Endometriosis and infertility

Understanding endometriosis in the context of fertility

Endometriosis is estrogen-responsive and inflammatory. The ectopic endometrial-like lesions can bleed, scar, and trigger immune activity, leading to pelvic adhesions and distorted anatomy. When adhesions tether the ovaries, fallopian tubes, uterus, or bowel, the egg and sperm may have more difficulty meeting. If a fallopian tube is blocked or pulled away from the ovary, natural conception may become less likely.

Endometriosis is commonly staged surgically as minimal, mild, moderate, or severe based on lesion location, depth, adhesions, and ovarian involvement. However, staging is not a perfect predictor of fertility. A person with stage I disease may have biochemical inflammatory changes affecting fertility, while someone with more advanced disease may still conceive. This mismatch can be frustrating, but it also means that decisions should not be based on stage alone.

How endometriosis may contribute to infertility

Fertility depends on coordinated ovulation, egg quality, sperm function, tubal pickup, fertilization, embryo development, implantation, and early pregnancy

support. Endometriosis can interfere at several points.

Inflammation: Endometriotic lesions produce cytokines, prostaglandins, and oxidative stress that may affect sperm motility, egg quality, fertilization, and embryo development.
Adhesions and pelvic distortion: Scar tissue may impair the normal relationship between the ovary and fallopian tube, reducing the chance that an ovulated egg is captured.
Ovarian endometriomas: These cysts, sometimes called chocolate cysts, can be associated with reduced ovarian reserve and may complicate egg retrieval or surgery.
Altered follicular environment: Inflammation around the ovary may influence follicle development and oocyte competence.
Possible implantation effects: Some studies suggest changes in endometrial receptivity or immune signaling, although this remains complex and not fully explained.

It is also important not to assume endometriosis is the only factor. Age-related egg quality, irregular ovulation, thyroid disease, male factor infertility, tubal disease, and other medical issues may coexist. A broad fertility assessment helps avoid missed contributors.

Symptoms can be obvious, subtle, or absent

Classic symptoms include painful periods, deep pain with sex, chronic pelvic pain, painful bowel movements during menstruation, bladder pain, heavy bleeding, fatigue, and sometimes gastrointestinal symptoms that flare cyclically. Yet some people with endometriosis have little pain and present mainly with difficulty conceiving.

Pain severity does not reliably indicate fertility impact. Deep infiltrating endometriosis may cause severe pain, while minimal or mild disease may still be linked with infertility through inflammatory mechanisms. Conversely, visible lesions found during surgery do not always explain all fertility challenges. If periods are severely painful, if pain limits daily activities, or if conception is taking longer than expected, it is reasonable to discuss endometriosis with a gynecologist or fertility specialist.

Evaluation when endometriosis and infertility are suspected

A careful evaluation usually starts with a medical history, menstrual and pain pattern review, prior surgery or infection history, medication review, and a partner or donor sperm assessment when relevant. Clinicians may also assess ovulation, ovarian reserve, uterine anatomy, and tubal patency.

Transvaginal ultrasound: Useful for identifying ovarian endometriomas and some structural abnormalities, though superficial peritoneal endometriosis may not be visible.
MRI: Sometimes used when deep infiltrating endometriosis is suspected, especially involving the bowel, bladder, or uterosacral ligaments.
Ovarian reserve testing: Anti-Mˆ…llerian hormone, antral follicle count, and follicle-stimulating hormone may help estimate likely response to fertility treatment, though they do not directly measure egg quality.
Tubal assessment: Hysterosalpingography, hysterosalpingo-contrast sonography, or laparoscopy may be used to evaluate whether the fallopian tubes are open.
Semen analysis: Male factor infertility is common and should be assessed early rather than after prolonged delays.

Laparoscopy with histologic confirmation has historically been considered the definitive diagnostic method, but not everyone needs immediate surgery simply to establish a diagnosis. Many decisions now balance symptom severity, imaging findings, fertility timeline, and whether surgical results would change management.

Treatment options before pregnancy: balancing pain relief and fertility goals

Endometriosis treatment can aim to reduce pain, suppress disease activity, improve fertility, or support assisted reproduction. These goals sometimes overlap, but not always. Hormonal suppression with combined contraceptives, progestins, GnRH agonists, or GnRH antagonists may improve pain by reducing ovarian estrogen stimulation. However, these medications usually prevent ovulation while being used, so they are not fertility treatments during active attempts to conceive.

For someone actively trying to become pregnant, options may include a time-limited period of expectant management, ovulation induction in selected

cases, intrauterine insemination, surgery, or IVF. The choice depends heavily on age, duration of infertility, ovarian reserve, tubal status, sperm results, severity of endometriosis, and whether pain is also a major concern.

Because fertility declines with age, prolonged treatment that delays conception attempts may not be appropriate for everyone. This is especially relevant for people over 35, those with low ovarian reserve, or those who have already been trying for many months.

Surgery: when it may help and when caution is needed

Laparoscopic excision or ablation of endometriotic lesions and adhesiolysis may improve pain and may increase natural pregnancy rates in selected people with minimal to mild endometriosis. Surgery can also restore anatomy when adhesions distort the pelvis. For moderate to severe disease, surgery may be useful for pain, large endometriomas, suspected malignancy, or anatomy that interferes with fertility procedures.

However, surgery is not automatically the best fertility strategy. Operations on ovarian endometriomas can reduce ovarian reserve if healthy ovarian tissue is inadvertently removed or damaged. Repeat ovarian surgery may carry particular risk. For some patients, proceeding directly to IVF or retrieving and freezing eggs or embryos before surgery may be discussed.

A thoughtful surgical plan should include the surgeon’s endometriosis expertise, the likelihood of symptom relief, potential fertility benefit, ovarian reserve considerations, and whether bowel, bladder, or ureter involvement requires a multidisciplinary team.

IUI, IVF, and fertility preservation

Intrauterine insemination may be considered in selected cases of minimal or mild endometriosis, especially when tubes are open, sperm parameters are adequate, and age is favorable. It is sometimes combined with ovulation induction to increase the number of available eggs in a cycle. Success rates vary and should be discussed with a fertility clinician.

In vitro fertilization can bypass some endometriosis-related barriers,

particularly tubal dysfunction, pelvic adhesions, and impaired egg-sperm interaction in the pelvis. IVF may be recommended sooner when endometriosis is moderate or severe, when fallopian tubes are damaged, when there is male factor infertility, when ovarian reserve is reduced, or when time is a major concern.

Fertility preservation may be relevant for people with bilateral endometriomas, anticipated ovarian surgery, recurrent disease, or a desire to delay pregnancy. Egg or embryo freezing does not guarantee a future pregnancy, but it can provide additional reproductive options.

Emotional health and decision-making

Endometriosis-related infertility can be uniquely exhausting because it may combine chronic pain, uncertainty, invasive testing, repeated treatment decisions, and the grief of delayed pregnancy. Many people also feel dismissed if symptoms were normalized for years as ordinary period pain. Emotional distress is not a minor side issue; it can affect relationships, work, sexuality, and the ability to continue treatment.

Support may include counseling, pelvic pain psychology, fertility counseling, support groups, physiotherapy for pelvic floor dysfunction, and clear communication with clinicians. It is reasonable to ask for explanations in plain language, to seek a second opinion, and to request that both pain control and fertility goals be considered together.