

CERVICAL CANCER: FACTS EVERY WOMEN NEEDS TO KNOW

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Abstract: The disease grouped under the title cancer is remarkably common and of major public health importance since approximately half the people who develop cancer die from their disease. Women's health issues have attained higher international visibility and renewed political commitment in recent decades. It is says that "Healthy women leads a healthy word". Cervical cancer is the second most common cancer among Indian women. Prevention and early detection can help reduce the incidence of cervical cancer. Cervical cancer is a type of cancer that begins in the cells of human cervix. Most cervical cancers begin in the cells of the transformation zone but changes don't happen overnight. Usually healthy cervical cells slowly develop pre-cancerous changes that eventually become cancer.

Key Words: Cervix, Cervical cancer, cell carcinoma, HPV, Adenocarcinoma, Pap smear.

INTRODUCTION:

The global cancer burden in women appears to be increasing quickly at the end of the twentieth century with notable increase in the absolute number of cervix cancer of concern.

Gynecologic malignancies are an important cause of morbidity and mortality in women. Treatment of invasive cervical cancer entails either a radical hysterectomy or radiation therapy which ends ovarian function the common theme of management strategies is loss of reproductive function, often with castration and associated morbidity and mortality. The cervix is part of the female reproductive system. The female reproductive system is made up of internal organs, including the vagina, uterus, ovaries and fallopian tubes. It is also made up of the external genital organs, including the parts that make up the vulva (the clitoris, vaginal lips and the opening to the vagina). All the internal organs are located in the pelvis, which is the lower part of the abdomen between the hip bones.

Anatomy and physiology of the cervix:

The cervix is the lower, narrow part of a women's uterus, or womb. The cervix connects the main body of the uterus to the vagina, or birth canal.

The cervix is about 2 cm (1 in) long. It is made up mostly of connective tissue and muscle. It is divided into 2 main parts:

- The **endocervix** is the inner part of the cervix lining the canal leading into the uterus.
- The **ectocervix**, or exocervix, is the outer part of the cervix. It is rounded, lip-like and sticks out into the vagina.

The **endocervical canal** is the passageway from the uterus to the vagina.

The 2 main types of cells in the cervix are:

- **Columnar cells** line the endocervical canal. They are glandular cells that make mucus. They are called columnar cells because they are tall and shaped like columns.
- **Squamous cells** line the ectocervix and vagina. They are flat and thin like the scales on a fish.

The squamous cells join the columnar cells in an area of the cervix called the squamo-columnar junction. This is also called the transformation zone because the tall columnar cells are constantly being changed into flat squamous cells, especially during puberty and child-bearing years. Precancerous changes of the cervix and most cervical cancers start in the transformation zone.

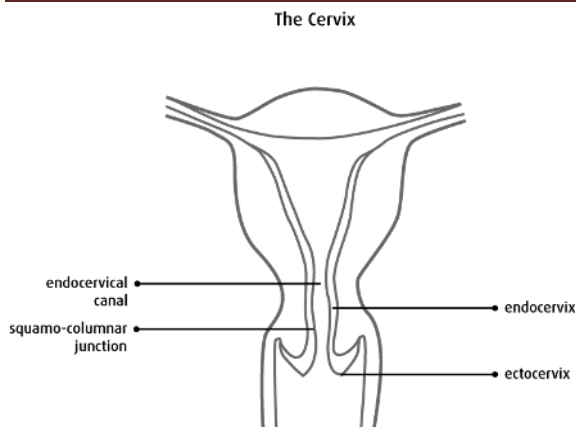


Fig.1



Fig.2

CERVICAL CANCER:

Cervical cancer is a cancer arising from the cervix. It is due to the abnormal growth of cells that have the ability to invade or spread to other parts of the body. Early on, typically no symptoms are seen. Later symptoms may include abnormal vaginal bleeding, pelvic pain, or pain during sexual intercourse. While bleeding after sex may not be serious, it may also indicate the presence of cervical cancer.

Human papillomavirus (HPV) infection appears to be involved in the development of more than 90% of cases; most people who have had HPV infections, however, do not develop cervical cancer. Cervical cancer typically develops from precancerous changes over 10 to 20 years.

TYPES OF CERVICAL CANCER:

Two main types of cervical cancer are:

- Squamous cell carcinoma
- Adenocarcinoma

Your doctor will base your treatment on what kind of cancer you have, along with other factors like your age and health history, how far the cancer has spread, and response to any previous treatments.

Risk factors:

- **HPV (human papillomavirus):** a sexually transmitted virus. There are over 100 different types of HPVs, at least 13 of which can cause cervical cancer.
- **Many sexual partners or becoming sexually active early:** Cervical cancer-causing HPV types are nearly always transmitted as a result of sexual contact with an infected individual. Women who have had many sexual partners generally have a higher risk of becoming infected with HPV, which raises their risk of developing cervical cancer.
- **Smoking:** increases the risk of developing many cancers, including cervical cancer.
- **Weakened immune system:** such as those with HIV/AIDS, or transplant recipients taking immunosuppressive medications.
- **Long-term mental stress:** Women who experience high levels of stress over a sustained period may be less able to fight off HPV.
- **Giving birth at a very young age:** Women who gave birth before the age of 17 are significantly more likely to develop cervical cancer compared with women who had their first baby when they were aged 25 or over.
- **Several pregnancies:** Women who have had at least three children in separate pregnancies are more likely to develop cervical cancer compared with women who never had children.

- **Contraceptive pill:** Long-term use of some common contraceptive pills slightly raises a woman's risk.
- **Other sexually transmitted diseases (STD):** Women who become infected with chlamydia, gonorrhea, or syphilis have a higher risk of developing cervical cancer.
- **Socio-economic status:** Studies in several countries have revealed that women in deprived areas have significantly higher rates of cervical cancer.
- Having your first sexual encounter at a young age
- Having a mother who was treated with diethylstilbestrol (DES) while pregnant with you

Sign and Symptoms:

- ❖ Heavy or unusual discharge that may be watery, thick, and possibly have a foul odor
- ❖ Warts,
- ❖ Anemia,
- ❖ Urinary problems, Increased urinary frequency, Pain during urination
- ❖ Continuous pain in legs, hips or back,
- ❖ Weight loss.
- ❖ Abnormal bleeding, such as
 - Bleeding between regular menstrual periods
 - Bleeding after sexual intercourse
 - Bleeding after douching
 - Bleeding after a pelvic exam
 - Bleeding after menopause
- Pelvic pain not related to your menstrual cycle



Tests and Screening

The earlier cervical cancer is diagnosed, the more successfully it can be treated and

The majority of deaths due to cervical cancer could be prevented if all women had undergone cervical screening.

U.S. authorities say a female should start screening at the age of 21, or within 3 years of her first sexual encounter - whichever occurs first.

Cervical screening does not detect cancer, it simply looks for abnormal changes in the cells of the cervix. If left untreated, some abnormal cells can eventually develop into cancer.

HPV DNA test

This test determines whether the patient is infected with any of the HPV types that are most likely to cause cervical cancer. This involves **collecting cells** from the cervix for lab testing.

The test can detect high-risk HPV strains in cell DNA before any cervix cell abnormalities appear.

If the patient experiences signs and symptoms of cervical cancer, or if the Pap test revealed abnormal cells, the patient might undergo additional tests:

Other tests include:

- **Biopsy:** A small section of tissue is taken under general anesthetic.
- **Colposcopy:** A speculum is placed to hold the vagina open as the **gynecologist** looks at the cervix through a colposcope - a lighted magnifying instrument.
- **Cone biopsy:** A small cone-shaped section of abnormal tissue is taken from the cervix for examination.
- **LLETZ:** A diathermy (wire loop with an electric current) is used to remove abnormal tissue. The tissue is sent to the lab to be checked.
- **Blood tests:** measures number of blood cells, and can identify any liver or kidney problems.
- **Examination under anesthetic (EUA):** This allows the doctor to examine the vagina and cervix more thoroughly.
- **CT scan:** The patient consumes a barium drink that appears white on the scan. Just before the scan, a tampon may be placed into the vagina, and a barium liquid may be inserted into the rectum.
- **MRI:** By using high-MRI with a special vaginal coil, a technique to measure the movement of water within tissue, researchers may be able to **identify cervical cancer** in its early stages.
- **Pelvic ultrasound:** This is a device that uses high-frequency sound waves to create an image on a monitor of the target area.

Cervical Cancer Stages

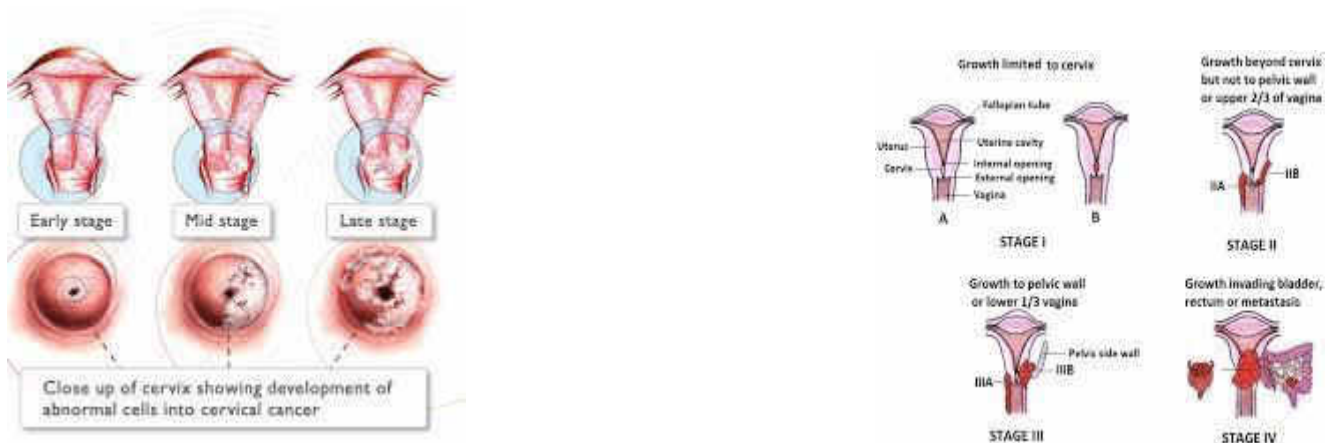
"Staging" a cancer means finding out how far the cancerous cells have spread so your medical team can recommend the best **treatment plan** for you.

In this process, tests will determine:

- The size of the tumor
- How much it has spread to areas in and around the cervix
- Whether the cancer has spread to lymph nodes or distant organs (known as metastasis)

There are four main stages of cervical cancer (after stage 0). Many of these stages can be further broken down to provide more information about exactly how far the cancer has spread.

Here are the main stages of cervical cancer:



Stage 0: Also known as carcinoma in situ, this is a very early stage of cervical cancer. The cancer cells are located only on the surface of the cervix.

Stage I: The cancer has spread within the cervix itself, but hasn't spread anywhere else.

Stage II: The cancer has spread beyond the cervix and uterus, but hasn't spread to the walls of the pelvis or distant sites.

Stage III: The cancer has spread to the lower part of the vagina or pelvic walls. It may block the tubes that carry urine from the kidneys to the bladder, but it hasn't spread to lymph nodes or distant sites.

Stage IV: The cancer has spread to nearby organs or other parts of the body.

TREATMENTS FOR CERVICAL CANCER:

Cervical cancer treatment options include surgery, **radiotherapy**, **chemotherapy**, or combinations. Deciding on the kind of treatment depends on several factors, such as the stage of the cancer, as well as the patient's age and general state of health.

Treatment for early stage cervical cancer - cancer that is confined to the cervix - has a **good success rate**. The further the cancer has spread out of the area it originated from, the lower the success rate tends to be.

Early stage cancer treatment options

Surgery is commonly used when the cancer is confined to the cervix. Radiotherapy may be used after surgery if the doctor believes there may still be cancer cells inside the body.

Radiotherapy might also be used to reduce the risk of recurrence (cancer coming back). If the surgeon wants to shrink the **tumor** to make it easier to operate, the patient may receive chemotherapy - however, this is not very common

Advanced cancer

When the cancer has spread beyond the cervix, surgery is not usually an option. Advanced cancer is also referred to as invasive cancer because it has invaded other areas. This type of cancer requires more extensive treatment. The patient will typically be treated with either radiotherapy or a combination of radiotherapy and chemotherapy.

In the later stages of cancer, palliative therapy is administered to relieve symptoms and improve quality of life.

Radiotherapy : Radiotherapy is commonly used to treat advanced forms of cervical cancer. Around 40% of all cancer patients undergo some form of radiotherapy.

Radiotherapy is also known as radiation therapy, radiation oncology, and XRT. It involves the use of beams of high-energy X-rays or particles (radiation) to destroy cancer cells.

Chemotherapy

Chemotherapy is the use of chemicals (medication) to treat any disease - in this context, it refers to the destruction of cancer cells. Cytotoxic medication prevents cancer cells from dividing and growing.

Chemotherapy for cervical cancer, as well as most other cancers, is used to target cancer cells that surgery cannot or did not remove, or to help the symptoms of patients with advanced cancer..

Side Effects of Chemotherapy and Radiation: Side effects of chemotherapy can vary, and depend on the specific drug being used. Below is a list of the more common side effects:\

- ✓ Diarrhea, Nausea and vomiting
- ✓ Appetite loss
- ✓ Hair loss
- ✓ Mouth sores
- ✓ Fatigue
- ✓ Infertility

- ✓ Early menopause
- ✓ **Upset stomach**
- ✓ Bladder irritation
- ✓ Narrowing of the vagina
- ✓ Interrupted menstrual cycle

When chemotherapy is combined with radiation, the side effects can be more serious, according to the American Cancer Society.

Nausea and exhaustion are often worse, and you may also experience diarrhea if the chemo is given at the same time as the radiation.

SURGERY FOR CERVICAL CANCER:

If you have pre-cancerous cell changes in your cervix, your medical team may recommend one of the following surgical treatments:

- **Cryosurgery:** An instrument is used to freeze and destroy pre-cancerous tissue.
- **Laser surgery:** A narrow laser beam is used to destroy pre-cancerous tissue.
A benefit of this treatment is that it destroys only diseased tissue, leaving healthy tissue unharmed.
- **LEEP (loop electrosurgical excision procedure):** An electrical current is directed through a thin wire hook to remove pre-cancerous tissue.
- **Cone (or cone biopsy):** Your doctor may use this procedure to remove all of the cancerous tissue. This is an option for small cancers and for women who want to preserve their ability to have children.
For early-stage cervical cancer that hasn't spread beyond the cervix, your medical team may recommend one of the following treatments, depending on your age and stage of the cancer:
 - **Hysterectomy:** A surgeon will remove your uterus and cervix, leaving the vagina and nearby lymph nodes in place.
The surgery may be done through the vagina or through an incision in your abdomen.
 - **Bilateral salpingo-oophorectomy:** A surgeon will remove your uterus along with your ovaries and fallopian tubes. This reduces the risk of the cancer recurring in one of those organs. This procedure may be a good choice if you're approaching menopause.
 - **Trachelectomy:** If your cancer hasn't spread beyond the cervix and is up to 2 centimeters wide, your doctor may recommend this procedure. A surgeon will remove your cervix but not your uterus.
This procedure may be an option for younger women who want to preserve their ability to become pregnant.
If your tumor is larger than 2 centimeters or has spread beyond the cervix, you may be a candidate for more extensive surgery, including the following procedures:
 - **Radical hysterectomy:** A surgeon will remove your cervix and uterus along with the tissues that hold it in place in the pelvis, as well as the upper part of your vagina. Your ovaries may or may not be removed.
 - **Pelvic exenteration:** This is the most extensive surgical option, removing the cervix, uterus, ovaries, vagina, and sometimes the bladder, urethra, or rectum.
 - Depending on what organs are removed, you may need to use ostomy bags that collect your urine and feces.
 - **Laparoscopic retroperitoneal lymph node dissection:** This procedure removes lymph nodes if the cancer has spread to them.

HPV Vaccine

Vaccines can help prevent infection by the types of HPV that cause most cases of cervical cancers and pre-cancer, according to the National Cancer Institute.

Currently available vaccines include Gardasil, Gardasil 9, and Cervarix.

These vaccines produce the strongest immune response in pre-teens. They should ideally be given when a child is 11 or 12 years old.

PREVENTION OF CERVICAL CANCER:

- There are a number of measures that can be taken to reduce the chances of developing cervical cancer.
- **HPV (human papillomavirus) vaccine**
The link between the development of cervical cancer and some types of HPV is clear. If every female adheres to current **HPV vaccination programs**, cervical cancer rates will be reduced substantially.
 - **Safe sex**
The HPV vaccine only protects against two HPV strains. There are others which can cause cervical cancer. Using a condom during sex helps protect from HPV infection.
 - **Cervical screening**
Regular cervical screening will make it much more likely that signs are picked up early and dealt with before cancer develops at all or too far.
 - **Have fewer sexual partners**
The more sexual partners a woman has, the higher the risk of developing cervical cancer.
 - **Delay first sexual intercourse**
The younger a female is when she has her first sexual intercourse, the higher the risk of developing cervical cancer. The longer she delays it, the lower her risk.
 - **Do not smoke**
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