ENDOSCOPY

The procedure using endoscope to look inside the body for medical reason.

About Endoscopy

Endoscopy is a medical procedure that allows a doctor to observe the inside of the body without performing major surgery. Endoscopy uses the endoscope which has a long tube to enter the patient's body and a tiny camera or lens attached to the front of this tube (Pic. 1) to see parts inside a patient's body. This has the advantage that observations and certain operations can be done without opening up the body (Pic. 2). Whatever precautions are taken, an open body part is always at risk of infection.

In many situations, endoscopy provides important and essential information in the management of infertility. The diagnosis of uterine and/or tubal pathology as causes of female infertility represents a fundamental step in the evaluation of the infertile couple. As a tubal factor is a common cause of infertility, evaluation of the infertile couple should include assessment of the fallopian tubes (fallopodiscopy) for patency.

Under the field of gynaecology, the 2 main types of surgery are:

Laparoscopy

Laparoscopy (Pic. 3) is a minimally invasive surgical technique used in infertility diagnosis and treatment. Most commonly it is used to inspect the pelvic organs (diagnostic laparoscopy), and often to perform surgical procedures (operative laparoscopy) at the same time. The fiber-optic camera on the laparoscope is very small. It is inserted into the body, through an incision made in the navel, another incision may be made near the upper pubic region.

Infertility diagnostic and operative laparoscopy help evaluate gynecological problems such as uterine fibroids, structural abnormalities of the uterus, endometriosis (uterine lining growths outside the uterine cavity), ovarian cysts and adhesions. Laparoscopy also allows seeing abnormalities that might interfere with a woman's ability to conceive a pregnancy.

Laparoscopy less invasive surgery that traditional surgery; offers a closed internal environment, minimal tissue handling, less tissue trauma and is less adhesiogenic. It gives the desired magnification for microsurgery. Traditional surgery requires making an incision in the abdomen which is several centimeters long. This in turn means that the patient has to spend two to three nights in the hospital. After laparoscopy the patient has one to three smaller incisions. Laparoscopy allows seeing the abdominal organs and sometimes making repairs, without making a larger incision that can require a longer recovery time and hospital stay. Each incision may be one half a centimeter to a full centimeter in length. Most often, patients who have had a laparoscopy will be able to go home the same day as the surgery.

Laparoscopy could be used for following reasons that could impair fertility:

Endometriosis

Endometriosis is a condition in which endometrium tissue, normally found lining the uterus, spreads to other areas within a woman's pelvic cavity and abdomen, usually the fallopian tubes, ovaries and intestines. It is a leading cause of disability among reproductive age women secondary to infertility and pelvic pain. Infertility and pelvic pain in its various forms are the main expressions of endometriosis. The fallopian tubes and ovaries may adhere to the lining of the pelvis or to each other, restricting their movement. Another factor which causes infertility with Endometriosis, may be the over-production of prostaglandins.

In order to properly diagnose endometriosis, it is necessary to have a laparoscopy performed. During a laparoscopic procedure, endometrial implants can be easily seen once these implants have reached a reasonable size (Pic. 4). During laparoscopy can remove endometrial growths, scar tissue, and adhesions caused by the endometriosis. This is not a really cure, and endometriosis may return later. However, some women will have increased fertility for up to 6-9
months after surgery.

**Adhesions**

Adhesions are bands of scar tissue that connect normally separated pelvic structures. Postoperative adhesions occur in 60% to 90% of patients undergoing major gynecologic surgery. Pelvic adhesions (scars) develop as a normal tissue response to inflammation, which occurs whenever the tissue is damaged. Adhesions are a frequent cause of infertility and pelvic pain in women. Pelvic adhesions impair fertility by disrupting normal tubal-ovarian relationships. Both microsurgical and laparoscopic techniques are used to treat pelvic adhesions.

**Uterine fibroids**

Uterine fibroids are the most common pelvic tumor, occurring in about 70% of women by age 45. However, most myomas do not cause clinical symptoms and do not require intervention. Myomas can cause infertility because they are mechanical interference with implantation sperm and embryo transport, focal endometrial vascular and endocrine disturbances, endometrial inflammation, and abnormal uterine contractility.

Laparoscopic myomectomy is a very recent advance in the field of gynaecological surgery. Laparoscopic myomectomy has provided minimal invasive alternative to laparotomy (surgical procedure used to open the abdomen) with advantage of faster recovery and less postoperative adhesions.

**Polycystic ovarian syndrome**

Polycystic ovarian syndrome (PCOS) is a fairly common condition. It is a common hormonal disorder that is poorly understood and clinically characterized by lack of regular ovulation, irregular menstrual cycles, infertility (tubal), abnormal facial hair growth, obesity and polycystic ovaries.

Tubal infertility includes the changes due to inflammation which affect the fallopian tube and its relation towards the ovary in a way that will affect ovulation, the transport of the egg, sperm, or embryo, or alter the function of the tube as the site of fertilization. Injury the distal oviduct resulting in a complete or partial occlusion is the most common tubal lesion. Microsurgical or laparoscopic repair is the primary method of treatment with pregnancy rates.

**Ectopic pregnancy**

An ectopic pregnancy occurs when a fertilized egg attaches somewhere outside the uterus. If the contra lateral tube is healthy, the preferred option is salpingectomy, where the entire Fallopian tube, or the affected segment containing the ectopic gestation, is removed. In the last few years laparoscopy with salpingostomy (surgical incision into a fallopian tube), without fallopian tube removal, has become the preferred method of surgical treatment. Laparoscopy has similar tubal patency and future fertility rates as medical treatment.

**Hysteroscopy**

Hysteroscopy (Pic. 5) is the visual examination of the canal of the cervix (colposcopy; Pic. 6) and interior of the uterus. The device is inserted through the vagina. Using fiber optic technology, the hysteroscope transmits an image of the uterine canal and cavity to a monitor, allowing to properly guide the instrument into the endometrial cavity. Hysteroscopy may be performed in women who have an abnormal uterine bleeding, abnormal Pap test (method of cervical screening) or postmenopausal bleeding. It may be used to help diagnose causes of infertility or repeated miscarriages. Hysteroscopy may also be used to evaluate polyps, uterine adhesions (Asherman’s syndrome), and fibroids, and to locate and remove displaced intrauterine devices (IUDs).

There are two types of hysteroscopy. Diagnostic hysteroscopy is performed to examine the uterus for signs of normalcy or abnormality, while operative hysteroscopy is performed to treat a disorder after it has been diagnosed. The procedure is very similar to diagnostic hysteroscopy except that operating instruments such as scissors, biopsy forceps, electocautery instruments, and graspers can be placed into the uterine cavity through a channel in the operative hysteroscope. Hysteroscopy can take from two to five minutes to more than one hour.

Hysteroscopy could be used for following reasons that could impair fertility:

**Intrauterine adhesions**

Intrauterine adhesions develop as a result of intrauterine trauma. Intrauterine adhesions can be asymptomatic and of no clinical significance. The diagnosis is based upon visualization of intrauterine adhesions either directly by hysteroscopy, or indirectly by imaging. Intrauterine adhesions are cut hysteroscopically using current so that the uterine cavity appears normal. This is usually performed as an ambulatory procedure using operative hysteroscopy.
Congenital uterine malformations are a group of miscellaneous anomalies in the uterine cavity that may alter the reproductive outcome of the patient. Each type of uterine anomaly has a different impact on pregnancy outcome. These are usually asymptomatic, but are sometimes associated with recurrent pregnancy loss or infertility. Hysteroscopy is today the treatment of choice for congenital uterine malformations; not just because of its reproductive results, which are comparable to those achieved with the abdominal approach, but mainly because of several post-operative benefits (reduced morbidity, convalescence and costs, and no scar tissue on the abdominal and uterine walls), improved reproductive performance (no reduction in uterine volume, shorter interval to conception after operation) and the mode of delivery (avoiding Caesarean section).

Septum resection

Complete septum extending from fundus of uterus till cervix. Hysteroscopic resection uses hysteroscopy to operate within the uterine cavity. An intrauterine septum is cut using current, so that the uterine cavity becomes normal. Polyps, fibroids and uterine septums may be treated with this technique.

Success or failure factors

Indications for laparoscopic microsurgery:

- tubal anastomosis
- bowel repair
- bladder repair
- ureteric repair
- microsurgical repair of myoma
- neosalpingostomy (surgical construction of a new distal ostia)
- tubal anastomosis
- tubocervical implantation

Indications of hysteroscopy:

- Asherman’s syndrome (intrauterine adhesions)
- endometrial polyp
- gynecologic bleeding
- endometrial ablation
- myomectomy for uterine fibroids
- congenital uterine malformations
- evacuation of retained products of conception
- removal of embedded IUDs
- infertility
- sterilization
- absent/ scanty menses
- cornual block

Certain conditions make laparoscopic surgery a bad choice. Some of these conditions include:

- severe congestive heart failure
- respiratory insufficiency
- presence of a distended bowel
- previous laparotomy incisions
- patients with cardiac disease or chronic obstructive pulmonary disease (COPD)
- patients with numerous previous abdominal surgery
- old age
- obesity

Complications

Laparoscopy

Problems from anesthesia, bleeding and infections can occur with either type of surgery. The risk of damage to internal organs is also possible with either type of surgery. The risks of laparoscopy are minimal. Complications among young, healthy women undergoing laparoscopy are rare and occur only in about three out of 1000 cases. These complications can include injuries to structures in the abdomen (e. g. ovaries and uterus). Most often, these injuries occur when the laparoscope is placed through the navel. The risk of a serious complication is less than 1%.
Complications occur rarely during hysteroscopy. A possible problem is uterine perforation when either the hysteroscope itself or one of its operative instruments breaches the wall of the uterus. Injury of the bowel during a perforation, the resulting peritonitis can be fatal. Cervical laceration, intrauterine infection, electrical and laser injuries, and complications caused by the distention media can be frequently encountered. The use of insufflations media can lead to serious and even fatal complications due to embolism or fluid overload with electrolyte imbalances. Other possible complications include allergic reactions and bleeding. The overall complication rate for diagnostic and operative hysteroscopy is 2% with serious complications occurring in less than 1% of cases.

**Prognosis**

In many situations, laparoscopy provides important and essential information in the management of infertility. It is a minimally invasive surgical procedure that uses a small camera that allows direct visual examination of the pelvic reproductive anatomy. Laparoscopy detects endometriosis, scarring, fallopian tube damage, adhesions, ovarian cysts, fibroids, congenital abnormalities and polycystic ovaries. Laparoscopy allows seeing abnormalities that might interfere with a woman’s ability to conceive a pregnancy.

Regarding to hysteroscopy, published observational studies suggest increased pregnancy rates after the hysteroscopic removal of endometrial polyps, submucous fibroids, uterine septum, or intrauterine adhesions.

**Gallery**

![Image](image1.png) **Pic**

Using endoscope, observations and certain operations can be done without opening up the body.

![Image](image2.png) **Pic**

![Image](image3.png) **Pic**

![Image](image4.png) **Pic**
Sources

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