

Endometriosis Surgery 2022

A guide for women and their families

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About Professor Steve Robson MD PhD



Steve Robson is internationally recognised as one of the world's foremost specialists: in 2019, Steve was the recipient of the *American College of Obstetricians and Gynaecologists* highest honour - the **Distinguished Service Award**. He has been involved in IVF and endometriosis surgery for 25 years.

Steve undertook his specialist training in Australia, England, and Canada. In his first year of formal training in IVF and reproductive medicine in 1998 he won the **Young Clinician's Prize** of the Fertility Society of Australasia (FSA).

Steve Robson is past-President of the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG), and is Professor in Obstetrics and Gynaecology at the Australian National University. He holds two doctorates, both a Doctor of Medicine (MD) and PhD, as well as Fellowships of the Australian, British, and American Colleges of Obstetricians and Gynaecologists. He is a Fellow of the Royal Society of Medicine.

Professor Robson is a member of the regulation group for Mitochondrial Donation in Australia, and a principal committee member of the **Australian Medical Council**.

Steve was appointed by the Health Minister to the **National Health and Medical Research Council** (NHMRC), as well as to the **National Endometriosis Advisory Group** – part of the **National Action Plan for Endometriosis**.

Professor Robson is one of the authors of the *Oxford Textbook of Obstetrics and Gynaecology*, and as a researcher is the author of hundreds of research articles, editorials, reviews, and book chapters. His research has been published in the most prestigious international IVF journals – *Fertility and Sterility*, and *Human Reproduction*.

He has published research papers not only on IVF and assisted reproduction, but also on reproductive surgery and endometriosis surgery.

In addition to his work on endometriosis and infertility, Steve is completing a *Masters in Health Economics* and has completed training in economics with the *London School of Economics* and *Harvard Business School*.



Endometriosis

Endometriosis is a very common condition, with Australian research suggesting that as many as one woman in nine will be diagnosed with it by the age of 44 years.

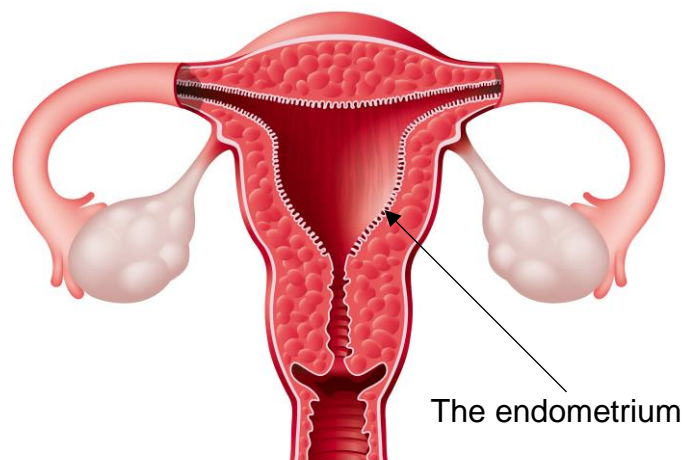
Yet despite endometriosis being so common, it remains a mysterious and poorly understood disease that causes a great deal of suffering in our community.

What is endometriosis?

The **endometrium** is the name of the glandular lining of the uterus. The endometrium is the layer that is receptive to the embryo, and in which a pregnancy establishes, grows, and is nourished. **Endometriosis** is an inflammatory condition in which deposits of tissue exactly that same as the lining of the uterus are present outside of the uterus. Endometriotic tissue grows under the influence of the hormone oestrogen.

While endometriosis can be found anywhere in the pelvis – and, indeed, elsewhere – it is most commonly found on the ovaries, behind the uterus and on the supporting ligaments of the uterus.

There are three distinct types of endometriosis: deep infiltrating endometriosis; endometriomas of the ovary; and, superficial endometriosis.



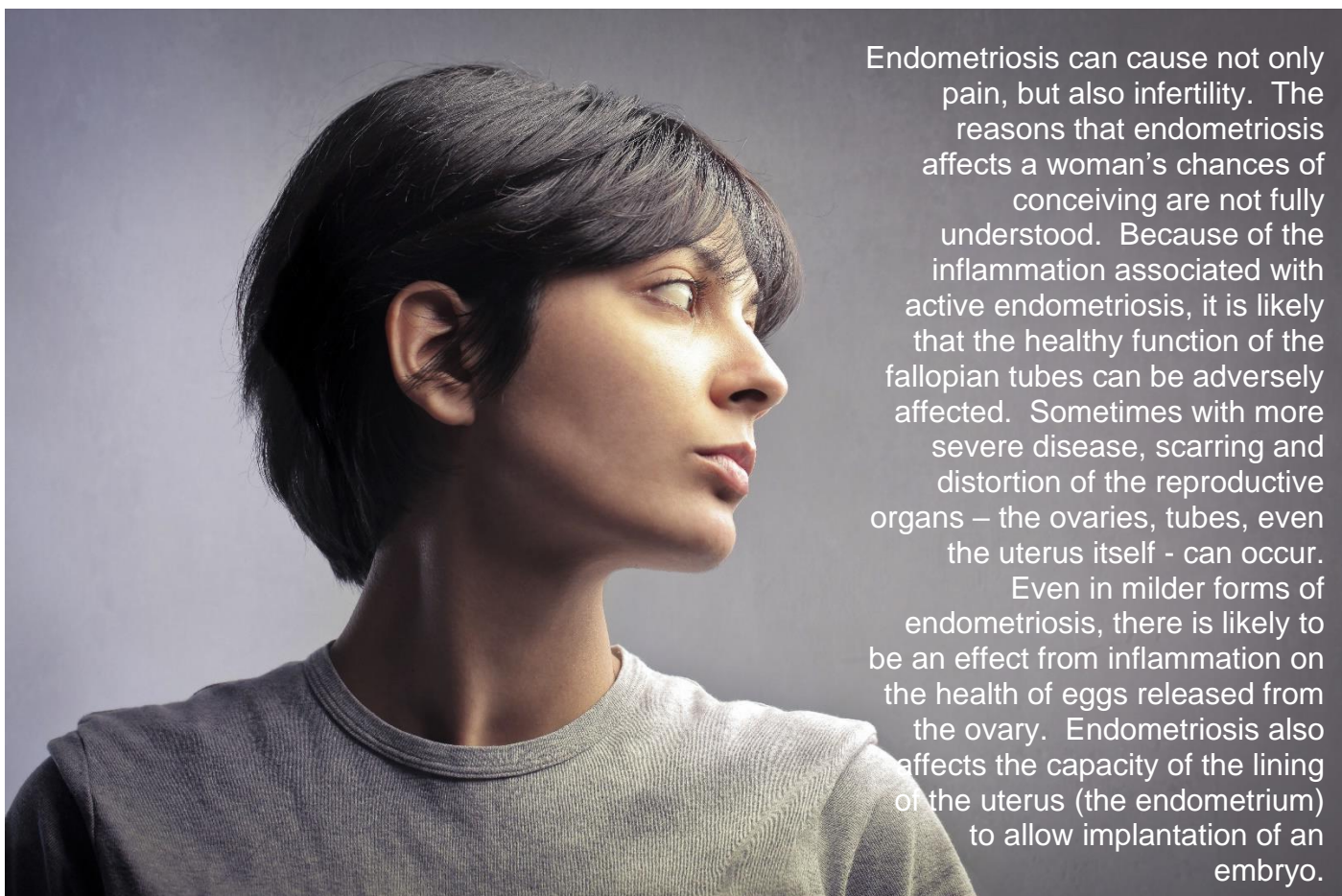
Deep infiltrating endometriosis refers to large deposits of endometriotic tissue that penetrate under the surface of the pelvic lining (the peritoneum).

Endometriomas are fluid-filled cysts of endometriosis that affect the ovaries.

Superficial endometriosis refers to small deposits of endometriosis that spread over the peritoneal lining of the uterus, but do not invade deeply.

What are the effects of endometriosis?

Endometriosis has a wide range of effects and symptoms, including delays in becoming pregnant. The severity of the symptoms of endometriosis does not necessarily reflect the number and size of endometriotic deposits. Pain is a common feature, and this may occur with the periods or at other times – for some women, pain is always present. There may be pain with intercourse. Women may also experience pain or disturbance of bladder and bowel function. Infertility is common too, and for some women may be the only feature of the disease. **Every woman with endometriosis has an individual and different experience of the condition.**



Endometriosis can cause not only pain, but also infertility. The reasons that endometriosis affects a woman's chances of conceiving are not fully understood. Because of the inflammation associated with active endometriosis, it is likely that the healthy function of the fallopian tubes can be adversely affected. Sometimes with more severe disease, scarring and distortion of the reproductive organs – the ovaries, tubes, even the uterus itself - can occur. Even in milder forms of endometriosis, there is likely to be an effect from inflammation on the health of eggs released from the ovary. Endometriosis also affects the capacity of the lining of the uterus (the endometrium) to allow implantation of an embryo.

Why does endometriosis happen?

The cause of endometriosis remains unknown but there are many theories. It is possible that menstrual blood passing back into the pelvis from the fallopian tubes carries endometriotic cells that implant and grow outside of the uterus. Another theory is that the lining of the pelvis and abdominal cavity – the peritoneum – undergoes a change in cell type that becomes endometriosis. It has also been suggested that women with endometriosis have an alteration in immune function that allows endometriosis to establish and grow.

Many women with endometriosis will have other female relatives – their mother, sister, or aunts – with endometriosis. Indeed, a woman who has a close female relative with endometriosis has a seven-times higher chance of developing endometriosis than women without endometriosis in the family. A number of scientific studies have identified possible genes that could be associated with endometriosis occurring.

How is endometriosis treated?

When endometriosis is found, the diagnosis is often a shock for women and couples. The natural question is, "how should my endometriosis be treated?"

Whenever decisions are made regarding treatment, it is critical that the woman drive decision-making about their care.

To allow this, women must be empowered with as much information about their condition as possible and be given information about the potential benefits and risks of each possible approach.

Non-surgical treatments for endometriosis

When endometriosis is found, a number of non-surgical treatments have the potential to relieve the symptoms and that may have other positive effects. Some common treatments include...



The Oral Contraceptive Pill – ‘The pill.’

The pill has its effect by stopping ovulation – the release of eggs – and reducing the activity of the endometriosis tissue (decidualisation). Other hormonal treatments may have similar beneficial effects.

Hormone-releasing Intrauterine Device - Mirena

The Mirena coil has an effect for up to five years and works by reducing menstrual flow and changing the activity in the endometriosis. Similar effects are found with Implanon.



Switching of hormones - Zoladex

These implants switch off the reproductive hormonal system, which in turn stops the natural production of oestrogens. Since endometriosis is stimulated by oestrogen, the can will greatly reduce the activity in endometriotic deposits.

Sometimes **Surgery** is Needed

For some women, **surgery** will be needed to treat endometriosis, or suspected endometriosis. Decision-making about surgery can be complex and is different for every woman. Different specialists will have different opinions.

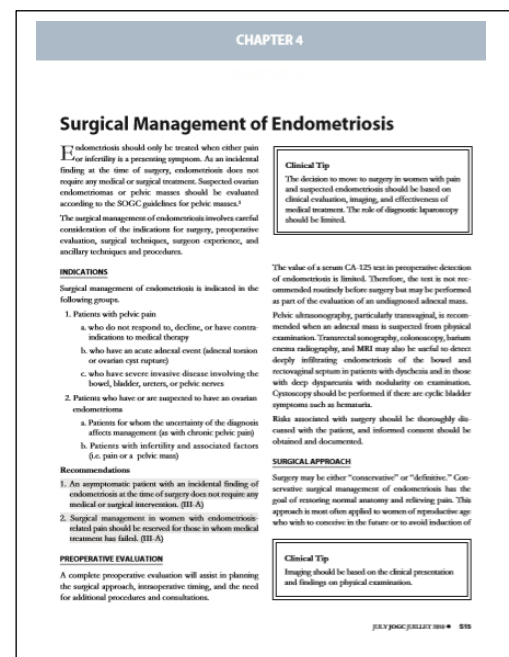
“Endometriosis should only be treated when either pain or infertility is a presenting symptom. As an incidental finding at the time of surgery, endometriosis does not require any medical or surgical treatment.”

“The surgical management of endometriosis involves careful consideration of the indications [reasons] for surgery, pre-operative evaluation, surgical techniques, surgeon experience, and ancillary techniques and procedures.”

My own approach to surgery for endometriosis is based on the **SOGC guidelines**, and you can read them for yourself at: [https://www.ijogc.com/article/S1701-2163\(16\)34593-5/pdf](https://www.ijogc.com/article/S1701-2163(16)34593-5/pdf)

Surgery is useful for...

- Women with pelvic pain who do not respond to, decline, or are not suitable for medical (non-surgical) treatments such as hormone therapies or the Mirena.
- Women who have an acute complication of endometriosis (adnexal torsion or ovarian cyst rupture).
- Women who have severe invasive disease involving the bowel, bladder, ureters, or pelvic nerves.
- Women who have, or are suspected to have, an ovarian endometrioma where uncertainty about the diagnosis affects management (as with chronic pelvic pain).
- Women with infertility *and* associated factors (i.e. pain or a pelvic mass).



In the words of the SOGC guidance...

“Surgery may be either ‘conservative’ or ‘definitive.’ Conservative surgical management of endometriosis has the goal of restoring normal anatomy and relieving pain. This approach is most often applied to women of reproductive age who wish to conceive in the future.”

“Laparoscopy is the preferred route for surgical management of endometriosis, irrespective of severity, owing to the greater visualization through a magnified view and the quicker patient recovery and return to normal activity when compared with laparotomy (surgery performed through a larger cut on the abdomen).

Only a few clinical trials have evaluated the surgical treatment of endometriosis.

- When a comparison was made, women treated with removal of endometriosis and uterosacral nerve ablation had a better outcome than those treated with expectant management (not removing the endometriosis or dividing the nerves).
- Another study demonstrated longer term benefit in more women treated with laparoscopic excision of endometriotic lesions than those undergoing diagnostic laparoscopy: 80% versus 32%.

Despite the benefits illustrated, it is important to note that a substantial proportion of women (20% to 40%) may not show improvement after surgery.

Surgery for Endometriosis – a guide



In most cases, surgery for endometriosis is performed in a day procedure setting. There is clear evidence that performing the surgery through keyholes – **laparoscopic surgery** – leads to the best outcomes.

Who is involved in your surgery?

The **anaesthetist** is a highly skilled medical specialist who will manage your anaesthetic and post-operative pain relief.

Sometimes additional expertise is required from other surgical specialists, such as **colorectal or urological surgeons**, if the bowel or bladder are affected by endometriosis.



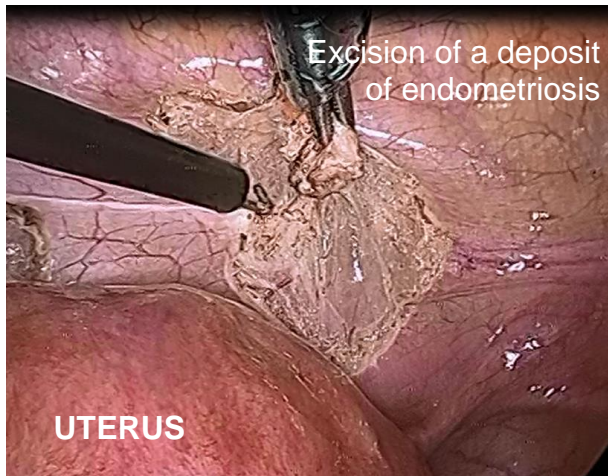
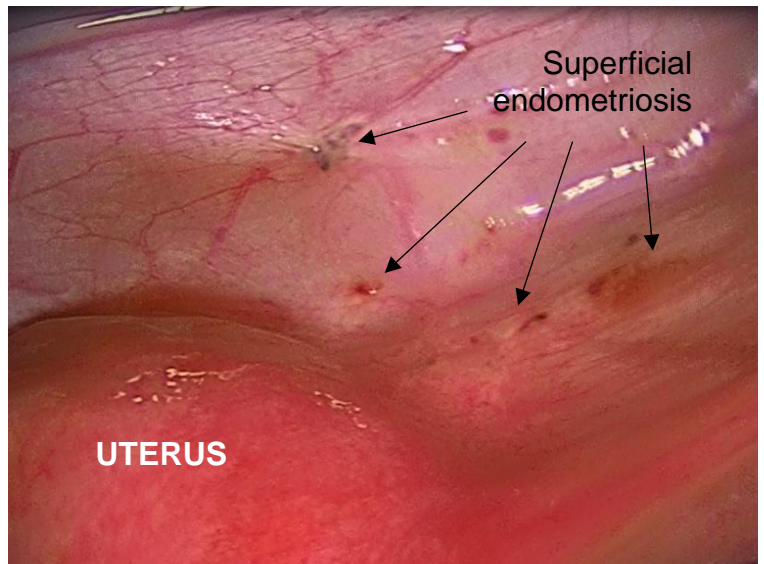
What is Laparoscopy?

Most endometriosis surgery is performed through 'keyholes.' A camera is usually passed through a keyhole in the umbilicus, and the abdomen is inflated to carbon dioxide gas to allow access to the organs of the pelvis. The surgery is watched on a screen.

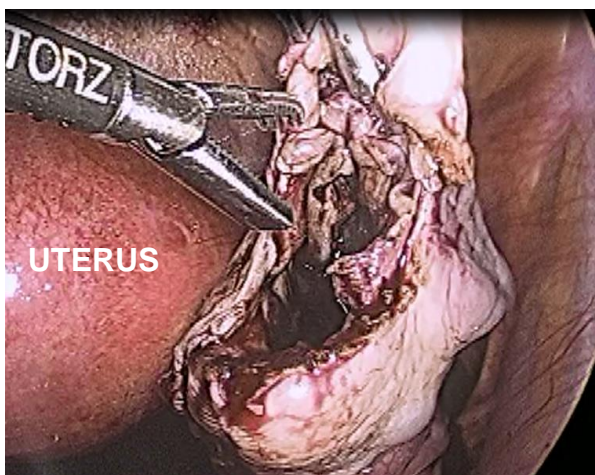
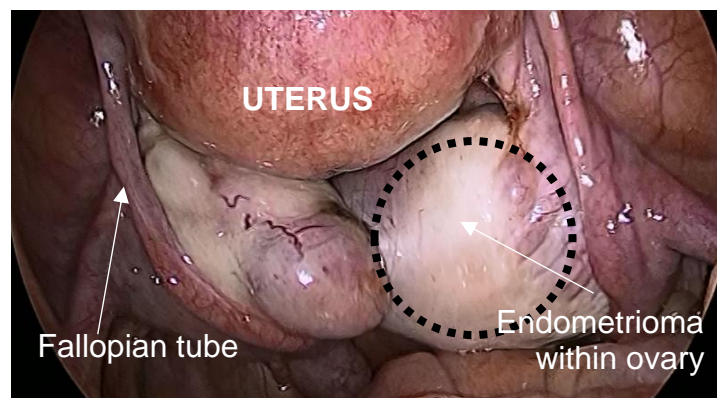
Additional instruments are passed through other keyholes to allow the surgery to be performed with a 'minimal access' approach.

Techniques used in Endometriosis Surgery

In the first instance, a careful examination is made of the pelvis and other organs of the abdomen. All of the obvious or potential areas of endometriosis are identified and a plan is made to treat them. In most cases, deposits of endometriosis are removed – this is called ‘excision.’

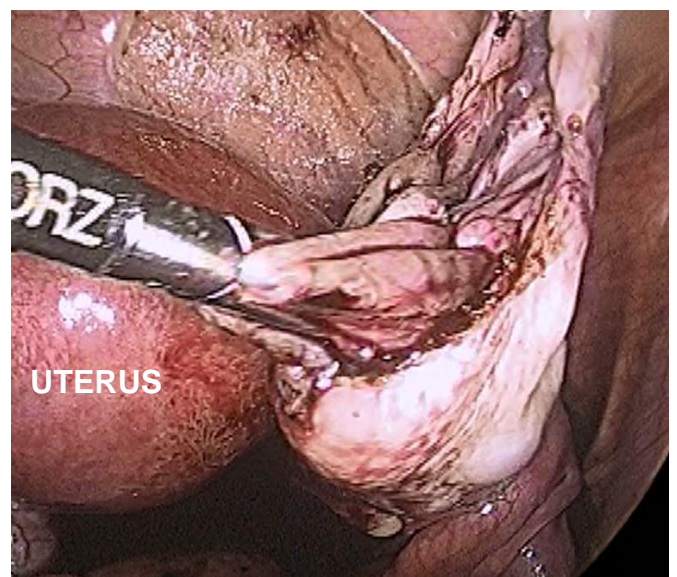


The management of **endometriomas** – cystic deposits of endometriosis filled with dark fluid deep within the ovary – is controversial. The type of surgery must be individualised.



In the first instance, the ovary is opened and the endometriotic fluid is drained and removed from the pelvis.

After the endometriotic cyst is drained, a decision is made about what to do next. In some cases, the ‘cyst’ can be removed from the ovary. However, this can cause damage to the ovary and requires careful surgical judgement.



Potential Adverse Outcomes of Endometriosis Surgery

In most cases, women will recover from endometriosis surgery within a week or two. The small surgical incisions – keyholes – will heal completely within a couple of weeks.

All surgery carries the potential for adverse outcomes, and considering these risks on an individual basis and in your own particular situation is a key part of decision-making.

- **Injury to other organs** Endometriosis is a complex condition and it commonly causes scarring and attachment to other organs. When surgery is performed, there is a possibility that injury may occur to surrounding organs such as the ureters (the tubes that carry urine from the kidneys to the bladder), to the bladder, bowel, or other organs.
- **Bleeding** Endometriosis is commonly inflammatory, and there is a potential for bleeding to occur. In rare cases, a blood transfusion may be required. A collection of blood – a 'haematoma' – may form.
- **Infection** All surgery carries a potential for infection, and may require antibiotic treatment.
- **Thrombosis** Surgery has a risk of thrombosis, where the blood clots in a blood vessel. When thrombosis occurs, treatment with blood thinning medication is required. Very rarely, a clot can break away and travel to the lungs.

Anaesthetic complications

Anaesthesia is very safe, but like any medical treatment, complications may occur. The anaesthetist will discuss these with you.

Failure of the procedure

In some cases, the severity of endometriosis may not be apparent until surgery is performed. It may be safer to cease the operation and make plans for definitive surgery, perhaps with medication to suppress the activity of the disease, or with help from colorectal or urological surgeons.



Imaging and Endometriosis

Endometriosis can be difficult to diagnose, so it is important to consider a range of diagnostic options when planning management – either to manage **pain** or **infertility**.

The two commonest ways of identifying endometriosis without the need for surgery, or in advance of surgery, are **transvaginal ultrasound** and **MRI**. With improvements in the techniques used in ultrasound, there is increasing evidence that ultrasound is a useful and accurate way of identifying more severe endometriosis.

Ultrasound

During the ultrasound scan, you typically will be asked to lie back, most commonly is a special chair. A thin ultrasound probe with a sterile cover, not much wider than a finger, is then gently passed into the vagina. Many people describe the transvaginal ultrasound scan as uncomfortable, though not painful. **If a person has symptoms of endometriosis, sometimes the scan can be described as painful.**

People who have symptoms of endometriosis - pain symptoms, fertility delays, or both - with evidence of endometriosis identified during a transvaginal ultrasound scan are likely to have endometriosis. Unfortunately, an ultrasound that does not definitively show endometriosis lesions does exclude the possibility of endometriosis and these people will require further investigation.

Current Status of Transvaginal Ultrasound Accuracy in the Diagnosis of Deep Infiltrating Endometriosis Before Surgery

A Systematic Review of the Literature

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Jessie T. Childs, BHSc(Hons), GradDipMedSon, PhD,
Brooke Osborne, GradDipEd, MMedSon, BHSc(Hons), BMedRad, Eva Bezak, PhD

Endometriosis is a common gynecologic condition affecting as many as 1 per 10 women. Transvaginal ultrasound (TVUS) has become a frontline tool in the diagnosis of deep infiltrating endometriosis (DIE) before surgery. The primary aim of this review was to determine the accuracy of TVUS for DIE. The secondary aim was to determine accuracy specifically when a sonographer performed the TVUS examination. A systematic review was performed, searching literature by following a population, intervention, comparator, and outcome outline. MEDLINE, Embase, Emtree, and Google Scholar were searched in July 2018 and in November 2019. Including "sonographer" in the search terms yielded no results, so our terms were expanded. Two hundred and four articles were returned from the searches, and 35 were ultimately included in the final review. Analysis of the returned articles revealed the TVUS is a valuable diagnostic tool for DIE before surgery. Sensitivities ranged from 78.5% to 85.3%, specificities from 46.1% to 92.5%, and accuracies from 75.7% to 97%. Most authors reported site-specific sensitivities and specificities, which varied greatly between locations. Site-specific sensitivities ranged from 10% to 88.9% (uterosacral ligaments), 20% to 100% (bladder), 33.3% to 98.1% (rectosigmoid colon), and 31% to 98.7% (pouch of Douglas). Site-specific specificities ranged from 75% to 99.6% (uterosacral ligaments), 96.4% to 100% (bladder), 86% to 100% (rectosigmoid colon), and 90% to 100% (pouch of Douglas). Transvaginal ultrasound is an accurate tool in the diagnosis of DIE; however, limited data exist as to whether this technique is accurate when performed by sonographers. More evidence surrounding the reliability between operators is also needed.

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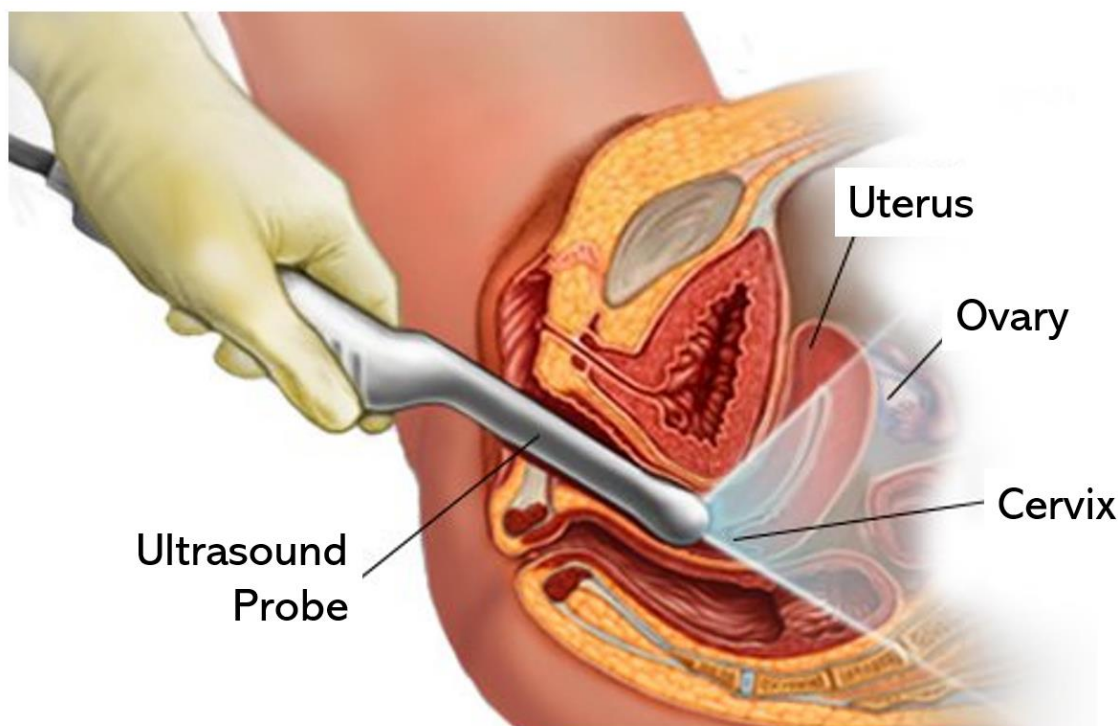
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Abbreviations
3D, 3-dimensional; BP, bowel preparation; DIE, deep infiltrating endometriosis; POD, pouch of Douglas; RWC, rectal water contrast; SVU, sonovaginography; TVUS, transvaginal ultrasound; US, ultrasound; USL, uterosacral ligament

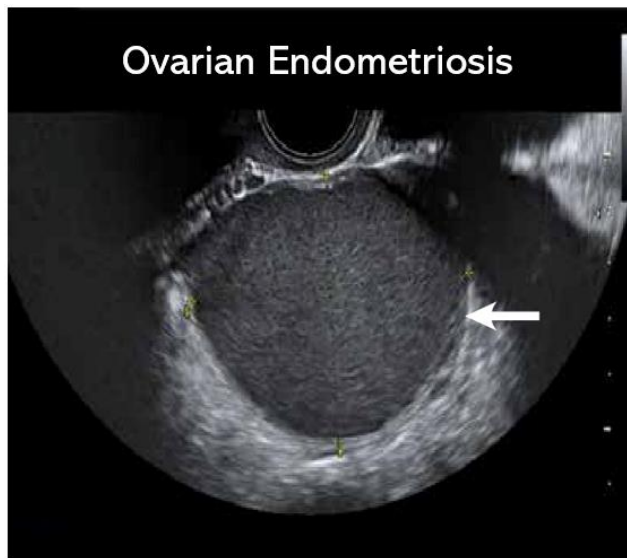
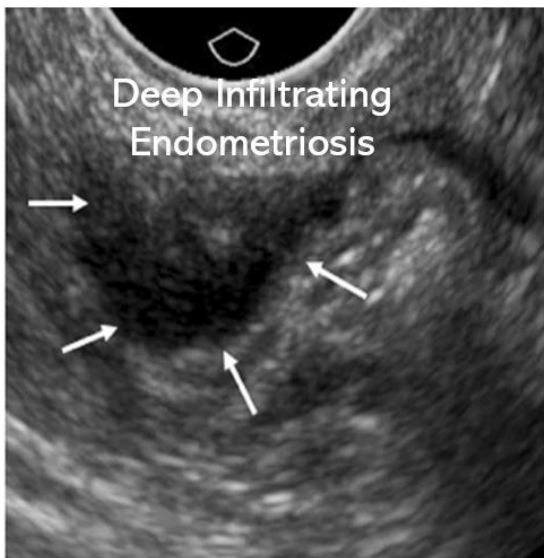
doi:10.1002/jum.15386

Key Words—deep infiltrating endometriosis; endometriosis; sonographer; transvaginal ultrasound

Endometriosis is a common chronic gynecologic condition defined as the presence of endometrial glands and stromalike lesions outside the uterus. It affects as many as 1 per 10 women¹ and up to 35% to 50% of women with pelvic pain or infertility.² The quality of life for those with the condition can be poor, and many women have a diagnostic delay of 7 to 12 years because of the diversity of symptoms and lack of simple diagnostic tests.¹ Endometriosis manifests in 3 ways: peritoneal (superficial)

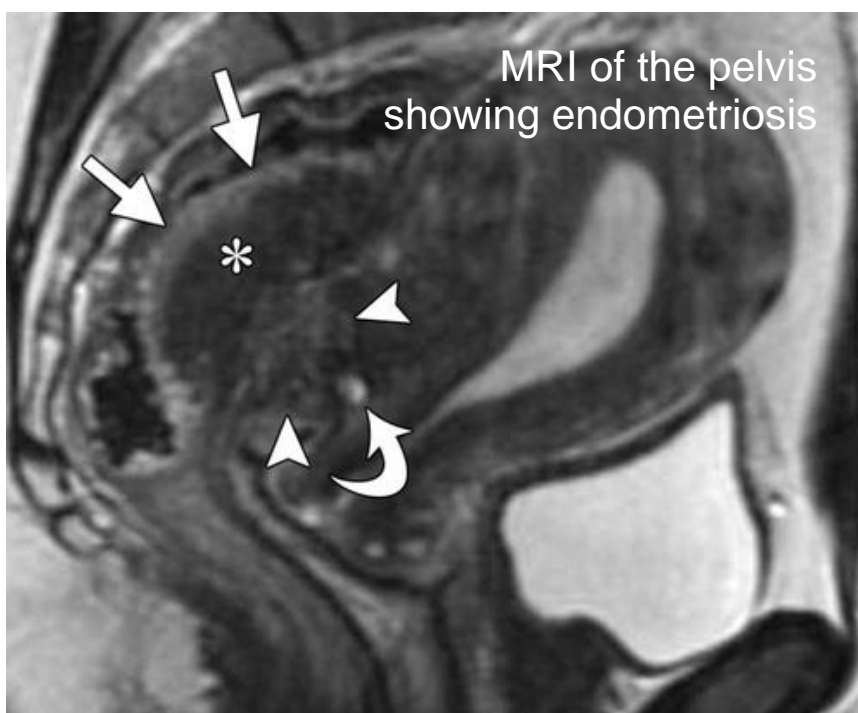


Endometriosis appearances on **Ultrasound**



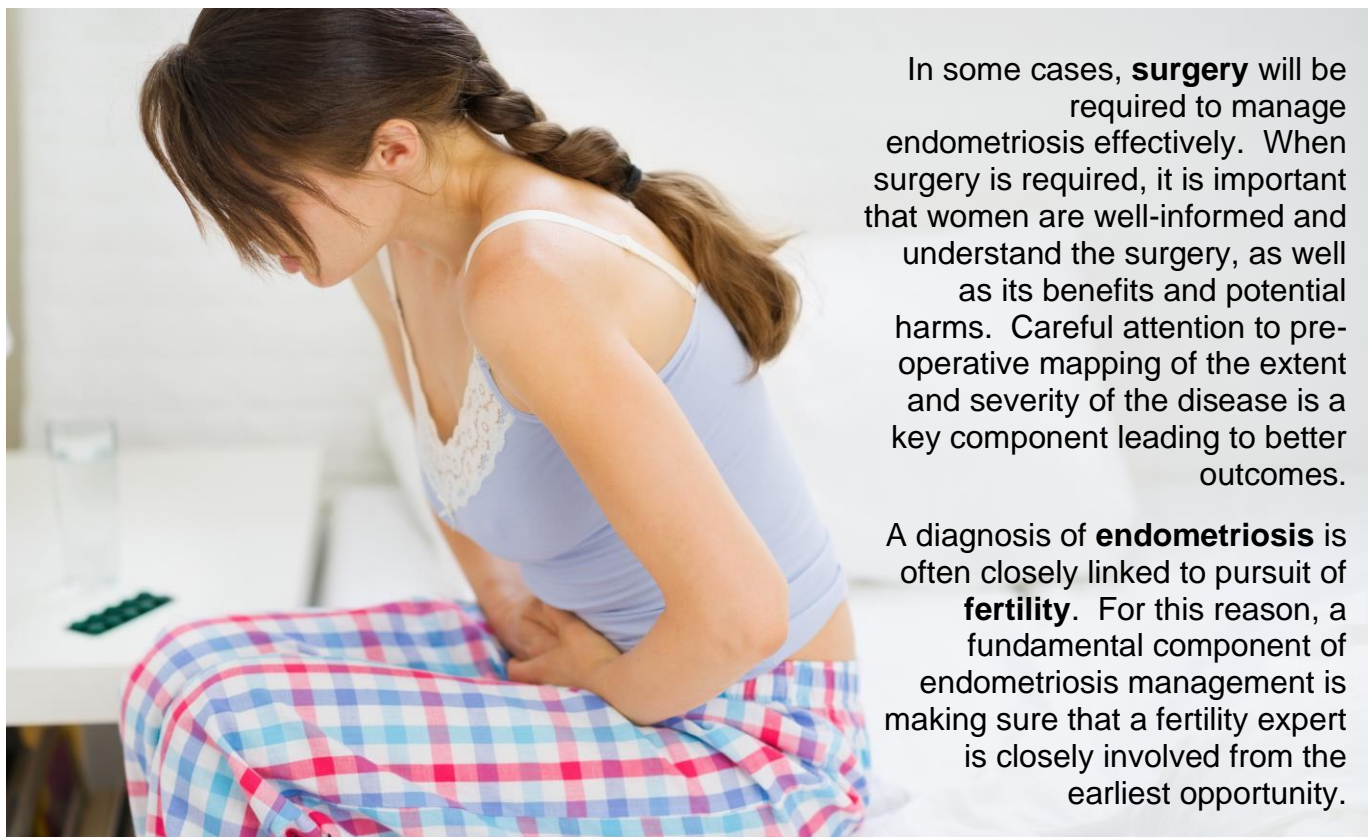
MRI and Endometriosis

Ultrasound is typically the first-line non-invasive investigation for suspected endometriosis, and for this reason MRI is commonly seen as a 'second line' method of assessment. However, due to its ability to perform a complete assessment of all pelvic compartments at one time, MRI represents the best imaging technique for preoperative staging of endometriosis, in order to choose the more appropriate surgical approach and to plan multidisciplinary teamwork. Sometimes MRI will be suggested as a way of obtaining further information about the disease.



Endometriosis - in Summary

Endometriosis is common. Although it is difficult to be certain, research suggests that as many as **one in nine young Australian women will be affected by endometriosis** before the age of menopause. Endometriosis can be a complex disease, and many women face **long delays in having the correct diagnosis made** and for effective treatment to begin. The management of endometriosis is based on **accurate diagnosis** – both of the condition and the extent and effect of the condition – as well as immediate and long-term treatments. The management of **fertility** is an important consideration for many women.



In some cases, **surgery** will be required to manage endometriosis effectively. When surgery is required, it is important that women are well-informed and understand the surgery, as well as its benefits and potential harms. Careful attention to pre-operative mapping of the extent and severity of the disease is a key component leading to better outcomes.

A diagnosis of **endometriosis** is often closely linked to pursuit of **fertility**. For this reason, a fundamental component of endometriosis management is making sure that a fertility expert is closely involved from the earliest opportunity.

For many women, endometriosis will be an important issue **across their reproductive lives**. Early establishment of clinical relationships with endometriosis experts experienced in the management of all aspects of endometriosis care is vital for a good long-term outlook for women.

Lastly, because of the close relationship between endometriosis and fertility it is important to include a woman's partner and, in some cases, her family in management. Enhancing the understanding of the condition with other important people in a woman's life has the potential to lead to better long-term wellbeing.



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