

INFORMED CONSENT FOR
SURGICAL TREATMENT OF
ENDOMETRIOSIS

INFORMED CONSENT FOR SURGICAL TREATMENT OF ENDOMETRIOSIS

Dear Madam,

In accordance with shared legal, deontological, and ethical principles, every medical act requires the consent of the entitled person after adequate information has been provided. Therefore, before undergoing surgery, we kindly ask you to read this document carefully, discuss it, and share it, as a testimony of the comprehensive information and deliberation process that has taken place between us.

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GENERAL CONSIDERATIONS

Endometriosis is a condition characterized by the proliferation of endometrial tissue (which is physiologically located inside the uterus) in abnormal sites, either pelvic or, more rarely, in the upper abdomen. Although it is currently one of the most studied pathologies in gynecology, many doubts still remain regarding its causes and pathogenesis. There are essentially four types of endometriotic tissue localization: within the uterine muscle (adenomyosis), in the ovary (endometrioma), superficial (foci, often associated with adhesions), and deep infiltrating (which can involve all pelvic structures—retro- and para-uterine area, recto-sigmoid colon, bladder and urinary tract, vagina and recto-vaginal septum—and sometimes also distant intestinal segments and the abdominal wall). These tissue localizations, hereafter referred to as endometriotic lesions, typically cause an inflammatory process that results in frequent painful symptoms, especially during the menstrual phase (dysmenorrhea) and around ovulation. In addition to diffuse pelvic and/or abdominal pain, the disease, depending on the site of the lesions, can also cause pain during sexual intercourse (dyspareunia), altered bowel habits (constipation/diarrhea/abdominal bloating and gas), pain during defecation (dyschezia), pain during urination (dysuria), and sometimes chronic pelvic pain. When severe, these symptoms can significantly affect quality of life.

However, the severity of symptoms does not always correlate with the extent of the disease: although rarely, there may be cases of severe endometriosis with mild symptoms or, conversely, patients with intense symptoms but minimal or no endometriosis findings. Therefore, considering the extreme variability in clinical presentations and the possible locations of lesions, a thorough preliminary evaluation (clinical history, gynecological examination, pelvic and abdominal ultrasound by an experienced operator, and any additional tests if necessary) is crucial to choose the most appropriate therapeutic approach based on the specific characteristics of the case and the needs of the patient.

The cornerstone of endometriosis treatment is medical therapy (hormonal therapy) to control symptoms, limit disease progression, and prevent recurrence after surgery. If drug therapy fails, is contraindicated, poorly tolerated due to excessive side effects, or in selected cases of patients wishing to conceive (and therefore cannot use contraceptive therapies), surgical treatment becomes necessary. Surgical therapy for endometriosis involves the complete removal of visible endometriotic lesions in a single laparoscopic operation (a minimally invasive technique involving the introduction of surgical instruments and a camera into the abdomen through small millimetric incisions).

The goal of surgical treatment is to eradicate endometriotic lesions to reduce pain and restore the anatomy of affected organs. In some cases, this can increase the likelihood of conception in infertile patients. Endometriosis is a chronic-recurrent disease, so recurrence (both of pain and lesions) is possible even after adequate surgery, especially if the patient does not undergo medical therapy postoperatively. According to the literature, the risk of disease recurrence after surgery ranges from 2% to 50% in the first 5 years. It is important to note that the presence of lesions after incomplete surgery should not be considered a recurrence but rather a persistence of disease.

In our case series, the recurrence rate (two years after surgery) of deep infiltrating endometriosis is <5%, while it is higher in the ovaries, where recurrence ranges from 2–12% in patients on continuous progestin or estrogen-progestin therapy, up to about 40% in patients not undergoing any pharmacological therapy.

STAGING

There are several staging systems for endometriosis in the literature. The one currently used by the Italian National Health System (SSN) is the American Fertility Society (AFS) classification, which distinguishes 4 stages of the disease (I minimal, II mild, III moderate, IV severe). Unfortunately, this classification has significant limitations, particularly:

- it is surgical in nature (requiring operative assessment, i.e., surgery; according to its own criteria, staging cannot be done based solely on diagnostic tests);
- it does not include deep infiltrating endometriosis, making it impossible to classify many advanced cases.

In light of these considerations, our center uses both the AFS classification and the Enzian score, which allows a more accurate assessment of deep infiltrating forms.

SPECIFIC CHARACTERISTICS OF ENDOMETRIOTIC LESIONS

OVARY

This is the most common site. In most cases (almost all), they are cysts with benign characteristics. The risk of neoplastic transformation is <1% and more likely after age 40 or in recurrent cysts. In such cases, atypical features are often already visible in preoperative evaluations. It is extremely rare for such a finding to be discovered incidentally during surgery (with intraoperative histological examination, if needed). In any case, our surgical team routinely performs oncological gynecological procedures as well, ensuring all proper protocols are followed even in this rare scenario.

DEEP ENDOMETRIOSIS

Bladder

More frequent in patients with previous cesarean sections. These lesions infiltrate the bladder wall and are often associated with irritative symptoms (cystitis-like: burning, heaviness, urgency, incomplete emptying,

hematuria), which typically worsen during menstruation. Imaging is crucial to assess the extent and anatomical relationships of the lesion.

Retrocervical area

The most frequent deep lesions involve the posterior insertion of the uterosacral ligaments (right and left) and/or the area between them (torus). These are often associated with radiating lower back pain and can be detected through manual examination by an experienced operator; imaging provides more precise assessment.

Rectovaginal septum and vagina

These lesions infiltrate the full thickness of the vaginal wall (especially the posterior fornix) and/or the membrane separating vagina and rectum (rectovaginal septum – RVS). Though rare, they are usually part of wider posterior disease and often cause pain and/or bleeding during intercourse. They are the easiest to identify via manual exam by an expert.

Parametrium

It is the tissue that supports the uterus and develops in the anterior, lateral and posterior areas with respect to the neck (cervix). Isolated localization is rare, more frequent in association with retrocervical and/or intestinal lesions. The parametrial tissue contains nerves responsible for bladder, rectal and vaginal innervation, as well as nerve branches directed also to skin and muscular structures, blood vessels related to these structures, as well as the lower segment of the ureter (the communication channel between the kidney and the bladder). Therefore, the symptoms can be significant: pain also in the lumbar region and in the limbs, sometimes difficulty walking, bladder dysfunction (incomplete emptying), rectal and/or sexual dysfunction. In fact, endometriotic tissue can, even before any interventions, damage the nervous structures that regulate the aforementioned functions. In the most severe and extensive cases, it can also compress or even infiltrate the so-called somatic nerves, i.e. large nerves that conduct stimuli to regulate the motility of the muscles of the limbs (e.g. sacral plexus, sacral roots, sciatic nerve, femoral nerve and obturator nerve) and their sensitivity. When large infiltrating endometriotic nodules cause compression on these nerves, the patient may experience sciatica or pain in the leg or buttock in conjunction with the menstrual cycle, in rare cases in which the compression is very marked, to determine a compromise of the motor function of the innervated areas. Another nervous structure that can be damaged (with a vice-like pain between the anus and the vagina, called anogenital pain or proctopudendalgia) and compressed by large endometriosis nodules, is the pudendal nerve, a small "mixed" nerve, that is, both somatic (it innervates muscles of the so-called "pelvic floor" and gives sensitivity to this area, regulates muscle tone and presides over fecal and bladder continence) and visceral (regulates functions such as orgasm). Furthermore, endometriotic lesions of the parametrium can determine functional impairment of the urinary tract in the case of partial or total obstruction of the ureter, with consequent dilation of the upstream kidney and possible reduction/loss of functionality: this eventuality can be clinically associated with renal colic but is sometimes completely asymptomatic. Such lesions, like retrocervical ones, can be identified by an expert operator during a visit and certainly better characterized by imaging, especially with regard to the involvement of the above-mentioned structures.

Intestine

The most frequently affected sites are the sigmoid colon, rectum, ileum, appendix, and cecum. These lesions are rarely asymptomatic and are generally associated with altered bowel habits (ranging from diarrhea to severe constipation), chronic and recurrent abdominopelvic pain, pain during defecation, and more rarely, the presence of mucus and blood in the stool. Dyspareunia (pain during sexual intercourse) is also frequently associated, especially in cases of concurrent adhesions. Depending on the size of the lesion, the degree of infiltration, its location, and the extent of intestinal lumen obstruction, these lesions may cause partial or complete bowel obstruction; in such cases, surgical treatment is mandatory. They may be suspected during a manual examination by an experienced clinician when located in the lower bowel; however, imaging is essential for assessing the size and exact location of the lesion.

Abdominal Wall

More common in patients with a history of surgery, these lesions typically infiltrate the abdominal wall (to varying depths: subcutaneous, fascial, muscular, peritoneal), usually near surgical scars. Less commonly, they may affect the inguinal canal. Symptoms include chronic or cyclical pain, often perceived as "external" wall pain. The lesion may be palpable during inflammation and suspected during expert clinical examination. Imaging is essential for assessing extent.

Atypical Sites

Extremely rare sites include the diaphragm, lungs, pleura (lining of the lungs), and pericardium (lining of the heart).

UTERINE ADENOMYOSIS

Adenomyosis refers to the presence of endometrial tissue (the tissue that normally lines the uterine cavity) within the muscular wall of the uterus (myometrium). This tissue, like all other endometriotic lesions, becomes active during menstruation, causing inflammation and often resulting pain (although in some cases it may be asymptomatic). The involvement of the uterine wall can be either diffuse or focal (with a nodular morphology, also referred to as an adenomyoma, or cystic). In diffuse forms, there is often an overall increase in the volume of the uterus and a consequent rigidity of its walls, which may be associated with an increased amount and duration of menstrual flow. Nodular forms can raise diagnostic doubts in the preoperative phase, as they can sometimes be difficult to distinguish from myomas (fibroids): the main difference is that a myoma, even when large, is always encapsulated and has well-defined borders that allow for surgical removal, whereas adenomyosis, though benign, is an infiltrative condition that is therefore difficult to fully excise surgically. From a medical treatment perspective as well, the differential diagnosis is important, as the two conditions may benefit from different therapeutic approaches. The presence of uterine adenomyosis can negatively impact the ability to conceive (infertility) and, in some cases, the course of a potential pregnancy. Ultrasound and magnetic resonance imaging performed by experienced professionals allow for a highly accurate diagnosis.

TREATMENT OPTIONS

There is no single treatment for endometriosis. The therapeutic approach must be individualized (“patient-oriented”) and consider:

- Extent of disease and organ involvement
- Age
- Symptoms
- Desire for pregnancy / infertility

The options, always to be discussed and agreed upon with the patient, include:

- Watchful waiting (no treatment, clinical/instrumental monitoring)
- Medical therapy (see below)
- Surgical therapy (see below)
- Medically Assisted Procreation (MAP) (see below)

ENDOMETRIOSIS AND INFERTILITY

Couple infertility is defined as the failure to conceive after one year of unprotected sexual intercourse. About 40% of patients with endometriosis may experience reproductive problems, and this depends on various factors: in the case of ovarian endometriosis, there is often a reduced ovulation rate of the affected ovary; in the case of severe pelvic endometriosis, the infiltrative lesions and associated adhesions can cause anatomical/mechanical alterations with impaired tubal transport functionality; sometimes the uterine environment may be more hostile to embryo implantation. Even in cases of minimal endometriosis, there are inflammatory factors that may hinder conception. Moreover, it must be considered that a crucial parameter for a woman's reproductive potential is age: from the age of 35 onwards, the percentage of chromosomally abnormal oocytes progressively increases, thus increasing the risk of failed conception or early spontaneous miscarriages, regardless of anatomical conditions. Adequate surgery for endometriosis, by restoring normal pelvic anatomy and removing lesions (thereby reducing pelvic inflammation), can increase the chances of conception, but this aspect is strongly influenced by the patient's age and the characteristics of the partner's seminal fluid. Certainly, the highest conception rates after surgery are recorded below the age of 35. Therefore, the choice to undergo surgery solely to restore reproductive potential should be carefully evaluated and only after adequate assessment of the couple's characteristics. It is also necessary to consider the possibility of a reduction in follicular reserve after ovarian surgery. The parameter of follicular reserve, which physiologically decreases with age and can vary greatly from patient to patient, is crucial not so much for spontaneous conception (which relies on the single monthly ovulation, thus possible even with half of one ovary), but for any assisted reproduction procedure, where the number and quality of oocytes produced through stimulation (and thus the potential number of embryos) are crucial to increase the chances of treatment success.

For the above reasons, proper counseling is always provided to the couple to choose the most appropriate treatment options (surgery or assisted reproduction techniques). On the other hand, it should also be considered that although pregnancy is generally regarded as a “natural therapy” for endometriosis, in some cases reported in scientific literature, an abnormal behavior of the lesions may be observed during pregnancy (resulting in increased risk of complications during pregnancy and/or delivery). This aspect should be considered and discussed with the couple during the decision-making phase regarding the therapeutic strategy to adopt, including the possibility of surgical treatment even before accessing assisted reproduction techniques. Finally, it is important that the patient understands that the disease may sometimes cause irreversible damage to one or both fallopian tubes: often, when associated with clear dilation, this is already identifiable during preoperative diagnostics, but sometimes it is only detected during surgery. Since it has been demonstrated that a clear anatomical damage to one or both tubes not only renders them ineffective for spontaneous conception but also potentially harmful in assisted techniques (reducing the success rate by up to 50%), and because reconstructive/restorative procedures are not always effective, we always require prior consent for their removal (one or both) in case of observed impairment.

MEDICAL THERAPY

- Continuous oral progestin therapy
- Continuous or cyclic (monthly pause) oral estrogen-progestin therapy
- Medicated intrauterine device (LNG-IUS, spiral with gradual progesterone release)
- GnRH analogues (induction of temporary pharmacological menopause)

The goal of medical therapy is to control pain symptoms and lesion progression, as well as to reduce the risk of disease recurrence after surgery. These goals are more likely to be achieved with pharmacological induction of amenorrhea (absence of menstruation) through continuous therapy intake. It should be emphasized that amenorrhea is not menopause, as the hormone taken (progestin or estrogen-progestin) meets metabolic needs. It must be underlined in any case that currently there are no “curative” therapies in the sense that the effectiveness of the drug remains only during the treatment phase and, in some cases, for a few months after discontinuation. In most cases, once therapy is stopped, the disease can resume its course (in terms of symptoms and/or lesion growth). Therefore, these are generally long-term therapies (months/years), to be interrupted—unless contraindicated—only in the case of pregnancy attempts or upon reaching menopause.

The most suitable therapy in terms of effectiveness/side effects is represented by continuous progestin therapy (dienogest or norethisterone acetate). Often, but not always, this therapy can also lead to a reduction in the size of the lesions, generally those in the ovaries and uterus (adenomyosis), while the effect is significantly lower on deep and infiltrating lesions. Among the most common side effects: nausea/headache, spotting (vaginal bleeding), breast tenderness (especially in the first weeks of use), mild bloating and increased appetite. An alternative solution for long-term therapy is represented by estrogen-progestins, more effective when administered continuously rather than cyclically, with similar side effects to progestins but generally less marked, though sometimes also less effective. The use of the IUD is generally more suitable for patients with adenomyosis who do not desire pregnancy. Although the risks are minimal, the potential breast impact and increased coagulation activity (higher thromboembolic risk) must be considered for the above drugs. Therefore, the suitability of hormonal therapy is assessed by the doctor based on anamnesis, hematological and breast assessments to exclude specific contraindications. GnRH analogues are extremely effective in disease control but burdened by significant side effects (true menopause – absence of circulating hormones), and therefore cannot be used long-term.

SURGICAL TREATMENT

Surgery for endometriosis is essential in three cases:

- Intestinal stenosis with risk of subocclusive or occlusive episodes
- Ureteral stenosis with risk of kidney function impairment
- Adnexal mass with features suspicious for malignancy

In all other cases, a proper risk/benefit evaluation is necessary. Once, based on the above considerations, the indication for surgery is established, it should be as radical as possible (complete removal of all macroscopically visible lesions), also to reduce the likelihood of repeat procedures and their potential consequences.

LAPAROSCOPY (minimally invasive surgical technique) is universally recognized as the “gold standard” (treatment of choice) due to its undeniable advantages over the laparotomic technique (traditional open surgery):

- Magnified view for increased surgical precision
- Less blood loss
- Lower risk of postoperative adhesions
- Less postoperative pain
- Faster recovery and shorter hospital stay
- Better cosmetic outcome

In some cases, depending on the type of surgery planned, intestinal preparation may be required starting about 24 hours before the surgical procedure. The surgery is performed under general anesthesia (with orotracheal intubation) using thin surgical instruments and a scope (camera) inserted into the abdomen through micro-incisions ranging from 5 to 12 mm in diameter. The procedure always requires insufflation of the abdominal cavity with a CO₂ gas mixture that is quickly reabsorbed after the operation. The duration of the intervention varies depending on the anatomical region involved.

As with all surgeries, a venous access is placed for the administration of necessary drugs. After sedation, a bladder catheter is inserted, which is generally removed immediately postoperatively before awakening unless there is a clinical reason to keep it. It may also be necessary to place an abdominal drain and/or a nasogastric tube at the end of the surgery, to be removed in the following days. For some procedures involving the urinary tract, the placement of a ureteral stent may be necessary—an internal device that keeps the ureter open and is not externally visible—and it will also be removed later according to clinical needs.

Very rarely, blood or plasma transfusions may be necessary. Although the likelihood of needing them is extremely low, our facility is equipped with a postoperative intensive care unit (T.I.P.O.) staffed 24/7 by anesthesiology and nursing personnel. Resumption of normal eating in the postoperative period depends on the natural recovery of intestinal function. It usually occurs early unless bowel surgery was performed, in which case a slightly longer delay may be needed. When clinically feasible, early mobilization is encouraged to promote quicker postoperative recovery. The average hospital stay, from admission to discharge, is 48–72 hours; it may extend to 7 days or more for more complex procedures (intestine–urinary tract–bladder).

Moderate soreness at the skin incision sites is common, usually short-lived and manageable with standard painkillers. After surgery, the patient may experience paresthesias/hypoesthesias (subjective sensations of altered skin sensitivity such as “numbness,” tingling, or heat), especially in the abdominal area or lower limbs (inner thighs). These effects are generally due to the surgical positioning and tend to resolve on their own in most cases within a few days; more rarely, they may persist for a few weeks. Our operating rooms are equipped with state-of-the-art instruments dedicated entirely to advanced endoscopic surgery and also feature 3D surgical visualization devices, which further enhance surgical vision and accuracy.

SPECIFIC TYPES OF SURGICAL PROCEDURES

Below is a list of all the procedures that may be required during surgery for the eradication of endometriosis, and the organs involved. Often, it is a “multivisceral” disease, meaning it affects many organs and compartments, so multiple areas must be addressed, making the risks and benefits of the procedure a complex equation. This depends on each compartment treated, any previous surgeries, the extent of anatomical impairment caused by the disease, and just as importantly, individual healing and scarring processes, which differ for each patient. The excision of deep endometriosis requires the opening of the retroperitoneum (the space between the pelvic bones and the peritoneum, containing key structures such as blood vessels, nerves, and lymph nodes), with the need to identify/isolate the ureters and develop complex anatomical planes. It is important to note that disease involvement of various organs and structures may often require procedures not only of gynecological nature (uterus and adnexa) but also urological, neurological, or colorectal surgery. According to current national guidelines (SIGO-AOGOI-AGUI 2018), such procedures may be performed by a pelvic surgeon (gynecologist specialized in these procedures) or alternatively by a multidisciplinary team (gynecologist + general surgeon + urologist).

In our facility, these procedures are carried out by a team of expert gynecologists dedicated to treating complex cases of abdominal-pelvic endometriosis, with proven experience also indicated by the high volume of surgeries performed (about 800 per year).

OVARIAN ENDOMETRIOSIS

As mentioned, surgery is absolutely necessary in cases of suspected malignancy of the cystic mass (a rare event, <1%, especially in young patients). Our facility offers daily pathological anatomy service for intraoperative frozen section (immediate histological exam), though definitive evaluation still depends on the final pathology report. Surgical intervention is also indicated regardless of the absolute size of the cystic mass in cases of typical-looking lesions unresponsive to medical therapy (persistent pain and/or growth) and in symptomatic patients with contraindications to drug therapy. An additional indication may be infertile patients undergoing ART procedures if the cyst interferes with the treatment. The preferred treatment is evacuation of the cyst content with capsule removal (stripping).

Any ovarian surgery may potentially reduce follicular reserve, a crucial consideration especially in young reproductive-age women, requiring evaluation of possible combined strategies with medical therapy and/or oocyte cryopreservation before or after surgery. Numerous studies show that surgeon experience and specific surgical techniques are critical to preserving healthy ovarian tissue. However, even then, a potential reduction in residual tissue must be considered.

In our center, we routinely use the most advanced technologies (diode laser, Argon, Plasmajet) to minimize ovarian damage in case of cyst removal. The risk of impaired follicular reserve is higher after previous ovarian surgery and in cases requiring bilateral intervention. Therefore, especially for small-volume lesions, we sometimes choose simple drainage, avoiding capsule removal. This strategy reduces the risk of premature menopause, which is rare (1–2%) and still related to patient age and baseline ovarian reserve.

DEEP ENDOMETRIOSIS OF THE ANTERIOR COMPARTMENT

Bladder

Bladder endometriosis is treated laparoscopically by removing endometriotic implants on the bladder. These may be superficial and can therefore be removed with a shaving technique (ablation), or deep, involving the bladder wall musculature, requiring en bloc resection and simultaneous reconstruction. In such cases, a bladder catheter must be placed and left in for a few weeks (usually two or three). If the infiltrating endometriotic nodule affects the terminal intravesical portion of the ureter, a simultaneous ureteral resection and reimplantation may be necessary. In such cases, in addition to the above bladder catheter, a ureteral stent must also be placed.

DEEP ENDOMETRIOSIS OF THE POSTERIOR AND LATERAL COMPARTMENTS

Retro-cervical area – uterosacral ligament insertion, vagina/rectovaginal septum, parametrium, ureter

The retrocervical or vaginal nodule is isolated from the posterior wall of the uterus and the anterior intestinal wall (if adhered to it). If the posterior vaginal wall is deeply affected by endometriosis, it may need to be resected and then sutured, requiring abstinence from vaginal intercourse for at least two months to allow proper healing and prevent suture dehiscence. Treatment of lesions in the retrocervical and parametrial areas (lateral or posterolateral to the cervix), unilateral or bilateral, always requires identification of the ipsilateral ureter for surgical safety and sometimes its isolation (ureterolysis), due to its anatomical proximity to these nodules.

When the paracervical lesion directly affects the ureter, it can cause damage with mechanical narrowing (stenosis) and resulting urinary obstruction (often with kidney dilation due to impaired drainage). Sometimes freeing the ureter from the surrounding endometriotic tissue (ureterolysis) is sufficient; in other cases, with deeper involvement or irreversible damage, ureteral resection with anastomosis (joining the ends) or reimplantation into the bladder is necessary (requiring bladder mobilization for technical reasons). These procedures often require a ureteral stent and sometimes also a bladder catheter, both to remain in place for a few weeks. If preoperative exams show significant, irreversible loss of kidney function, simultaneous nephrectomy (kidney removal) and ureterectomy (ureter removal) may be indicated.

The parametrium is the “nerve center” for fibers leading to the bladder, vagina, and rectum, so surgery in these areas requires specific expertise to minimize the risk of neurological complications. Surgery in these compartments is therefore highly delicate and complex and aims to preserve these structures as much as possible through nerve-sparing surgery, minimizing the risk of neurological deficits.

Sometimes, however, the lesion itself directly involves these nerve fibers, so excising the endometriotic disease may inevitably damage them unless the radicality of the surgery is reduced by deliberately leaving small residuals to contain neurological risks (intraoperative risk/benefit assessment). It is worth noting that involvement of these nerve fibers by endometriotic tissue often causes damage (typically ischemic) even before surgery, since endometriosis is “neurotropic” (with a high affinity for and tendency to infiltrate nerve fibers). As such, damage and symptoms may preexist the operation.

For example, many studies show that bladder function may already be severely impaired (frequent urination, sensation of incomplete emptying) in women with deep endometriosis who have never undergone surgery. The same applies to bowel dysfunction and, more rarely, sexual dysfunction (e.g., low arousal, inability to reach orgasm, chronic vaginal dryness). Some patients even report preoperative posture or gait difficulties due to involvement of sensory and/or motor somatic nerves.

Endometriosis causing compression or infiltration of somatic nerves (such as the sciatic, obturator, or pudendal nerves that innervate the perineum) can be treated with laparoscopic neurolisis/decompression (freeing nerves compressed or infiltrated by the disease). When performed correctly and with appropriate neuroanatomical and neurosurgical expertise, these procedures yield excellent results in terms of pain relief and functional recovery. However, due to the delicate nature of these structures and their slow regeneration, complete recovery may take months and may include an initial worsening of symptoms postoperatively.

In some cases, physiotherapy and targeted rehabilitation are appropriate.

Intestine

Intestinal endometriosis can be treated in several ways:

- Shaving
(Superficial removal – in these cases, the lesion is “shaved” from the external surface without needing to incise the intestinal wall)
- Discoid resection
(Only the intestinal portion affected by the nodule is excised and re-sutured)
- Segmental resection
(A segment of bowel containing the nodule is removed, with simultaneous suturing – anastomosis – to reconnect the two ends)

The choice of surgical technique depends on certain features of the infiltrating nodule:

- Shaving
- Size (length, infiltration depth, transverse diameter)
- Location (type of intestinal segment involved and distance from the anal margin)
- Percentage of circumference involved
- Degree of stenosis
- Presence of multiple lesions

The decision regarding the type of surgery is usually planned based on preoperative exams (consultation + specialized ultrasound, rarely MRI or other additional tests).

Occasionally, the surgical technique may be changed during the procedure based on direct observation. Shaving generally refers to ablation of infiltrating but relatively superficial nodules. Discoid nodulectomy is used for small, deep nodules and typically involves a transanal mechanical stapler. Segmental resection is performed for large and/or multiple deeply infiltrating nodules; it also involves a transanal stapler and requires a mini-laparotomy (3–5 cm incision) to complete the procedure.

Generally, postoperative feeding is resumed immediately. In some cases, temporary parenteral (intravenous) feeding may be needed. The need for a temporary protective stoma (ileostomy or colostomy, i.e. external fecal diversion or “bag”) is rare in our practice—<5% of procedures—and is generally done in cases where both intestinal and vaginal lesions are simultaneously removed, in very low intestinal resections, or when there is tension at the resection site. When required, the stoma typically remains for no more than two months, and reconnection requires a second laparoscopic or laparotomic procedure.

INFILTRATING ENDOMETRIOSIS OF THE ABDOMINAL WALL

Treatment of infiltrating lesions of the abdominal wall requires mini-laparotomic excision. In case of significant removal of the abdominal wall segment, a support mesh may be needed for surgical reconstruction. This procedure, if not combined with laparoscopic treatment of pelvic or abdominal endometriosis, can be performed under regional anesthesia.

ENDOMETRIOSIS IN ATYPICAL SITES

Diaphragmatic endometriosis can be effectively treated with a laparoscopic approach. In most cases, these are superficial peritoneal lesions that can be simply vaporized (coagulated). More rarely, deeper infiltration may occur, requiring partial resection and stripping (peritonectomy). In confirmed cases of involvement of the lung and pleura, specific thoracic surgery procedures are required, which fall outside the scope of this consent.

ADENOMYOSIS

Treatment of adenomyosis is currently one of the most discussed topics in international scientific literature. As with other forms of endometriosis, treatment is reserved for symptomatic patients or those with infertility issues.

In patients not desiring pregnancy, the same therapies commonly used for pelvic endometriosis (oral progestins, LNG-IUS, oral estrogen-progestins, or in selected cases GnRH analogues) can be used with reasonable success.

In patients who have completed their reproductive journey or are perimenopausal, the possibility of a demolitive procedure (hysterectomy + salpingectomy, with or without oophorectomy depending on the case) may be considered.

These therapies are obviously not suitable for patients wishing to conceive.

The greatest difficulty lies in the inability to completely and adequately remove adenomyotic tissue, especially in diffuse forms (by definition involving the uterine wall diffusely with varying degrees of extent), but also in focal forms due to the lack of a capsule (i.e., no clear separation from normal myometrial tissue), which implies greater surgical risks and complexity.

There are surgical techniques that, in extreme cases, may be used for conservative treatment of these conditions with immediate benefits, but they often carry significant obstetric risks (e.g. risk of uterine rupture during pregnancy) even long after the surgery.

DEMOLITIVE SURGICAL TREATMENT

All the surgical procedures described above refer to conservative surgeries in patients predominantly of reproductive age and aimed at restoring normal pelvic anatomy, with the primary goal of pain reduction and quality of life improvement, as well as, when possible, enhancing reproductive capacity (spontaneous or with ART). In symptomatic patients of older age, or who have completed their reproductive plans, are unresponsive to medical therapy, or have contraindications to it, demolitive treatments may be considered, involving removal of the uterus (total hysterectomy), fallopian tubes, and, depending on the case, ovaries—carefully balancing this choice with the possible consequences of iatrogenic menopause and the possibility of managing it with hormone replacement therapy (HRT).

If such a treatment is chosen (hystero-annexectomy), it may also be decided, in agreement with the patient, to leave infiltrating endometriotic lesions in place if they do not cause significant organ damage, and their removal would pose unjustified surgical risks. If, however, parametrial endometriotic lesions require treatment at the same time as the uterus is removed, the procedures described for that area and their associated risks/complications will apply.

At the end of such procedures, the vaginal wall is sutured, thus requiring abstinence from sexual intercourse for at least three months to allow for proper healing and to avoid suture dehiscence.

RISKS AND COMPLICATIONS

In our experience, the risk of intra- and postoperative complications is low. Risks associated with surgery may be general, specifically related to the laparoscopic technique, or specific to the surgical procedure itself (depending on the area/organ involved).

GENERAL RISKS

- Infectious
- Hemorrhagic
- Thrombotic
- Anesthesiologic

General risks, as with all surgical procedures, are also negatively influenced (i.e., increased) by any concomitant conditions of the patient. Among these, the most common are infectious and hemorrhagic complications. Fever in the immediate postoperative period is common and may be associated with the inflammatory process typically linked to the surgical procedure. If persistent, it may signal an overlapping infectious process, requiring further diagnostic investigations (instrumental and laboratory) to identify its origin. Generally, such conditions resolve with the administration of appropriate antibiotic and anti-inflammatory therapy; the need for reoperation is rare. The risk of intraoperative hemorrhage is extremely low and, if it occurs, is promptly managed during surgery. Normally, even if such an event occurs, it can be resolved using a laparoscopic approach; only in very rare cases does it require conversion to laparotomy (<0.01%). Slightly higher, yet still extremely low, is the risk of postoperative abdominal bleeding. These are often self-limiting phenomena but may sometimes, depending on the severity, require blood transfusions in combination with other medical therapies. The need for reoperation is rare. More common, but still limited, is the risk of a potential organized hematoma (hematoma or suffusion) in the thickness of the abdominal wall near the surgical scars. These too are generally self-limiting phenomena but may sometimes, depending on the extent, require percutaneous drainage in combination with possible medical therapy. The need for reoperation is rare. As with all surgical procedures, the patient must also be informed of the potential risk of death, which is extremely remote in association with the procedure and still very rare even in the event of postoperative complications.

RISKS SPECIFIC TO LAPAROSCOPIC TECHNIQUE (very rare)

- Injury to a major artery or vein
- Bowel injury with peritonitis
- Gas embolism
- Abdominal wall emphysema
- Pneumothorax
- Incisional hernias

RISKS SPECIFIC TO THE SURGICAL PROCEDURE (rare)

- Intra- or postoperative hemorrhage requiring transfusion (very low <1%)
- Ureteral injury (<1%)
- Bladder injury (1%)
- Anastomotic dehiscence (<2%)
- Bowel perforation (<2%)
- Rectal bleeding (2–3%)
- Anastomotic stenosis (<1%)
- Intestine–vagina, bladder–vagina, or intestine–bladder fistulas (2%)
- Vaginal suture dehiscence (4%)
- Neurological damage (<1%)

Ureteral injury refers to a continuous lesion of the ureter wall with possible leakage of urinary fluid into the abdomen, often associated with symptoms of peritonitis. It may result from thermal or mechanical damage. Radiographic contrast confirmation may be necessary. Sometimes it can be resolved by placing a ureteral stent to be kept in place for several weeks/months; otherwise, a laparoscopic or laparotomic reintervention may be required for surgical cleaning and suturing or resection (and reanastomosis or reimplantation) of the affected segment. In such cases, placement of a ureteral stent is necessary and, depending on the case, also a urinary catheter to remain in place for a few weeks.

Bladder injury refers to a continuous lesion of the bladder wall with possible leakage of urinary fluid into the abdomen, often associated with symptoms of peritonitis. It may result from thermal or mechanical damage. Sometimes radiographic contrast confirmation is required. In cases of very small lesions, it may resolve spontaneously with the catheter remaining in place for a few weeks;

otherwise, a laparoscopic or laparotomic reintervention is required for surgical cleaning and suturing of the affected segment. In such cases, bladder catheterization must remain in place for a few weeks.

Anastomotic dehiscence refers to the wall failure at the site of intestinal, ureteral, or bladder suturing, generally due to mechanical or infectious factors. This event most often occurs within a few days after surgery and is associated with peritonitis symptoms. It requires a laparoscopic or laparotomic reintervention for surgical cleaning and suturing of the affected segment, often with the need for protective stoma in case of intestinal involvement.

Intestinal perforation may also occur in locations other than the anastomosis site (see dehiscence). This event most often occurs within a few days after surgery. It consists of a wall lesion with possible leakage of intestinal contents into the abdomen, and is therefore often associated with symptoms of peritonitis. It is generally due to overdistension of the intestinal loops and may result from thermal or mechanical damage. It requires a laparoscopic or laparotomic reintervention for surgical cleaning and suturing of the affected segment, often with the need for a protective stoma.

Rectorrhagia refers to the emission of a large amount of intestinal blood via the anal route. This event usually occurs in the immediate postoperative period. It may indicate arterial or venous bleeding from the intestinal wall and in most cases can be resolved with medical therapy and/or mechanical tamponade, rarely requiring reintervention.

Anastomotic stenosis refers to a narrowing of the intestinal lumen at the site of the suture. It is an extremely rare complication, generally late-onset, and usually presents as worsening obstinate constipation and subocclusive phenomena. The treatment consists initially of mechanical dilation; rarely, further resection surgery is needed. Rarely, stenosis may also be observed in ureteral or ureterovesical anastomoses, which always require surgical reintervention.

Fistula refers to the formation of an abnormal communication tract between two adjacent but normally separate organs; it may occur between the intestine and vagina, bladder and vagina, or more rarely between the intestine and bladder. This phenomenon, although rare, may occur in the immediate postoperative period or later. It may result from thermal, mechanical, or infectious/inflammatory damage. In the case of intestinal fistula, air and/or fecal-like material may be observed from the bladder or vagina; in the case of vesicovaginal fistula, vaginal emission of urinary fluid may occur. Radiographic contrast confirmation is sometimes necessary. The resolution is generally surgical, but several weeks may be required for complete healing.

Vaginal suture dehiscence refers to the wall failure at the site of the suture performed for the removal of deeply infiltrating endometriotic lesions of the vaginal wall or for closure of the vaginal cuff after hysterectomy. This phenomenon may occur spontaneously, sometimes due to infectious phenomena or mechanically following sexual intercourse, especially if resumed earlier than the recommended period (3 months). If the lesion is small, it may resolve spontaneously with medical therapy; otherwise, surgical repair via the vaginal route or, more rarely, laparoscopic route is required.

Neurological damage. Permanent neurological injuries are rare but more likely in parametrial surgery due to the dense innervation of this anatomical area. Although nerve-sparing surgical techniques are always adopted to minimize the risk of nerve injury, preservation is not always possible if the nerves are directly affected by endometriotic disease (see above). Neurological damage is unlikely in exclusive bladder or intestinal surgery. Regarding the risk of neurological injury, the potential role of post-surgical fibrosis in patients who have undergone repeated surgeries should also be considered: both because this fibrosis can cause damage similar to the original disease (deep endometriosis) and because it alters normal anatomical planes, making subsequent surgery more complex and risky. The most frequent neurological complication after surgery for deep endometriosis, especially involving the parametrium/paracervix and particularly if bilateral, is bladder dysfunction: this can range from altered filling sensation (the patient does not correctly perceive whether the bladder is full or empty but manages to void), to partial or complete absence of the urge to void (the patient cannot tell if the bladder is full or empty, but can void using abdominal muscles—so-called "straining"), to complete absence of bladder contraction (the patient cannot void even with abdominal straining). In our case series, for the type of surgery mentioned above (complex surgery for deep endometriosis of the parametrium/paracervix, especially if bilateral),

such dysfunctions, particularly in mild form, occur in up to 20% of cases but in almost all of them resolve spontaneously within a few days or with bladder training and medical therapy (correct execution of these is important for full recovery of bladder function). Very rarely, they persist for a few weeks and may require a short period of bladder self-catheterization. In extremely rare cases (0.1% in our series), full recovery of bladder function is not observed, thus requiring permanent self-catheterization, pelvic floor rehabilitation, or, as a last resort, implantation of a sacral neuromodulation device (electrostimulator or pacemaker). Rectal neurological complications are much rarer and result in altered bowel function: alternating constipation and diarrhea, abnormal perception of defecation urge, mechanical difficulty with evacuation. In most cases, these symptoms improve over a few weeks, and only in extremely rare cases require the placement of a sacral neuromodulation device, as with bladder issues. It should be noted that diarrhea tendency, or even just increased frequency of bowel movements, often observed in the first postoperative weeks after segmental intestinal resection, is not classified as an intestinal neurological complication. It is due to the removal of a bowel segment, resulting in increased intestinal transit speed—a phenomenon that generally resolves spontaneously with full recovery of normal bowel rhythm.

I, the undersigned, _____

after having read and clearly understood the information document (informed consent) (16 pages) provided to me regarding endometriotic disease and the related treatment options, and after discussing my clinical condition with Dr. _____

I declare

that I have been informed clearly and comprehensibly that, given my clinical condition, it is advisable and/or necessary to undergo surgical intervention that includes the following procedures, to which I consent:

- ☐ **Adhesiolysis**
- ☐ **Enucleation of ovarian cyst** *(or bilateral if both ovaries are affected)*
- ☐ **Unilateral/bilateral salpingectomy** *(if irreversibly compromised)*
- ☐ **Unilateral adnexectomy**
- ☐ **Bilateral adnexectomy**
- ☐ **Total hysterectomy** *(possibly radical)*
- ☐ **Trachelectomy** *(removal of the uterine cervix in case of previous removal of the uterine body)*
- ☐ **Non-radical endometriosis surgery**
- ☐ **Radical endometriosis surgery**
- ☐ **Surgery on ureter and bladder** *(including placement of mono- or bilateral stents)*
- ☐ **Intestinal shaving**
- ☐ **Discoid intestinal resection**
- ☐ **Segmental recto-sigmoid intestinal resection** *(with service minilaparotomy)*
- ☐ **Appendectomy and/or surgery on right colon/ileum** *(with possible service minilaparotomy)*
- ☐ **Changes or extensions to the planned surgery,** *(including creation of a protective stoma (ileostomy or colostomy))*
- ☐ **Removal of endometriotic nodule(s)** of the **abdominal wall**
- ☐ **Any additional or subsequent interventions** that may become necessary, including urgent/emergency procedures that do not allow acquisition of specific consent
- ☐ **Possible laparotomic conversion, blood transfusion or other blood products,** and further procedures required during surgery even if not foreseeable preoperatively
- ☐ **Laser diode treatment** to minimize ovarian tissue damage
- ☐ **Surgical defloration** *(hymen resection in virgin patients)* for placement of uterine manipulator if strictly necessary
- ☐ **Other procedures** (specify): _____

TICK the chosen option and INITIAL next to indicate CONSENT

I am aware that all medical treatments may involve harmful consequences, sometimes even unforeseeable, despite correct conduct by the operator.

I have discussed with the doctor the risks specifically related to my condition and I have nonetheless learned that, based on extensive clinical experience, the expected benefits outweigh possible adverse effects.

I therefore declare that I have clearly understood the objectives, benefits, potential risks, and any resulting impairments.

Having considered all the information, including those regarding possible alternative treatments, I believe I have acquired the essential elements to make an informed decision.

Therefore:

☐ **I CONSENT**

☐ **I DO NOT CONSENT**

to the treatments that have been proposed to me.

I am aware that, in the face of unforeseen difficulties, the doctor might judge it necessary to modify the agreed procedure; if in such circumstances I cannot be consulted, I hereby authorize the change solely to address any complications.

I am aware that this healthcare facility is an international reference center for Advanced Pelvic Surgery, and therefore visiting doctors may attend or participate in my surgery under the supervision of the responsible operator.

Furthermore, images and/or videos may be recorded during surgery for educational and scientific dissemination purposes (courses, conferences, scientific articles), always anonymously and in compliance with current privacy regulations.

Date / /

Date / /

Doctor's signature upon delivery

Patient's signature after reading
(or guardian if minor)

.....

.....

Date / /

Doctor's signature after patient's signature (or guardian if minor) or upon hospital admission

.....

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