. hypothyroidism, chronic fatigue syndrome, rheumatoid arthritis, systemic lupus erythematosus and Sjögren's syndrome)
- No pain symptoms (uncommon)

– or even no symptoms. The diagnosis of adenomyosis mainly relies on imaging techniques (MRI or good quality transvaginal ultrasound) that show a characteristic appearance of the myometrium.

Adenomyosis is histologically described as a benign 'invasion' of endometrial-like tissue into the myometrium, and the glands can usually be demonstrated to be in contact with glands in the basal endometrium. The inner myometrial zone is markedly distorted. This invasion results in an enlarged uterus, where the ectopic endometrial glands and stroma cause adjacent myometrial hypertrophy and hyperplasia.<sup>6</sup> As for endometriosis, the incidence and prevalence of adenomyosis have been difficult to establish, mainly as a result of varying diagnostic criteria.<sup>7</sup> Prevalence reported in the literature ranges from 5 to

70%, with adenomyosis being most prevalent in women of late reproductive age (between 35 and 50 years).<sup>8</sup> Concomitant adenomyosis has been reported in 20 to 79% of women with endometriosis (dependent on types of endometriosis found at surgery and diagnostic criteria).<sup>8</sup> Hence, these conditions commonly co-exist and overlap in their ability to cause symptoms, which may cause difficulties in determining the best initial course of management. The situation is confused further by the fact that uterine leiomyomas ('fibroids'), endometrial polyps and perhaps endometrial hyperplasias are all found to co-exist with endometriosis from time to time.

**THE VARIABILITY OF ENDOMETRIOSIS**

Most women with endometriosis exhibit a diverse complex of presenting symptoms – the endometriosis 'symptom complex' (see the box on this page).<sup>9</sup> In adolescent girls, these symptoms may be atypical. Endometriosis is now recognised as a highly variable condition, and this variability undoubtedly contributes to the delay and difficulty in making a clear diagnosis (see the box on this page).<sup>10,11</sup>

**Presentation**

The main presenting symptoms of endometriosis include dysmenorrhoea (menstrual pain), deep dyspareunia (pain with deep penetration at intercourse), dyschesia (pain with a bowel motion) and infertility. Delay in diagnosis of endometriosis is compounded in women presenting with pelvic pain compared with those presenting with infertility (because of symptom variability). Generally, endometriosis-related pain symptoms tend to be most severe premenstrually and subside following cessation of menses. However, a small minority of women with this generally debilitating condition experience no symptoms.<sup>12</sup>

**Endometriosis in adolescence**

In Australia and New Zealand, endometriosis should be considered as the primary differential diagnosis in perimenarchal

**VARIABILITY OF ENDOMETRIOSIS<sup>12</sup>**

- Age at onset of symptoms
- Patterns of presenting symptoms:
  - combinations of experienced pain and tenderness; other symptoms (especially bleeding and gastrointestinal symptoms)
  - occurrence of infertility
- Delay in diagnosis
- Anatomical sites and phenotypes of lesions at presentation
- Rate of progression of symptoms
- Response to medical treatment
- Response to surgical excision
- Rate of recurrence following surgery
- Fertility during treatment
- Symptom change during pregnancy
- Effect of pregnancy and breastfeeding
- Likelihood of symptom improvement with age

and postmenarchal girls suffering from episodic or chronic pelvic pain. It is estimated that approximately 70% of adolescents with complaints of moderate or severe pelvic pain suffer from endometriosis. Rapid progression of the disease is also more likely in young adolescents. A strong familial component because of genetic predisposition is typical, and enquiries should always be made about family history.

Endometriosis symptoms in adolescent girls are often not taken seriously by primary care doctors. This can lead to serious damage to the patient's already low self-esteem and to continued suffering. 'Congestive', dragging and cramping diffuse pelvic pains and backache are classic symptoms of adolescent endometriosis, and may begin well before the onset of each menstruation. It is crucial for clinicians to consider endometriosis seriously in adolescent girls presenting with severe pelvic pain to ensure timely diagnosis and appropriate management to alleviate their

pain and prevent progression of the disease. A high index of suspicion is important and should be exercised when young women, especially teenagers, present in primary care.

## INVESTIGATION OF SYMPTOMS SUSPICIOUS OF ENDOMETRIOSIS

### Referral

Early recognition of the signs and symptoms commonly associated with endometriosis will allow medical management (or expert surgery) to reduce or prevent progression of disease, infertility and endometriosis-associated health problems. The initial assessment involves taking a detailed medical history and appropriate referral to a specialist gynaecologist. Signs and symptoms that should prompt consideration of referral, especially those that interfere with lifestyle, are outlined in the box on this page.

### Diagnosis can be a challenge

As mentioned earlier, it is estimated that 5 to 15% of women in their reproductive years within the general population have endometriosis. The prevalence among women presenting for investigation of pelvic pain (such as dysmenorrhoea) is reported to be as high as 50%, and among women with infertility it is estimated to be 40 to 50%.<sup>2-4,13</sup> Although the great majority of women with endometriosis are of childbearing age, reports have also described infrequent endometriosis in premenarchal girls and postmenopausal women.<sup>4,14</sup>

To date, the 'gold standard' for diagnosing endometriosis is laparoscopy by an experienced gynaecological endoscopist.<sup>12,15</sup> The clinical diagnosis of endometriosis is made by visual observation of endometriotic lesions (endometriotic implants) within the pelvis. Histological confirmation of the clinical diagnosis by biopsy of the ectopic endometriotic lesions is preferable, especially when the observation of nonpigmented lesions on serosal surfaces of pelvic organs makes the diagnosis uncertain.<sup>16</sup>

### Characterising endometriosis and its lesions

Histologically, ectopic endometriotic lesions have some features in common with eutopic endometrium, although the tissue structure is grossly distorted. A wide range of biochemical and molecular differences and disrupted microanatomy have been documented between ectopic lesions and endometrium.<sup>17-24</sup> Differences that suggest that the peritoneal environment, which significantly differs from the endometrial milieu, may contribute to the pathogenesis and development of the classic lesions of endometriosis include the following:

- steroidogenesis – enhancement of aromatase enzyme action, aberrant expression of steroid receptors
- various immunological aspects – aberrant expression of macrophages, natural killer and dendritic cells and various T-cell populations
- angiogenesis – increased vascular growth factors promoting increased vascularity in endometriotic lesions
- neurogenesis – increased nerve growth promoting factors leading to increased density of sensory nerve fibres.

At laparoscopy, endometriotic lesions can appear to be 'active' or 'inactive'.<sup>25,26</sup> They can also be classified into three broad phenotypes:<sup>27-29</sup>

- peritoneal endometriosis (PE; Figures 1a and b)
- ovarian endometrioma (OMA; Figure 1c)
- deep-infiltrating endometriosis (DIE; Figure 1d).

PE lesions can be categorised as either superficial or deep, the latter being those that penetrate 2 to 5 mm below the peritoneal surface. PE lesions are typically observed to be clear papular or red flare lesions, black puckered lesions or white scarred lesions. Red flare lesions are recognised to be the most 'active' and highly vascularised. Black-blue lesions are due to haemosiderin deposits from 'old blood' and are 'older', generally more mature and less active than red flare lesions. White lesions are histologically surrounded by

### WHEN TO REFER A PATIENT WITH ENDOMETRIOSIS

#### 'Typical' signs and symptoms prompting consideration of referral

- Congestive, dragging dysmenorrhoea
- Severe dysmenorrhoea of any pattern accompanied by lack of response to various courses of analgesics
- Increasing positional and/or localised and/or severe deep dyspareunia or tenderness at the vaginal vault
- Pain with a bowel motion
- Troublesome 'ovulation' pain
- Pelvic pain in a woman with a moderate or strong family history of endometriosis
- Premenstrual spotting (one day or more)

#### Other signs and symptoms to take into consideration

- Prolonged menstruation (longer than eight days)
- Heavy menstrual bleeding, with or without clots
- Infertility for over a year, particularly if the woman is over 30 years of age (but sooner if dysmenorrhoea is present)
- Painful, cyclical abdominal bloating
- Gastrointestinal or 'irritable bowel' type symptoms, often including cyclical diarrhoea and constipation
- Pain with urination
- Increase in urinary frequency or change in normal function
- Premenstrual symptoms
- Extreme lethargy

dense collagen and other connective tissue deposits (i.e. localised fibrosis), and are considered to be the oldest and least active of the three peritoneal lesion types, although some degree of collagen deposition is also common in red flare and black lesions.<sup>16,30</sup>

Development of the so-called 'chocolate cyst' OMA, which contains 'old' (or 'metabolised') menstrual fluid, may be a progression of superficial peritoneal endometriosis

**LESION PHENOTYPES IN ENDOMETRIOSIS (LAPAROSCOPIC IMAGES)**



Figures 1a and b. Peritoneal endometriotic lesions. a (left). Red flare lesions (circled). b (right). Black puckered lesion with scarring.



Figure 1c. Ovarian endometrioma ('chocolate' cyst).



Figure 1d. Deep-infiltrating endometriotic lesions with associated adhesions.

with localised scarring, invagination of the ovarian cortex and formation of a pseudocyst encapsulating localised peritoneal 'menstruation'<sup>7,31,32</sup>

The third form of endometriotic lesion phenotype, DIE, is defined as lesions occurring more than 5 mm below the peritoneal surface.<sup>33</sup> The extreme version of DIE is an obliteration of the posterior cul-de-sac (pouch of Douglas), where extensive adhesions are observed tethering the rectum to the uterus or cervix, and often extending into the uterosacral ligaments and rectovaginal septum.<sup>34</sup> These lesions can be nodular (fibrous and 'adenomatous') with aggregates of smooth muscle cells, collagen and endometriotic glands, and can be found to invade the mesothelial and muscularis wall of the rectum and the uterine or cervical tissues.<sup>33,35</sup>

Severity of lesions is sometimes graded according to the American Society for Reproductive Medicine (ASRM) system as

stage I, II, III or IV (with increasing severity), but this does not correlate well with symptoms or treatment response.

**MANAGEMENT OPTIONS FOR ENDOMETRIOSIS**

It is becoming increasingly evident that an individualised approach to the management of women with endometriosis is required for the most effective relief.<sup>11</sup> The main difficulty is the high variability of the condition, as discussed above, and strategies for management include both medical and surgical interventions, either individually applied or combined. As complete cure of endometriosis is rarely possible (partly because endometriosis has a significant genetic component), management goals should include the following:<sup>36</sup>

- control of pain symptoms
- increase in likelihood of pregnancy in women desiring to conceive

- prevention of recurrence.

Pregnancy can sometimes temporarily ameliorate symptoms of endometriosis. However, it is not a cure for the condition as symptoms often recurrence often occurs following the pregnancy.

**Surgical management**

Direct visualisation of the pelvic cavity by an experienced gynaecological endoscopist to identify and assess endometriotic implants remains the current 'gold standard' of diagnosing or excluding endometriosis. Ideally, this should be coupled with histopathological confirmation of endometriotic glands and stroma in biopsied endometriosis lesions. Fibrosis and haemosiderin-laden macrophage infiltrates are also often seen within ectopic lesions. Assessment of endometriosis should take into account the range of endometriotic lesion types (PE, OMA and DIE) and colours (clear-papular, red flame-like, black 'powder-burn', white opaque scarring). Improvement in the ability to identify subtle and atypical endometriotic lesions may help reduce repeat surgery.<sup>16,37</sup>

Full surgical excision (resection or thorough ablation) of all endometriotic lesions in the pelvic cavity, with or without division of adhesions, is primarily performed to remove all visible lesions and restore anatomy, with the aim of treating pain and other symptoms and restoring fertility. Laparoscopy is generally the preferred surgical approach as it is less invasive than laparotomy, allows better visualisation and, in skilled hands, is associated with improved outcomes.<sup>38</sup> In deep invasive lesions, disc excision or segmental bowel resection may sometimes be required, and rarely partial excision of the bladder or ureter. Such surgery usually benefits from a skilled specialist team approach.

In most women, surgical excision of endometriosis can significantly reduce or eliminate pain in severe disease and improving fertility outcomes.<sup>39-43</sup> However, despite high initial efficacy, recurrence of pain symptoms (an indication of

**TABLE. COMPLEMENTARY THERAPIES WIDELY USED FOR MANAGEMENT OF ENDOMETRIOSIS**

Type of complementary therapy	Examples/description
Herbal preparations	Blue cohosh, cranberry, plantain, St John's wort, peppermint, valerian, evening primrose oil, red raspberry, yam and white willow Important note: herbal therapies can cause side effects or interact with conventional drugs
Chinese herbal medicine	Keishi-bukuryo-gan – used in the treatment of heavy, painful or irregular bleeding and infertility
Acupuncture	Insertion of thin needles at various locations on the skin, to restore balance and flow of 'chi' – to relieve and eliminate symptoms of endometriosis pain, menstrual cramping and postoperative pain
Transcutaneous electrical nerve stimulation (TENS), also known as TENS electrotherapy	A mild, pulsatile electric current is directed through electrodes placed on the skin of the painful area. If successful, pain relief can be quick
Shiatsu	A Japanese style of massage using finger-pressure techniques, to stimulate 'ki' and to restore balance and free-flow, and hence eliminate pain
Exercise	Has been demonstrated to relieve stress, reduce pain and decrease incidence of depression
Biofeedback	Alteration of bodily processes (e.g. heart rate, muscle activity, skin temperature and brain waves), through the training with feedback from electrodes attached to the skin
Osteopathy and chiropractic treatment	Correction of structural and postural problems through the manipulation of muscles, ligaments and bones
Naturopathy	Based on a wide range of 'natural' methods of healing <sup>64</sup>
Dietary measures	Some symptoms of endometriosis have been described as being exacerbated by some foods

disease relapse or persistence) requiring further surgery occurs in 20 to 50% of women within five years following conservative surgery.<sup>44-46</sup> Effectiveness of response is related to the expertise of the surgeon. The best opportunity for a good surgical outcome is planned complete, conservative, excisional surgery at the first attempt.

### Medical management

Medical therapy for managing pain in women with endometriosis usually involves the use of analgesics for pain relief and hormonal therapy for suppression of endometriotic lesion activity and ovarian oestrogen secretion. These therapies can be very effective, but often need to be

individualised for optimal management of pain. A minority of patients have pain that is very difficult to control. Medical therapy has little place for the management of infertility. Surgery and in vitro fertilisation with embryo transfer are the treatment of choice for women with infertility due to endometriosis.

#### *Analgesic management options*

General practitioners have major roles in the management of acute episodes ('flares') of pain in women with endometriosis and in the supervision of regimens for the management of chronic pain associated with the condition.

Analgesic therapy to manage cyclical or episodic pain symptoms should initially

involve intensive use of paracetamol (mainly for central relief). Much of the pain associated with endometriosis is caused by the local inflammatory reaction mediated by the increased production of substances such as cytokines and prostaglandins originating from the endometriotic implant and the immune system. Initial analgesia should therefore progress to use of prostaglandin inhibitors (NSAIDs such as naproxen sodium, ibuprofen and mefenamic acid) at full recommended dosages for up to one to two weeks, coupled with intermittent stronger analgesic alternatives for symptom flares (e.g. codeine and tramadol). In the occasional, exceptionally severe episode, oxycodone or morphine may have to be considered

### INTERNET RESOURCES FOR WOMEN WITH ENDOMETRIOSIS

- **The Jean Hailes Foundation for Women's Health** – [www.endometriosis.org.au](http://www.endometriosis.org.au). The endometriosis website of the Jean Hailes Foundation for Women's Health, which is based in Melbourne, provides excellent, sound consumer information and regular consumer forums.
- **The Global Forum for Information about Endometriosis** – <http://endometriosis.org>. This is the current patient information website of the World Endometriosis Society and World Endometriosis Research Foundation. It generally provides excellent evidence-based advice.
- **The American Society for Reproductive Medicine (ASRM)** – [www.ReproductiveFacts.org](http://www.ReproductiveFacts.org). The resources section of this website provides downloadable and printable patient education fact sheets and information booklets on a range of topics including endometriosis.
- **The Endometriosis Association** – [www.endometriosisasn.org](http://www.endometriosisasn.org). This association, based in the USA, contributes a considerable amount of effort and money to producing good-quality information and consumer-orientated research. Its website provides multilingual brochures on endometriosis, including a specialised brochure for teenagers.
- **The National Women's Health Resource Center** – [www.healthywomen.org](http://www.healthywomen.org). This US website provides a wide range of sound information – type 'endometriosis corner' in the search box.
- **Blogs.** Some women respond well to the opportunity to exchange information in a 'blog' forum, such as ChronicBabe ([www.chronicbabe.com](http://www.chronicbabe.com)) and How To Cope With Pain ([www.howtocopewithpain.org](http://www.howtocopewithpain.org)).

for acute use.<sup>12</sup> Acute 'flares' are usually self-limiting within a few days.

The management of chronic pain can be a challenge. Most women with endometriosis experience their worst pain cyclically or episodically; this pain, however, may occur against the background of more chronic, dragging, aching pain and pelvic tenderness throughout the cycle. A small proportion of women, especially those with recurrent disease after surgery, may develop a neuropathic component to their pain. These patients may gain significant benefit from treatment with a gamma-aminobutyric acid (GABA) analogue such as gabapentin (300 mg to 1.2 g in divided doses according to response) or pregabalin (150 to 600 mg in one or two divided doses). These therapies should generally only be considered after the patient has been assessed in a specialised pain management clinic.

#### *Hormonal approaches to management*

Hormonal suppression therapies can be used at one of two levels: shorter term and more rapid suppression or long-term relief and maintenance of suppression. However, as they are mostly contraceptive, they are unsuitable for those women desiring early pregnancy.

Gonadotrophin-releasing hormone (GnRH) agonists, especially as a course of subcutaneous goserelin implants, and oral danazol (an androgenic agent) provide similar but highly effective suppression in most women. The GnRH agonist nafarelin is available as a nasal spray, and although it is generally less effective than goserelin implants, it is an alternative option. However, dose- and duration-related side effects are frequently reported in a minority of women and can include vasomotor symptoms and variable androgenic changes (e.g. oily skin, acne, hirsutism and, rarely, voice

changes).<sup>12,47,48</sup> Therefore, use of these drugs should be short-term (involving a standard six-month course) and closely monitored. Danazol can be very effective in the short term for endometriosis pain, and is very safe provided the patient is closely monitored and the drug is discontinued if side effects are troublesome.

Long-term hormonal suppression and prevention of post-surgery symptom recurrence are becoming more widely recognised as being important for most patients with moderate to severe pain. Rate and extent of recurrence are underestimated. It is becoming increasingly widely recommended that hormonal suppressive therapy be used following surgery for ASRM stages II, III or IV disease, unless early pregnancy is desired. Continuous use of the combined oral contraceptive pill (OCP) is suitable as an initial approach for medical treatment of endometriosis, but only a minority of women obtain the desired level of pain relief. This is probably because it is not logical to give an oestrogen-containing preparation to someone with an oestrogen-sensitive disease; it is the progestogen component that is the important therapeutic agent when the combined pill is used to treat endometriosis.

Continuous use of low doses of progestogens offers the most highly effective long-term suppression with few side effects in most women; however, dosages often need individualisation.<sup>12,49</sup> 'Given their good tolerability, minor metabolic effects and low cost, progestogens with or without the addition of estrogens, can be considered the drugs of choice and are currently the only safe and inexpensive alternative to surgery.'<sup>50</sup> Appropriate progestogens include oral norethisterone and medroxyprogesterone acetate, intramuscular depot medroxyprogesterone acetate, the levonorgestrel-releasing intrauterine system (LNG-IUS; off-label use, but extensive available evidence) and the subdermal etonogestrel implant (off-label use, with limited evidence). The most common side effect is breakthrough bleeding. Specialist therapeutic options for the occasional very

difficult case can involve the combined use of the intrauterine (i.e. LNG-IUS) and subdermal (i.e. etonogestrel implant) delivery systems, but should be reserved for women who fail to respond to other therapies.<sup>51</sup>

Aromatase inhibitors (anastrozole, letrozole) can be another option (off-label use) reserved for women with persistent endometriotic symptoms who have not responded to other forms of treatment.<sup>52,53</sup> They suppress oestrogen production and are best used in combination with a progestogen, or possibly a combined OCP.

#### *Complementary therapies*

Various complementary therapies are widely promoted for endometriosis and used by many women in attempts to seek additional relief of symptoms or to counteract perceived side effects of other therapies. They include an assortment of herbal remedies and a range of pain management techniques. Complementary therapies are rarely proposed as curative measures, but are adopted in the long term by many patients in attempts to improve quality of life. Some of the more popular methods are listed in the Table.<sup>54</sup>

There is a lack of convincing evidence-based clinical trials supporting the use of various complementary/alternative therapies. There have been various attempts to determine the effectiveness of some herbal remedies, transcutaneous electrical nerve stimulation (TENS) and acupuncture.<sup>55-59</sup> However, in a Cochrane review assessing acupuncture as a means of alleviating pelvic pain in endometriosis, only one study fulfilled the inclusion criteria.<sup>59</sup> It was determined in this review that despite significant improvement in pelvic pain in some users of acupuncture or Chinese herbal medicine, the significance of the findings was equivocal in most women with severe endometriosis. It is crucial that all future studies be well designed, double-blinded and randomised so they can adequately evaluate the effectiveness of complementary/alternative versus conventional therapies.

## RESOURCES FOR PATIENTS

Women with endometriosis may seek information on pelvic pain, infertility or both. Overall, the quality of medical information available through the internet varies greatly. The websites listed in the box on page 34 provide sound consumer information.

## SUMMARY

Endometriosis is a progressive disease in most women and remains a challenging condition for clinicians and scientists. There should be much greater awareness at a primary care level that endometriosis is a disease with substantial morbidity as this is where most patients will be identified.

A diagnosis of endometriosis requires the presence of endometriotic tissue lesions or nodules at sites outside the uterus. Endometriotic peritoneal lesions and deep nodules have some histological similarities to the eutopic endometrium, but tissue architecture and metabolic behaviour are greatly altered. Endometriosis almost certainly has multifactorial causes, with a strong genetic component.

The 'symptom profile' of endometriosis is wide and highly variable. It typically consists primarily of various pain symptoms and menstrual and gastrointestinal disturbances. Greater awareness in primary care of the variability of the symptom profile and a high index of suspicion (especially in adolescents) is essential for earlier diagnosis.

The 'gold standard' for diagnosis of endometriosis is diagnostic laparoscopy and peritoneal (or lesion) biopsy by an experienced gynaecological endoscopist. Transvaginal ultrasound currently only has a limited role in assessment of endometriosis (mainly for detection of ovarian endometriomas).

Strategies for effective management of endometriosis include medical and surgical interventions, either individually or combined. Medical therapy is less effective than surgery or IVF for the treatment of infertility associated with endometriosis, but may be very effective for pelvic pain. **MI**

## FURTHER READING

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A list of references is included in the website version ([www.medicinetoday.com.au](http://www.medicinetoday.com.au)) and the iPad app version of this article.

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