

# Endometriosis

by Marianne Marchese, ND

Endometriosis is a common condition affecting 5% to 10% of women. The name comes from the word *endometrium*, the tissue that lines the uterus. In a woman with endometriosis, this endometrial tissue is found outside the uterus: on the ovaries, on the fallopian tubes, in the abdominal cavity, and at other abnormal sites. This tissue found outside the uterus can respond to the menstrual cycle in the same way the lining of the uterus responds. At the end of the luteal phase of the menstrual cycle, when hormones decline and the uterine lining is shed, endometrial tissue growing outside the uterus will also break apart and bleed. This blood has no place to go, so the surrounding tissue may become inflamed and swollen. Scar tissue can form around the endometriosis sites and develop into areas called *implants, nodules, lesions, or growths*.<sup>1</sup>

Endometriosis typically occurs in women of reproductive age, most commonly 25 to 30 years old at the time of diagnosis. Diagnosis is confirmed by laparoscopic surgery typically performed for complaints of pelvic pain. Endometriosis is a hormonal responsive condition. Endometriotic lesions contain estrogen, progesterone, and androgen receptors.<sup>1</sup> Risk of endometriosis seems related to the amount of menstrual flow. Women with a short menstrual cycle (< 27 days), longer menstrual flow (> 7 days), and spotting before the onset of menses are at greater risk for developing endometriosis.<sup>2</sup> Endometriosis has been found more commonly in Asian women than Caucasian women.<sup>2</sup>

The symptoms of endometriosis include:

- dysmenorrhea
- pelvic pain
- dyspareunia
- lower abdominal pain or back pain
- painful bowel movements (especially during menses)
- painful urination (especially during menses)
- pain with exercise
- difficulty conceiving

Diagnosis can often be difficult and sometimes is delayed. Endometriosis is the underlying cause in 15% of pelvic pain cases and a common cause of infertility.<sup>3</sup> The symptoms of endometriosis can mimic other conditions that need to be ruled out.

Differential diagnosis includes:

- pelvic inflammatory disorder (PID)
- vaginismus
- vulvar vestibulitis
- neoplasms of colon, ovary, uterus
- musculoskeletal causes
- constipation
- interstitial cystitis
- other causes of infertility (such as luteal phase defect)
- ovarian cysts
- ectopic pregnancy
- acute appendicitis
- urinary tract infection

In the initial work-up of endometriosis, a physical exam should be performed. The doctor should perform a bimanual exam and palpate for pelvic masses; fixed, retroverted uterus; and adenexal and uterine tenderness.<sup>4</sup> A rectovaginal exam should also be performed to identify masses. However, most

women have a normal pelvic exam; and imaging such as pelvic ultrasound, MRI, or CAT scan is often not helpful. The gold standard for diagnosis is laparoscopy. Laparoscopy is a surgical procedure wherein a thin tube with a lens and light is inserted into the abdomen through a small incision. The laparoscope allows the physician to see the pelvic area and locate endometrial growths. The laparoscope can also remove the endometriosis at the time of examination, thus offering treatment during diagnosis.

A staging system has been developed by the American Society of Reproductive Medicine based on the location, depth, size, and amount of endometrial growth found during laparoscopy. The stage sometimes does not correlate with the amount of pain a woman has, the symptoms present, or whether fertility is affected.

- Stage I = minimal severity
- Stage II = mild severity
- Stage III = moderate severity
- Stage IV = severe

The exact cause and pathogenesis of endometriosis are unclear. Several theories exist, but none have been entirely proven. The most common theory is retrograde menstruation. Endometrial cells flow backward through the fallopian tubes and land on pelvic organs, where they start to grow.<sup>5</sup> Retrograde menstruation is a common event in women; more common than endometriosis itself, so there must be some other immunologic or hormonal reason that leaves women predisposed. Another theory is metaplasia, or the changing



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from one type of tissue to another. The cells in the endometrium are of the same surface as cells in the peritoneum. This theory suggests that the cells lining the pelvic peritoneum transform into endometrial tissue in the pelvis.<sup>6</sup> Genetic factors cannot be overlooked, as it is known that women with first-degree relatives with endometriosis are predisposed to develop the disease, develop symptoms earlier, and have more severe manifestations.<sup>7</sup> Some report that women with a first-degree relative with endometriosis have a 10-fold increased risk.<sup>7</sup>

Recent research has suggested the involvement of the immune system in the pathogenesis of endometriosis. Numerous studies have shown conflicting results in regard to producing inflammatory cytokines. In general, IL-8, TNF-alpha, and IL-10 appear to be elevated with endometriosis. A recent study showed that women with endometriosis have higher levels of IL-10, IFN-gamma, and IL-4, showing a shift toward increased inflammatory cytokines.<sup>8</sup>

Recent studies have also shown that women with endometriosis have higher rates of autoimmune disease. A study published in *Human Reproduction* (Sept. 27, 2002) showed that women with endometriosis had higher rates of systemic lupus erythematosus, Sjögren's syndrome, rheumatoid arthritis, and multiple sclerosis.

Other causes of endometriosis include iatrogenic, wherein endometriosis develops after gynecological procedures, abdominal surgery, or cesarean sections. Diet is linked to endometriosis as well. In a study of 504 women with laparoscopic-confirmed endometriosis compared to 504 women without endometriosis, it was found that there was a 40% decreased risk of endometriosis in women with higher consumption of green vegetables and fresh fruit. There was an 80% increased risk in women who ate high amounts of beef

and other red meats.<sup>9</sup> Women with endometriosis have higher serum levels of vitamin D.<sup>10</sup> Vitamin D may influence endometriosis by locally modulating the immune system within the peritoneal cavity.

Lastly, environmental factors must be considered. Since endometriosis is a steroid-responsive disease with an immunological component, environmental exposures that affect a woman's hormonal and immune systems need to be addressed. Such toxins include bisphenol-A, parabens, phthalates, pesticides, dioxins, PCBs, solvents, and formaldehyde. Organochlorine compounds such as dioxin and PCBs contaminate our food and water, and women are often exposed to low doses on a daily basis. Deep endometriotic nodules are associated with high blood levels of dioxin and PCBs.<sup>11</sup> Phthalates are used in the plastic industry and are in everything from plastic water bottles with the "3" on the bottom to cling wrap. A recent study showed that 55 women with endometriosis had blood levels of phthalates compared to controls.<sup>12</sup> Most women are exposed to environmental toxins on some level every day; however, not all women get endometriosis. Single nucleotide polymorphisms (SNPs) might provide an explanation as to why some women clear exposures easily and others do not, making them more susceptible to the hormone-disrupting effects. A SNP is a change in which a single base in the DNA is altered. This simple change can affect how the body detoxifies environmental toxins. Since most toxins are cleared through the liver, it is important to look at what SNPs in the liver are associated with endometriosis. Recent studies have shown that women with a polymorphism of the cytochrome P450 1A1 gene and the glutathione S-transferase M1 gene have increased risk of endometriosis.<sup>13</sup>

Many theories exist as to what causes endometriosis, and likely it is a combination of all these factors that not only determines the cause but also the severity of the disease. It is important to consider them all in

developing a treatment strategy for patients.

### Conventional Treatment

The conventional medical treatment approach to endometriosis typically begins with estrogen suppression through medications such as Danazol and Lupron. Other hormonal therapies often initiated are oral contraceptives and progestins to suppress ovulation. Nonsteroidal anti-inflammatory drugs (NSAIDs) are used to decrease inflammation and pain as well as other analgesics. Laparoscopic surgery is the main treatment to remove the endometrial lesions from the pelvic area. A hysterectomy is performed to remove the uterus and sometimes the ovaries in severe cases.

### Naturopathic Treatment

In developing a treatment plan for endometriosis, the patient's overall health should be considered and the treatment individualized. Is fertility a goal, or merely symptom management? Is the patient in severe pain with each menstrual cycle, or is she in constant pain? Is there pain with intercourse? Is she constipated, or is the patient asymptomatic? Often the patient has already undergone laparoscopic surgery for endometriosis and now wants to focus on preventing recurrence.

The goals of naturopathic treatment include:

- decreasing inflammation
- pain management
- shrinkage of endometriosis lesions/implants
- decreasing body burden of environmental toxins
- immune modulation
- fertility support

Methods used to achieve these goals:

- nutrition
- herbal analgesics
- anti-inflammatory herbs and nutrients
- natural immune support
- hormonal support
- liver detoxification and cleansing

## Nutrition

Diet plays an important role in treating endometriosis. Decrease foods that are high in saturated fat and arachidonic acid, which are pro-inflammatory, and increase series 2 prostaglandins (PGE2). Arachidonic acid comes almost entirely from animal-derived foods and should be avoided due to its inflammatory effects.<sup>14</sup> Increase therapeutic foods such as soy. Soy contains the iso-flavones genistein and daidzein. A recent study showed that women with high dietary intake of soy had high urinary levels of genistein and daidzein, and had decreased risk of endometriosis compared to controls.<sup>15</sup> Increase fruits and vegetables in order to lower risk of endometriosis.<sup>16</sup> Increase foods high in the omega-3 fatty acids, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), which are found in fish and are anti-inflammatory.<sup>17</sup> Lastly, increase foods that support liver detoxification to decrease the body's burden of environmental toxins and help metabolize estrogens. The cruciferous vegetables, broccoli, cabbage, kale, cauliflower, and brussels sprouts, support liver detoxification and contain indole-3-carbinol (I3C), which helps break down estrogen in the liver.

## Pain

Herbs and nutrients that act as analgesics or are antispasmodic, thus offering symptomatic relief, include:<sup>18,19</sup>

- valerian
- crampbark
- kava
- Jamaican dogwood
- ginger
- magnesium
- calcium
- white willow bark

## Inflammation

There are many options for decreasing inflammation with herbs and nutrients, and every physician has his or her favorites. Here are a few to consider:<sup>20</sup>

- quercetin
- Boswellia
- fish oil
- curcuma
- ginger

One herb that might be overlooked in treating endometriosis is Pycnogenol. A study published in 2007 in the *Journal of Reproductive Medicine* looked at women with

IL-8 and TNF-alpha are produced by macrophages, treatment is aimed at modulating these cells. There are many herbs proven to modulate the immune system; here are a few to consider with endometriosis, along with treatments to decrease inflammation produced by cytokines:<sup>22</sup>

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laparoscopic-confirmed endometriosis who took 30 mg b.i.d. of Pycnogenol for 6 months. They were compared to women with endometriosis who took leuporelin acetate depot 3.75 mg IM 6 times every 4 weeks for 24 weeks. Women in the Pycnogenol group had a 33% reduction in symptoms of endometriosis, which lasted after stopping the treatment. The Pycnogenol group maintained regular menses and normal estrogen levels, and 5 women became pregnant. The women in the leuporelin acetate depot group also had reduction of symptoms but relapsed 24 weeks posttreatment. The leuporelin group had suppressed menses, lowered estrogen during treatment, and no pregnancies. Pycnogenol is an extract from French maritime pine bark with anti-inflammatory and antioxidant properties.

## Immune support

Several studies link elevated inflammatory cytokines to endometriosis. IL-8 and TNF-alpha are elevated in women with endometriosis in the pelvic region, regardless of ovarian involvement.<sup>21</sup> As mentioned earlier, IL-10 and IL-4 also are elevated with endometriosis. Since IL-4 and IL-10 are produced by Th2 cells and

- Astragalus
- Panax ginseng
- Coriolus versicolor
- Curcuma
- Withania somnifera

## Hormonal support

Estrogen has been shown to support the growth of endometriosis, while progestins and androgens induce atrophy.<sup>23</sup> A main part of a naturopathic treatment plan is therefore to decrease estrogen and increase progesterone or androgens. There are various ways to increase estrogen metabolism, some of which have already been mentioned. I3C, or diindolylmethane (DIM), helps the liver metabolize estrogen. Flaxseed, fish oil, and soy also increase the breakdown of estrogen in the body. Progesterone therapy can decrease estrogen levels in the blood by decreasing the retention of estrogen receptors.<sup>24</sup> Progesterone also can decrease uterine contractions and pain. Natural, bioidentical progesterone can be part of a comprehensive treatment plan for women with endometriosis. There are many ways to prescribe natural progesterone: creams applied topically, oral pills, and sublingual pellets. Typically, the dose is started



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low, 50 to 100 mg before bed and timed with the menstrual cycle. The dose can be given 3 weeks on, and off the week of menses. Some women just need to take it 7 to 10 days before their menses. This can vary depending on the severity of symptoms, length, and quality of menstrual cycle.

### Environmental Factors

Since environmental toxins are linked to endometriosis, a thorough environmental exposure history should be performed to identify possible toxins. Testing for heavy metals, pesticides, solvents, phthalates, and parabens is available through various labs. Every patient should be educated on how to avoid hormone-disrupting chemicals in food, water, air, and personal care products. Every woman I see with endometriosis is put on a plan to cleanse toxins from her body with sauna therapy, colonics, a detox diet, castor oil packs, and supplements to support liver detoxification and elimination from the body.

### Sample Treatment Plan

- fish oil: 3,000 mg of EPA + DHA
- calcium and magnesium: 1,000 mg and 500 mg
- crampbark tincture: ½ tsp every 3 hours as needed for pain

- Pycnogenol: 30 mg b.i.d.
- curcuma: 400 to 600 mg t.i.d.
- Panax ginseng or Astragalus tincture: ¼ tsp b.i.d.
- DIM or I3C: 100 to 200 mg q.d. DIM or 300 to 400 mg q.d. I3C
- progesterone: 100 mg q.d. 3 weeks on, 1 week off
- diet: increase flaxseed, wild salmon, cruciferous vegetables, fruits and other vegetables; decrease ham, other red meat, dairy products, alcohol, saturated fats, sugar
- cleanse: sauna, colonic, castor oil pack, liver support

In summary, endometriosis is a common condition affecting many women, but it is often misdiagnosed or diagnosis is delayed. Women complaining of dysmenorrhea, dyspareunia, chronic pelvic pain, or difficulty conceiving should be evaluated for endometriosis. The modalities of naturopathic medicine – addressing the cause and not the symptom, and treating the whole person – make for successful outcomes with this complicated condition.

### Notes

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