



THE UNIVERSITY
of EDINBURGH



Endometriosis and Fertility

What are the effects of endometriosis on fertility?

There is an association between endometriosis and infertility, and it is estimated that up to 50% of patients presenting with infertility have endometriosis. Patients with endometriosis take longer to conceive compared to those without the condition or those who have unexplained infertility; however, many patients with endometriosis will be able to conceive naturally. Patients with infertility are more likely to have advanced endometriosis.

How does endometriosis affect fertility?

Endometriosis-associated infertility is not fully understood and involves multiple factors, such as mechanical, inflammatory, hormonal, genetic and environmental that can disturb normal reproductive function. Endometriosis may negatively affect egg reserve and quality, fallopian tube function, fertilization, the uterus and implantation of an embryo. Endometriosis within an ovary (endometrioma) can decrease ovarian reserve. Endometriosis can contribute to infertility via distortion of pelvic anatomy by causing pelvic scarring and by tubal blockage.

I have endometriosis. Does this mean I need fertility treatment?

A diagnosis of endometriosis should not stop you from trying to conceive naturally. Many patients with endometriosis will fall pregnant naturally, especially if the disease is minimal or mild. In addition to endometriosis, there may be other factors contributing to the delay in conceiving such as age, sperm parameters or tubal disease. Some patients with endometriosis will require fertility treatment, such as *in-vitro fertilisation* (IVF). Other factors such as the severity of endometriosis, previous surgery, duration of infertility and patient's choices will influence the decision regarding whether fertility treatment is required.

What are the effects of medical management of endometriosis on fertility?

Patients with endometriosis can be faced with two challenges: management of endometriosis-related pain and endometriosis-related infertility. Medical management that relieves the pain aspects of endometriosis are often contraceptive, although reversible. Some medications used in endometriosis should be avoided if you are trying to become pregnant as they can harm the baby. Medical management of endometriosis itself has no effect on improving natural conception and it will not prevent natural decline in fertility with age. Medical treatment also does not have a negative effect on your fertility.

In those patients not wishing immediate fertility, hormonal suppression can be used to alleviate pain whilst awaiting endometriosis surgery. Following endometriosis surgery, medical therapies can reduce the risk of disease recurrence and endometrioma formation, and thus may have a role in

patients awaiting fertility treatment. Advantages and disadvantages of this can be discussed further with your endometriosis and fertility specialist.

What are the effects of surgical management of endometriosis on fertility?

Surgery alone is not the treatment for endometriosis-related infertility, but may be indicated for symptomatic control of endometriosis.

The presence of an ovarian endometrioma can reduce ovarian function. However, removal of an endometrioma from an ovary may inadvertently remove some healthy tissue and also cause some heat injury, which decreases the function of an ovary further. The risk of decreasing ovarian function is increased if an endometrioma needs to be removed from both of your ovaries or if there is a need for repeat surgery after cyst recurrence. Surgery for severe endometriosis may involve additional risks to the bowel, bladder, ureters (structures that run from the kidneys to the bladder).

In some cases, before a decision is made regarding surgery, the endometriosis and/or the fertility medical team may suggest performing a blood test for a marker of ovarian function, called Anti-Mullerian Hormone (AMH). AMH levels can indicate whether someone has a lower volume of eggs remaining in their ovaries than would be expected for their age. AMH levels and additional factors, including your age, severity of the symptoms, previous surgery, size of endometrioma and duration of infertility can help to make balanced decisions regarding whether surgery is recommended prior to trying to conceive or starting fertility treatment. The endometriosis team will discuss such patients at their regular multidisciplinary team meeting, with input from a fertility specialist, and make a recommendation regarding surgery following this.

I am undergoing IVF and I have endometriosis. Can medical and/or surgical treatment of endometriosis improve IVF success?

Unfortunately, IVF success rates appear to be lower in women with endometriosis, especially if it is severe.

There is no good evidence that medical treatment for endometriosis improves IVF success rates. Suppressing hormonal therapies may be recommended after your endometriosis surgery to prevent endometriosis related symptoms and endometrioma recurrence whilst awaiting fertility treatment.

There is no good evidence to suggest that surgery for mild or moderate endometriosis increases the success of IVF. It is not clear whether removing severe endometriosis is beneficial to solely improve IVF success rates, given the extent of the surgery required and potential risks of complications associated with surgery. Surgery to remove ovarian endometrioma may be considered prior to IVF for endometriosis-associated symptom control and/or to improve access to your ovaries to collect the eggs.

Does IVF have an effect on endometriosis?

During IVF treatment, an egg collection procedure is performed by inserting a needle through the vagina into the pelvis and into the ovary under ultrasound scan guidance. In some cases, endometrioma may be entered inadvertently during egg collection and cause infection. Prophylactic antibiotics will be given to you to reduce this chance.

IVF treatment itself has not been shown to advance endometriosis, although medication used may cause a temporary flare up of endometriosis-associated symptoms.

How does endometriosis affect my pregnancy?

Pregnancy itself can suppress endometriosis-related pain symptoms, and full-term births and prolonged breast-feeding decrease the risk of developing endometriosis.

Is there a role for fertility preservation in endometriosis?

Endometriosis is a condition, where the disease process itself as well as its treatment, especially repeat surgery, can accelerate decline in ovarian reserve i.e. eggs and thus cause premature infertility in some cases. Fertility preservation through the process of egg, embryo and/or reproductive tissue cryopreservation, commonly referred to as 'freezing' is well-established. It is commonly used for those patients undergoing cancer treatment, but the role of fertility preservation for patients with endometriosis is an ongoing debate from both success and funding point of view.

Awareness of the adverse effects of endometriosis on fertility is increasing. Patients with endometriosis and your endometriosis experts may consider discussing fertility preservation in selected cases with risk factors for ovarian compromise, such as large, multiple endometriomas, multiple surgery, reduced AMH, endometrioma recurrence. Personal factors, such as age, AMH and previous surgery will contribute to the outcomes of freezing eggs/ embryos. It is important to understand that fertility preservation is not a guarantee. There are other complexities in performing ovarian stimulation and egg collection in patients with endometriosis. Those include risks of flare up of symptoms, difficult access to the ovaries to collect eggs, infection, bleeding and low egg yield. Fertility preservation can be discussed further with a fertility expert in selected cases.