

## Endometriosis

Endometriosis is a common disease in reproductive age women. It is defined as endometrium tissue (the tissue that lines the inside of the uterus) located elsewhere in the body. It is usually found in the pelvis, but in some case can be uncovered at distant locations such as the leg, chest, and even brain. Nevertheless, the vast majority is found in the pelvis in that the most common cause of the disease is menstrual tissue exiting the uterus via the Fallopian tubes and spilling into the pelvis, where endometrial tissue can implant and grow.

The disease can be found in up to 10% of all women, and can cause symptoms in roughly half. The primary symptoms are pelvic pain and infertility, but when the disorder is in unusual locations the symptoms can be site specific. For example, endometriosis of the lung may cause you to cough up blood during your menstrual period.

Pelvic pain from endometriosis can come in a variety of forms. You can have enhanced pain during your period (dysmenorrhea), pain during intercourse (dyspareunia), or pain that is random or constant (non-cyclic pelvic pain). It is interesting that the amount of endometriosis does not correlate well with the amount or type of pain. Rather, location seems to be more critical in determining the type and degree of symptoms.

Infertility, too, is a common side effect of endometriosis. Severe endometriosis can cause scarring in the pelvis which may distort normal anatomy, making the reproductive process more difficult if not impossible. However, even small amounts of endometriosis without visible scarring can reduce fertility, in all likelihood by secretion of biochemicals that have an adverse effect upon sperm, eggs, and embryos.

The diagnosis of endometriosis can only be made definitively by performing surgery and cutting out a piece of the disease and examining it under the microscope. However, it is nearly as accurate to simply obtain a good history from the patient and rule out other causes of the symptoms. For instance, if a patient has non-cyclic pelvic pain, investigation of other causes (bowel discomfort, muscle weakness or strain, psychological, etc) can be undertaken. If all are ruled out, then endometriosis is highly likely. This is termed "presumptive endometriosis". Occasionally endometriosis can also be diagnosed by imaging studies such as ultrasound or magnetic resonance imaging (MRI). However, if no endometriosis is seen on these tests, it does not rule out the possibility that endometriosis still is present.

### Treatment of endometriosis

If endometriosis is found and symptoms are present, it is treated. There are three options for treatment: medical treatment, surgical treatment, and a combination of both medical and surgical treatment.

### *Medical treatment*

The goal of medical treatment is not to eliminate the disease but rather to suppress its biochemical activity and thus reduce or eliminate symptoms. In the case of pelvic pain, especially pain related to menstrual periods, the strategy is to reduce or eliminate periods; this can be accomplished with continuous oral contraceptives, a group of compounds called progestogens, and the progesterone-secreting IUD. Each of these changes the hormonal environment to reduce growth of the lining of the uterus and cause lighter or disappearing periods.

A second strategy is to simply use pain medications, such as ibuprofen. Frequently, this is used in combination with the hormonal treatments above as a first-line therapy for the disease.

If first-line treatment fails to work, there are a group of drugs called GnRH analogues that work even better to halt the growth and activity of endometrial tissue. These drugs, commonly known as leuprolide and elagolix, reduce the level of hormones present that usually stimulate the ovaries to make estrogen. It turns out that estrogen is the key component to growing and maintaining endometrial tissue and endometriosis, so by lowering this hormone the disease is suppressed. However, low estrogen levels can cause unpleasant side effects, and so what is commonly done with leuprolide is to simultaneously administer a bit of hormones to replace those suppressed by the drug, but not enough to cause the endometriosis to become active. This is called add-back therapy.

Unfortunately, medical therapy, while excellent for many patients with pelvic pain, is ineffective in increasing fertility in women with this disease.

### *Surgical treatment*

Surgical treatments for endometriosis are nearly exclusively performed by laparoscopy, except in extreme cases. There are several approaches to surgery: you can try to “kill” the endometriosis by burning it with electrical current, or you can remove the disease by vaporizing it (laser) or cutting it out (variety of different techniques). The advantages of excision are that you are sure to have removed the disease and you can confirm it is endometriosis by examination in the laboratory. This can be very dangerous in some locations, and many surgeons will simply burn lesions (or even leave them in place) if they are afraid of damaging nearby structures. An experienced endometriosis surgeon, however, can nearly always excise the disease, resulting in better results.

Another goal of surgery is to remove scar tissue and normalize pelvic anatomy, particularly if future fertility is the issue. This type of surgery is best undertaken by an experienced gynecologic surgeon with special training in fertility surgery.

Finally, if pain is severe and nothing seems to work well, in those patients who no longer desire fertility a hysterectomy or hysterectomy with removal of ovaries is an option.

## Combination therapy

In patients with pain it is often desirable to combine medical and surgical therapy. This is best done by performing surgery first, then post-surgery starting the patient on a medical therapy for a minimum of six months. This approach has been shown to prolong the pain relief for the patient compared to surgery alone. Oral contraceptives are commonly used, but any of the hormonal therapies can be a reasonable choice.

## Endometriomas

A special type of endometriosis is called an endometrioma. This is a cyst in the ovary caused by endometriosis. It can be particularly problematic in that it rarely responds to medical therapy. Surgical treatment is performed by opening the ovary, removing the cyst, and then (if necessary) repairing the ovary. As you might expect, this can be quite damaging to the ovary and can cause considerable problems with future fertility. For this reason, a surgeon experienced in fertility surgery of the ovary should be the one to perform this procedure.

Often endometriomas are present but without any pain. In this situation they are sometimes removed, especially if large and appear to be distorting anatomy. However, they are often left in place as this seems to not effect fertility much.