Endometriosis

A Guide for Patients

PATIENT INFORMATION SERIES

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Endometriosis

A Guide for Patients Revised 2012

A glossary of italicized words is located at the end of this booklet.

INTRODUCTION

Women with endometriosis may experience infertility, pelvic pain, or both. This booklet will describe options for diagnosing and treating pain or infertility that may be attributed to endometriosis.

What is Endometriosis?

Endometriosis is a common condition that affects women during the reproductive years. It occurs when normal tissue from the uterine lining, the endometrium (Figure 1), attaches to organs in the pelvis and begins to grow. This displaced endometrial tissue causes irritation in the pelvis that may lead to pain and infertility.

Figure 1

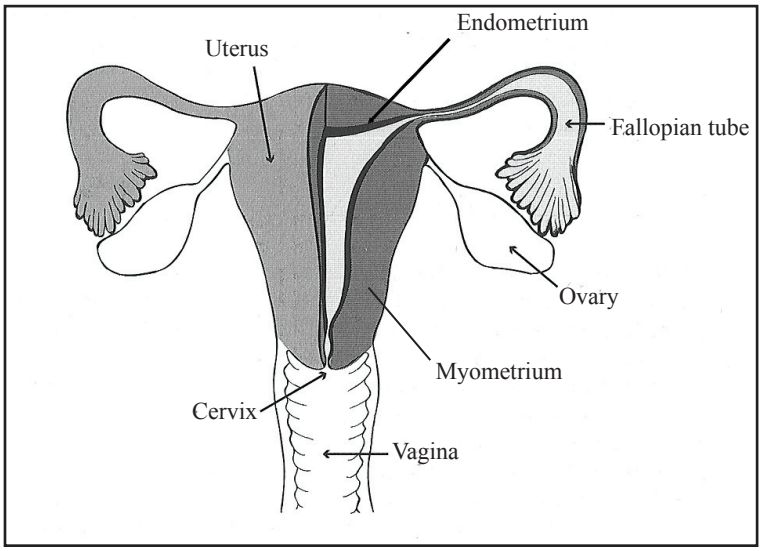


Figure 1. The Female Reproductive Organs. A basic knowledge of these organs and their functions is essential to understanding endometriosis.

Experts do not know why some women develop endometriosis. During each menstrual period, most of the uterine lining and blood is shed through the cervix and into the vagina. However, some of this tissue enters the pelvis through the fallopian tubes. Women who develop endometriosis simply may be unable to clear the pelvis of these cells.

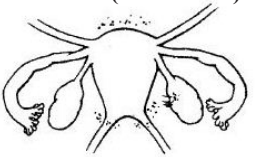
Early endometriotic implants look like small, flat patches, blebs, or flecks sprinkled on the pelvic surface. The flecks can be clear, white, brown, red, black, or blue. The severity and course of endometriosis is highly unpredictable. Some women may have a few endometriosis implants on the surface of the pelvis, the peritoneum, or pelvic organs, or they may invade the peritoneum and grow as nodules. Endometriosis may grow on the surface of the ovary as implants or invade the ovary and develop a blood-filled cyst called an endometrioma, or a "chocolate cyst." Chocolate cysts are so named because over time the blood they contain darkens to a deep reddish-brown color. These cysts may be as small as a pea or grow to be larger than a grapefruit. Endometriosis may irritate surrounding tissue and produce internal scar tissue called adhesions. These adhesions can bind the pelvic organs together, cover them entirely, or involve nearby intestines. The adhesions may keep fallopian tubes from picking up the egg from the ovary during ovulation. Endometriosis also may grow into the walls of the intestine or into tissue between the vagina and the rectum.

Up to 10% of all women may have endometriosis. Many women who have endometriosis experience few or no symptoms. Some women experience severe menstrual cramps, chronic pelvic pain, or painful intercourse. In others, infertility may be the only symptom of endometriosis. Often, endometriosis is diagnosed when a woman has pelvic surgery because of a persistent ovarian cyst or other reasons. Endometriosis can affect women who have had children and can occur in teenagers and young women. Some specialists feel that endometriosis is more likely to be found in women who have never been pregnant. Endometriosis may be found in 24% to 50% of women who experience infertility and in more than 20% who have chronic pelvic pain.

Endometriosis is classified into one of four stages (I-minimal, II-mild, III-moderate, and IV-severe) depending on location, extent, and depth of endometriosis implants; presence and severity of adhesions; and presence and size of ovarian endometriomas (Figure 2). Most women have minimal or mild endometriosis, which is characterized by superficial implants and mild adhesions. Moderate and severe endometriosis is characterized by chocolate cysts and more severe adhesions. The stage of endometriosis does not correlate with the presence of or severity of symptoms; with stage IV endometriosis, infertility is very likely (Figure 2).

Figure 2

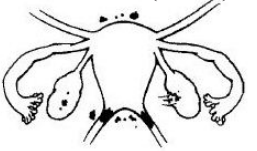
STAGE I (MINIMAL)



PERITONEUM
Superficial Endo 1-3cm 2
Right OVARY
Superficial Endo <1cm 1
Filmy Adhesions 1/3 1

TOTAL POINTS 4

STAGE II (MILD)



PERITONEUM
Deep Endo >3cm 6
Right OVARY
Superficial Endo <1cm 1
Filmy Adhesions <1/3 1
Left OVARY
Superficial Endo <1cm 1
TOTAL POINTS 9

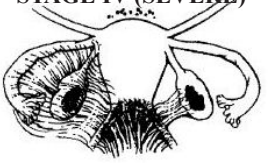
STAGE III (MODERATE)

PERITONEUM
Deep Endo >3cm 6
CULDESAC
Partial Obliteration 4
Left OVARY
Deep Endo - 1-3cm 16
TOTAL POINTS 26
1-3cm 16

STAGE III (MODERATE)

PERITONEUM
Superficial Endo >3cm 4
Right TUBE
Filmy Adhesions <1/3 1
Right OVARY
Filmy Adhesions <1/3 1
Left TUBE
Dense Adhesions <1/3 16*
Left OVARY
Deep Endo 1-3cm 4
Dense Adhesions - <1/3 4
TOTAL POINTS 30

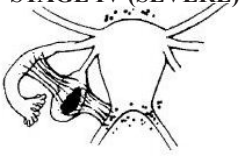
STAGE IV (SEVERE)



PERITONEUM
Deep Endo >3cm 6
CULDESAC
Complete Obliteration 40
Right OVARY
Deep Endo 1-3cm 16
Dense Adhesions <1/3 4
Left TUBE
Dense Adhesions >2/3 16
Left OVARY
Deep Endo 1-3cm 16
Dense Adhesions >2/3 16
TOTAL POINTS 114

***Point assignment changed to 16**

STAGE IV (SEVERE)



PERITONEUM
Superficial Endo >3cm 4
Left OVARY
Deep Endo - <1cm 32**
Dense Adhesions - <1/3 8**
Left TUBE
Dense Adhsions - <1/3 8**
TOTAL POINTS 52

**** Point assignment doubled**

SYMPTOMS OF ENDOMETRIOSIS

Menstrual Cramps

Many women experience mild menstrual cramps, which are considered normal. When cramping is more severe it is called dysmenorrhea and may be a symptom of endometriosis or other types of pelvic pathology such as uterine fibroids or adenomyosis. Severe cramping may cause nausea, vomiting, or diarrhea. Primary dysmenorrhea occurs during the early years of menstruation, tends to improve with age or after childbearing, and usually is not related to endometriosis. Secondary dysmenorrhea occurs later in life and may increase with age. This may be a warning sign of endometriosis, although some women with endometriosis feel no cramping at all.

Painful Intercourse

Endometriosis can cause pain during or after intercourse, a condition known as dyspareunia. Deep penetration can produce pain in an ovary bound by scar tissue to the top of the vagina. Pain also may be caused by bumping against a tender nodule of endometriosis behind the uterus or on the uterosacral ligaments, which connect the cervix to the sacrum.

Infertility

There is a large body of evidence that demonstrates an association between endometriosis and infertility. Endometriosis can be found in up to 50% of infertile women. Infertility patients with untreated mild endometriosis conceive on their own at a rate of 2% to 4.5% per month, compared to a 15% to 20% monthly fertility rate in normal couples. Infertility patients with moderate and severe endometriosis have monthly pregnancy rates of less than 2%. Even though endometriosis is associated strongly with infertility, not all women who have endometriosis are infertile. For example, many women undergoing tubal sterilization procedures are noted to have endometriosis.

A cause and effect relationship between endometriosis and reduced fertility is presumed but not proven. It is not known how minimal and mild endometriosis reduces fertility when there are no adhesions. It is presumed that endometriosis alters the pelvic environment in subtle but important ways. Theories include inflammation, altered immune system, hormonal changes, abnormal function of the fallopian tube, or impaired fertilization and implantation. It is easier to understand how moderate

or severe endometriosis reduces fertility, since major pelvic adhesions, when present, may prevent the release of eggs, block sperm entry into the fallopian tube, and prevent the fallopian tube's ability to pick up eggs during ovulation.

HOW IS ENDOMETRIOSIS DIAGNOSED?

Endometriosis cannot be diagnosed by symptoms alone. Your physician may suspect endometriosis if you are having fertility problems, severe menstrual cramps, pain during intercourse, or chronic pelvic pain. It also may be suspected when there is a persistent ovarian cyst. Endometriosis is often found in close family members like a mother or sister. Remember, however, that many women with endometriosis have no symptoms at all.

Pelvic Exam

Certain findings of a pelvic examination may lead your physician to suspect endometriosis. The doctor may feel a tender nodule behind the cervix during a combined vaginal and rectal exam, or the uterus may be tilted back or retroverted. One or both ovaries may be enlarged or fixed in position. Occasionally, endometriosis implants may be visible in the vagina or the cervix. Although your physician may suspect endometriosis, based on your history and the results of a pelvic exam, surgery is needed to confirm endometriosis.

Laparoscopy

Laparoscopy is an outpatient surgical procedure that enables the physician to see the pelvic organs and look for endometriosis. During laparoscopy, a thin camera called a laparoscope is inserted into the abdomen through a small incision near the navel. The laparoscope allows the surgeon to see the surface of the uterus, fallopian tubes, ovaries, and other pelvic organs. For more information on laparoscopy, please see the American Society for Reproductive Medicine (ASRM) booklet titled *Laparoscopy and Hysteroscopy*.

The extent of endometriosis is evaluated during laparoscopy. A clinical staging system is used to describe the extent of endometriosis, adhesions, and endometrioma cysts in the ovary. A score of 1-15 indicates minimal or mild endometriosis and a score of 16 or higher indicates moderate or severe disease. The staging system, however, does not correlate well with a woman's chance of conceiving with fertility treatment or the degree of pain that she experiences.

Your physician may decide to treat your endometriosis during the laparoscopy. Additional small incisions allow your physician to insert surgical instruments. Endometriosis may be coagulated, vaporized, burned, or excised, and scar tissue or ovarian cysts may be removed. During laparoscopy, your doctor can determine if your fallopian tubes are open by injecting dye through the cervix into the uterus. If the tubes are open, the dye will flow out the ends of the fallopian tubes.

Other Diagnostic Procedures

In special cases, your doctor may use special imaging techniques such as ultrasound, computerized tomography (CT) scan, or magnetic resonance imaging (MRI) to gather more information about your pelvis. These procedures can identify cysts and help characterize the fluid within an ovarian cyst, although an endometriotic cyst and a normal corpus luteum cyst may have a similar appearance. These tests are useful when evaluating women experiencing infertility and/or chronic pelvic pain.

TREATMENT OF PAIN

Your doctor will consider your symptoms, physical examination, test results, and your goals and concerns before advising treatment. Women with mild symptoms may benefit from lifestyle changes or require no treatment at all. Hormonal therapy may be suggested when pain interferes with family, work, or daily activities, since these therapies usually reduce pelvic pain and dyspareunia in more than 80% of women in whom endometriosis is diagnosed. Since several effective treatments are available, the choice is made based on side effects and cost. Hormonal treatments are not effective for large ovarian endometriomas, and surgery is necessary. Surgery also may be indicated when medical treatment is unsuccessful or when medical conditions prohibit the use of hormone treatments.

Lifestyle Modifications

Some women have found that their pain is improved by exercise and relaxation techniques. Although natural supplements have not been shown to reduce endometriosis-related pain, over-the-counter, non-steroidal, anti-inflammatory medications, like ibuprofen and naproxen, reduce painful menstrual cramps. When painful intercourse is a problem, changing positions prevents pain caused by deep penetration. In spite of these measures, medical treatment is frequently needed.

Hormonal Contraceptives
Birth control pills often reduce menstrual cramping and pelvic pain that may be associated with endometriosis. No one pill appears to be better than any other when treating endometriosis symptoms.

Birth control pills may be prescribed continuously without pausing for menstrual periods to women with endometriosis. Side effects of this approach include fluid retention and irregular spotting or bleeding. Serious side effects of birth control pills are very rare and include stroke, vascular problems, and heart disease. It also should be noted that endometriosis may be diagnosed in women taking birth control pills and that birth control pills have never been shown to prevent the development of endometriosis. No data are currently available concerning the effect of transdermal contraceptive patches and vaginal contraceptive rings upon endometriosis.

Progestins
Progestins are synthetic medications that have progesterone-like activity upon the endometrium, the uterine lining. Many progestins have been demonstrated to reduce endometriosis-associated pelvic pain. The most common side effects of progestin therapy are irregular uterine bleeding, weight gain, water retention, breast tenderness, headaches, nausea, and mood changes, particularly depression. Progestins are considerably less expensive than other medications and may be prescribed as pills, injections, or the levonorgestrel-containing intrauterine contraceptive devices (IUDs). Drawbacks of the injectable form known as depot medroxyprogesterone acetate is that it may inhibit fertility for many months after treatment is discontinued and that its use for longer than six months may cause a significant loss of bone mineral density and place a woman at risk for osteoporosis.

Gonadotropin-releasing Hormone (GnRH) Analogs
GnRH analogs, particularly GnRH agonists, cause estrogen levels to fall to menopausal levels, and menstruation does not occur. These drugs are highly effective for painful endometriosis. Side effects include menopausal symptoms: hot flashes, vaginal dryness, and loss of calcium from the bones. The medications are usually given for six months. Low-dose estrogen-progestin hormone therapy or progestins alone may be added to prevent bone loss when prolonged treatment is needed or if menopausal symptoms

are severe. Calcium supplementation and exercise are recommended to reduce the loss of bone density that occurs with therapy. Most bone density loss is temporary and is regained after treatment is stopped. In a recent comparative trial, GnRH agonist therapy with leuprolide acetate and progestin therapy with depot medroxyprogesterone acetate for subcutaneous injection (DMPA-SC) were equally effective in reducing endometriosis-associated pain; both medications maintained clinical improvement for 12 months following the end of treatment. DMPA-SC was associated with less bone loss and fewer hot flashes than depot leuprolide.

Danazol

Danazol, a medication that is similar to male hormones, also is highly effective for pain due to endometriosis. Common side effects may include water retention, acne, irregular vaginal bleeding, muscle cramps, and reduced breast size. Uncommon, but irreversible, side effects include deepening of the voice and growth of facial or body hair. Danazol less frequently is used to treat endometriosis today than it was 20 years ago because medications such as GnRH agonists are equally effective and have a more favorable side-effect profile than danazol.

Surgery for Pain

Surgical treatment of endometriosis often is performed when endometriosis is diagnosed. Laparoscopy is usually the first-line treatment for endometriosis. Laparoscopy is when a lighted telescope is placed through an incision below the belly button to view the pelvic cavity. During laparoscopy, the doctor may remove adhesions, endometriotic nodules, and ovarian cysts. Laparoscopy often is used to treat recurrent endometriosis when the goal is to preserve future fertility. Sometimes the severity of endometriosis is such that major surgery is advised to remove endometriosis and adhesions. Removal of the entire ovarian cyst with its wall is superior to merely draining the endometriotic cyst for treating pain and prevention of recurrent cysts.

Overall, fertility-preserving endometriosis surgery improves pain for 60% to 80% of women. After surgery, medical therapy may be needed to control symptoms of endometriosis because 40% to 80% of women experience recurrent pain symptoms within two years of surgery. Recurrent symptoms occur within 5 to 10 years in more than 50% of women after completing a 6-month course of medical treatment. Long-term management of endometriosis-related pain usually is necessary.

Hysterectomy (removal of the uterus) with removal of the ovaries is an effective approach to definitively treat endometriosis after childbearing is completed. This surgery provides final relief from endometriosis-related pain in more than 90% of women. In contrast, if one or both ovaries are preserved, there is a much greater chance that symptoms will recur, and additional surgery will be required. If needed, low-dose hormone therapy (estrogens or progestins) reduces hot flashes and menopausal symptoms that occur after hysterectomy with bilateral removal of the ovaries.

Pregnancy

Although it has not been proven that pregnancy is therapeutic, endometriosis often regresses during pregnancy. The hormonal environment produced by pregnancy may inhibit the condition. However, endometriosis often returns some time after pregnancy. A woman must carefully consider her immediate and long-term goals before choosing pregnancy as a treatment for endometriosis.

Team Approach to Pain

Some women continue to experience severe pain in spite of hormonal and surgical treatments. When pain persists, a multidisciplinary "team" approach may be helpful. This approach combines the expertise of a group of specialist physicians at a "pain center," along with mental health specialists, counselors, and physical therapists. Nerve blocks, acupuncture, or other treatments may be beneficial.

Investigational Drug Treatments for Endometriosis

A number of new drugs are under research and development for endometriosis. Antiprogestins, such as mifepristone and onapristone, have had success in small studies. These medications work by modulating the estrogen and progesterone receptors in endometriosis implants and causing atrophy of endometriosis. Selective estrogen receptor modulators (SERMs) may be effective by virtue of their antiestrogen effect. Raloxifene is the SERM that currently shows some promise. In contrast, tamoxifen, another SERM, may cause endometriosis to worsen. Aromatase inhibitors, medications that inhibit aromatase, an enzyme that is required for estrogen synthesis, have had success in small studies and case reports. Anastrozole and letrozole are two examples of aromatase inhibitors undergoing investigation. Leukotriene antagonists theoretically will improve dysmenorrhea by modulating the activity of leukotrienes,

immune chemicals that contribute to inflammation and pain. Other immune modulators are under investigation in animal models as potential therapies for endometriosis. These include loxoribine, levamisole, interleukin-12, and interferon-alpha-2b.

TREATMENT OF INFERTILITY

The entire infertility evaluation should be completed before considering treatment for endometriosis. For infertile women with suspected minimal or mild endometriosis, a decision must be made whether to perform laparoscopy before starting treatments to enhance fertility. Clearly, factors such as a woman's age, duration of infertility, and pelvic pain must be considered. Other infertility factors may co-exist and impact success rates and treatment outcome. If pain also is a concern, laparoscopy and surgical treatment seem prudent. In addition, laparoscopy and possible laparotomy (large incision) are recommended when moderate or severe endometriosis is suspected and no other cause of infertility has been found.

Surgery for Infertility

Laparoscopic treatment of minimal and mild endometriosis has been associated with a small but significant improvement in pregnancy rates. In the largest study to date, 29% of women who had their endometriosis treated conceived within nine months, in contrast to only 17% of women whose endometriosis was diagnosed but not treated during laparoscopy. Although this is a modest treatment benefit, it suggests that there is a period of enhanced fertility after laparoscopic treatment of endometriosis. Treatment of moderate and severe endometriosis by laparoscopy and/or laparotomy increases pregnancy rates for women in whom no other causes of infertility have been found. There is no evidence that the outcome is improved by any specific method used to treat endometriosis, such as electrosurgery, laser, excision, or ablation.

Medical Therapy for Infertility

Whereas medical therapy is effective for relieving pain associated with endometriosis, there is no evidence that medical treatment of endometriosis by birth control pills, progestins, GnRH analogs, or danazol improves fertility. Furthermore, surgery combined with medical therapy has not been shown to enhance fertility. Instead, medical treatment before or after surgery may delay unnecessarily further fertility therapy. Nevertheless, these treatments are effective in reducing pelvic pain and painful intercourse associated with endometriosis. Therefore, hormonal suppression may improve comfort and sexual activity in infertile women

with endometriosis and pelvic pain, thereby improving fertility after the completion of the treatment.

Expectant Management

A "watchful waiting" approach, also called expectant management, may be an option for younger women after surgery for endometriosis. Up to 40% of women may conceive during the first 8 to 9 months after laparoscopic management of minimal or mild endometriosis. Fertility-enhancing treatments may be offered as an alternative to expectant management or if pregnancy fails to occur within a reasonable time frame. A woman's age is an important factor in deciding upon specific treatment. Women aged 35 and older have lower fertility potential and higher chances of miscarriage. The decrease in fertility due to endometriosis and age may be additive. Therefore, more aggressive fertility treatments seem reasonable in older women with endometriosis. Watchful waiting is not a good option for women with infertility associated with severe endometriosis.

FERTILITY-ENHANCING TREATMENTS

Controlled Ovarian Stimulation and Intrauterine Insemination

Several studies have shown that fertility is enhanced in women with minimal or mild endometriosis by controlled ovarian stimulation (COS) with intrauterine insemination (IUI). This treatment also is called superovulation with IUI. Without treatment, women with minimal/mild endometriosis-related infertility have spontaneous pregnancy rates of 2% to 4.5% per month. The monthly pregnancy rate with intrauterine insemination alone for endometriosis is approximately 5%, and it is approximately 4% to 7% per month for clomiphene citrate, human menopausal gonadotropin (hMG), or follicle-stimulating hormone (FSH) injections when used without intrauterine insemination. However, clomiphene plus IUI improves the monthly pregnancy rates to approximately 9% to 10%, at least for the first 4 treatment cycles. Human menopausal hormone (hMG) or FSH plus IUI improves the success to 9% to 15% per month. COS with clomiphene plus IUI carries a 5% to 15% risk of twins. Multiple pregnancy and ovarian hyperstimulation are risks associated with hMG IUI therapy.

Assisted Reproductive Technology

In general, couples diagnosed with endometriosis have success rates with assisted reproductive technology (ART) procedures such as in vitro fertilization and embryo transfer (IVF-ET) that are similar to those for couples with other causes of infertility. Success rates for ART procedures vary greatly depending on a woman's age. Nationally, live-birth rates

for IVF-ET are approximately 42% for women under age 35, 32% from ages 35 to 37, 22% from ages 38 to 40, and about 12% between 41 and 42 (2010 data). IVF-ET is the most effective treatment for moderate or severe endometriosis, particularly if surgery fails to restore fertility. Some physicians recommend long-term pretreatment with GnRH analogs before starting IVF in women with severe endometriosis, since some, but not all, studies have shown that this approach may improve IVF-ET outcomes.

CONCLUSION

Endometriosis affects millions of women throughout the world. It demands professional attention, especially when fertility is impaired or pain affects lifestyle. Endometriosis may be a lifelong problem, because pain frequently recurs after therapy, and endometriomas also may recur. It therefore has the potential to disrupt quality of life and cause significant emotional distress. A woman's age, duration of infertility, pelvic pain, and stage of endometriosis are taken into account when formulating an infertility treatment plan. Choosing a qualified specialist - one who is familiar with the latest developments in management of endometriosis - is your best strategy. The physician you choose will recommend the most appropriate course of treatment based on your personal situation.

For more information on this and other reproductive health topics visit www.ReproductiveFacts.org

Let Us Know What You Think!
Email your comments on this booklet to asrm@asrm.org.
In the subject line, type "Attention: Patient Education Committee"

GLOSSARY

Adenomyosis. A benign (non-cancerous) invasion of endometrial tissue into the uterine wall.

Adhesions. Bands of fibrous tissues that bind the abdominal or pelvic organs together.

Assisted reproductive technology (ART). A fertility-enhancing procedure that most commonly refers to in vitro fertilization and embryo transfer. Also includes procedures in which unfertilized eggs and sperm are placed into the fallopian tube (gamete intrafallopian transfer - GIFT), or fertilized eggs are placed into the fallopian tube (zygote intrafallopian transfer - ZIFT).

Biopsy. The removal of a tissue sample for microscopic examination. The term also refers to the tissue removed.

Cervix. The lower part of the uterus that opens into the vagina.

Clomiphene. A fertility pill used to promote ovulation, often of more than one egg.

Computerized tomography (CT) scan. A technique of x-ray imaging that creates a three-dimensional image.

Controlled ovarian stimulation (COS). Treatment with clomiphene, human menopausal gonadotropin, or follicle-stimulating hormone injections to cause more than one egg to develop and release during ovulation.

Corpus luteum. A yellow body in the ovary that forms from a follicle after ovulation; the follicle has matured, ruptured, and released its egg. The corpus luteum produces progesterone and estrogen during the second half of a normal menstrual cycle.

Danazol. A synthetic, weak male hormone that blocks ovulation and suppresses estrogen levels; used to treat endometriosis.

Dysmenorrhea. Painful menstrual cramps.

Dyspareunia. Painful intercourse; sometimes a symptom of endometriosis.

Endometrioma. A blood-filled "chocolate" cyst that can occur when endometriosis tissue develops in the ovary.

Endometrium. The lining of the uterus that is shed each month during menstruation.

Estrogen. A hormone produced mainly by the ovaries. Estrogen largely is responsible for stimulating the endometrium to thicken and prepare for pregnancy during the first half of the menstrual cycle.

Expectant management. Period of "watchful waiting" without active treatment.

Fallopian tubes. A pair of organs attached to the uterus. The egg travels from the ovary to the uterus through a narrow passageway inside the tubes, and natural fertilization occurs in the fallopian tubes.
Follicle. A small, spherical cyst located under the surface of the ovary. It contains the egg, the surrounding layer of cells, and fluid. The follicle enlarges during the first half of the menstrual cycle. At ovulation, the mature follicle releases the egg.
Follicle-stimulating hormone (FSH). A hormone that stimulates growth of the follicle. May be used as a fertility injection to promote ovulation, often of more than one egg.
GnRH analogs. Synthetic chemicals similar to gonadotropin-releasing hormone, the natural hormone that prompts the pituitary gland to stimulate the ovaries to produce estrogen and progesterone. Prolonged use of GnRH analogs causes menopausal levels of estrogen.
Human menopausal gonadotropin (hMG). A fertility injection used to promote ovulation, often of more than one egg.
Implants. Small, flat patches of endometrial-like cells growing outside their normal location.
In vitro fertilization and embryo transfer (IVF-ET). A procedure in which eggs are fertilized in a laboratory and one or more embryo(s) is placed into the uterus.
Intrauterine insemination (IUI). An office procedure in which prepared sperm are placed into the uterus.
Laparoscope. A thin camera used to inspect the organs in the pelvis and abdomen.
Laparoscopy. A procedure in which a surgeon inserts a laparoscope through a small incision in or below the navel. This allows the doctor to inspect the uterus, fallopian tubes, ovaries, and other organs in the pelvis and abdomen. Additional incisions may be made for inserting surgical instruments.
Laparotomy. A procedure in which a surgeon makes an incision in the abdomen, usually several inches long, in order to treat conditions such as extensive endometriosis.
Magnetic resonance imaging (MRI). A diagnostic imaging procedure that absorbs energy from high frequency radio waves.
Nodules. Penetrating knot-like collections of endometriosis.
Oocyte. The female sex cell; the egg.
Ovary. One of two female glands that contains eggs and produces estrogen and progesterone.
Ovulation. Release of the egg from the ovary.

Peritoneum. A clear tissue that lines the pelvic and abdominal cavity.
Primary dysmenorrhea. Pain associated with menstrual periods that decreases with age.
Progesterone. An ovarian hormone secreted by the corpus luteum during the second half of the menstrual cycle.
Progestin. A synthetic hormone that is similar to progesterone.
Prostaglandins. Hormone-like chemicals produced in large amounts by endometrial cells. They stimulate the uterine muscles to contract and are largely responsible for menstrual cramps.
Pseudo-menopause. A hormonal state created by taking medication and characterized by low estrogen levels similar to those found at menopause.
Retroverted uterus. A uterus that is tilted backwards. This is found in approximately 10% of normal women.
Reversible menopause. A hormonal state in which estrogen levels fall to menopause levels; ovulation and menstruation do not occur. Reversible menopause is created by taking GnRH analogs.
Sacrum. The last vertebrae of the spinal column; the base of the spine.
Secondary dysmenorrhea. Pain associated with menstrual periods that begins later in a woman's reproductive life span. It may be due to an abnormal condition such as endometriosis or infection.
Superovulation. Treatment with clomiphene, human menopausal gonadotropin, or follicle-stimulating hormone injections to cause more than one egg to develop and release during ovulation.
Ultrasound. A technology that uses high-frequency sound waves to form an image of internal organs.
Uterosacral ligaments. Ligaments that attach to the lowest part of the uterus and the cervix to the sacrum.
Uterus. The muscular organ in which a pregnancy develops.

Notes

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