PELVIC ADHESIONS

Pelvic Adhesive Disease

A form of abdominal adhesions in the pelvis.

Diagnosis  Female

Related Diagnoses:
- Fallopian tube blockage
- Endometriosis
- Asherman’s syndrome
- Amenorrhoea
- Hypoestrogenism

About Pelvic adhesions

Pelvic adhesions are a form of abdominal adhesions in the pelvis, typically in women affecting reproductive organs and thus of concern in reproduction or as a cause of chronic pelvic pain.

Pelvic adhesions are associated with many problems which include painful intercourse, pelvic tenderness and chronic pelvic pain. Some adhesions can caused pain or troubles, but some of them are silent and the only problem is that woman is not able to conceive a child due to obstruction of Fallopian tubes.

Pelvic adhesions may be classified as:

- congenital

Congenital adhesions are a consequence of embryological anomaly in the development of the peritoneal cavity. Acquired adhesions result from the inflammatory response of the peritoneum that arises after pelvic inflammatory processes (e.g. acute appendicitis, pelvic inflammatory disease, exposure to intestinal contents and previous use of intrauterine contraceptive devices), radiation and surgical trauma.
• **acquired**

It has been reported that the majority of acquired adhesions (about 90%) are post-surgical (ovarian cyst removal).

• **acute**

The acute can be caused by sexually transmitted diseases, or it can follow the surgery in pelvic area. Another example is appendicitis when the inflammation from appendix spreads to surrounding area in pelvis.

• **chronic**

Chronic disease such as endometriosis can irritate the pelvic tissue which incite adhesions. Diagnosis of pelvic adhesions include taking patients history and physical exams. If there are any record of pelvic surgery, or gynaecologic surgery history, or persistent pain, painful intercourse or tenderness unrelated to the menstrual cycle there is high risk of adhesion. Physical examination is done with xray and ultrasound which are no invasive procedures.

In cases when this procedures does not bring results, laparoscopy allows the inspection of pelvic organs and surrounding area through small incision and insertion camera to the abdominal cavity throught the umbilicus. Depend on the findings, surgeons will decide the following treatment.

The most important pelvic organs which associated with fertility problems are ovaries, uterus and Fallopian tubes.

**Ovarian adhesions**

The ovary is very sensitive structure with predisposition to the formation of cyst. The ultrasound can diagnosed the cysts on ovaries very reliably. But not all cysts needs to be removed and sometimes they disappear after menstruation. In cases of persistent suspicious cysts they must be removed with the procedure called cystectomy. The scar after the removal can accrete to the abdominal wall (Pic. 2), or to the wall of uterus. Sometimes the a simple cutting of the adhesion is sufficient but in complicated cases the ovary needs to be removed whole.
Intrauterine adhesions

Intrauterine adhesions (IUAs) or Asherman’s syndrome (adhesions and/or fibrosis of the inner epithelial layer called endometrium) has been reported and studied for more than a century. This disease occurs mainly as a result of the trauma of dilatation and curettage, postabortal infection, hypoestrogenism (lower levels of estrogen), genital tuberculosis, and previous uterine surgery, producing partial or complete obliteration in the uterine cavity and/or the cervical canal, resulting in conditions such as amenorrhea (absence of menstrual periods), hypomenorrhea (short or scanty periods), infertility, or recurrent pregnancy loss. Hysteroscopy (the inspection of the uterine cavity by endoscopy with access through the cervix) represents the gold standard method for the definitive diagnosis and treatment of the IUA (Pic. 1).

Fallopian tubes adhesions

The Fallopian tube is responsible for transport of an egg from the ovary to the uterus. If there is any adhesions in part of the tube it disrupts the function and egg is blocked and this leads to fertility problems. Adhesions of Fallopian tubes can be caused by endometriosis (a disease in which tissue that normally grows inside the uterus grows outside it), it can developed after any tubal surgery or it can be caused after infection, which spreads from surrounding organs.

Fallopian tube (salpinx) adhesions are diagnosed by several methodes but a universally agreed upon test for fallopian tube patency has not been established. A variety of investigation modalities are available that include hysterosalpingography (a radiologic procedure to investigate the shape of the uterine cavity and the shape and patency of the fallopian tubes), laparoscopic dye hydrotubation (introduction of saline solution into the fallopian tube), hysterosalpingo contrast sonography (ultrasound of fallopian tubes and uterus with radicontrast agent), selective salpingography, and magnetic resonance (MR) hysterosalpingography. Laparoscopy with dye is still considered to be the gold standard if tubal pathology is suspected, but it requires general anaesthesia and operating theatre facilities. Despite advanced technology and experience, complications during laparoscopy remain a major cause of significant morbidity and very seldom reveal any pathological conditions.

Surgery, which is used to remove the adhesions is called adhesiolysis.

Associated diseases

- endometriosis
• acute appendicitis (inflammation of the appendix)
• Asherman’s syndrome
• infertility
• sexually transmitted diseases (chlamydia, gonorrhoea)

**Complications**

Adhesion-related re-operations are a common consequence of gynecological procedures and adhesiolysis is followed by a high incidence of adhesion reformation and de-novo adhesion formation.

**Risk factors**

Factors associated with the formation of post-surgical adhesions include tissue trauma, infection, ischaemia (a restriction in blood supply to tissues), reaction to foreign bodies (sutures, powder from gloves, gauze particles etc.), haemorrhage (heavy bleeding), tissue overheating or desiccation and exposure to irrigation fluids.

**Impact on fertility**

Normally ovaries and Fallopian tube interact with each other. After ovulation the developing egg is captured by the fimbriae (Pic. 3) of Fallopian tubes. Than it is realised to the salpinx where the fertilization is done. In cases of adhesions in any part of this pathway, the egg can be trapped and can not continue to the uterus.

The main job of uterus during early stage of pregnancy is to prepare endometrial layer of uterus to embryo implantation. When the adhesions are in uterus for example in case of Asherman’s syndrome, the implantation is problematic a it can be cause of repeated spontaneous abortion.

**Prevention**

The major strategies for adhesion prevention in gynecological surgery aim at the optimization of surgical technique and use of adhesion-prevention agents. Laparoscopic surgery in gynecology represents the most innovative surgical approach, compared with laparotomy since it has been shown from a large number of clinical, but also experimental studies, that is associated with less development of de novo adhesions. Without any doubt, the most important factor is the operating surgeon, whose attention to proper surgical technique
will serve as a mainstay for adhesion formation. Surgical techniques are focused on the limitation of surgical trauma, prevention of ischaemia and exposure of peritoneal cavity to foreign materials. Improvement of surgical techniques can potentially reduce adhesion formation but cannot eliminate it. Anti-adhesive agents can be classified as pharmacological agents, systemic or intra-peritoneal, and intra-peritoneal barriers (solid or liquid). Pharmacological agents target the modification of inflammatory reaction. Barriers are used in order to prevent traumatized peritoneal surface apposition during the healing process so as to prevent tissue adherence.

If the adhesions are caused by inflammatory process the early treatment is the main way to prevent complications and creation of adhesions. Also it is necessary to practice safe sex to minimize the transmission of sexually transmitted diseases.

Symptoms

Post-surgically, many adhesions may be asymptomatic or can lead to a broad spectrum of clinical problems, including intestinal obstruction, chronic pelvic or abdominal pain and female infertility, requiring re-admission and often additional surgery, while at the same time they can complicate future surgical procedures.

Therapies

Self therapy

There is no self therapy for this condition.

Conventional medicine

Pharmacotherapy

Chronic pain caused by pelvic adhesions can be treated with analgesic (painkillers). The kind of medication depends on intensity, duration, and type of pain and it is prescribed by patient’s doctor.

Surgical therapy
Adhesiolysis

Laparoscopy or laparotomy with traditional or microsurgical techniques is used to removal of adhesions. The technique is called lysis or adhesiolysis. Surgery is done to reduce pain and potentially it increases the chance to conceive a child naturally. The problem is that adhesions may reform or in cases of complications, the surgery can cause new adhesions.

Assisted reproduction

In cases when woman suffer from irreversible Fallopian tubes adhesions and her uterus is clean, she can use the technique of assisted reproduction called in vitro fertilization (IVF). In vitro fertilization (IVF) is a process by which an egg is fertilised by sperm outside the body: in vitro. The process involves monitoring and stimulating a woman's ovulatory process, removing an ovum or ova (egg or eggs) from the woman's ovaries. The eggs are retrieved from the patient using a transvaginal technique called transvaginal oocyte retrieval, involving an ultrasound-guided needle piercing the vaginal wall to reach the ovaries. Than the sperms fertilise them in a liquid in a laboratory. The fertilised egg (zygote) is cultured for 2–6 days in a growth medium and is then implanted in the woman's uterus, with the intention of establishing a successful pregnancy.

Pelvic factor is one of the most frequent cause of infertility in women under 40 years old. Fortunately these women do not have any additional fertility problems and the pregnancy success rates with in vitro fertilization are usually excellent.

Find more about related issues

Diagnoses

Fallopian tube blockage
An obstruction prevents the egg or sperm from traveling down the tube, thus making fertilization impossible.
Learn more at: www.fertilitypedia.org/therapy/diag/fallopian-tube-blockage
Endometriosis
A state in which pieces of the tissue alike to the lining of the uterus (endometrium) grow in other parts of the body.
Learn more at: www.fertilitypedia.org/therapy/diag/endometriosis

Asherman’s syndrome
A medical condition, where the walls of the uterus stick to one another due to bands of scar tissue.
Learn more at: www.fertilitypedia.org/therapy/diag/asherman-s-syndrome

Amenorrhoea
The absence of a menstrual period in women of reproductive age.
Learn more at: www.fertilitypedia.org/therapy/diag/amenorrhoea

Hypoestrogenism
A lower than normal level of estrogen which is the primary sex hormone in women.
Learn more at: www.fertilitypedia.org/therapy/diag/hypoestrogenism

Organs

Fallopian tubes
Two very fine tubes that transport sperm toward the egg, and allow passage of the fertilized egg back to the uterus for implantation.
Learn more at: www.fertilitypedia.org/edu/organs/fallopian-tubes

Ovary
The ovum-producing organs of the internal female reproductive system
Learn more at: www.fertilitypedia.org/edu/organs/ovary

Uterus
The uterus is the largest and major organ of the female reproductive tract that is the site of fetal growth and is hormonally responsive
Learn more at: www.fertilitypedia.org/edu/organs/uterus

Reproductive cells
Endometrium
The innermost layer of uterus forming the uterine lumen where the implantation of an oocyte happens.
Learn more at: www.fertilitypedia.org/edu/reproductive-cells/endometrium

Reproductive functions

Ovulation
The release of egg(s) from the ovaries.
Learn more at: www.fertilitypedia.org/edu/reproductive-functions/ovulation

Risk factors

Sexually transmitted diseases
Illnesses that have a significant probability of transmission between humans by means of human sexual behavior and that may impact fertility.
Learn more at: www.fertilitypedia.org/therapy/rf/sexually-transmitted-diseases

Symptoms

Chronic pelvic pain
Pain in the area of the pelvis, that lasts more than six months.
Learn more at: www.fertilitypedia.org/edu/symptoms/chronic-pelvic-pain-1

Constipation
A condition where the feces are hardened because of excess water removal in the colon.
Learn more at: www.fertilitypedia.org/edu/symptoms/constipation

Hemorrhage
The condition in which the blood escapes from the circulatory system.
Learn more at: www.fertilitypedia.org/edu/symptoms/hemorrhage

Hypomenorrhea
Short or scanty periods with extremely light menstrual blood flow.
Learn more at: www.fertilitypedia.org/edu/symptoms/hypomenorrhea
Infertility
The failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse.
Learn more at: www.fertilitypedia.org/edu/symptoms/infertility

Painful sexual intercourse
The painful feelings during sexual intercourse.
Learn more at: www.fertilitypedia.org/edu/symptoms/painful-sexual-intercourse

Recurrent miscarriage
A disease distinct from infertility, defined by two or more failed pregnancies.
Learn more at: www.fertilitypedia.org/edu/symptoms/recurrent-miscarriage

Therapies

Adhesiolysis
Surgery used to remove adhesions.
Learn more at: www.fertilitypedia.org/edu/therapies/adhesiolysis

Egg donation
Process by which a woman donates eggs for purposes of assisted reproduction or biomedical research.
Learn more at: www.fertilitypedia.org/edu/therapies/egg-donation

ICSI
A micromanipulative fertilization technique in which a single sperm is injected directly into an egg.
Learn more at: www.fertilitypedia.org/edu/therapies/icsi

Sperm donation
The procedure in which a man (sperm donor) provides his sperm for fertility treatment.
Learn more at: www.fertilitypedia.org/edu/therapies/sperm-donation

Standard IVF
A process in which an egg is fertilised by sperm outside the body: in vitro. Own or donated gametes may be used.
Learn more at: www.fertilitypedia.org/edu/therapies/standard-ivf
Hysteroscopic inspection of uterine cavity.

Severe pelvic adhesions with the left ovary attached to the anterior abdominal wall.

Fallopian tubes with fimbrae.

Sources

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