ENDOMETRIAL CANCER

Cancer that arises from the endometrium, the lining of the uterus.

🔍 Diagnosis ✉ Female

Related Diagnoses:
- Obesity
- Polycystic ovary syndrome
- Anovulation
- Endometrial polyp
- Adenomyosis
- Menopause
- Hydrosalpinx
- Pelvic Inflammatory Disease
- Endometrial hyperplasia
- Ovarian cancer
- Fallopian tube cancer
- Breast cancer
- Hysterectomy

ℹ️ About Endometrial cancer

Endometrial cancer is a cancer that arises from the endometrium (the lining of the uterus or womb). It is the result of the abnormal growth of cells that have the ability to invade or spread to other parts of the body. The first sign is most often vaginal bleeding not associated with a menstrual period. Other symptoms include pain with urination or sexual intercourse, or pelvic pain. Endometrial cancer occurs most commonly after menopause.

In 2012, endometrial cancers occurred in 320,000 women and caused 76,000 deaths. This makes it the third most common cause of death from women's cancers, behind ovarian and cervical cancer. It is more common in the developed world and is the most common cancer of the female reproductive tract in developed countries. This is believed to be due to the increasing number of elderly people and increasing rates of obesity. Endometrial cancer is also associated with excessive estrogen exposure, high blood pressure and diabetes. Whereas taking estrogen alone increases the risk of endometrial cancer, taking both estrogen and progesterone in combination, as in most birth control pills, decreases the risk. Between two and five percent of cases are related to genes inherited from the parents.

There are several types of endometrial cancer, including the most common endometrial carcinomas, which are divided into Type I and Type II subtypes. There are also rarer types including endometrioid adenocarcinoma, uterine papillary serous carcinoma, and uterine clear-cell carcinoma. Endometrial cancer is sometimes loosely referred to as "uterine cancer", although it is distinct from other forms of uterine cancer such as cervical cancer, uterine sarcoma, and trophoblastic disease.

Classification

- CARCINOMA

Most endometrial cancers are carcinomas (usually adenocarcinomas), meaning that they originate from the single layer of epithelial cells that line the endometrium and form the endometrial glands. There are many microscopic subtypes of endometrial carcinoma, but they are broadly organized into two categories, type I and type II, based on clinical features and pathogenesis.

The first type, type I endometrial cancers occur most commonly in pre- and peri-menopausal women, are more common in Caucasian women, often with a history of excessive thickening of the inner lining of the uterus (endometrial hyperplasia) and exposure to elevated levels of estrogen that are not counterbalanced by progesterone (unopposed estrogen exposure). Type I endometrial cancers are often low-grade, minimally invasive into the underlying uterine wall (myometrium), and are of the endometrioid type, and carry a good prognosis. In endometrioid cancer, the cancer cells grow in patterns reminiscent of normal endometrium.

The second type, type II endometrial cancers usually occur in older, post-menopausal women, are more common in African-Americans, and are not associated with increased exposure to estrogen. Type II endometrial cancers are often high-grade, with deep invasion into the underlying uterine wall (myometrium), and are of the serous or clear cell type, and carry a poorer prognosis.
Uterine sarcoma

In contrast to endometrial carcinomas, the uncommon endometrial stromal sarcomas are cancers that originate in the non-glandular connective tissue of the endometrium. Uterine carcinosarcoma, formerly called malignant mixed Müllerian tumor, is a rare uterine cancer that contains cancerous cells of both glandular and sarcomatous appearance - in this case, the cell of origin is unknown.

Diagnosis

Diagnosis of endometrial cancer is made first by a physical examination and dilation and curettage (removal of endometrial tissue; D&C). This tissue is then examined histologically for characteristics of cancer. If cancer is found, medical imaging may be done to see whether the cancer has spread or invaded tissue.

Dilation and curettage or an endometrial biopsy are used to obtain a tissue sample for histological examination. Endometrial biopsy is the less invasive option, but it may not give conclusive results every time. Hysteroscopy only shows the gross anatomy of the endometrium, which is often not indicative of cancer, and is therefore not used, unless in conjunction with a biopsy. Hysteroscopy can be used to confirm a diagnosis of cancer. New evidence shows that D&C has a higher false negative rate than endometrial biopsy.

Before treatment is begun, several other investigations are recommended. These include a chest x-ray, liver function tests, kidney function tests, and a test for levels of CA-125, a tumor marker that can be elevated in endometrial cancer. The leading treatment option for endometrial cancer is abdominal hysterectomy (the total removal by surgery of the uterus), together with removal of the fallopian tubes and ovaries on both sides, called a bilateral salpingo-oophorectomy. In more advanced cases, radiation therapy, chemotherapy or hormone therapy may also be recommended. If the disease is diagnosed at an early stage, the outcome is favorable, and the overall five-year survival rate in the United States is greater than 80%.

Associated diseases

- Diabetes
- Obesity
- Lynch syndrome
- Endometrial hyperplasia

Complications

In distant metastasis, endometrial cancer commonly spreads through pelvic and paraaortic lymph nodes or pelvic viscera including adnexae. Incidence of hematogenous metastasis is low in endometrial cancer.

Risk factors

- obesity
- high levels of estrogen
- hypertension
- polycystic ovary syndrome
- nulliparity (never having carried a pregnancy)
- infertility (inability to become pregnant)
- early menarche (onset of menstruation)
- late menopause (cessation of menstruation)
- endometrial polyps or other benign growths of the uterine lining
- diabetes
- Tamoxifen
- high intake of animal fat
- pelvic radiation therapy
- breast cancer
- ovarian cancer
- anovulatory cycles
- age over 35
- lack of exercise
- heavy daily alcohol consumption
Impact on fertility

These patients face difficulty conceiving secondary to obesity, polycystic ovarian syndrome and chronic anovulation. Secondary to these issues it is recommended an initial consultation with a reproductive endocrinologist in order to assess the patient's reproductive options and likelihood of conception. This ensures appropriately informed expectations regarding reproductive potential and thus the patient's desire to proceed with fertility-preserving therapy.

Prevention

Endometrial cancer cannot be prevented, but there are some things that may lower the risk of developing this disease. The risk of endometrial carcinomas may be reduced significantly by prolonged progestin therapy every month (for 10 days) alone or in combination with estrogen. Since progestins are known to act as cofactors of cancerization in breast and cervical cancer such concepts are better interpreted cautiously. Therefore hormonal preventive concepts need to undergo a general assessment of benefits and risks.

Symptoms

- vaginal bleeding and/or spotting in postmenopausal women
- abnormal uterine bleeding, abnormal menstrual periods
- bleeding between normal periods in premenopausal women in women older than 40: extremely long, heavy, or frequent episodes of bleeding (may indicate premalignant changes)
- Anemia, caused by chronic loss of blood. (This may occur if the woman has had symptoms of prolonged or frequent abnormal menstrual bleeding.)
- lower abdominal pain or pelvic cramping
- thin white or clear vaginal discharge in postmenopausal women
- unexplained weight gain
- swollen glands/lymph nodes in the neck, under chin, back of head and top of clavicles
- incontinence

Therapies

Self therapy

Alternative therapy may be proposed as cancer cures. These treatments have not been proven safe and effective in clinical trials.

Conventional medicine

Pharmacotherapy

Hormonal therapy

Hormonal therapy is only beneficial in certain types of endometrial cancer. It was once thought to be beneficial in most cases. If a tumor is well-differentiated and known to have progesterone and estrogen receptors, progestins may be used in treatment. About 25% of metastatic endometrioid cancers show a response to progestins. Also, endometrial stromal sarcomas can be treated with hormonal agents, including tamoxifen, 17-hydroxyprogesterone caproate, letrozole, megestrol acetate, and medroxyprogesterone. This treatment is effective in endometrial stromal sarcomas because they typically have estrogen and/or progestin receptors. Progestin receptors function as tumor suppressors in endometrial cancer cells. Preliminary research and clinical trials have shown these treatments to have a high rate of response even in metastatic disease.

Herceptin

The antibody Herceptin, which is used to treat breast cancers that overexpress the HER2/neu protein,
has been tried with some success in a phase II trial in women with uterine papillary serous carcinomas that overexpress HER2/neu.

**Metformin**

Metformin, a well-tolerated anti-diabetic drug, can inhibit cancer cell growth. However, before such treatment can be recommended to the clinical practice, the molecular basis of metformin in the endometrium under physiological and pathological conditions must be elucidated.

**Surgical therapy**

**The primary treatment for endometrial cancer is surgery;** 90% of women with endometrial cancer are treated with some form of surgery. Surgical treatment typically consists of hysterectomy including a bilateral salpingo-oophorectomy, which is the removal of the uterus, and both ovaries and Fallopian tubes. Lymphadenectomy, or removal of pelvic and para-aortic lymph nodes, is performed for tumors of histologic grade II or above. Lymphadenectomy is routinely performed for all stages of endometrial cancer in the United States, but in the United Kingdom, the lymph nodes are typically only removed with disease of stage II or greater. The topic of lymphadenectomy and what survival benefit it offers in stage I disease is still being debated. In stage III and IV cancers, cytoreductive surgery is the norm, and a biopsy of the omentum may also be included. In stage IV disease, where there are distant metastases, surgery can be used as part of palliative therapy. Laparotomy, an open-abdomen procedure, is the traditional surgical procedure; however, laparoscopy (keyhole surgery) is associated with lower operative morbidity. The two procedures have no difference in overall survival. Removal of the uterus via the abdomen is recommended over removal of the uterus via the vagina because it gives the opportunity to examine and obtain washings of the abdominal cavity to detect any further evidence of cancer. Staging of the cancer is done during the surgery.

The few contraindications to surgery include inoperable tumor, massive obesity, a particularly high-risk operation, or a desire to preserve fertility. These contraindications happen in about 5–10% of cases. Women who wish to preserve their fertility and have low-grade stage I cancer can be treated with progestins, with or without concurrent tamoxifen therapy. This therapy can be continued until the cancer does not respond to treatment or until childbearing is done.

Side effects of surgery to remove endometrial cancer can specifically include sexual dysfunction, temporary incontinence, and lymphedema, along with more common side effects of any surgery.

**Assisted reproduction**

Options for women to have children after cancer have increased significantly in recent years. Women should be counselled on established options such as embryo banking in which hormonal stimulation causes the production of multiple eggs, which are removed, fertilized by sperm, and frozen for future use, and egg banking in which hormonal stimulation causes the production of multiple own eggs, which are removed and frozen for storage and future use, and ovarian transposition and shielding in which ovaries can be surgically moved or shielded from the area receiving radiation. This technique does not protect against the effects of chemotherapy. Experimental techniques include ovarian tissue banking in which an ovary is surgically removed and frozen to be transplanted back into the woman when she is ready to have children. Scientists are also working on ways to mature undeveloped eggs from this ovarian tissue.

After sterilizing cancer treatment, a woman can also choose donated eggs or donated embryos directly, to be transferred into the uterus. Another option to be considered is surrogacy, when a woman carries a pregnancy for another woman or couple or adoption. Recent efforts also investigate the implications of a cancer diagnosis during pregnancy.

**Find more about related issues**

**Diagnoses**

**Obesity**
A disease of excess body fat that can have a negative effect on health, leading to reduced life expectancy and other health problems. Learn more at: [www.fertilitypedia.org/therapy/diag/obesity](http://www.fertilitypedia.org/therapy/diag/obesity)
Polycystic ovary syndrome
A condition in which a woman has an imbalance of female sex hormones. This may lead to changes in the menstrual cycle, cysts in the ovaries, trouble g
Learn more at: www.fertilitypedia.org/therapy.diag/poly-cystic-ovary-syndrome

Anovulation
Failure of the ovaries to release an oocyte over a period of time generally exceeding 3 months.
Learn more at: www.fertilitypedia.org/therapy.diag/anovulation

Endometrial polyp
The finger like overgrowths attached to the inner wall of the uterus that extend into the uterine cavity which are made of endometrial tissue
Learn more at: www.fertilitypedia.org/therapy.diag/endometrial-polyp

Adenomyosis
Medical condition characterized by the presence of ectopic endometrial tissue within the myometrium.
Learn more at: www.fertilitypedia.org/therapy.diag/adenomyosis

Menopause
The time in most women’s lives when menstrual periods stop permanently, and the woman is no longer able to have children.
Learn more at: www.fertilitypedia.org/therapy.diag/menopause

Hydrosalpinx
A hydrosalpinx is an abnormal pouch containing liquid in a fallopian tube.
Learn more at: www.fertilitypedia.org/therapy.diag/hydr-osalpinx

Pelvic Inflammatory Disease
Infection of the upper part of the female reproductive system and a common complication of some sexually transmitted diseases.
Learn more at: www.fertilitypedia.org/therapy.diag/pelvic-inflammatory-disease-do-rf

Endometrial hyperplasia
Thickening of the lining of the uterus.
Learn more at: www.fertilitypedia.org/therapy.diag/endometrial-hyperplasia

Ovarian cancer
A type of cancer in which abnormal cells begin to grow in one or both of a woman’s ovaries.
Learn more at: www.fertilitypedia.org/therapy.diag/ovarian-cancer

Fallopian tube cancer
An abnormal growth of fallopian tube tissue.
Learn more at: www.fertilitypedia.org/therapy.diag/fallopian-tube-cancer

Breast cancer
A cancer that develops from breast tissue.
Learn more at: www.fertilitypedia.org/therapy.diag/breast-cancer

Hysterectomy
A surgery performed to remove a woman’s uterus.
Learn more at: www.fertilitypedia.org/therapy.diag/hysterectomy

Organ
Cervix
The narrow inferior portion of the uterus that projects into the vagina.
Learn more at: www.fertilypedia.org/edu/organs/cervix

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.fertilypedia.org/edu/organs/fallopian-tubes

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.fertilypedia.org/edu/organs/uterus

Vagina
Sex organ that is a part of the female genital tract having two primary functions: sexual intercourse and childbirth.
Learn more at: www.fertilypedia.org/edu/organs/vagina

Reproductive cells
Endometrial cell
Cells composing an inner layer of the uterine lining.
Learn more at: www.fertilypedia.org/edu/reproductive-cells/endometrial-cell

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

Biological control
Estrogen
The primary female sex hormone responsible for the development and regulation of the female reproductive system and secondary sex characteristics.
Learn more at: www.fertilypedia.org/edu/biological-control/estrogen

Risk factors
Alcohol drinking
A pattern of drinking that results in harm to one's health, interpersonal relationships, or ability to work.
Learn more at: www.fertilypedia.org/therapy/rf/alcohol-drinking

Diabetes mellitus
A condition in which the body either does not produce enough, or does not properly respond to insulin, a hormone produced in the pancreas.
Learn more at: www.fertilypedia.org/therapy/rf/diabetes-mellitus

Eating disorder
A mental disorder defined by abnormal eating habits that negatively affect a person's physical or mental health.
Learn more at: www.fertilypedia.org/therapy/rf/eating-disorder

High level of estrogen
A medical condition characterized by an excessive amount of estrogenic activity in the body.
Learn more at: www.fertilypedia.org/therapy/rf/high-level-of-estrogen
Hypertension
An elevated blood pressure, clinically defined as at or greater than 140/90 (systolic/diastolic) mmHg.
Learn more at: www.fertilitypedia.org/therapy/rf/hypertension

Lynch syndrome
An inherited bowel cancer syndrome.
Learn more at: www.fertilitypedia.org/therapy/rf/lynch-syndrome

Obesity
A medical condition of excess body fat that can have a negative effect on health, leading to reduced life expectancy and other health problems.
Learn more at: www.fertilitypedia.org/therapy/rf/obesity

Poor dietary habits
Eating habits are one of the few factors within our control that impact not only our chances of failing pregnant.
Learn more at: www.fertilitypedia.org/therapy/rf/poor-dietary-habits

Sedentary lifestyle
Type of lifestyle with no or irregular physical activity.
Learn more at: www.fertilitypedia.org/therapy/rf/sedentary-lifestyle

Uterine cancer
Abnormal growth of any cells that comprise uterine tissue.
Learn more at: www.fertilitypedia.org/therapy/rf/uterine-cancer

Symptoms

Abdominal pain
A pain that occurs between the chest and pelvic regions.
Learn more at: www.fertilitypedia.org/edu/symptoms/abdominal-pain

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

Irregular bleeding between the menstrual periods
Bleeding that occurs irregualrly between the menstrual period.
Learn more at: www.fertilitypedia.org/edu/symptoms/irregular-bleeding-between-the-menstrual-periods-1

Irregular menstruation
Irregular menstruation is a menstrual disorder whose manifestations include irregular cycle lengths as well as metrorrhagia
Learn more at: www.fertilitypedia.org/edu/symptoms/irregular-menstruation

Lower abdominal pain
Pain that occurs in low area of abdomen, below the umbilicus.
Learn more at: www.fertilitypedia.org/edu/symptoms/lower-abdominal-pain

Overweight
Body weight that's greater than what is considered healthy for a certain height.
Learn more at: www.fertilitypedia.org/edu/symptoms/overweight

Painful sexual intercourse
The painful feelings during sexual intercourse.
Learn more at: www.fertilitypedia.org/edu/symptoms/painful-sexual-intercourse
Painful urination
A burning or stinging sensation during urination.
Learn more at: www.fertilitypedia.org/edu/symptoms/painful-urination-1

Vaginal bleeding
Irregular intermenstrual bleeding including postcoital bleeding.
Learn more at: www.fertilitypedia.org/edu/symptoms/vaginal-bleeding

Vaginal discharge
The biological fluid secreted from the vagina.
Learn more at: www.fertilitypedia.org/edu/symptoms/vaginal-discharge

Therapies

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

Fallopian tubes removal
Surgical removal of a Fallopian tube(s).
Learn more at: www.fertilitypedia.org/edu/therapies/fallopian-tubes-removal-1

Fertility preservation
The field of reproductive medicine, that focuses on helping reproductive-age men and women to prevent infertility and birth defects.
Learn more at: www.fertilitypedia.org/edu/therapies/fertility-preservation

Hysterectomy
Surgical removal of the uterus.
Learn more at: www.fertilitypedia.org/edu/therapies/hysterectomy

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

Ovariectomy
Surgical removal of one or both ovaries.
Learn more at: www.fertilitypedia.org/edu/therapies/ovariectomy

Pharmacotherapy of endometrial cancer
Chemotherapy and hormonal therapy, which is used as a treatment option for endometrial cancer.
Learn more at: www.fertilitypedia.org/edu/therapies/pharmacotherapy-of-endometrial-cancer

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

Surrogacy
The embryo is gestated in a third party’s (surrogate) uterus.
Learn more at: www.fertilitypedia.org/edu/therapies/surrogacy
**Endometrial adenocarcinoma**
A histologic view of an endometrial adenocarcinoma showing many abnormal nuclei.

**Adenocarcinoma of the Endometrium**
A stage I, grade I section of an endometrial cancer after hysterectomy.

**Endometrial cancer - location**
The location and development of endometrial cancer.

**Keyhole hysterectomy**
A keyhole hysterectomy, one possible surgery to treat endometrial cancer

**Endometrioid adenocarcinoma**
A stage III endometrioid adenocarcinoma that has invaded the myometrium.

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**Sources**

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