

Original Article: Scientific and Medical Review of Uterine Cancer and its Treatment Methods

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ABSTRACT

This study deals with the scientific and medical examination of uterine cancer and its various treatment methods. In the present study, which is considered a review study, the definition of uterine cancer and then its types and treatment methods and their complications have been discussed. Uterine cancer or endometrial cancer is a common disease in the reproductive system of women and their uterine tissue. This cancer, which is generally diagnosed by vaginal bleeding or abnormal body secretions, can be treated in the early stages. In addition, there are other types of this disease, such as uterine sarcoma, which are less common. Uterine cancer, which is not as common as ovarian cancer in women, usually occurs in old age and during menopause. The uterus is an organ in the female pelvis that protects the fetus until birth. This organ can suffer from different cancers such as endometrial cancer, sarcoma cancer and cervical cancer, which may have different symptoms and treatment. Uterine cancer generally occurs in old age and during menopause due to hormonal imbalance. Unfortunately, modern science does not have accurate information for the cause of this cancer, as well as its treatment methods. Only methods such as chemotherapy, radiation therapy, etc. are used to improve the patient's condition and prevent the progression of the disease. However, these methods have many side effects. Of course, in the current situation where there is no alternative solution, it is the best method and the most common method.

Introduction

Uterine cancer or endometrial cancer is a cancer that occurs in the tissue of the uterus (endometrium) [1-3]. There are other types of this cancer, including uterine sarcoma cancer, which is far less common than uterine cancer [4]. This disease is mainly diagnosed in the early stages, because it is

accompanied by symptoms such as abnormal secretions. In such a situation, it is possible to remove the uterine tissue and treat this cancer [4]. Malignant uterine cancer is the uterus, a hollow organ that is located in the pelvic area in women. The function of the uterus is such that it protects the growth of the fetus until birth (Figure 1). The abnormal and malignant growth of uterine cells is called uterine cancer.

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Increased production of cancer cells will lead to the formation of malignant tumors [5].

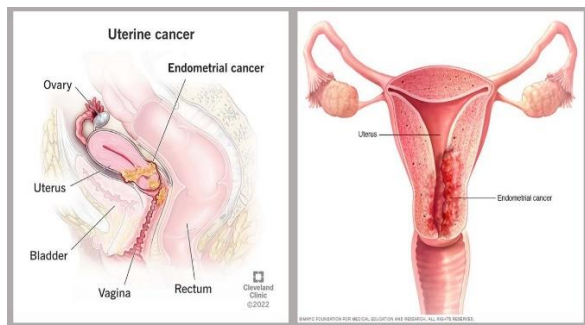


Figure 1. Uterine cancer

Age of uterine cancer

Although the main cause of uterine cancer is not known, factors such as obesity and overweight, the onset of menstruation before the age of 12, menopause before the age of 55, and a family history of uterine cancer are among the factors that increase the risk of uterine cancer [6].

Symptoms of uterine cancer

- Abnormal discharge from the vagina;
- Vaginal bleeding;
- Pain during urination and intercourse;
- Pelvic pains.

Is there a cure for uterine cancer?

- Uterine cancer is mainly possible through pelvic examinations, pap smear test, ultrasound and biopsy. CT scan and MRI are other diagnostic methods.
- Stages of uterine cancer are diagnosed with biopsy, chest X-ray and CT scan.
- Surgery, hormone therapy and chemotherapy are among the treatment methods for uterine cancer. Treatment is also considered based on the stage of cancer, age and physical health of the person.
- Treatment of uterine cancer is performed through surgery, with the aim of removing the uterus, ovaries, fallopian tubes, and lymph nodes.
- Primary care and measures are also very important in the treatment of uterine cancer.

Endometrium is the mucous membrane of the uterus. The uterus is a muscular and hollow

organ, located in the pelvis, right where the fetus grows. The end and narrow part of the uterus that reaches the vagina is called the cervix [7-9].

Risk factors for uterine cancer

Some factors that increase the risk of uterine cancer are:

- Obesity and overweight;
- Having metabolic syndrome, a set of specific medical conditions that lead to the accumulation of fat around the abdomen, high blood pressure, high triglycerides;
- No pregnancy in the past;
- Beginning of menstruation at a young age;
- Menopause at an advanced age;
- Having polycystic ovary syndrome;
- History of uterine cancer in a family member;
- High blood cholesterol level [10-12];
- Disturbance of the balance of production and secretion of estrogen and progesterone hormones.

Tamoxifen is one of the hormonal drugs prescribed for people with breast cancer. Taking this drug causes abnormal vaginal bleeding and increases the risk of uterine cancer [13].

Prevention of uterine cancer

In order to reduce or prevent uterine cancer, it is better to keep the following things in mind: Consult your doctor about the side effects of hormone therapy after menopause. If you are one of the people who use hormone therapy to control menopause symptoms, be sure to ask your doctor about the advantages and disadvantages of this method. A combination of estrogen and progesterone hormones reduces the risk of uterine cancer. Of course, hormone therapy can be associated with side effects such as increasing the risk of breast cancer [14]. Taking birth control pills. Taking these pills for one year reduces the risk of uterine cancer. Having a suitable and ideal body weight. As we mentioned earlier, obesity and overweight increase the risk of uterine cancer. For this reason, weight loss, exercise and physical activity and minimizing calorie consumption during the day are among the actions that are always recommended (Figure 2).

Sports and physical exercises. Try to include exercise in your daily schedule. The more time you spend exercising, the lower your chances of developing uterine cancer.

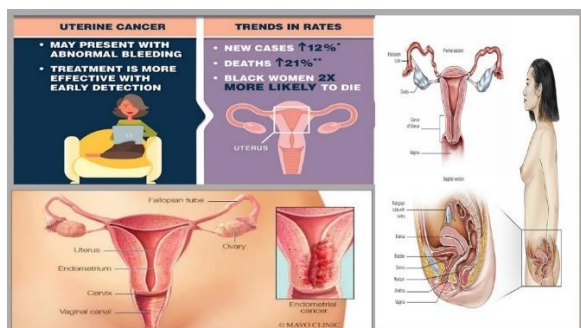


Figure 2. Prevention of uterine cancer

If the cancer spreads to other parts and organs of the body, it is called metastasis. In such a situation, cancer cells move from their primary origin and reach other parts of the body through the lymphatic system and blood [15].

Stages of uterine cancer

- **Stage I.** At this stage, only the uterus is affected by cancer.
- **Stage II.** At this stage, the cancer also affects the connective tissues and the cervix, but does not involve the outer part of the uterus.
- **Stage III.** At this stage, the uterus and cervix will also be involved and are divided into three subgroups:
 - **IIIA.** The outer layers of the uterus, fallopian tubes, ovaries are involved in cancer.
 - **IIIB.** At this stage, the vagina is also involved [16].
 - **IIIC.** At this stage, the cancer also affects the lymph nodes in the pelvis.
- **Stage IV.** At this stage, parts outside the pelvis are involved, which may include cancer in parts of the bladder, intestinal wall, abdomen, or lymph nodes.

After treatment, there is a possibility of cancer returning in the uterus, pelvis, abdominal lymph nodes or other parts of the body [17].

Diagnosis of uterine cancer

- Pelvic examinations where the doctor examines the external part of the genital

system. The method of examination is as follows, the doctor puts two fingers into the vagina and puts pressure on the abdomen with the other hand until he feels the uterus and ovaries. Also, the doctor inserts a device called a speculum into the vagina. By opening the opening of the vagina, any changes and disorders in the vagina and cervix can be detected.

- Using sound waves and creating images of the uterus. The doctor may prescribe an ultrasound test to check the endometrial tissue and check the condition, which also provides the possibility of observing any changes in the mucous membrane of the uterus.
- Using a scope to examine the endometrium. During a hysteroscopy, the hysteroscope, which is a thin, flexible tube, is inserted through the vagina and uterus into the cervix. The lens of this tool provides the possibility of viewing and examining the inside of the uterus and abdomen.
- Removing part of the tissue for testing. In this case, a sample of the internal tissue of the uterus is taken and sent to the laboratory for examination. This test can be done on an outpatient basis or under anesthesia. If cancer is diagnosed, it is better to see an oncologist for treatment [18].

Uterine cancer treatment

Surgery to treat cervical pre-cancers

Two methods can be used to treat pre-cancers of the cervix

- Cryotherapy method in which, instead of removal, the tissue of the uterus is destroyed with cold temperature or with a laser.
- A surgical procedure that cuts and removes the cancer [19].

Cervical cancer treatment by cryotherapy

Cryotherapy is a type of ablation in which a very cold metal probe is placed directly on the cervix and destroys abnormal cells by freezing them. This method is used to treat (CIN).

Laser treatment of cervical cancer

In this method, a focused laser beam is directed through the vagina to burn the abnormal cells. This may be done in the doctor's office under local anesthesia or in the operating room under general anesthesia because it can be more uncomfortable than cryotherapy. It is also used to treat (CIN) [20].

Cervical cancer treatment by adaptation method

Another method for treating cervical intraepithelial neoplasia (CIN) is called conization surgery. In this method, the doctor removes a piece of cone-shaped tissue from the cervix. This removed tissue includes the transformation area, which is most likely where cervical pre-cancers and cancers start from this area. Cone biopsy is not only used to detect pre-cancers and cancers, but it can also be used as a treatment because it can sometimes remove pre-cancers and some early-stage cancers. This can be done in different ways:

- Using a surgical blade (cold knife cone biopsy);
- Use of laser beam (combined with laser therapy method);
- Using a thin wire that is heated by electricity (electrosurgical cutting method, LEEP or LEETZ method) [21].

Surgery to treat invasive cervical cancer

Treatment methods for invasive cervical cancer include:

- Hysterectomy (simple or radical);
- Trachelectomy.

Simple hysterectomy to treat cervical cancer

In this method, the uterus (both the body of the uterus and the cervix) is removed, but the structures near the uterus (parametric and uterine and sacral ligaments) are not removed. Additionally, the vagina and pelvic lymph nodes are not removed, and the ovaries are usually left in place unless there is another reason to remove them (Figure 3).

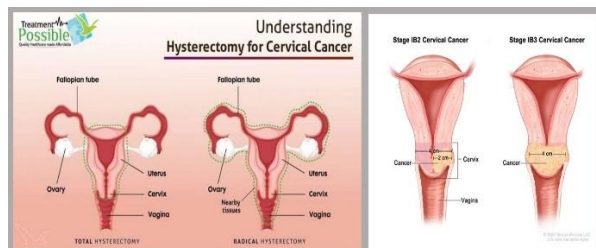


Figure 3. Simple hysterectomy to treat cervical cancer

A simple hysterectomy can be used to treat certain types of severe CIN or certain types of cervical cancer. There are different ways to perform hysterectomy:

- **Abdominal hysterectomy:** The uterus is removed through a surgical incision in the front of the abdomen.
- **Vaginal hysterectomy:** The uterus is removed through the vagina.
- **Laparoscopic hysterectomy:** The uterus is removed using laparoscopy. First, a thin tube with a small video camera at the end (laparoscope) is inserted into one or more very small surgical incisions made in the abdominal wall to view the inside of the abdomen and pelvis. Small tools can be controlled through pipes. Therefore, the surgeon can cut around the uterus without making a large incision in the abdomen. The uterus is then removed through an incision [22].
- **Robotic-assisted surgery:** In this procedure, laparoscopy is performed with special instruments attached to robotic arms that are controlled by a doctor to help perform precise surgery. General anesthesia is used for all these procedures. For laparoscopic or vaginal hysterectomy, the hospital stay is usually 1 to 2 days, followed by a 2 to 3-week recovery period. A hospital stay of 3 to 5 days is typical for an abdominal hysterectomy, and full recovery takes about 4 to 6 weeks.
- **Possible side effects:** Any type of hysterectomy leads to infertility (inability to have children). Other complications are less common but can include bleeding, infection, or damage to

the urinary or intestinal system, such as the bladder or colon [23].

Radical hysterectomy for the treatment of cervical cancer

For this operation, the surgeon removes the uterus along with the tissues near the uterus (parametric and uterine and sacral ligaments), the cervix and the upper part about (2-3 cm). The ovaries are not removed unless there is another medical reason to do so. In radical hysterectomy, more than one simple tissue is removed. Therefore, the hospital stay can be longer. At this time, some lymph nodes are also removed and checked for cancer. This surgery is usually done through a large incision in the abdomen (also called open surgery) [24]. This surgery is usually done through a large incision in the abdomen (also called open surgery). Often, some pelvic lymph nodes are also removed. Radical hysterectomy can also be performed laparoscopically or robotically. Also, these methods are referred to as minimally invasive surgery. Compared to open surgery, laparoscopic (or robotic) surgery can cause less pain, less blood loss during the operation, and less hospitalization [25].

However, it is important to note that recent studies have shown that women who have a minimally invasive radical hysterectomy for cervical cancer have a higher risk of cancer recurrence and higher risk of death from cancer than those who have surgery through an abdominal incision. do Laparoscopic surgery may still be an option for a small group of women with early-stage cancer, but you should discuss your options carefully with your doctor. A modified radical hysterectomy is similar to a radical hysterectomy, but much of the vagina is removed. And it does not destroy the tissues near the uterus (parametric and uterine and sacral ligaments), and the lymph nodes are not usually removed [26].

Possible side effects: Since the uterus is removed, this surgery can lead to infertility. In this method, because some nerves of the bladder are removed, some women have problems emptying their bladder after this procedure and may need a catheter for some time. Other complications are uncommon but can include

bleeding, infection, or damage to the urinary and intestinal systems such as the bladder or colon.

Tracoelectomy surgery to treat cervical cancer

A radical tracoelectomy allows women to be treated without losing the ability to have children. The procedure is performed either through the vagina or abdomen, and is sometimes performed using a laparoscope. This method removes the cervix and the upper part of the vagina, but not the body of the uterus. The surgeon then places a permanent "String" suture inside the uterine cavity to keep the cervix closed, as is done naturally in the cervix. Adjacent lymph nodes are also removed using laparoscopy, which may require another incision [27]. This operation is performed either through the vagina or the abdomen. After a tracoelectomy, some women can carry their pregnancy to term and give birth to a healthy baby by caesarean section. Although there is a possibility of miscarriage in women who have done this surgery.

Pelvic surgery to treat cervical cancer

This operation is done for very specific cases of cervical cancer. In this surgery, all similar organs and tissues are removed by removing the pelvic lymph nodes. In addition, depending on the location of the cancer, the bladder, vagina, rectum and part of the colon are also removed. If your bladder is removed, you will need a new way to store and pass urine. The new bladder may be attached to the abdominal wall so that urine is drained periodically [25].

Adjacent lymph node removal to treat cervical cancer

Dissection of pelvic lymph nodes

Cancer that starts in the cervix can spread to the lymph nodes in the pelvis. To check for enlarged lymph nodes, the surgeon may remove some of these lymph nodes. This procedure is known as pelvic lymph node dissection or lymph node sampling. Hysterectomy or tracheotomy is performed at the same time. Removing lymph nodes can lead to fluid drainage problems in the legs. This can cause severe leg swelling, a condition called lymphedema [26].

Para-aortic lymph node sampling

Lymph nodes next to the aorta are usually removed during surgery for a radical hysterectomy. This method is called para-aortic lymph node sampling. During the procedure, the lymph nodes may be sent to the laboratory for rapid testing. If the para-aortic lymph nodes show cancer, surgery may be stopped and radiation and chemotherapy may be given instead [27]. If the lymph nodes do not show cancer, the pelvic lymph nodes are usually removed and the radical hysterectomy is completed. Any tissue removed during surgery will be tested to see if the cancer has spread there.

Sentinel lymph node mapping and biopsy

Sentinel lymph node mapping and biopsy is a method by which the surgeon finds lymph nodes. To do this, the surgeon injects a radioactive substance or a blue dye into the cervix at the beginning of the surgery. Lymphatic vessels carry these substances along the same path that the cancer is likely to take. The first lymph node(s) to which the dye or radioactive material travels is the sentinel node(s). Removing only one or more lymph nodes reduces the risk of side effects from surgery. After the agent is injected, the sentinel node(s) can be found by using a special device to detect radioactivity in the nodes or by looking for nodes that have turned blue. For review, both methods are often used. The surgeon then removes the nodule(s) containing the dye or radioactivity. Sentinel lymph node mapping may be considered for certain cases of stage I cervical cancer. It is better to use for tumors whose size is less than 2 cm [28]. If your surgeon is planning a sentinel lymph node biopsy, you should discuss the appropriateness of this procedure.

Radiotherapy

Radiation therapy may be used in combination with chemotherapy as the main treatment or after surgery to kill remaining cancer cells and reduce the chance of the cancer returning. Two types of radiation therapy are used to treat cervical cancer:

- External beam radiation therapy, or EBRT, in which a large machine directs radiation toward the body.
- Internal radiation therapy or brachytherapy: In this method, tools that contain radioactive materials are placed inside the vagina for a few minutes.

Both types are commonly used to treat cervical cancer. In the early stages of cervical cancer, the combination of radiation therapy with weekly chemotherapy (with a low dose) is used. The purpose of this work is to increase the effectiveness of treatment to avoid surgery (Figure 4).

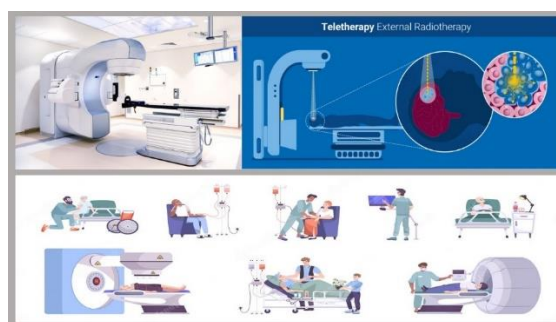


Figure 4. Radiotherapy

Side effects of radiation therapy

Side effects of radiation therapy include the following:

- Fatigue;
- Mild skin reactions;
- Stomach discomfort;
- Diarrhea;
- In brachytherapy, we may see side effects such as abdominal pain and intestinal cramps.

One of the serious side effects of radiation therapy is menstrual changes. Radiation therapy can affect the ovaries and cause changes in the menstrual cycle or even early menopause [29].

Long-term side effects of radiation therapy to treat cervical cancer include the following

- Tightness of the vagina: The vagina may lose its elasticity a little, and to fix it, you can use rubber cylinders to open the vagina a little;
- Vaginal dryness: Vaginal dryness and painful sex are long-term side effects of radiation therapy. Estrogen therapy can be useful for these people;

- Rectal bleeding and rectal stricture;
- Urinary problems [30];
- Weakness of bones;
- Swelling of the legs.

Hormone Therapy

Hormone therapy is another treatment option that is associated with the use of drugs that increase the level of hormones in the blood and is in two forms:

First. Taking drugs that increase the level of progesterone hormone in the body, which will prevent the growth of cancer cells.

Second. Taking drugs that reduce the level of estrogen hormone in the body and cancer cells are destroyed in reaction with these drugs [31].

Chemotherapy

Advanced endometrial cancer (FIGO stage III and IV) is uterine cancer that has spread from the uterus to the ovaries, vagina, other nearby tissues, draining lymph nodes, or other organs. Women are usually treated with surgery to remove as much of the tumor as possible. They are then given adjuvant (meaning "Added") radiotherapy (high-energy X-rays and other radiation that destroy cancer cells) or chemotherapy (anti-cancer drugs), or both. There is uncertainty about which treatment method (radiotherapy or chemotherapy or both) has the greatest impact on patient survival after surgery, and which anticancer drugs work best [32].

When is chemotherapy used for uterine cancer?

Chemotherapy is not often used for uterine cancer. But as mentioned, it may be a suitable treatment option for women with more advanced stages of uterine cancer. In these stages, the cancer has spread outside the uterus and other parts of the body, and surgery will not be useful at this stage.

Uterine cancer chemotherapy is performed in one of the following ways

- Chemotherapy for uterine cancer may be needed before and again after radiation therapy.
- Comes with radiation to aid in better performance.

- After surgery, to make sure that all the cancer cells in your body have been killed.
- To prevent recurrence of cancer [33].
- To prevent the regrowth of cancer cells and its spread to other parts of the body.

Drugs used for chemotherapy of uterine cancer

Drugs that are used during chemotherapy for uterine cancer include:

- Pakli Taxel;
- Carboplatin;
- Doxorubicin or liposomal doxorubicin;
- Cisplatin;
- A combination of drugs such as carboplatin and paclitaxel or cisplatin and doxorubicin.

Often 2 or more drugs are combined for treatment. The most common combinations include carboplatin/paclitaxel and cisplatin/doxorubicin [34]. In less cases, carboplatin/docetaxel and cisplatin/paclitaxel/doxorubicin may be used.

How is uterine cancer chemotherapy performed?

Uterine cancer chemotherapy can be done intravenously, tablets and injections. Treatment is often done as an outpatient visit in a hospital or clinic. Chemotherapy can be very hard on diseased veins. Therefore, having an intravenous access device or an indwelling catheter during treatment can be a good option. One end of the catheter is placed in a vein near the patient's heart, and the other end may be attached to a small drum that is placed just under the skin, or it may exit through the patient's skin to deliver medication during treatment [35]. Chemotherapy for uterine cancer is done periodically. Each period of treatment and rest after uterine cancer chemotherapy is called a cycle. The patient may have several cycles during treatment.

Doing the treatment in multiple cycles helps to

- **Eliminate more cells**

Chemotherapy can kill more cancer cells during treatment. Not all cancer cells divide at the same

time. So, the cycles allow the drugs to kill more cells.

➤ **Giving rest to the patient's body**

During the treatment, healthy cells that divide quickly may also be damaged which include the mucous cells of the mouth, stomach, and intestines, which can cause many side effects, including mouth ulcers, nausea, vomiting, and diarrhea. Therefore, between cycles, the patient's body can rest and heal [36].

Side effects of uterine cancer chemotherapy

Side effects are common with chemotherapy, but may not happen to everyone. These side effects, which depend on the type and dose of chemotherapy, usually disappear with time and after the end of treatment.

Some common side effects include

- Nausea and vomiting;
- Mouth ulcers;
- Constipation or diarrhea;
- Severe hair loss;
- Infections caused by a low number of white blood cells;
- Easy bruising or bleeding due to low blood platelets;
- Fatigue caused by a low number of red blood cells;
- Loss of appetite;
- Dizziness;
- Skin problems, such as dryness, rashes, blisters, or darkening of the skin;
- Tingling, numbness, or swelling in the hands or feet;
- Hearing loss;
- Kidney damage [37].

Care after uterine cancer treatment

After cancer treatment, it is better to visit every 3 to 6 months, and one year after treatment. By performing regular screenings, pelvic examinations and pap smear tests, the recurrence of cancer can be prevented. If signs and symptoms of cancer return are seen, photography and CT scan or biopsy will also be performed. But if there is no disturbance or change, there will be no need to do more examinations or blood tests.

Some measures that must be followed after treatment are:

- Having a healthy and useful diet, consuming as many foods containing fiber as possible;
- Limit the consumption of alcoholic beverages;
- Exercise and physical activity after treatment;
- Having an ideal weight [38].

Discussion and review

One of the most important reasons that can cause cervical cancer is the imbalance of hormones inside the uterus. An increase in the amount of estrogen in the uterus is a warning sign for cancer. Many factors are effective in creating hormonal imbalance:

- **Overweight:** Almost most women with cervical cancer are overweight.
- **Diabetes:** One of the diseases that increases the risk of hormonal imbalance and cervical cancer is diabetes.
- **High blood pressure:** Another thing that has been seen among people with uterine cancer is high blood pressure.
- **Tamoxifen drug use:** This drug is prescribed for the treatment of breast cancer.

Of course, it should be noted that having these conditions does not cause uterine cancer, nor does not having them prevent it. That is, seeing these symptoms, a person should not be afraid and think that I have cervical cancer! But many of these symptoms should be taken very seriously, and even without these high-risk factors (Figure 5), you should be careful about cervical cancer [39].

Raw	Study	Year				Proportion Weight 98%	Weight %
1	Hastings et al.	2023				0.64 [0.11 – 1.72]	3.02
2	Watts et al.	2022				0.52 [0.42 – 2.11]	4.00
3	LeGrand et al.	2022				0.96 [0.44 – 1.02]	6.52
4	Hung et al.	2023				0.65 [0.25 – 0.98]	5.12
Heterogeneity $I^2=0.00$, $T=0.00$, $H^2=0.9$						0.55 [0.34 – 0.58]	1.23
Test of $\theta=0$, $Q(4)=3.45$, $P=0.77$							
1	Hosseini et al.	2021				0.56 [0.11 – 0.66]	1.55
2	Ibrahim et al.	2020				0.66 [0.15 – 0.48]	4.33
3	Kalantari et al.	2020				0.48 [0.19 – 0.55]	6.77
4	Rothan et al.	2020				0.64 [0.17 – 0.29]	3.03
Heterogeneity $I^2=0.05$, $T=0.07$, $H^2=0.78$						0.82 [0.03 – 0.32]	
Test of $\theta=0$, $Q(4)=3.01$, $P=0.11$							
1	Michler et al.	2021				0.97 [0.39 – 1.06]	3.11
2	Chusano et al.	2020				0.95 [0.54 – 1.02]	6.05
3	Delim et al.	2020				0.43 [0.63 – 1.01]	4.06
4	Gadlage et al.	2010				0.51 [0.25 – 1.08]	7.03
Heterogeneity $I^2=0.12$, $T=0.01$, $H^2=0.99$						0.68 [0.22 – 1.07]	6.03
Test of $\theta=0$, $Q(4)=1.45$, $P=0.14$							

Figure 5. Forest plot showed Scientific and Medical Review of Uterine Cancer and its Treatment Methods

Symptoms that raise the alarm for women can be one of the following

- Vaginal bleeding: Abnormal vaginal bleeding can be one of the signs of cervical cancer. Although a person with this symptom may not have cancer. If the person is menopausal, the bleeding may be watery at first and gradually increase. Since any bleeding is abnormal during menopause, this symptom should be taken seriously at this age.
- If the person is not menopausal, heavy periods with heavy and unusual bleeding should be considered as a symptom [24].
- Heavy bleeding between periods.
- Along with these symptoms, the presence of some other symptoms can also be a sign of uterine cancer.
- Painful sexual intercourse that is repeated over and over again.
- Pain in the pelvis and legs.
- Pain in the lower abdomen.
- Anorexia.
- Extreme fatigue.
- Unexplained nausea.
- Sudden weight loss.
- Seeing blood in the stool.
- Seeing blood in the urine.

- Pain when urinating.

Diagnosis of uterine cancer

As soon as you go to a gynecologist with suspicious signs and symptoms, the doctor performs various examinations to check the cause of the problem and the presence of possible cancer.

- **Vaginal examination:** The doctor first examines the cervix with a vaginal examination to check the possibility of other vaginal diseases [25-27].
- **Examination of the uterus:** In this method, the doctor puts his hand into the vagina with a slippery substance and examines the cervix for size [40].
- **Pap smear test:** This test is one of the most important methods for diagnosing uterine cancer and it is recommended that women perform this test annually [28-30].
- **Transvaginal ultrasound (TVU):** In this procedure, a small rod scanner is sent into the vagina to show the doctor a clear picture of the inside of the uterus.
- **Hysteroscopy examination:** In this method, a camera with a narrow instrument is inserted into the uterus through the vagina and examines the inside of the uterus and the endometrium [31].
- **Diagnostic surgery:** If the amount of tissue removed in the pap smear is not enough to diagnose the disease, the doctor will perform a small surgery to take a sample [32-34].

Treatment of stage IA grade 1 uterine cancer and preservation of fertility

In young women who still want to have children, the surgery may be delayed for some time and during this time the cancer is treated with progestin's. Treatment with progestin is done orally, by injection, or by devices placed inside the uterus, and it can cause the cancer to shrink or sometimes even disappear and provide the woman with a chance of pregnancy. This is an experimental method and can be dangerous if the patient is not closely monitored. Often this method does not work and the cancer does not get better or grow. Skipping surgery can give the

cancer a chance to spread outside the uterus. If the cancer is not cleared [35-37], surgery is recommended to remove and stage the cancer (removal of the uterus and both fallopian tubes and ovaries). Sometimes the tumor gets smaller or goes away for a while after treatment with progestin's, but eventually comes back. Because cancer often returns, doctors recommend removing the uterus, fallopian tubes, and ovaries in cases where childbearing is complete. It is important to get the opinion of gynecological cancer surgeons and pathologists before starting treatment with progestin. Women should know that this is not a standard treatment and may increase the risk [37-39].

Treatment of other endometrial cancers

Cancers such as serous papillary carcinoma, clear cell carcinoma, or carcinosarcoma are more likely to be extra uterine at the time of diagnosis. Women with these types of tumors do not fare as well as lower grade tumors. If there is a high-grade cancer biopsy before the surgery, the surgery may be more extensive. In addition to removing the uterus (hysterectomy), both fallopian tubes and ovaries, pelvic lymph nodes and adjacent to the aorta, often the omentum is also removed. After surgery, both chemotherapy (chemotherapy) and radiation therapy are often given to prevent the cancer from coming back. Chemotherapy usually includes the drugs carboplatin and paclitaxel (Taxel), but other compounds may also be used.

Treatment of stage II uterine cancer

At this stage, the cancer has spread to the connective tissue of the cervix, but it has not yet invaded the outside of the uterus. A treatment option is to perform surgery first and then radiation therapy. Surgery includes radical removal of the uterus (whole uterus, adjacent tissue and the upper part of the vagina), removal of both fallopian tubes and ovaries (BSO) and removal or sampling of pelvic and para-aortic lymph nodes (LND) [40-42]. Often radiation therapy includes vaginal brachytherapy, and radiation therapy to the pelvis from outside the body cannot be given after recovery from surgery. Another option is to give radiation first and then perform a simple hysterectomy (uterus removal), BSO, LND. The removed lymph nodes

are checked for cancer cells. If cancer cells are seen in the lymph nodes, the stage II cancer is not true and it is stage IIIC [43-45]. In some cases, in a patient with early stage endometrial cancer (who is otherwise too sick or weak) surgery is not possible and radiation therapy is the only option. For women with high-grade cancers such as serous papillary carcinoma or clear cell carcinoma, in addition to complete removal of the uterus and both fallopian tubes and ovaries and lymph nodes adjacent to the aorta and pelvic lavage, peritoneal excision surgery and peritoneal biopsies (cavity) may be performed. Peritoneum) can also be done. After surgery, chemotherapy or radiation therapy, or both, may be given to prevent recurrence. Chemotherapy usually includes carboplatin and paclitaxel or cisplatin and doxorubicin. Stage II uterine carcinosarcoma is often treated with surgery like high-grade cancer. After surgery, chemotherapy, radiation therapy or both are used. Chemotherapy often includes paclitaxel and carboplatin, but may include ifosfamide with paclitaxel or cisplatin [46-48].

Treatment of stage III uterine cancer

At this stage, the cancer has spread outside the uterus. If the surgeon thinks he can remove all visible tumors, the uterus, both ovaries and fallopian tubes are removed. Sometimes women in stage III need a complete radical hysterectomy. Para-aortic lymph nodes may also be removed. The pelvis is washed and the tent is probably removed. Some doctors try to remove any residual cancer (debulk), but it is not known if this action helps to increase the patient's life or not. If tests before surgery show that the cancer has spread too far to be completely removed, radiation therapy may rarely be given before any surgery. Radiation therapy may shrink the tumor enough to allow surgery (Figure 6) [49].

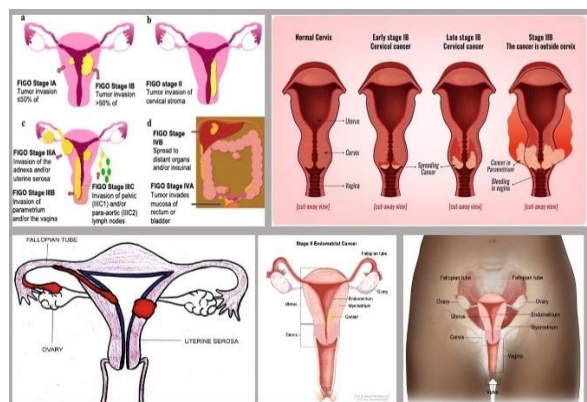


Figure 6. Treatment of stages uterine cancer

Treatment of stage IIIA uterine cancer

When the cancer has spread to the tissues covering the uterus (serosa) or other tissues inside the pelvis, such as the fallopian tubes or ovaries [50-52], it is in this stage. For these cancers, treatment after surgery may include chemotherapy, radiation therapy, or a combination of both. Radiation therapy is given to the pelvis or abdomen and pelvis together. Sometimes vaginal brachytherapy is also used.

Treatment of stage IIIB uterine cancer

At this stage, the cancer has spread to the vagina. Chemotherapy and/or radiation therapy may be given after surgery [52].

Treatment of stage IIIC uterine cancer

Cancers that have spread to the pelvic lymph nodes (IIIC1) and those that have spread to the lymph nodes around the aorta (IIIC2) are in this stage [53]. Treatment includes surgery followed by chemotherapy and/or radiation therapy. For high-grade cancers such as papillary serous carcinoma or clear cell carcinoma, surgery may include excision of the tentacles and sampling of the peritoneum, complete removal of the uterus, both ovaries and fallopian tubes, para-aortic lymph nodes, and pelvic lavage. After surgery, chemotherapy, radiation therapy or both may be given to prevent cancer recurrence. Chemotherapy usually includes carboplatin and paclitaxel or cisplatin and doxorubicin. Women with stage III carcinosarcoma are often operated on, as with high-grade cancers [54]. After surgery, radiation, chemotherapy, or both are given. Often, chemotherapy includes the drugs

paclitaxel and carboplatin, but ifosfamide is also used with paclitaxel or cisplatin [55].

Treatment of stage IV uterine cancer Stage IVA treatment of uterine cancer

These cancers have grown into the bladder or bowel [56].

Treatment of stage IVB uterine cancer

These cancers have spread to lymph nodes outside the pelvis or the area around the aorta. This stage also includes cancers that have spread to the liver, lungs, bladder, or other organs. Some endometrial cancers are in stage IV due to the spread to the abdominal lymph nodes (not only the pelvis and adjacent to the aorta) [57-59], but they have not spread to other organs. This type of stage IV cancer may have the best chance if the entire cancer is removed and cancer cells are not seen in the biopsy of other areas of the abdomen. However, in most stage IV endometrial cancer, the cancer has spread so far that it cannot be surgically removed and surgical healing is not possible. It is possible to remove the uterus and both fallopian tubes and ovaries to prevent heavy bleeding. Radiation therapy may also be used for the same purpose. When the cancer has spread to other parts of the body, hormone therapy may be done [60-62]. Medicines used for hormone therapy include progestin's and tamoxifen. Aromatase inhibitors (such as letrozole) may also be useful and are being studied. High-grade cancers and those that do not have estrogen or progesterone receptors do not respond to hormone therapy. A combination of chemotherapy drugs may help some women with advanced endometrial cancer. Paclitaxel, doxorubicin and carboplatin or cisplatin are often used. These drugs are often used in combination. Stage IV carcinosarcoma is treated with similar chemistry [62-64]. Cisplatin, ifosfamide and paclitaxel may also be combined. Women with stage IV endometrial cancer can consider participating in a clinical trial to try new drugs.

Treatment of recurrent uterine (endometrial) cancer

When cancer returns after treatment, it is called cancer recurrence. Recurrence can be local (close to where the primary cancer started) or

distant (spread to bone or lung). Treatment depends on the site of recurrence and the size of the tumor. For local recurrence, such as in the pelvis, surgery (and sometimes radiation therapy afterward) may be curative. If the patient has other medical problems that prevent surgery, radiation therapy alone or in combination with hormone therapy is generally used. For distant recurrence, surgery and/or focused radiation therapy may be used when only a few small sites (e.g., lung or bone) are involved. Women with more extensive recurrences (disseminated cancer) are treated, such as stage IV endometrial cancer. Hormone therapy or chemotherapy is recommended. Low-grade cancers that have progesterone receptors are more likely to respond to hormone therapy. Higher-grade cancers and those that do not have hormone receptors do not shrink with hormone therapy, but may respond to chemotherapy [65-67].

What is the best treatment for cervical cancer?

The best treatment method for cervical cancer depends on the stage of the cancer, which we examined in detail in a part of this article. In general, the main treatments for cervical cancer include surgery, radiation therapy, and chemotherapy [68-70].

What is the life expectancy of cervical cancer patients?

Thanks to the pap smear test, this cancer can be detected in the early stages when precancerous cells have formed. If treated at this stage, the 5-year survival rate is 100%. Obviously, this rate will be lower if the cancer is diagnosed at a more advanced stage. The 5-year survival rate in each stage of cervical cancer is as follows:

- Zero stage: 90%;
- Stage 1: 80-93%;
- Stage 2: 58-63%;
- Stage 3: 32-35%;
- Stage 4: Less than 16%.

Is cervical cancer curable?

If the disease is diagnosed in the pre-cancerous stage, the treatment can be complete. But in more advanced stages, the chance of treatment decreases a little [71].

Is cervical cancer fatal?

This cancer can be very deadly in advanced stages, but if the pap smear test is done routinely and on time, pre-cancerous cells can be detected in time and treated [72-74].

Is there a way to prevent cervical cancer?

There is no surefire way to prevent cancer, but you can minimize your risk factors and detect cancer in its pre-cancerous stages by getting a timely screening test. Since the cause of most cases of cervical cancer is the HPV virus, it is very useful to follow the necessary precautions to avoid contracting it, to perform an HPV test and also to inject the Gardasil vaccine. Also, you should have a pap smear every 3 years from the age of 21. In pap smear, a sample is taken from the cervix and the cells are checked. This cancer can be detected in the early stages by performing a routine pap smear test [75-77].

What is the treatment of cervical cancer during pregnancy?

The combination of cervical cancer treatment and pregnancy makes it very difficult for the doctor. What method the doctor uses for treatment depends on the stage of cancer and its type. In pregnancy, biopsy and imaging tests can be done to determine the stage of cancer. However, MRI is used to avoid radiation [78].

Does cervical cancer treatment cause changes in periods?

Yes, some cervical cancer treatments, such as radiation therapy, can cause changes in your menstrual cycle [79-81].

Does uterine cancer treatment cause menopause?

Yes; May be. One of the side effects of radiation therapy is premature menopause [82-84].

Can you have a baby after cervical cancer treatment?

Unfortunately, many treatments for this cancer cause infertility. Many surgeries are very extensive and involve removing the uterus and sometimes even the ovaries. Also, radiation therapy can have serious effects on fertility [85-87].

Conclusion

Diagnosing the stage of uterine cancer Researchers have not yet found the main cause of uterine cancer, but risk factors such as obesity and hormonal imbalance are involved in the aggravation of this cancer. Most endometrial cancer cells have estrogen or progesterone receptors on their surfaces, and in a way, the interaction of these receptors and hormones leads to an increase in endometrial growth. This process also plays an important role in strengthening the growth of cancer cells. Scientists are discovering genetic changes in DNA so that they can design more specific and effective drugs to treat uterine cancer. The most important factor in choosing the type of treatment. Other factors besides the stage of cancer, such as the type of cancer, age, general health of the patient and his decision to have children can affect the treatment options. Microscopic tests as well as genetic tests performed on cancer cells are also used to find specific treatments for different types of uterine cancer, such as hormone therapy or targeted drug therapy. Surgery is the first treatment for almost all women with endometrial or uterine cancer. This procedure involves removing the uterus, fallopian tubes, and ovaries (also called a hysterectomy). Some pelvic lymph nodes may also be removed in this procedure and tested for the extent of cancer spread. Tissues removed during surgery are evaluated to see how far the cancer has spread and to accurately diagnose the stage. Depending on the stage of the cancer, other treatments such as radiation therapy or chemotherapy may be on the agenda. For women who decide to get pregnant, it is possible to temporarily postpone surgery and use alternative treatments. If the physical conditions are not favorable enough to perform surgery, other treatments such as radiation therapy are substituted. The following steps are used for endometrial cancer. Cervical cancer is a relatively common cancer among women. This cancer involves the cells of the cervix and can be detected in the early stages thanks to the pap smear test and timely treatment. The treatment method varies depending on the stage of the cancer. There are several ways to treat this, but the main ones are surgery, radiation therapy, and chemotherapy. In more advanced stages,

targeted treatment and immunotherapy may be used. In addition, obesity and metabolic syndrome also increase the risk of uterine cancer. Any factor that increases the risk of developing a disease is called a risk factor. The presence of a risk factor in a person does not mean that he will get cancer. Not having risk factors does not mean being safe from cancer. If you think you are at risk of developing uterine cancer, consult your doctor. Factors that increase endometrial cancer include the following:

- Use of hormonal drugs after menopause;
- Taking tamoxifen to prevent or treat breast cancer;
- Obesity;
- Having metabolic syndrome;
- Having type 2 diabetes.

Exposure of endometrial tissue to high estrogen for the following possible reasons

- The patient has never been pregnant;
- Her menstruation has started from a young age;
- The onset of menopause has occurred at an older age;
- Having polycystic ovary syndrome;
- Having a family history of endometrial cancer in first degree relatives (mother, sister or daughter);
- Having certain genetic conditions such as Lynch syndrome;
- Having endometrial hyperplasia.

Old age is the main risk factor for most cancers. With increasing age, the probability of getting cancer increases.

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