

Endometriosis 360 Guide

by Dr. Oybek Rustamov



This is a **comprehensive blog article** written for patients suffering from endometriosis. I will touch up on each and every aspect of endometriosis. Bear with me.

Once you have read this, you'll know pretty much **everything** about endometriosis. You can bookmark this blog on your browser and return to it whenever you need it. You can treat it like your **personal endometriosis guide**. If you have any further questions you would like me to go over, please email us on admin@fertl.com.au. I will write a detailed explanation to each of your questions.

Let's go!

Endometriosis is one of the **most common** problems for women's sexual and reproductive health. It affects around **10 percent** of females. So, if you know 20 female friends or colleagues, chances are two of them are suffering from endometriosis symptoms. Nearly **200 million women** are diagnosed with endometriosis globally.

Since it is a common condition, you should suspect endometriosis if you have the following **symptoms**:

- Persistent pelvic pain
- Heavy menstrual bleeding
- Painful period
- Pain during sexual intercourse
- Unexplained infertility

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What is endometriosis?

To explain what endometriosis is, first I should define what an **endometrium** is. An endometrium is a layer of tissue that covers the inside of the uterus, which is also called the **uterine lining**. Normally, endometrial tissue should only be located **inside the uterus**. If this tissue grows anywhere else, we call it endometriosis.

Both normal endometrial lining and endometriosis cells grow because of **rising levels of estrogen**. This hormone is produced by the ovaries from growing egg sacs called **follicles**, in the **first 14 days** of the menstrual cycle. After ovulation, the ovary produces the **progesterone** hormone. If pregnancy does not occur, the level of progesterone **drops** which triggers the **shedding** of the endometrial lining and comes out as **menstrual blood**.

During the menstrual period, endometrial tissue also discharges a small amount of **menstrual fluid** into its surrounding area. Since endometriosis tissue is located outside the uterine cavity, the menstrual discharge **cannot** leave the body and gets collected in the surrounding tissue.

What is the cause of endometriosis?

Today, science and medicine cannot tell the actual cause of endometriosis. These remain working theories.

Embryonic Origin

According to this theory, women are **born** with endometriosis. It is believed that due to the error during **embryonic life**, endometrial cells were already seeded outside their uterine cavity before they were born. These endometriosis cells stay **inactive** during childhood. Once the ovaries start producing estrogen hormone at puberty, the endometriosis gradually becomes **active**. During each menstrual cycle, the endometrial cells multiply and after a number of years, start causing pain.

Retrograde Menstruation

The **Retrograde Menstruation** theory suggests: during each menstrual cycle, some of menstrual fluid containing endometrial cells excrete into the pelvis through the fallopian tubes. Normally, the menstrual fluid with endometrial cells **entrapped** in the pelvis is quickly cleared off by immune cells.

However, some women have impairment in their immune function which **prevents** the clearing of all endometrial cells by the time of the next retrograde menstruation. Hence, the endometrial cells **gradually accumulate** in the pelvis in each menstrual cycle. Since the endometrial cells have properties of stem cells, they can get seeded into the surrounding tissue and grow new endometriosis cells **every month**.

Transformation of Peritoneal Cells

Peritoneum is a lining that covers the walls and surfaces of all organs in the abdomen and pelvis. It is believed, due to unknown reasons, that some of the peritoneum cells turn into endometrial cells under the **influence** of estrogen hormones.

Today, we do not know which of these theories are correct. It is plausible to believe that these **mechanisms** may cause endometriosis.



What are the risk factors?

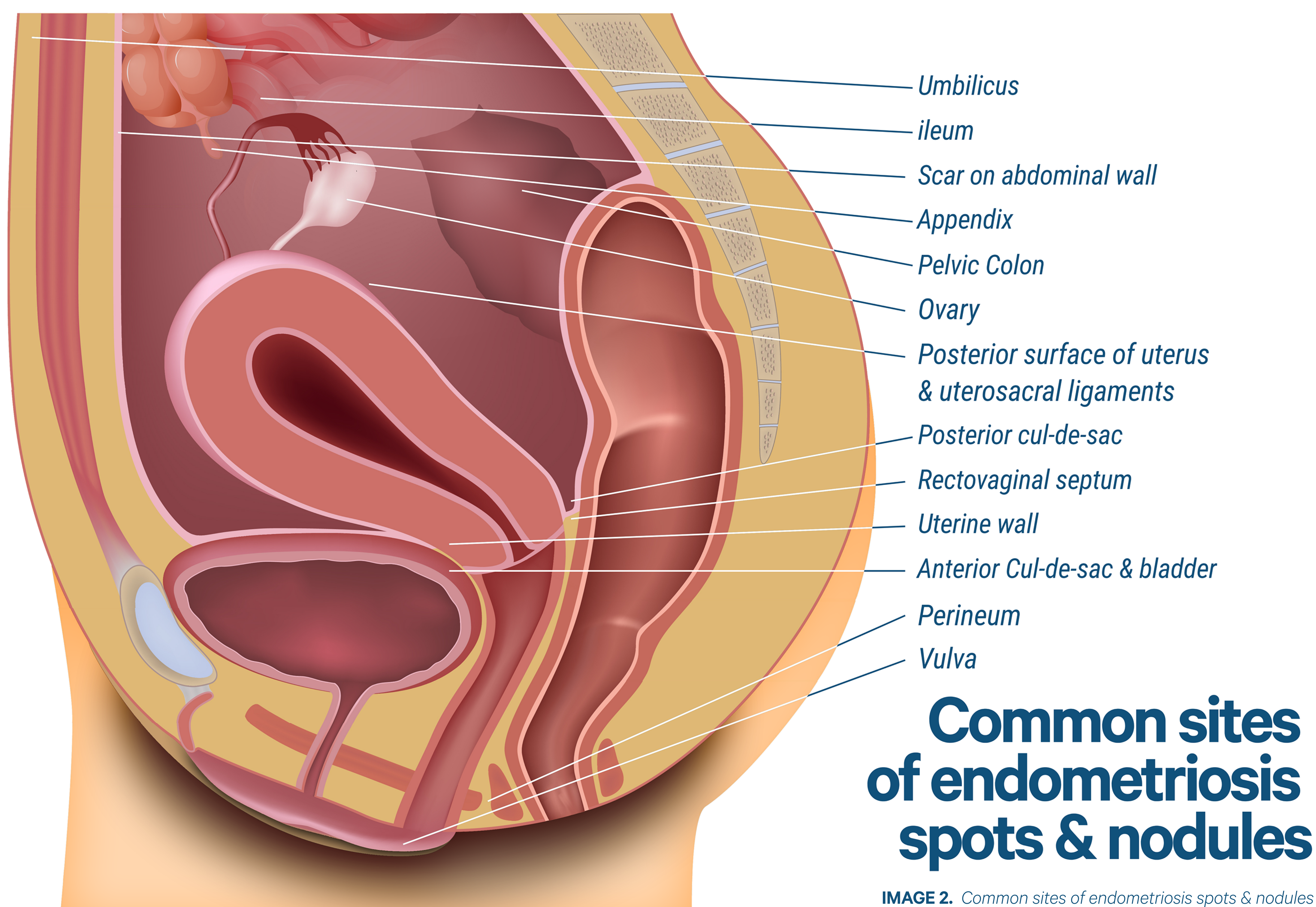
The main risk factors are related to the duration of **cyclic changes** in estrogen and progesterone levels. The longer you have menstrual cycles, the higher the risks. The following are **associated** with an increased number of menstrual cycles.

- Starting first menstrual period at an earlier age
- Short and more frequent menstrual cycles
- Never giving birth. Women who have gone through childbirth are at a lower risk as pregnancy and breastfeeding give a break from menstrual cycles.

Although endometriosis is **not** a genetic disorder, it appears to be more common in women with a **family history** of endometriosis.

What are the types of endometriosis?

Endometriosis can be **classified** according to the location, external features, depth of penetration into the surrounding tissue, and the severity of the disease.



Location

When endometriosis is described according to the location, we directly tell which part of the body's **anatomy** the lesion is located in.

- **Utero-sacral ligament:** Support structure on the right and left side of the back of the uterus.
- **Ovarian fossa:** Pelvis' surface area where the right and left ovary rest.
- **Posterior cul-de-sac (Pouch of Douglas):** Area between the back of the uterus, top of the vagina, and surface of bowel.
- **Pelvic sidewall:** Area on the right and left side of the pelvis.
- **Abdominal wall:** Inner surface of the abdomen.
- **Pelvic organs:** Uterus, ovaries, fallopian tubes, bladder, and bowel.

External Feature

Typically, when you look at endometriosis a laparoscopy, the lesion looks like **spots** or nodules of a dark black, brown or red **colour**. However, a rare form of endometriosis can look like flimsy membranes or a generalised inflamed area. They are called **atypical endometriosis**. Old and healed endometriosis lesions have the appearance of **white scar tissue**.

Depth of Penetration

Pelvic and abdominal side walls are covered with **two layers** of tissues. The outer thin membrane cover, peritoneum, **contains** nerve endings and fine blood vessels. The next layer is **fat** and **muscles** that contain larger blood vessels, lymphatic vessels, and nerves.

On the other hand, pelvic and abdominal organs, such as bowel and bladder, have **three layers**.

The **outer membrane** is called peritoneum. Next, the **middle layer** is muscle and the inner surface is called mucosa. If endometriosis is contained on the surface of the peritoneal layer, we call it **superficial endometriosis**. The endometriotic lesions penetrating fat, muscle or mucosa planes are called **deep infiltrating endometriosis**.

Severity of the Spread of Endometrial Tissue

In terms of the **extent** of the affected area and organ systems, endometriosis is classified in **four stages**.

Stage 1. Minimal Endometriosis

There are a **few spots** of superficial endometrial tissue growth on the surface of pelvic walls or surfaces of the bladder, uterus or ovaries. There is **no scar tissue** or bands of adhesion.

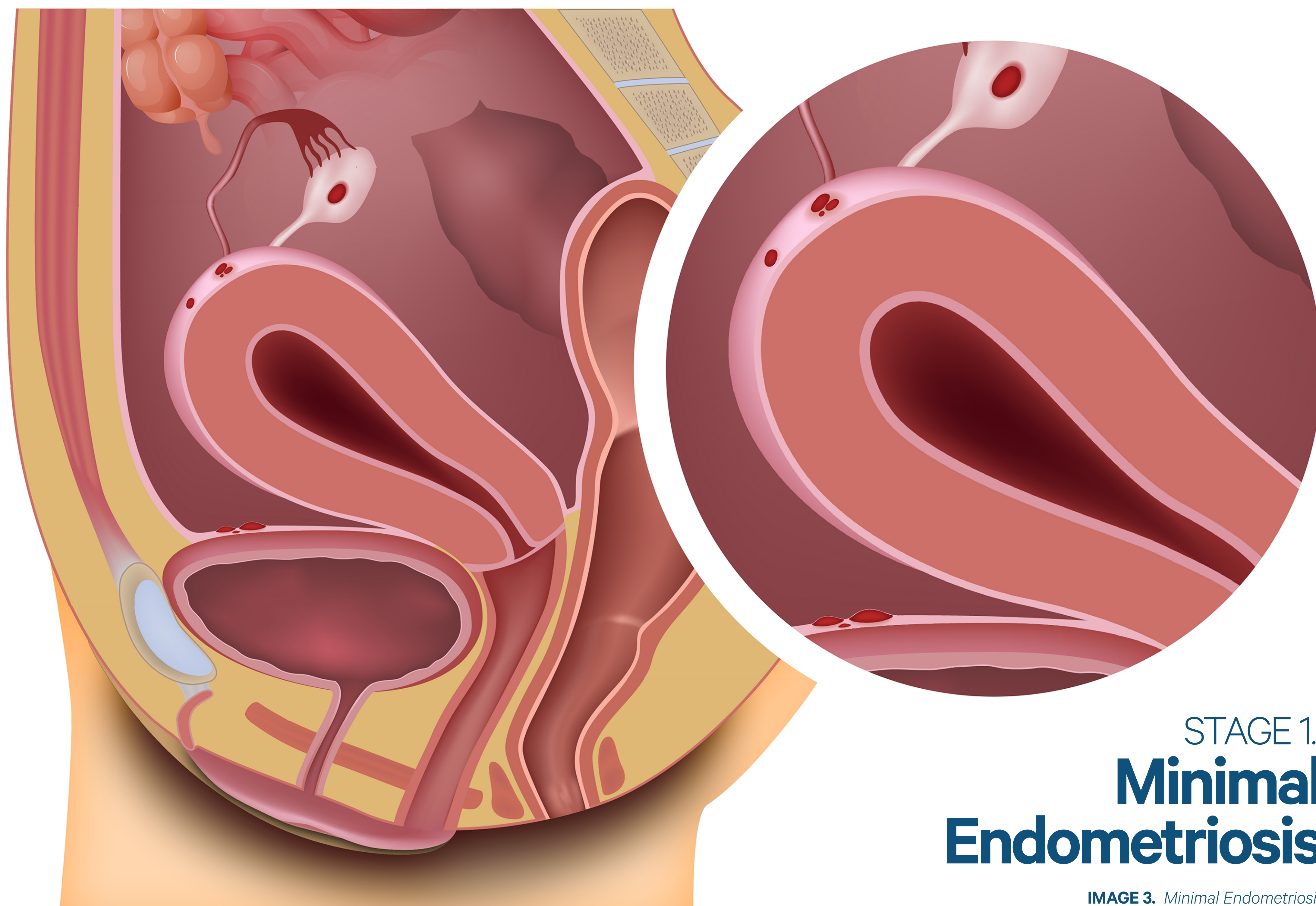
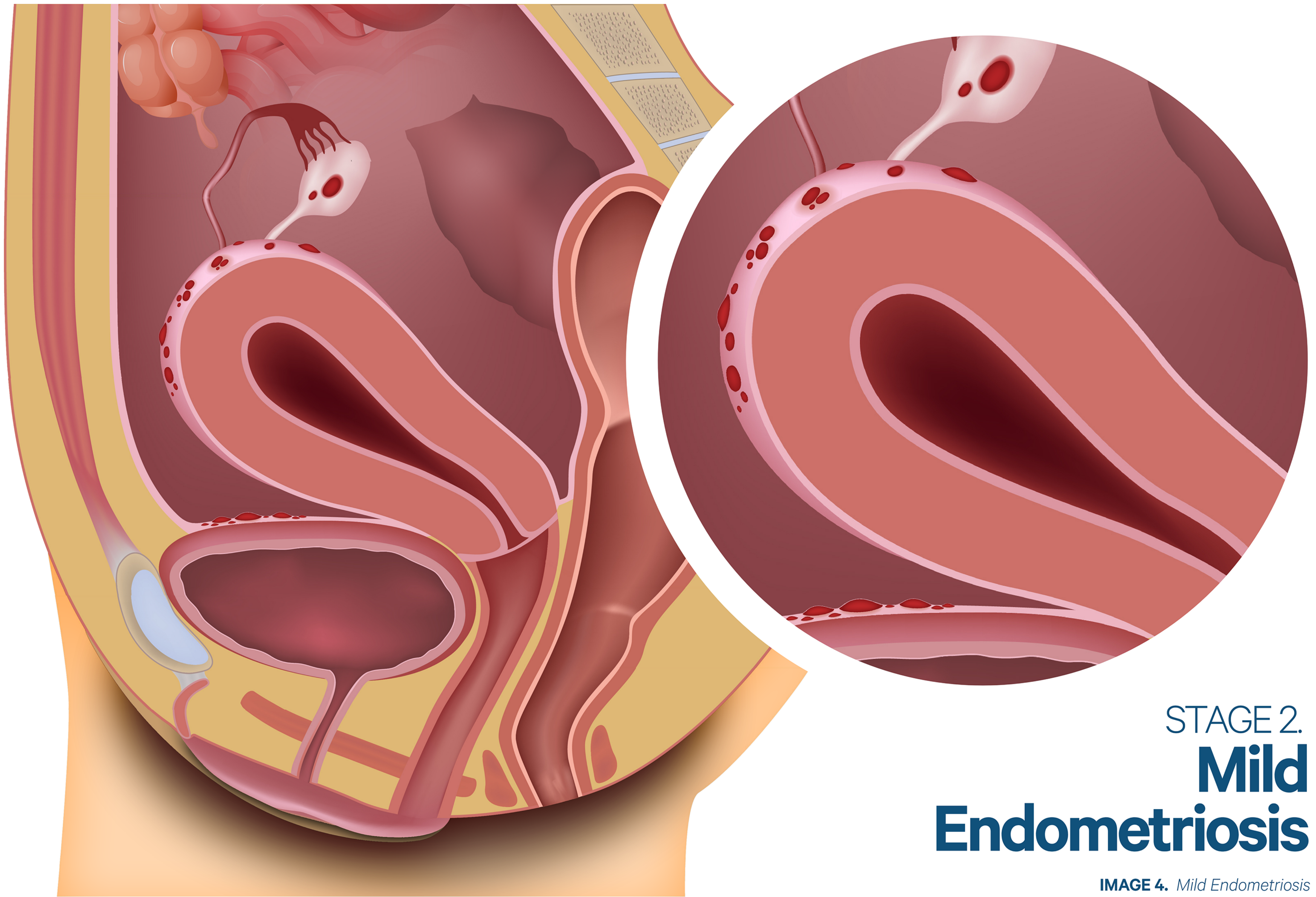


IMAGE 3. *Minimal Endometriosis*

Stage 2. Mild Endometriosis

There are **numerous** superficial and deep infiltrating endometriosis implants.

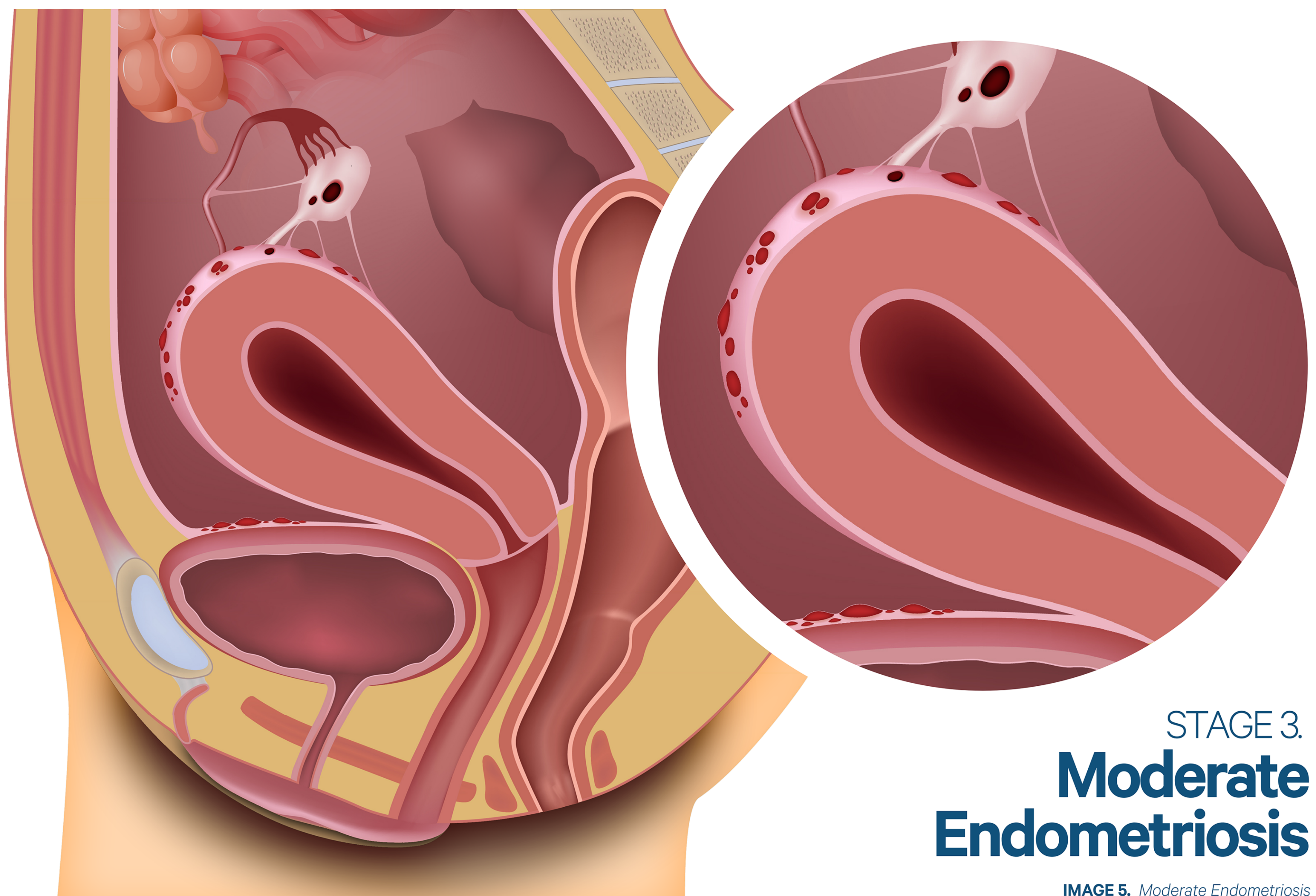


STAGE 2. **Mild** **Endometriosis**

IMAGE 4. Mild Endometriosis

Stage 3. Moderate Endometriosis

There are **many** deep infiltrating endometriosis throughout the pelvic side walls, reproductive organs, bowel, and bladder. On the ovaries, endometriotic cysts called **endometrioma** or chocolate cyst, are present. There are some **thick bands** of scar tissue which causes **adhesion** of the pelvic walls and organ systems in the pelvis.



STAGE 3. **Moderate** **Endometriosis**

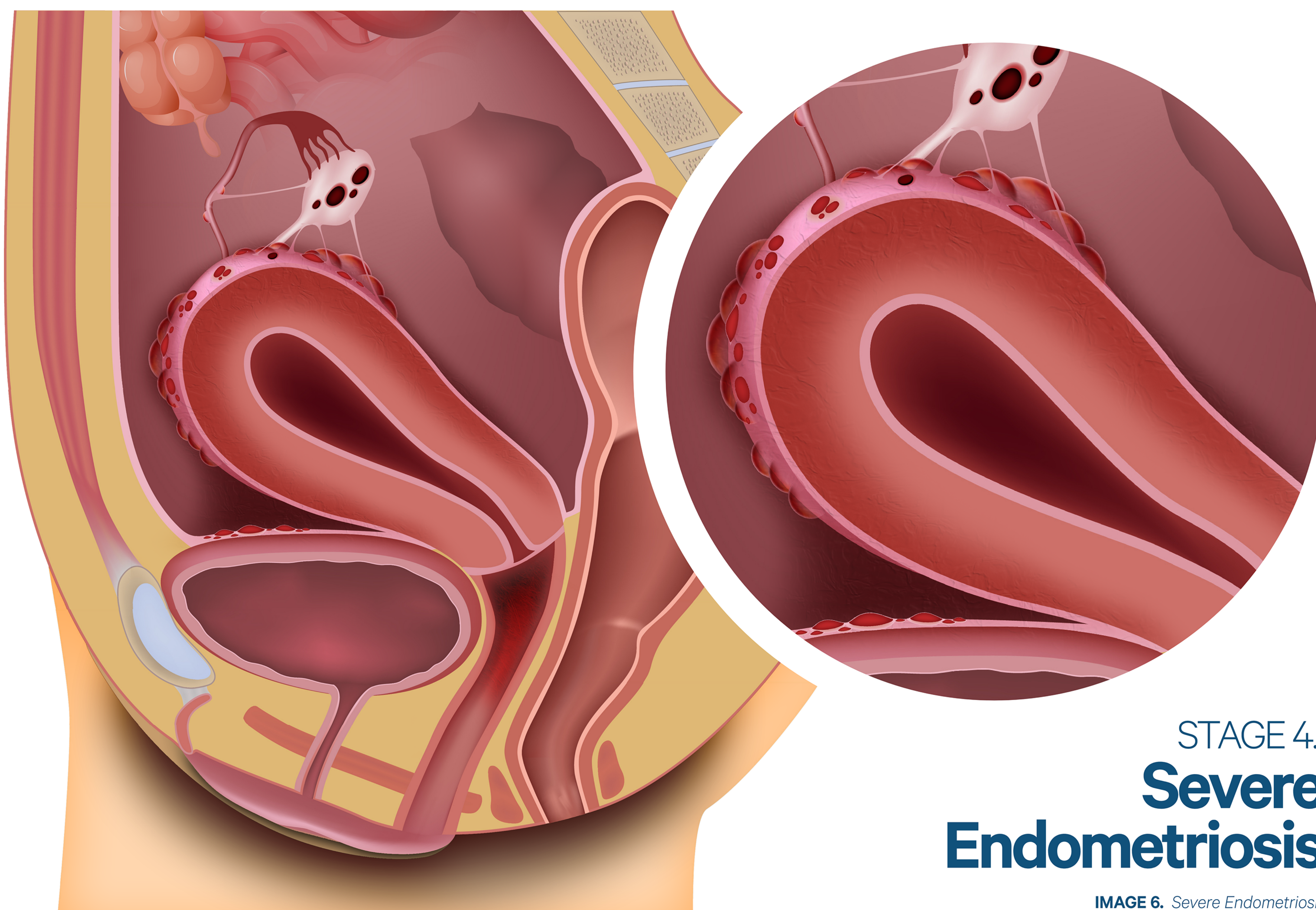
IMAGE 5. Moderate Endometriosis

Stage 4. Severe Endometriosis

There are **many** deep infiltrating endometriosis throughout the pelvis involving the uterus, ovaries, and pelvic side walls. There are **chocolate cysts** in the ovaries. Deep infiltrating endometriosis involves bowel.

Dense scar tissue and generalised inflammation of all pelvic organs such as uterus, ovaries, tubes, and bowel are attached to each other. The plane of each organ **cannot** be seen separately. On a laparoscopy, you can only see the front and the top of the uterus. You cannot see the ovaries, fallopian tubes or the back of the uterus **without meticulous surgery**.

This stage of endometriosis is also called "frozen pelvis", as all tissues and organs are stuck to each other and cannot be moved separately during a laparoscopy.



STAGE 4.
**Severe
Endometriosis**

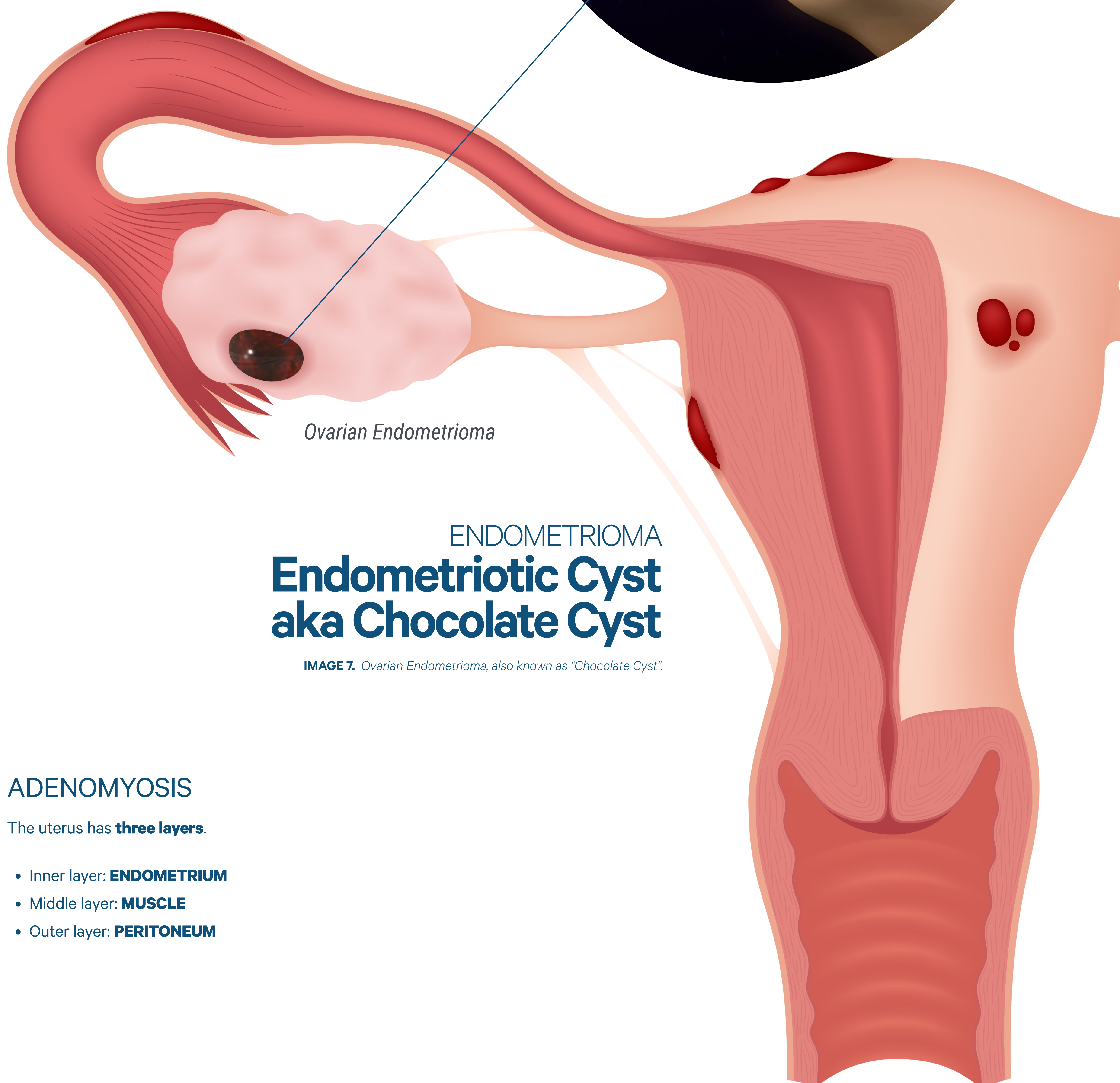
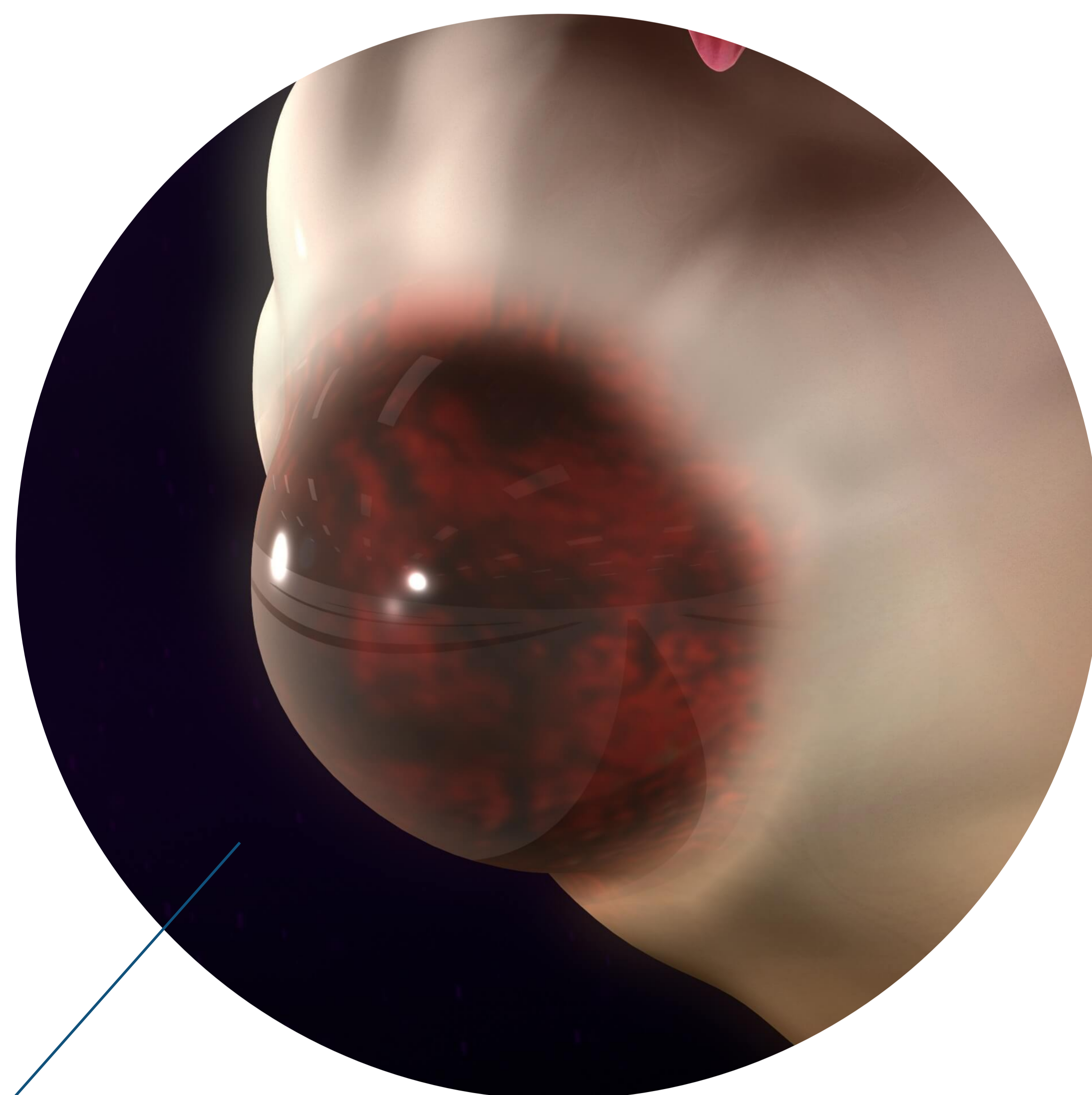
IMAGE 6. Severe Endometriosis

Special Type of Endometriosis

ENDOMETRIOMA

Endometrioma is also known as an **endometriotic cyst**. Deep infiltrating endometriosis of the ovary discharges fluid inside the ovarian tissue. The endometriotic discharge can be entrapped inside the ovary and gradually accumulate, causing a **fluid filled cyst**. The cysts with a diameter of less than **1 cm to 2 cm** are considered **small**, between **3 cm to 5 cm** are **medium** sized, and **> 6 cm** are classified as **large** endometriomas.

Oh, it is also called a chocolate cyst, too. A sweet name for an awful problem.



Ovarian Endometrioma

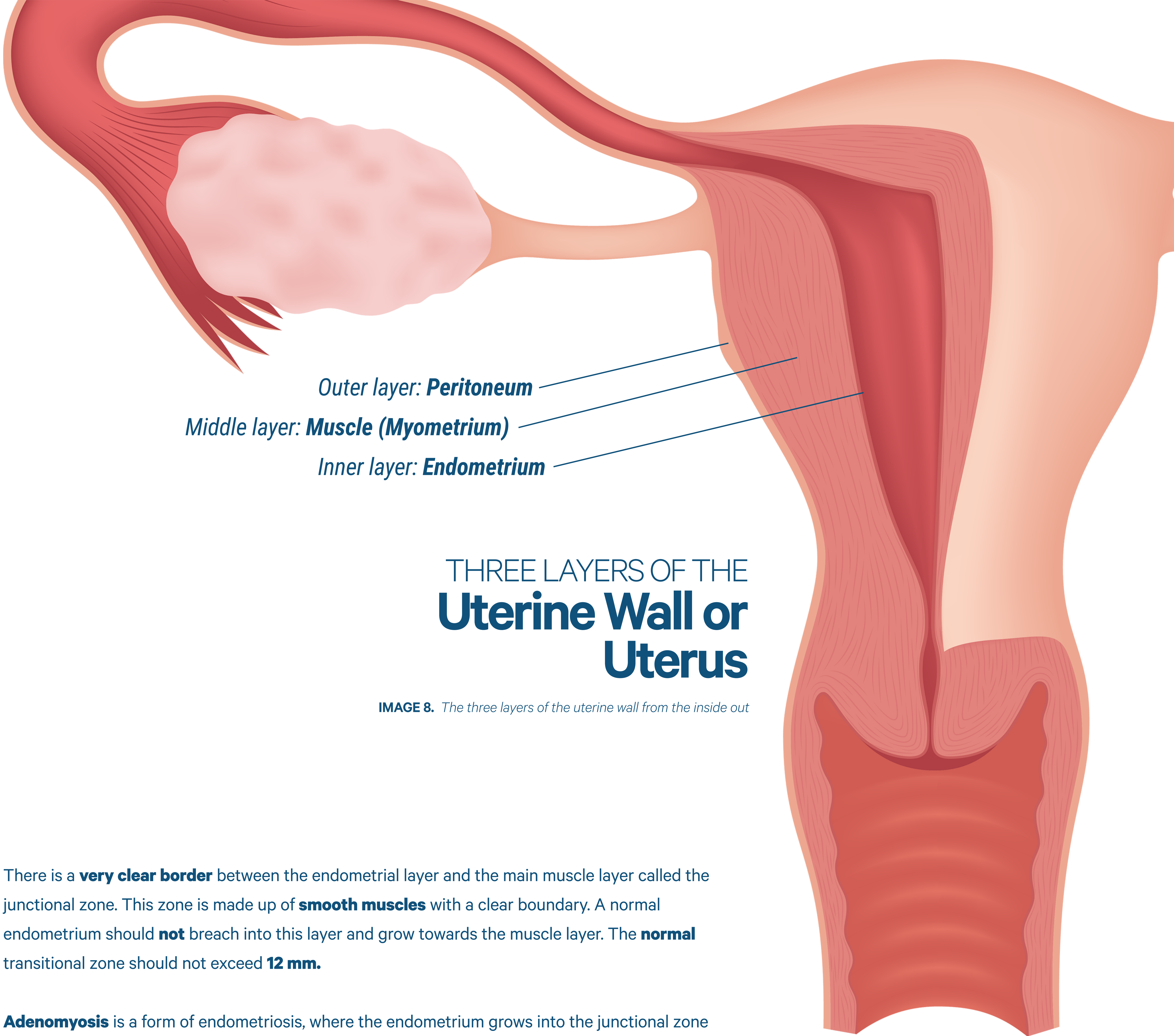
ENDOMETRIOMA Endometriotic Cyst aka Chocolate Cyst

IMAGE 7. Ovarian Endometrioma, also known as "Chocolate Cyst".

ADENOMYOSIS

The uterus has **three layers**.

- Inner layer: **ENDOMETRIUM**
- Middle layer: **MUSCLE**
- Outer layer: **PERITONEUM**



Outer layer: **Peritoneum**
 Middle layer: **Muscle (Myometrium)**
 Inner layer: **Endometrium**

THREE LAYERS OF THE Uterine Wall or Uterus

IMAGE 8. The three layers of the uterine wall from the inside out

There is a **very clear border** between the endometrial layer and the main muscle layer called the junctional zone. This zone is made up of **smooth muscles** with a clear boundary. A normal endometrium should **not** breach into this layer and grow towards the muscle layer. The **normal** transitional zone should not exceed **12 mm**.

Adenomyosis is a form of endometriosis, where the endometrium grows into the junctional zone in severe forms, into the main muscle layer. It can be **focal** or **diffuse**.

In **focal adenomyosis**, there are some **localised** endometrial tissue in the junctional zone or some parts of the uterine muscle.

TYPES OF ADENOMYOSIS Focal Adenomyosis

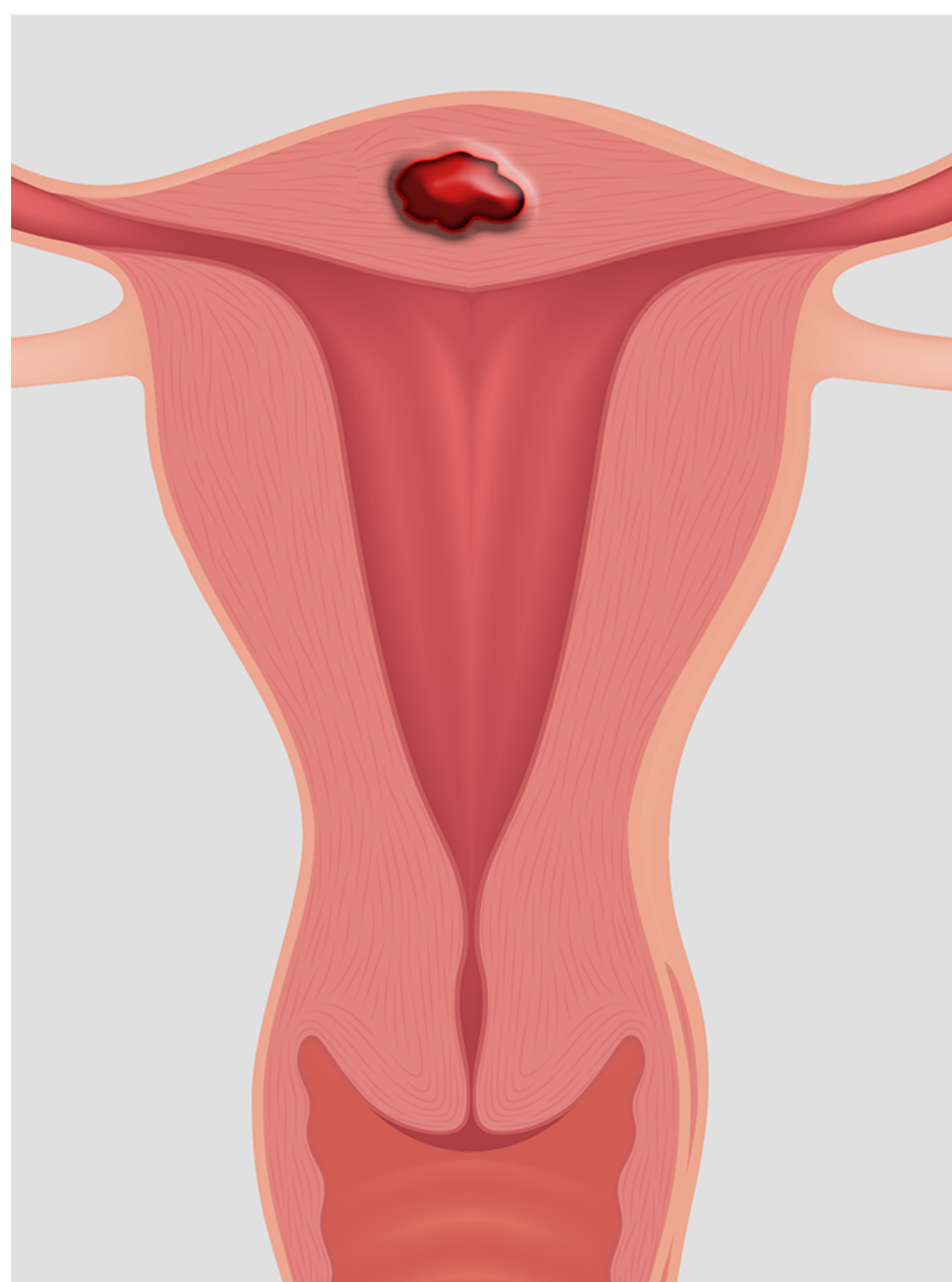


IMAGE 9. Types of Adenomyosis - Focal Adenomyosis

TYPES OF ADENOMYOSIS Diffuse Adenomyosis and Adenomyoma

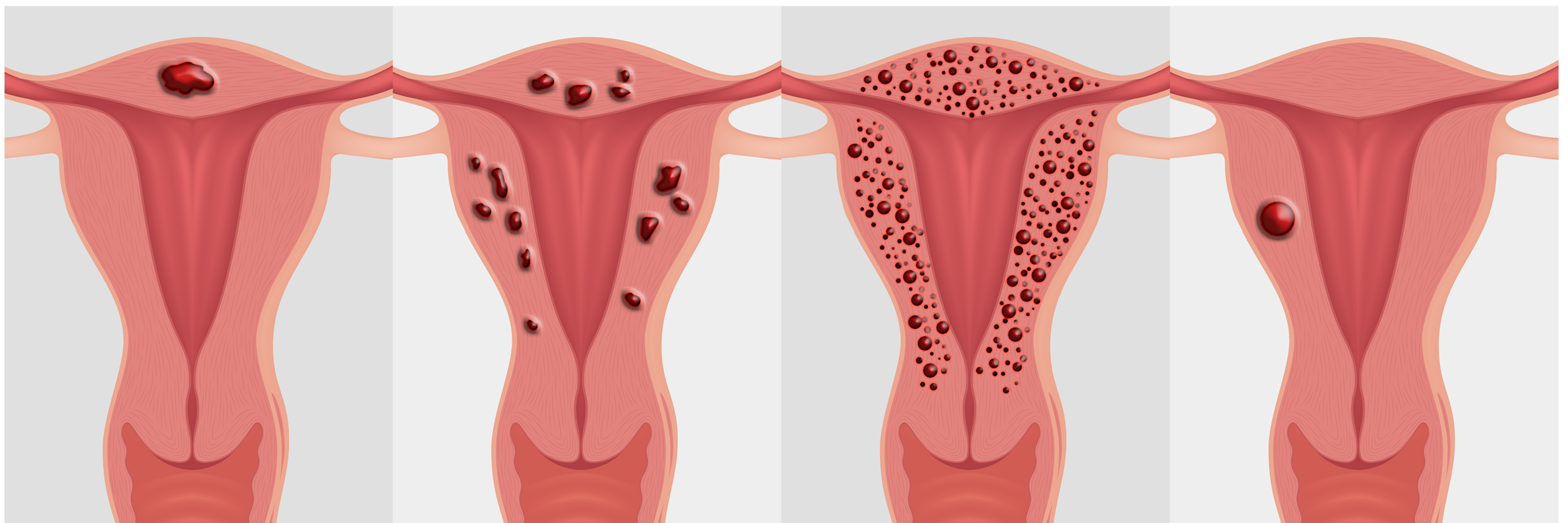


IMAGE 10. Types of Adenomyosis - Diffuse Adenomyosis and Adenomyoma

In **diffuse adenomyosis**, there is a **wide spread** endometrial tissue throughout the junctional zone and muscle layer of the uterus. In a rare form of adenomyosis, called **adenomyoma**, the formation of an endometriotic fluid filled cavity in the uterus can be observed.

Mild adenomyosis is defined by the **presence** of isolated, small focal endometrial tissue in the muscle layer or minimal isolated adenomyosis of the junctional zone.

If there are **numerous** focal adenomyosis or involvement of a larger part of the junctional zone, we can categorize it as **moderate adenomyosis**. The patients with a diffuse adenomyosis of the junctional zone or endometrial tissue throughout the muscle layer with cystic spaces or adenomyoma are diagnosed with **severe adenomyosis**.

What problems can endometriosis cause?

Endometriosis can cause the following group of problems:

- PAIN
- BLEEDING
- BOWEL DISTURBANCES
- INFERTILITY

We will discuss each group **separately** to understand why women have certain symptoms and what you can do about it.

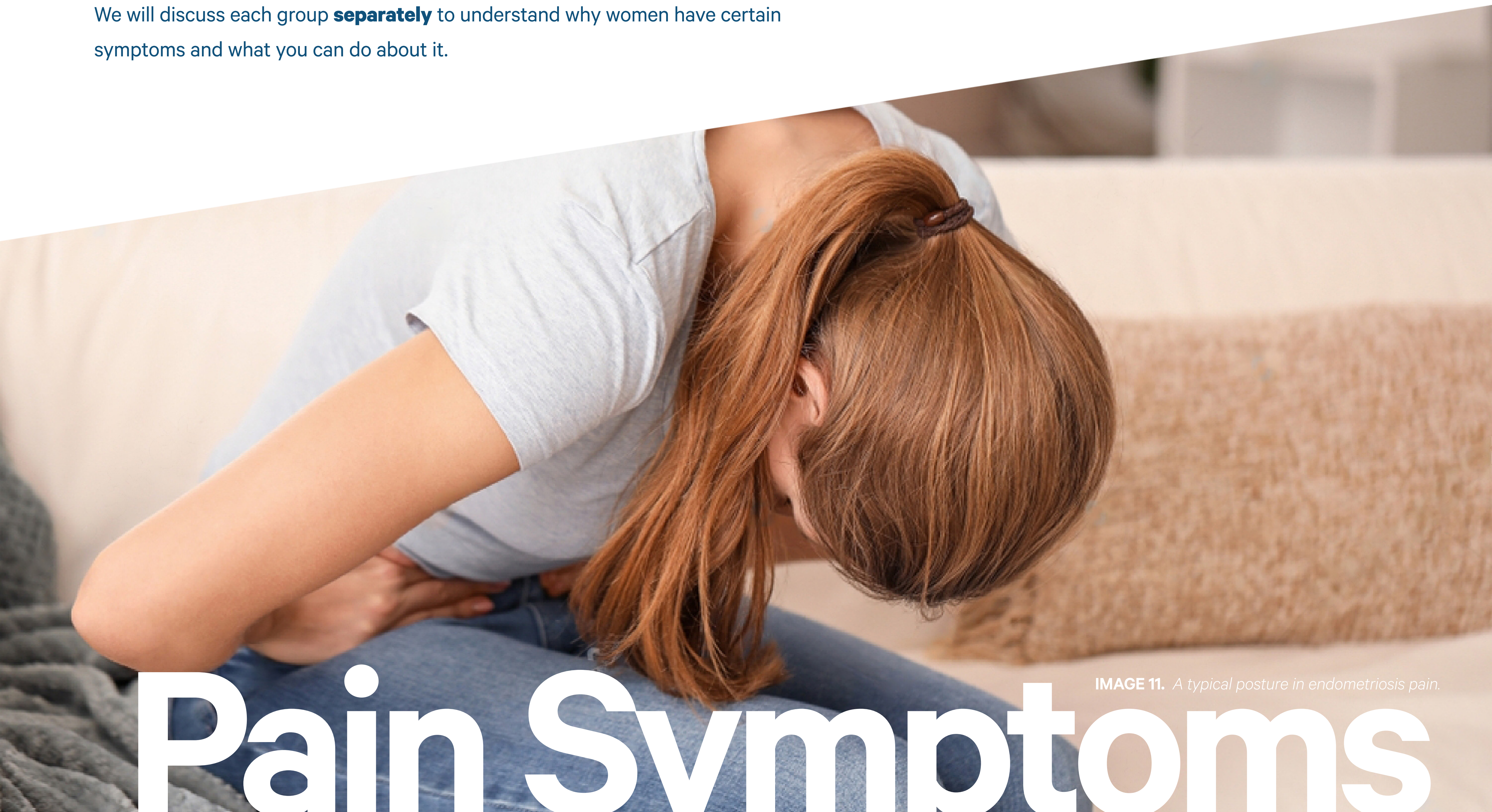


IMAGE 11. A typical posture in endometriosis pain.

Pain Symptoms

First, let us understand how body tissues register pain.

Pelvic organs and structures **sense** the pain through nerve endings specializing in detecting pain, which are called **pain receptors**. These receptors register pain when there is an **increased level** of chemicals due to an inflammation in the surrounding tissue or an increase in pressure.

Both of these happen in endometriosis as the disease causes chronic inflammation and the release of **inflammatory chemicals** into its surrounding region. This results in the swelling of the tissues and an increase in local pressure. Pain nerves located inside the inflamed and swollen tissue sense the irritating chemicals and the **increased pressure** and pass this onto the brain as a signal.

Simply, the presence of pain indicates that the area affected by endometriosis **contains pain nerves**. Depending on the location, the nature and the intensity of the pain may **differ**.

For instance, if the endometriosis lesion is located in the pelvis area, which does **not contain** many pain receptors, the pain symptoms may be minimal. In contrast, if it affects an area that is **rich in pain receptors**, despite having a minimal endometriosis, you may feel **severe pain**.

In addition, the **duration** of endometriosis also affects the severity of the pain.

Initially, endometriosis **starts growing** on the surface of the pelvic structures without causing too much damage to the surrounding area. If left **untreated**, it gradually grows deep inside the surrounding tissue, causing inflammation and swelling.

Also, the severity of the pain is linked to **how sensitive** a person is to pain signals. This is called a pain threshold, which **varies** from person to person. Some may be very sensitive to pain, while others may not sense pain unless it is significant.

So, the location of the endometriosis, the duration of the disease, and the pain threshold of each woman **determine** the severity of the pain. This explains why each woman has different levels of pain.

For instance, some women **may not** sense any pain despite having Stage 4 endometriosis, while others may have severe debilitating pain with minimal superficial endometriosis. Hence, health professionals should **never dismiss** the pain reported just because a patient may have minimal or mild endometriosis. If there is pain, there is a reason for it and it needs to be investigated and treated.

Now, we know why and how pain is sensed in the presence of endometriosis. Next, let's discuss the severity and nature of the pain.

The severity of the endometriosis pain can range from **minimal to severe pain**. The pain is measured using a **self-reported** 0 to 10 pain scale. 0 when there is **no pain** and 10 is the **worst pain** a person has ever had.

The **nature** of the pain can be stabbing, shooting, burning or dull. In terms of location, the pain can be located in one area, radiating to a certain part of the body or generalised across a larger part of the body.

With regards to cyclicity, it can be cyclic which happens during a certain time during a menstrual cycle. On the other hand, non-cyclic means the pain can come at any time during the menstrual cycle and it is not predictable. When it comes to duration, the pain can be short lasting or present all the time as **chronic pain**.

Next, we can explore the specific types of pain women with endometriosis experience. Knowing the severity, the nature, and the type of the pain **helps** you and your doctors ascertain the location and severity of endometriosis.

Painful Menstrual Cramps

Painful menstrual periods often indicate that the uterus is involved in the endometriosis due to adenomyosis or pelvic endometriosis.

In adenomyosis, endometrial cells can discharge menstrual fluid into the **muscle layer** of the uterus during menstrual period. The **collection** of entrapped endometrial cells and menstrual fluid can cause **frequent** uterine contractions. During uterine contractions, the pressure in uterine tissues increases, which stimulates pressure pain sensors. This is perceived as a crampy pain.

Additionally, the **involvement** of the uterine outer surface in endometriosis can cause menstrual cramps. In the presence of inflammation caused by uterus endometriosis, other pain receptors of the ovaries and surrounding tissue become sensitive to **any stimuli**. Normal uterine contractions during a menstrual period can cause a crampy pelvic pain.

The medical term for painful menstrual cramps is dysmenorrhea.

Chronic Pelvic Pain

The **pelvis** is rich in nerve fibres, nodules, and networks that are responsible for sensation and the movement of **internal pelvic organs** (uterus, ovaries, bowel, bladder, etc.) and **pelvic structures** (muscle, tendons, bones, skin, etc.).

A **majority** of these nerve networks are located on the base of the pelvis, a **common site** of endometrial tissue deposition. Deep infiltrating endometriosis can cause the entrapment of these nerve fibres. Increased localised tissue pressure can cause persistent pain which is not relieved unless these are **freed** using endometriosis surgery.

Pain During Intercourse

The area called Pouch of Douglas is located on top of the vaginal fornix, one of the most common sites of endometriosis.

This region of the pelvis is rich in a network of nerve fibres and pain receptors. Persistent deep pelvic pain during **penetrative intercourse** is a sign that the Pouch of Douglas or its surrounding area is involved in the endometriosis.

Ovarian endometriotic cysts can also cause pain during intercourse, but the pain often changes after **changing positions**. A change in the nature of pain after changing positions can also be caused by pelvic adhesions. Since sexual intercourse causes uterine contractions, women with adenomyosis can have crampy pain **during or after sex**.

The **medical term** for the pain during sexual intercourse is dyspareunia.

Pain During Bowel Movements

Severe endometriosis can directly grow in the bowel wall, which can **trigger pain** during bowel movements. In addition, a part of the bowel may get entrapped in pelvic adhesions in severe endometriosis. This can also cause pain during **bowel movements**.

The medical term for painful bowel movements is dyschezia.

Heavy Periods

Heavy periods are usually a sign of **problems** that cause the enlargement of the uterus, which are adenomyosis and uterine fibroids. Also, **endometrial polyps** can cause heavy periods. Women with issues of blood coagulation can also have heavy periods, but this condition is **rare**.

Both in fibroids and adenomyosis, the uterine body enlarges and leads to an increase in the surface area of the uterine lining. The **larger** the surface of the uterine lining, the **heavier** and **more prolonged** the period.

In adenomyosis, endometrial cells similar to the lining can grow inside the muscle layer and create fluid filled cavities. During the menstrual period, due to **uterine contractions**, the fluid of these cystic spaces can be **discharged** into the uterine cavity. This adds to the amount of the menstrual blood.

In both adenomyosis and uterine fibroids, uterine contractions can be impaired, which is also the cause of heavy periods. Normally, during the menstrual period, exposed small blood vessels of the endometrial bed are closed by the contractions of muscle fibers, like a **ligature**. In adenomyosis and uterine fibroids, the structure and architecture of these muscle fibers change and affect their **function**.

The medical name for heavy periods is menorrhagia. The name for it is as horrible as the problem itself. Isn't it?

Infertility

IMAGE 12. Infertility is a common symptom of endometriosis

Endometriosis is a **common cause** of infertility.

Endometriosis is diagnosed in approximately **25 to 50** percent of women with infertility, highlighting the role of endometriosis in fertility. To explain the role of endometriosis in infertility, let me describe how exactly endometriosis affects fertility.

Endometriosis can cause 7 different types of fertility problems, which explains why these problems often co-exist. We call these problems the

7 Fertility Sins of Endometriosis.

1. REDUCTION OF OVARIAN RESERVE

Endometriosis of the ovaries can **destroy** ovarian tissue and **reduce** the egg reserve.

2. OVARIAN CYSTS

The impairment of ovulation as cysts are **occupying** the space on the ovaries.

3. PAINFUL SEX

In endometriosis, pain during sex can be so severe and **require interruption** of the intercourse. Repeated pain during each intercourse may put the couple off from having penetrative intercourse **regularly**. On average, couples should have intercourse 2 to 3 times a week to give themselves the **chance of conception**. This can be challenging to achieve in women with endometriosis pain.

4. PELVIC ADHESIONS

Adhesions can **reduce the mobility** of fallopian tubes and impair the ability of the tubes to "catch" ovulated eggs.

5. BLOCKED TUBES

Endometriosis of the **fallopian tubes** can cause inflammation, swelling, and adhesion formation inside the tubes. This can lead to blockage. In addition, their involvement in pelvic adhesions can cause the **bending of the tubes**, causing the blockage.

6. FAILED IMPLANTATION

Adenomyosis can reduce the odds of implantation. The embryos may not be able to **implant** due to the inflammation of the uterus. The immune system is always involved in the process of inflammation. With that, the increased activity of immune cells, such as NK cells, can alter the "**communication**" between the embryo and uterus.

7. MISCARRIAGES

Adenomyosis may **erode** the endometrial lining where the placenta of the embryo should attach.

During implantation, the embryo can get **nutrition** from the endometrial lining. However, during placentation, the embryo needs to **anchor** its placenta to the endometrial bed and grow its spiral arteries into the womb's blood vessels. If an embryo ends up implanting on the endometrial bed affected by adenomyosis, this process can be challenging and may stop development. This can manifest itself as a biochemical pregnancy or **early miscarriage**.

In mild endometriosis, women may have **some** of these issues, whilst in severe endometriosis, some women may have **all**.

Since there are multiple factors at play, some women may not be able to **conceive naturally** with minor endometriosis problems. In contrast, others may overcome severe endometriosis and conceive naturally. However, with increased severity of endometriosis, the odds of natural conception **decreases**. Hence, women with Stage 3 and Stage 4 endometriosis should consider using effective **fertility treatment**, like in vitro fertilization (IVF).



Diagnosis

How do you diagnose endometriosis?

You can suspect endometriosis if you have any pelvic pain.

Using an **ENDO 4D Questionnaire**, you can get a fairly reliable diagnosis. If you would like to get an even more accurate diagnosis, then you should **speak to your GP** or a women's health specialist.

Doctors take a **detailed history** to determine if you have symptoms of endometriosis. They may ask the following **questions**.

- Do you have pain? If so, what is the nature and severity?
- Are you using any pain medications?
- Are your periods heavy?
- Are your periods painful?
- Do you have pain during intercourse?
- Do you have pain during bowel movements?

On the basis of the answers, the doctors can establish if you have symptoms of endometriosis. If necessary, you will have an **abdominal and pelvic exam**.

- Ovarian Endometriotic Cysts
- Severe Endometriosis with pelvic nodules and adhesions
- Severe Adenomyosis with the cavitation of uterine body and adenomyoma

Note that superficial endometriosis lesions and mild adenomyosis are **not visible** on ultrasound scans.

If women have significantly painful symptoms, then it is recommended to have a **laparoscopic surgery** to achieve the diagnosis.

Laparoscopy is the **best** investigation to diagnose endometriosis as the tissues can be directly visualised during the procedure. However, clinical diagnosis is achieved once the endometriotic tissue has been removed and confirmed on histology.

Often, this initial procedure is called **diagnostic laparoscopy** for the treatment of mild to moderate endometriosis.

This means, the procedure will be done primarily for the purposes of diagnosis of endometriosis. However, if a mild or moderate disease is seen during the procedure, the endometriosis treatment will be **performed** there and then. If there is a severe disease with pelvic adhesions and endometriotic lesions **involving the bowel and bladder**, endometriosis treatment will not be performed.

Pelvic magnetic resonance imaging (MRI) is recommended to establish the **presence of adenomyosis** as ultrasound and laparoscopy may not be able to detect the disease. Also, in women with severe endometriosis, pelvic and abdominal MRI can establish the extent of the disease and the involvement of reproductive organs, bowel, bladder and other pelvic structures. An MRI can **map out** the location of endometriotic nodules.

How do you treat

The choice of treatment is determined by the following factors:

- Actively trying to conceive: Natural, non-IVF treatment, IVF treatment
- Pain: Severity and nature
- Heavy bleeding: Severity
- Future Fertility Plans

Treatment of Endometriosis Pain

The pain symptoms can be treated with one of the following methods.

1. PAIN RELIEF

For mild to moderate pain, paracetamol, and nonsteroidal anti-inflammatory drugs (ibuprofen) are **effective**.

If the pain is severe and persistent, women need regular **opioid medications** such as Codeine, Endone or Morphine. If women have an allergy to opioids, there are other strong **analgesics**, such as Tramadol and Tapentadol.

Some women use **heating pads** or hot water bottles. This can relieve the pain by **distracting** your pain sensation from the endometriosis pain. However, you should try to avoid using heat packs. Repetitive use of heating pads can **damage your skin** by gradually burning it. The persistent use of heat pads can cause patches of brown and red skin burns which **never** go away.



IMAGE 14. Avoid using a heat pad.

2. HORMONE THERAPY

Estrogen, when used continuously, **suppresses the growth** of ovarian follicles and ovulation.

As a result, the ovary does not produce estrogen and progesterone in a cyclic manner and the menstrual period **does not occur** every month. This prevents the cyclic growth of endometriosis cells and discharge of menstrual blood into the affected tissues.

Estrogen is given in the form of a combined oral contraceptive pill. To use the combined contraceptive pill as hormone therapy for endometriosis, you should take it **back-to-back** without any breaks.

Similarly, the use of progesterone continuously suppresses the cyclic production of estrogen and stops menstrual periods. This is called **progestin therapy**.

The progestins can be used in the **form of pills**, intrauterine devices (Mirena, Skyla), a contraceptive implant (Implanon, Nexplanon), and injections (Depo-Provera). In addition, progesterone acts as an opposite to estrogen and **negates** the effect of estrogen. While estrogen makes endometriosis grow, progesterone suppresses its growth.

Since hormone therapy disrupts ovarian function and ovulation, they are **not recommended** in women actively trying to conceive.

3. HORMONE SUPPRESSION

Ovarian function is **governed** by hormones of the pituitary gland.

The Follicle Stimulating Hormone (FSH) of the pituitary stimulates the **growth** of ovarian follicles in the first half of the menstrual cycle. Luteinising Hormone (LH) of the pituitary causes the **ovulation** of the follicle and production of progesterone. **Blocking** of the pituitary stops the production of FSH and LH.

Without FSH and LH, ovaries **cannot** grow follicles and hence, cannot produce oestrogen. Endometriosis does not grow in the absence of **oestrogen**. Essentially, the drugs that block the pituitary switch off the ovaries and uterine function.

Common medications used for this purpose are Zoladex, Prostag, and Lupron. These medications are called gonadotropin releasing hormone agonist (GnRH Agonist) and administered **monthly or three monthly**. Following the first injection of gonadotropin releasing hormone agonist, the growth of the endometrium and endometriosis stops. Women stop having their menstrual period **during** the course of treatment.

These injections are **very effective** in treating endometriosis. It relieves severe pain and treats the inflammation of tissues caused by endometriosis.

However, the injections can be given **up to 6 months**. Once injections stop, after approximately 6 months, the endometriosis often **flares up** and the pain returns. Often, this treatment is used in women who cannot have surgical treatment and wish to have a break from the pain. Also, GnRH agonist injections can be used when **surgical treatment** has not been effective.

Importantly, since GnRH agonists stop ovarian function, women cannot conceive while on these injections. Therefore, it is not recommended for women who are **actively** trying to conceive.

GnRH agonists injections can have side effects, which are similar to the symptoms of menopause. In addition to **reproductive function**, women need estrogen for their skin, muscle, bones, vagina, and nervous system. Since GnRH agonist injections switch off estrogen production, all these **tissue systems** are deprived of estrogen and give typical low estrogenic **side effects**.

These include hot flushes, dryness of skin, vaginal dryness, low libido, and irritability. However, these side effects can be

minimised by using a small dose of estrogen hormones in the form of patches or tablets.

4. SURGICAL REMOVAL OF ENDOMETRIOSIS

The most **common and effective** surgical treatment is the laparoscopic excision of endometriosis. Surgical removal of endometriosis is a very effective method of treatment. Once the endometriosis lesion has been removed, the area is healed with healthy connective tissue.

However, there are few important points I need to **highlight**.

Although the **removal** of mild to moderate endometriosis is fairly straightforward, the excision of severe endometriosis can be challenging. Since severe endometriosis can involve a number of reproductive organs and pelvic structures, the surgery can be **complex and high risk**.

For instance, if a deep infiltrating endometriosis has grown in the bowel, the excision of the endometriosis nodule can be achieved by one of the following **methods**.

If endometriosis has **not penetrated** the full thickness of the bowel, then it can be removed by "**shaving**" the nodule off the bowel wall without breaching into the lumen of the bowel. If the endometriosis has penetrated the **full thickness**, but small in size, a technique called "discoed resection" and **suturing** the defect of the bowel wall can be performed.

If endometriosis has penetrated the full thickness of the bowel and is large in size, then the affected part of bowel needs to be removed by a technique called "segmental bowel resection". The bowel can be repaired by joining the **two ends** during the operation called "bowel anastomosis". If the resection has been extensive, a patient may need a temporary colostomy and have **bowel anastomosis** in the future.

Similarly, the involvement of ureters and the bladder can make surgical treatment a **complex intervention**. However, for some patients, the symptoms of pain are so **severe** and debilitating. Then, it is necessary to treat endometriosis with an extensive and complex surgery.

Laparoscopic excision of mild to moderate endometriosis is often performed by **generalist gynaecologists**. However, a laparoscopic excision of Stage 3 and Stage 4 endometriosis is typically performed by an expert gynaecological surgeon who **specializes** in the treatment of severe endometriosis. They often perform the surgery in specialized endometriosis centres with a **multidisciplinary team** of specialists and surgical staff.

Given that the preparation and recovery for severe endometriosis can be extensive, women **cannot** try to conceive during this period.

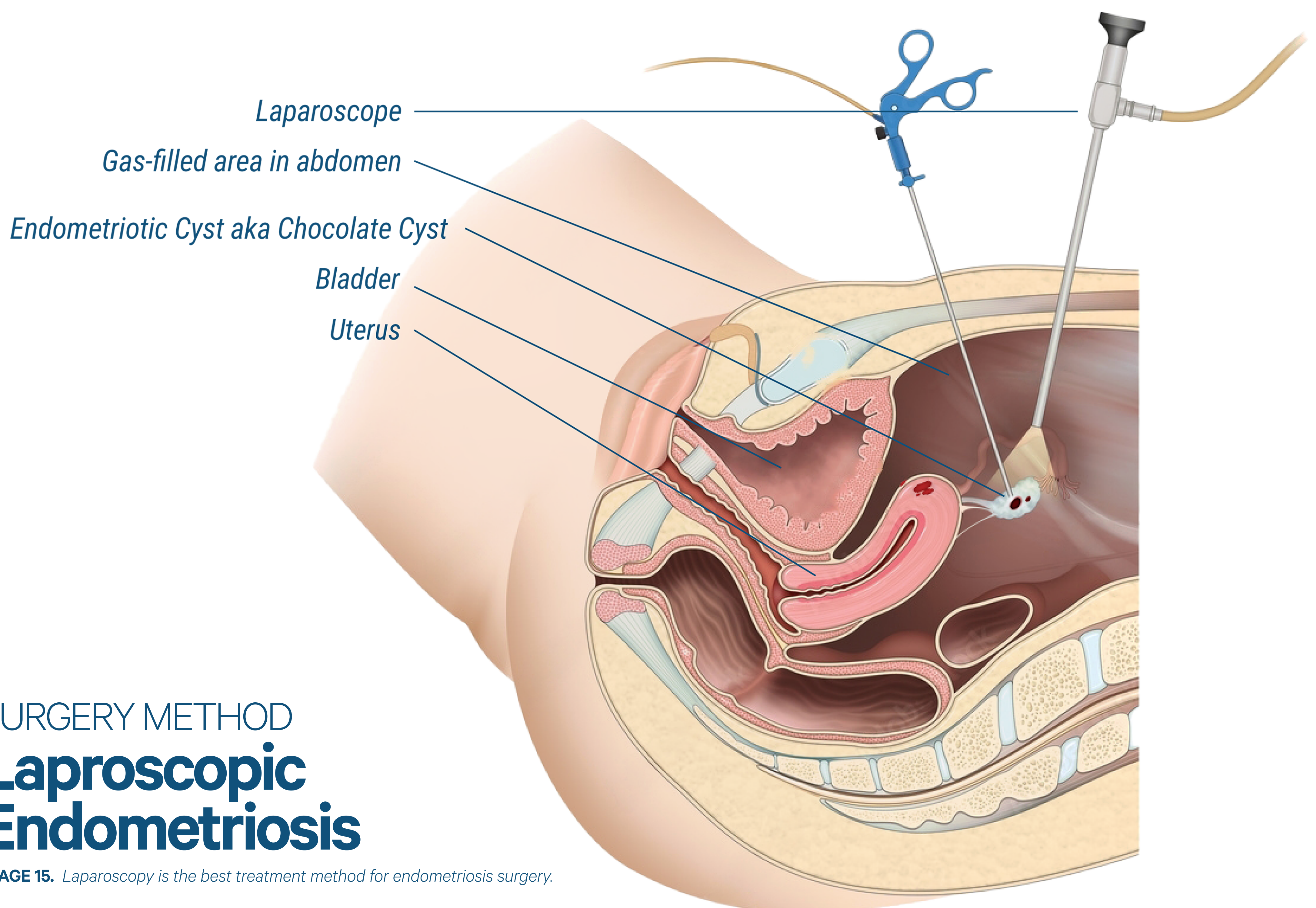
5. FULL OR PARTIAL SURGICAL REMOVAL OF AFFECTED ORGAN

Reproductive organs such as the ovaries, fallopian tubes, and uterus are often actively involved in endometriosis.

Endometriosis cannot grow without estrogen and progesterone production by the ovaries; hence, the **removal of ovaries** is one of the methods for its treatment. Adenomyosis can also cause significantly painful and heavy periods, which can be cured by the removal of the uterus. In some women, total hysterectomy and the removal of both the ovaries and tubes are the **best treatment**.

However, this is not the right treatment for women planning to have **children in the future**. This is an **irreversible** decision and recommended for women who are **100 percent** sure that they do not want to have any children in the future. In the absence of the uterus and ovaries, women cannot have **biological children**.

In addition, the removal of both ovaries will cause **immediate menopause**. Women should use Hormone Replacement Therapy (HRT) to **alleviate** the symptoms of early menopause and reduce the risk of osteoporosis.



Treatment of Infertility

Endometriosis and infertility often **coexist** which makes dealing with both problems challenging. Except for simple pain management, all treatment methods of endometriosis **affect natural fertility** and fertility treatment.

Since effective endometriosis treatments involve hormonal treatment and surgery in the reproductive system, women cannot conceive while undergoing treatment for the disease. With that, women often need to **prioritize**: treatment of endometriosis, trying to conceive naturally or fertility treatment.

NATURAL CONCEPTION OR MEDICAL TREATMENT

Women with endometriosis can try to conceive naturally **up to six (6) months** provided that all of the following criteria are met:

- Endometriosis: Stage 1 or Stage 2
- Normal or high ovarian reserve: Normal or high AMH
- Ovulating
- Normal semen analysis

If **regular ovulation** is not taking place, they can have ovulation induction.

In Vitro Fertilization (IVF)

Women with one or more of the following **fertility factors** should have IVF Treatment:

- Endometriosis: Stage 3 or Stage 4
- Low ovarian reserve: Low AMH
- One or both tubes blocked
- Abnormal semen analysis
- Presence of ovarian endometrioma
- Presence of adenomyosis

Treatment of Chocolate Cyst

Treatment of ovarian endometrioma depends on the following **factors**.

1. PAIN SYMPTOMS

If there is significant, **persistent pain** on the side of the ovarian cyst, surgical treatment may be required. Rarely, ovarian endometrioma may cause the **torsion** of the ovary, which can lead to a sudden, severe pelvic pain. This requires an emergency laparoscopy.

2. SIZE OF THE CYST

Endometriotic cysts **larger than 5 cm** in diameter often cause significant pain symptoms and may necessitate a laparoscopy and cyst removal. Smaller cysts can be observed by repeating the ultrasound and a follow-up consultation after **3 to 6 months**.

3. FUTURE FERTILITY PLANS

Endometriotic cysts are densely attached to the ovarian tissue. Hence, the removal of the cysts invariably results in the removal of attached ovarian tissue with many **invisible eggs**.

In any ovarian surgery, especially ovarian cystectomy for a chocolate cyst, it reduces the **ovarian reserve**. For women planning to have children, it is best to **avoid** cystectomy until they have completed their family. Alternatively, **fertility preservation** by freezing their eggs or embryos can be

achieved first **before** embarking on an ovarian cystectomy.

For women planning to have children in the future, it is generally not recommended to have a cystectomy unless the cysts are larger than 5 cm in diameter. If the cyst is large and causing significant pain symptoms, then draining the cysts may be the **right option**.

Women planning to have any ovarian surgery should **check** their AMH levels. Women with low AMH should avoid ovarian surgery until they have completed their family, as they are at **risk** of a diminished ovarian reserve.

Treating Adenomyosis

There are only **three effective methods** for treating adenomyosis:

1. PROGESTERONE CONTAINING INTRAUTERINE DEVICE (MIRENA IUS)

This can be used as long term treatment as it can be replaced **every five (5) years**.

Mirena IUS releases progesterone **locally** in high concentrations and suppresses the growth of the endometrium and adenomyosis. Often, it stops periods as a sign of effectiveness. Since it works as a contraceptive, this treatment is not suitable for women trying to conceive. Mirena IUS can be used by those planning to conceive in the future. Following the removal of the device, fertility resumes quickly.

2. GnRH AGONIST INJECTIONS

Long acting GnRH Agonists such as Zoladex, Prostag, and Lupron are very effective in temporarily stopping estrogen and progesterone production and ovulation.

Invariably, after the first GnRH injection, the growth of endometriosis and menstrual periods stop. The treatment of adenomyosis with GnRH agonists lasts for **4 to 6 months**, depending on the disease's severity. Approximately **four (4) weeks** after the last GnRH agonist, ovarian function **returns** and ovulation **resumes**. It may take an average of **4 to 6 more** weeks before the menstrual period resumes.

Since **GnRH agonist injections** stop ovarian function, this treatment is not recommended for women who are actively trying to conceive. However, women planning to have children in the future can have GnRH Agonists as this treatment **does not negatively affect** future fertility.

3. HYSTERECTOMY

In adenomyosis, glandular endometriotic tissue grows into the uterus' muscle layer.

Often, the growth of adenomyosis is diffuse with **no exact border** between healthy uterine muscle and the area affected by adenomyosis. With that, surgical removal is **not feasible**. An attempt can cause severe uterine scarring, including the inside of the uterus' surface.

This can lead to a condition called Asherman Disease, which is defined by scar tissue **formation** inside the uterine cavity. Therefore, surgical treatment is not recommended for women planning to have children in the future.

For women who do not wish to have any children, a total hysterectomy is the best surgical treatment. Hysterectomy removes the **source** of pain and heavy periods in women with adenomyosis-related symptoms.

Summary

Endometriosis is a common disease which affects millions of women around the world.

The disease can cause a **significant disruption** to the life of women by causing severe pain, heavy periods, and infertility. These problems can significantly **impact** the emotional, psychological, and financial wellbeing.

You should seek help from a health professional if you have symptoms of endometriosis. The effective methods of treatment are available, though you may need an **expert endometriosis specialist** if you have severe endometriosis.

Remember, knowledge is power. By reading this blog, you are **empowering** yourself and other women with endometriosis.

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