

AMERICAN SOCIETY FOR REPRODUCTIVE MEDICINE

Laparoscopy and Hysteroscopy

A Guide for Patients



PATIENT INFORMATION SERIES

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A glossary of italicized words is located at the end of this booklet.

INTRODUCTION

A complete examination of a woman's internal pelvic structures can provide important information regarding infertility and common gynecologic disorders. Frequently, problems that cannot be discovered by an external physical examination can be discovered by *laparoscopy* and *hysteroscopy*, two procedures that provide a direct look at the pelvic organs. These procedures may be recommended as part of your infertility care, depending on your particular situation. Laparoscopy and hysteroscopy can be used for both diagnostic (looking only) and operative (looking and treating) purposes.

Diagnostic laparoscopy may be recommended to look at the outside of the *uterus*, *fallopian tubes*, *ovaries*, and internal pelvic area. *Diagnostic hysteroscopy* is used to look inside the uterine cavity. If an abnormal condition is detected during the diagnostic procedure, *operative laparoscopy* or *operative hysteroscopy* can often be performed to correct it at the same time, avoiding the need for a second surgery. Both diagnostic and operative procedures should be performed by physicians with surgical expertise in these areas. The following information will help patients know what to expect before undergoing any of these procedures.

DIAGNOSTIC LAPAROSCOPY

Laparoscopy can help physicians diagnose many gynecological problems including *endometriosis*, *uterine fibroids* and other structural abnormalities, *ovarian cysts*, *adhesions* (scar tissue), and *ectopic pregnancy*. If you have pain, history of past pelvic infection, or symptoms suggestive of pelvic disease, your physician may recommend this procedure as part of your evaluation. Laparoscopy is sometimes recommended after completing an initial infertility evaluation on both partners. It is usually performed soon after menstruation ends.

Laparoscopy is usually performed on an outpatient basis under general anesthesia. After the patient is under anesthesia, a needle is inserted through the navel and the abdomen is filled with carbon dioxide gas. The gas pushes the abdominal wall away from the internal organs so that the *laparoscope* can be placed safely into the abdominal cavity and decrease the risk of injury to surrounding organs such as the bowel, bladder and blood vessels. The laparoscope is then inserted through an incision in the navel. Occasionally, alternate sites may be used for the insertion of the laparoscope based upon physician experience or the patient's prior surgical or medical history. While looking through the laparoscope, the physician can see the reproductive organs including the uterus, fallopian tubes, and ovaries (Figure 1).

Figure 1

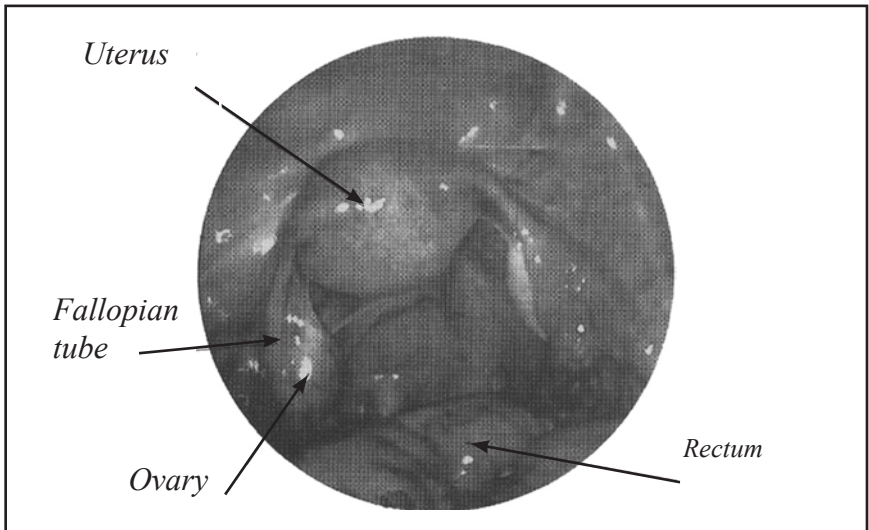


Figure 1. Laparoscopic view of internal female reproductive organs

A small probe is usually inserted through another incision above the *pubic region* in order to move the pelvic organs into clear view (Figure 2). Additionally, a solution containing blue dye is often injected through the cervix, uterus, and fallopian tubes to determine if the tubes are open. If no abnormalities are noted at this time, one or two stitches close the incisions. If abnormalities are discovered, diagnostic laparoscopy can become operative laparoscopy.

Figure 2

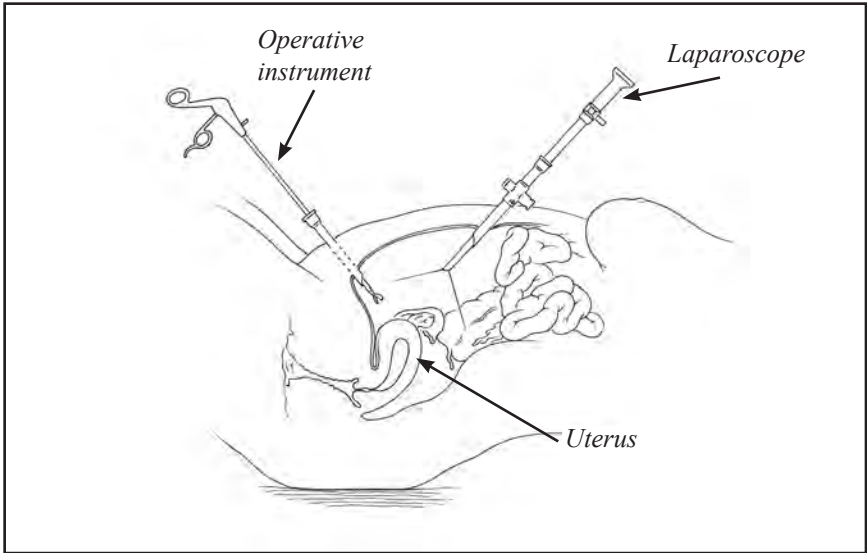


Figure 2. Diagnostic laparoscopy

OPERATIVE LAPAROSCOPY

During operative laparoscopy, many abdominal disorders can be treated safely through the laparoscope at the same time that the diagnosis is made. When performing operative laparoscopy, the physician inserts additional instruments such as probes, scissors, grasping instruments, biopsy forceps, *electrosurgical* or laser instruments, and *suture* materials through two or three additional incisions. Lasers, while a significant help in certain operations, are expensive and are not necessarily better or more effective than other surgical techniques used during operative laparoscopy. The choice of technique and instruments depends on many factors including the physician's experience, location of the problem, and availability of equipment. Some problems that can be corrected with operative laparoscopy include removing adhesions (scar tissue) from around the fallopian tubes and ovaries, opening blocked tubes, removing ovarian cysts, and treating ectopic pregnancy. Endometriosis can also be removed or *ablated* from the outside of the uterus, ovaries or *peritoneum*. Under certain circumstances, fibroids on the uterus can also be removed. Operative laparoscopy can also be used to remove diseased ovaries and can be performed as part of a *hysterectomy*.

Robotic Assisted Laparoscopy

Robotic assisted laparoscopic surgery (RAL) is a more recent development and a form of operative laparoscopy. In RAL, the instruments and telescope are very similar to conventional laparoscopy, but they are attached to a robot which in turn is controlled by the surgeon who is seated at a viewing console. This viewing console is usually located next to the patient, although the feasibility of a surgeon operating on a patient in another city or continent has been clearly demonstrated.

Although there is debate about the merits and advantages of performing operative laparoscopy using conventional techniques versus robotic assistance, there is no doubt that some surgeons are able to perform more extensive and complicated procedures with the robot. This in turn can allow them to offer their patients a less invasive approach to their operation, resulting in more rapid recovery and perhaps other advantages.

Furthermore, an increasing number of surgeons are performing hysterectomies with robotic assistance. It is likely that even more operations, which have in the past required a *laparotomy*, will be replaced by robotic-assisted laparoscopy. However, robotic surgery is more expensive and generally more time-consuming than conventional surgery, and not all hospitals have this equipment available. It is also possible that evolving health care changes will affect the availability of robotic and other “high-tech” procedures.

Risks of Laparoscopy

There are risks associated with laparoscopy. Postoperative bladder infection and skin irritation are most common. Adhesions are very likely to develop. *Hematomas* (blood-filled bruising) of the abdominal wall can occur near the incisions. Pelvic or abdominal infections may occur. Serious complications of diagnostic and operative laparoscopy are rare. The major risk is damage to the bowel, bladder, *ureters*, uterus, major blood vessels or other organs, which may require additional surgery. Injuries can occur during the insertion of various instruments through the abdominal wall or during operative treatment. Certain conditions may increase the risk of serious complications. These include previous abdominal surgery, especially bowel surgery, and a history or presence of bowel/pelvic adhesions, severe endometriosis, pelvic infections, obesity, or excessive thinness. Allergic reactions, nerve damage and anesthesia complications rarely occur. Postoperative *urinary retention* is uncommon and *venous thrombosis* (blood clot) is rare. The risk of death as a result

of laparoscopy is very small (around 3 in 100,000). When all possible complications are considered, one or two women out of every 100 may develop a complication, usually of minor consequence.

Postoperative Care

Following laparoscopy, the navel area (belly button) is usually tender and the abdomen may be bruised. Gas used to distend the abdomen may cause discomfort in the shoulders, chest, and abdomen, and anesthesia can cause nausea and dizziness. The amount of discomfort depends on the type and extent of procedures performed. Normal activities can usually be resumed within a few days. Significant abdominal pain, worsening nausea and vomiting, a temperature of 101° F or higher, drainage of pus from an incision, or significant bleeding from an incision are potential serious complications requiring immediate medical attention.

CONSIDERING OPERATIVE LAPAROSCOPY VERSUS LAPAROTOMY FOR PELVIC SURGERY

Many gynecologic operations are performed via laparotomy, in which an incision (“bikini” or “up and down”) is made to open the abdomen. Patients generally remain in the hospital for a few days following surgery and may return to work in two to six weeks, depending on the level of physical activity required. Many gynecologic procedures can also be performed by operative laparoscopy. Following operative laparoscopy, patients are generally able to return home the day of surgery and recover more quickly, returning to full activities in three to seven days.

Some types of operations may be too risky to perform laparoscopically, while in others it is not clear that laparoscopy yields results as good as those by laparotomy. The surgeon’s experience also plays a role in deciding whether operative laparoscopy or laparotomy should be used. When considering a gynecologic operation, the patient and her doctor should discuss the pros and cons of performing a laparotomy versus an operative laparoscopy.

DIAGNOSTIC HYSTEROSCOPY

Hysteroscopy is a useful procedure to evaluate women with infertility, recurrent miscarriage, or abnormal uterine bleeding. *Diagnostic hysteroscopy* is used to examine the uterine cavity (Figure 3), and is helpful in diagnosing abnormal uterine conditions such as fibroids protruding into the uterine cavity, scarring, *polyps*, and *congenital* malformations. A *hysterosalpingogram* (an x-ray of the uterus and fallopian tubes),

sonohysterogram (ultrasound with introduction of saline into the uterine cavity), or an *endometrial biopsy* may be performed to evaluate the uterus prior to hysteroscopy.

Figure 3

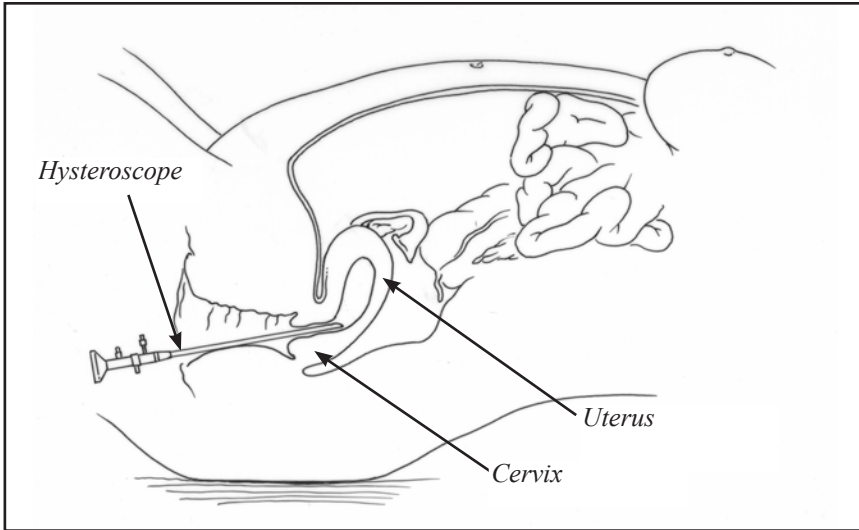


Figure 3. Diagnostic hysteroscopy

The first step of *diagnostic hysteroscopy* usually involves slightly stretching the canal of the *cervix* with a series of *dilators* to temporarily increase the size of the opening. Once the cervix is dilated, the *hysteroscope* (a long, thin, lighted, telescope-like instrument) is inserted through the cervix and into the uterus. Skin incisions are not required for *hysteroscopy*. Carbon dioxide gas or special fluids are then injected into the uterus through the hysteroscope. This gas or fluid expands the uterine cavity and enables the physician to directly view the internal structure of the uterus. Diagnostic hysteroscopy is an outpatient procedure that is performed in a physician's office or operating room. It is often performed soon after menstruation has ended because the uterine cavity is more easily evaluated.

OPERATIVE HYSTEROSCOPY

Operative hysteroscopy can treat many of the abnormalities found during diagnostic hysteroscopy. Operative hysteroscopy is similar to diagnostic hysteroscopy except that narrow instruments are placed into the uterine cavity through a channel in the operative hysteroscope. Fibroids, scar tissue, and polyps can be removed from inside the uterus. Some structural abnormalities, such as a *uterine septum*, may be corrected through the hysteroscope.

Your physician may want you to take medications to prepare the uterus for surgery. At the conclusion of surgery, your physician may insert a *balloon catheter* or other device inside the uterus. Antibiotics and/or estrogen may be prescribed after some types of uterine surgery to prevent infection and stimulate healing of the *endometrium*. Endometrial ablation, a procedure in which the lining of the uterus is destroyed, can be used to treat some cases of excessive uterine bleeding. Ablation of the uterine lining is not performed in women who wish to become pregnant. For more information on this topic, please refer to the ASRM's Patient Fact Sheet *Endometrial Ablation*.

Risks of Hysteroscopy

Complications of hysteroscopy occur in about two out of every 100 procedures. Perforation of the uterus (a small hole in the uterus) is the most common complication. Although perforations usually close spontaneously, they may cause bleeding or result in damage to nearby organs, which may require further surgery. Uterine cavity adhesions or infections may develop after hysteroscopy. Serious complications related to the fluids used to distend the uterus include fluid in the lungs, blood clotting problems, fluid overload, electrolyte imbalance, and severe allergic reactions. Severe or life-threatening complications, however, are very uncommon. Some of the complications above may prevent completion of the surgery.

Postoperative Care

Following hysteroscopy, some vaginal discharge or bleeding and cramping may be experienced for several days. Most physical activities can usually be resumed within one or two days. You should ask your physician when to resume sexual intercourse. If a balloon catheter is left in the cavity, it is usually removed after several days. Estrogen may be prescribed for several weeks after surgery.

CONCLUSION

Laparoscopy and hysteroscopy allow physicians to diagnose and correct many gynecologic disorders on an outpatient basis. Patient recovery time is brief and significantly less than the recovery time from abdominal surgery through larger incisions. Before undergoing laparoscopy or hysteroscopy, patients should discuss with their physicians any concerns about the procedures and their risks.

GLOSSARY

Adhesions. Bands of fibrous scar tissue that may bind the pelvic organs and/or loops of bowel together. Adhesions can result from infections, endometriosis, or previous surgeries.

Balloon catheter. A catheter usually retained in the bladder by a balloon inflated with air or liquid; also retained in the uterus to prevent scar tissue formation following uterine surgery.

Biopsy. The removal of a tissue sample for microscopic examination. The term also refers to the tissue removed during the procedure.

Cervix. The narrow, lower part of the uterus that opens into the vagina. The cervical canal runs through the cervix and connects the vagina with the uterine cavity.

Congenital. Existing as such at birth (birth defect).

Diagnostic hysteroscopy. The insertion of a long, thin, lighted, telescope-like instrument, called a hysteroscope, through the cervix into the uterus in order to look for abnormalities inside the uterus.

Diagnostic laparoscopy. The insertion of a long, thin, lighted telescope-like instrument, called a laparoscope, through the navel into the abdomen in order to look for abnormalities of the internal pelvic organs, such as the outside of the uterus.

Dilator. Instruments used to enlarge a small opening.

Ectopic pregnancy. A pregnancy that develops outside the uterine cavity in an abnormal location, usually inside the fallopian tubes.

Electrosurgical instrument. A surgical instrument using electric current to incise (cut) and eliminate unwanted tissue or control bleeding.

Endometrial biopsy. The removal of a tissue sample from the endometrium (lining of the uterus) for examination under the microscope.

Endometriosis. The presence of small implants of endometrial tissue (the lining of the uterus) outside the uterus in abnormal locations such as the ovaries, fallopian tubes and abdominal cavity. Endometriosis may cause pain, adhesions and infertility.

Endometrium. The inner lining of the uterus which thickens each month in preparation of a fertilized egg. If fertilization does not occur, the excess lining is shed (menstruation).

Fallopian tubes. Two tube-like organs attached to the uterus, one on each side, where sperm and egg meet in normal fertilization.

Hematomas. Localized collections of blood which seep from the blood vessels into tissue, like a large bruise.

Hysterectomy. The surgical removal of the uterus. Hysterectomy can be performed through an abdominal incision (laparotomy) or through the vagina (vaginal hysterectomy). Sometimes the ovaries and tubes are also removed.

Hysterosalpingogram. A procedure in which a special solution, visible on x-ray, is injected through the cervix to illustrate the inner contour and patency (openness) of the uterus and fallopian tubes.

Hysteroscope. A thin, lighted telescope-like viewing instrument that is inserted through the cervix to examine the inside of the uterus during hysteroscopy.

Hysteroscopy. A procedure in which a hysteroscope is placed into the uterine cavity through the cervix.

Laparoscope. A thin, lighted telescope-like viewing instrument that is inserted through the navel and abdominal wall to examine the female reproductive organs and abdominal cavity during laparoscopy.

Laparoscopy. The insertion of a long, thin, lighted telescope-like instrument, called a laparoscope, through an incision in the abdomen to look for abnormalities of the internal reproductive organs and in some cases to surgically correct these abnormalities.

Laparotomy. Abdominal surgery through an incision in the abdominal wall.

Operative hysteroscopy. Surgery, such as removal of adhesions or tumors, performed inside the uterus with a hysteroscope and other long, slender instruments.

Operative laparoscopy. Surgery, such as removal of adhesions or endometriosis, performed inside the abdomen with a laparoscope and other long, slender instruments.

Ovarian cysts. Fluid-filled cysts on the ovaries.

Ovaries. The two female sex organs in the pelvis that produce eggs and the female hormones estrogen and progesterone.

Peritoneum. The smooth transparent membrane that lines the abdominal and pelvic cavities.

Polyyps. A general term that describes any mass of tissue that bulges or projects outward or upward from the normal surface level.

Pubic region. The region at the base of the abdomen above the vaginal opening and covered in part with hair.

Robotic assisted laparoscopy (RAL). A minimally invasive method of surgery where the surgeon controls robotic arms with the help of a computer console.

Suture. Thread used to close an incision made during surgery. It is generally absorbable.

Ureters. Tubes connecting each kidney to the bladder.

Urinary retention. Inability to spontaneously empty the bladder.

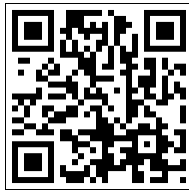
Uterine fibroids. Abnormal masses of smooth muscle tissue that grow within the uterine wall. Also called myomas or leiomyomas.

Uterine septum. A congenital abnormality caused by a band of tissue in the midsection of the uterus that divides the normal uterine cavity.

Uterus. The hollow, muscular female organ in the pelvis where the embryo implants and develops during pregnancy.

Venous thrombosis. Presence of a blood clot in the vein.

*For more information on this and other reproductive health topics visit
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Notes



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