

Ovarian Cancer

Introduction

Ovarian cancer is fairly rare. Ovarian cancer usually occurs in women who are over 50 years old and it may sometimes be hereditary.

This reference summary will help you understand how ovarian cancer is detected and treated.

Anatomy

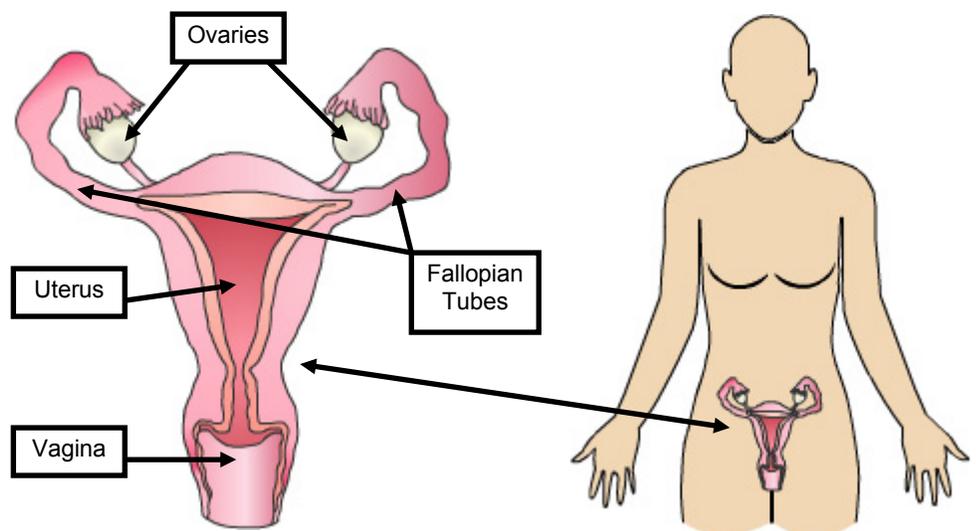
The female reproductive organs include:

- The vagina
- The uterus
- The fallopian tubes
- The ovaries.

The female reproductive organs are located in the pelvis between the urinary bladder and the rectum. Each ovary is about the size of an almond. The ovaries have 2 main functions. One function is ovulation, or the release of eggs that are needed for reproduction.

The other main function of the ovaries is to produce specialized hormones, such as estrogen and progesterone. These hormones help to regulate ovulation.

They also prepare the inner lining of the uterus to proceed with a pregnancy. When an egg is released, it goes down the fallopian tube, where it might get fertilized. If it is not fertilized, the egg and the inner lining of the uterus are discharged to the outside of the body during the menstrual period.



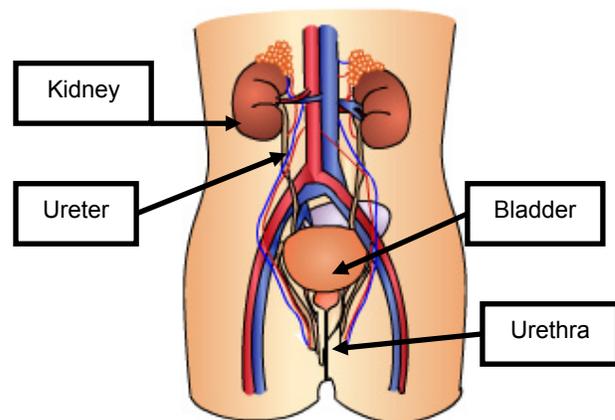
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The uterus is pear shaped and measures approximately 3 inches in length. It has 3 layers. The inner layer of the uterus is known as the endometrium. Once a month, if a woman does not become pregnant and her ovaries are functioning correctly, the endometrium is shed to the outside of the body during the menstrual period.

When a woman goes through her “change of life” her periods become irregular and eventually stop. Menopause occurs when the ovaries no longer produce hormones or release eggs.

If a pregnancy happens, the fetus stays in the uterus until delivery. The uterus is able to expand a great deal. The middle muscular layer of the uterus is responsible for labor contractions that result in the baby being born.

The lowest part of the uterus is known as the cervix; it opens into the vagina. The vagina opens to the outside of the body between the urethra, which is the urinary bladder opening, and the rectum. The urinary bladder is located in front of the vagina and uterus. The kidneys drain the urine into the bladder through 2 tubes called ureters. The intestines and rectum are located above and behind the vagina and uterus.



Cancer and its Causes

The body is made up of very small cells. Normal cells in the body grow and die in a controlled way.

Sometimes cells keep dividing and growing without normal controls, causing an abnormal growth called a tumor.

If the tumor does not invade nearby tissues and body parts, it is called a benign tumor, or non-cancerous growth. Benign tumors are almost never life threatening. If the tumor does invade and destroy nearby cells, it is called a malignant tumor, or cancer.

Cancer can sometimes be life threatening. Cancerous cells may also spread to different parts of the body through blood vessels and lymph channels.

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Lymph is a clear fluid produced by the body that drains waste from cells. It travels through special vessels and bean-shaped structures called lymph nodes.

Cancer treatments are used to kill or control abnormally growing cancerous cells.

Cancers in the body are given names, depending on where the cancer started. Cancer that begins in the ovaries will always be called ovarian cancer, even if it spreads to other areas of the body.

Although doctors can locate where a cancer started, the cause of cancer in an individual patient cannot usually be identified. Cells contain hereditary or genetic materials called chromosomes. This genetic material controls the growth of the cell.

Cancer always develops because of changes that take place in the chromosomes. When the genetic material in a cell becomes abnormal, it can lose its ability to control its growth. These sudden changes in genetic material can occur for a variety of reasons. They may be inherited or they might happen due to exposure to infections, drugs, tobacco, chemicals, or other factors.

Signs and Symptoms

Unfortunately, early ovarian cancer may not cause obvious signs and symptoms. More subtle symptoms can appear earlier but are often ignored or not diagnosed.

As the cancer grows, symptoms may include:

- Pressure or pain in the abdomen, pelvis, back or legs
- A swollen or bloated abdomen
- Nausea, indigestion, gas, constipation, or diarrhea
- Feeling very tired all the time.

Less common symptoms include:

- Shortness of breath
- Feeling the need to urinate often
- Unusual vaginal bleeding (heavy periods, or bleeding after menopause).



Ovarian cancer can invade, shed, or spread to other organs.

- **Invade-** The malignant ovarian tumor can grow and invade organs next to the ovaries, such as the fallopian tubes and uterus.

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- Shed- Cancer cells can shed (break off) from the main ovarian tumor. Shedding into the abdomen may lead to new tumors forming on the surface of organs and tissues. The doctor may call these seeds or implants
- Spread- Cancer cells can spread through the lymphatic system to lymph nodes in the pelvis, abdomen, and chest. Cancer cells may also spread through the bloodstream to organs such as the liver and lungs.

Ovarian cancer tends to spread to the inside of the abdomen, in the area known as the peritoneum. This can cause severe abdominal pain, mainly in the pelvic area.

The pain may also affect the legs and feet if the nerves passing through the pelvis to the legs get affected.

As a reaction to the tumor, an abnormal amount of fluid may accumulate in the abdomen. This is called ascites. Ascites may cause a significant increase in the size of the abdomen and waistline.

The best way to find ovarian cancer early is to make regular appointments with a gynecologist.

Causes

The cause of ovarian cancer is still unknown. It usually shows up in women over the age of 35, with most affected women being above the age of 50. Ovarian cancer is more common in Caucasian women.

Women with any family members who have had ovarian, breast or colon cancer are at a higher risk of developing ovarian cancer.

Women who have had breast or colon cancer are more likely to have ovarian cancer.

The following factors have been found to slightly increase the risk of ovarian cancer:

- First period at a young age
- Later than average menopause
- Use of fertility drugs
- No children



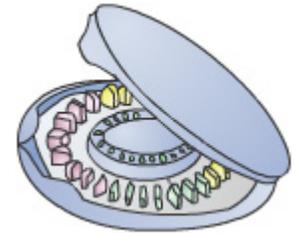
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The following have also been found to increase the risk of ovarian cancer:

- Use of hormone replacement therapy after menopause
- Use of talc in the genital area for many years
- Exposure to asbestos

Similarly the following factors have been found to decrease the risks of ovarian cancer:

- Use of birth control pills
- Having Children
- Breast-feeding



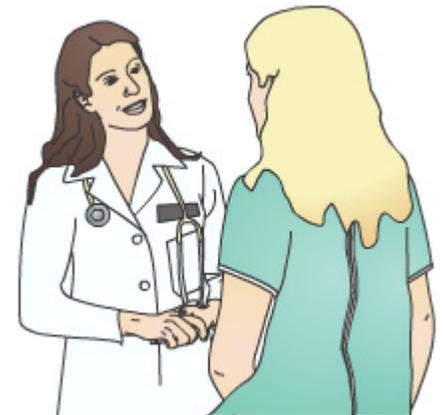
For unknown reasons it seems that tubal ligation, a form of contraception, decreases the risks of ovarian cancer. It is also important to note that women who have had their uterus and ovaries taken out have less of a chance of developing ovarian cancer.

However, even though the ovaries are taken out, there is still a very small chance of developing ovarian cancer.

Some inherited genes have been found to increase the risk of ovarian cancer. These include the BRCA1 and BRCA2 genes that were also found to increase the risk of breast cancer. Other genes related to colon cancer have been also shown to increase the risk of ovarian cancer.

Patients who have a strong family history of breast, colon and/or ovarian cancer need to discuss with their physician whether they should be checked for some of these genes.

If they are found to have one or more of these genes then they have to decide whether or not they would want to have the ovaries taken out surgically before cancer develops. This does not always prevent the cancer from happening but it does decrease the chances dramatically.



Diagnosis

The diagnosis of ovarian cancer is usually made after a careful history and physical examination are done. In making a diagnosis, radiological tests, CAT scans, and ultrasounds of the abdomen are performed.

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Ultrasound

Researchers are looking at specific blood tests to help catch ovarian cancer at early stages. They look for specific chemical substances that may be linked to ovarian cancer. The best candidate at the present time is known as CA-125, however the usefulness of this test has not been proven yet.

Other radiological tests may be done to try to determine if the cancer has spread to the lungs. Radiological tests may also show whether the tumor has caused an obstruction of the intestines or urinary system. For the final diagnosis, a pathologist must look at some tissue. If there is any abdominal fluid, it can be withdrawn using a needle and syringe.

A pathologist can study the tissue from this sample of fluid.

Another way of taking a tissue sample is by opening the abdomen surgically. This surgery may be laparoscopic, using special scopes. It could also be an open operation, which is called laparotomy.

Cancer Stage

Stage refers to the size and location of the tumor. In general a lower number means a better prognosis. The stage of the cancer is used to plan the treatment.

- Stage I -The cancer is limited to the ovaries.
- Stage II – The cancer is in one or both ovaries and extends into the pelvis.
- Stage III- The cancer has spread within the abdomen to the surface of tissues outside the pelvis, or regional lymph nodes.
- Stage IV – The cancer has spread into tissues outside the pelvis and abdomen. Cancer cells may be in the liver, lungs, or other organs.

Cancer Grade

Cells under the microscope can look a little abnormal to very abnormal. Sometimes grade refers to how fast these abnormal cells multiply.

If the cancer is only in the ovary and has not spread to the intestines, bladder or other abdominal structures, it may be totally removed. This *could* result in a cure.

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Treatment

The treatment of ovarian cancer depends on the stage of the cancer and the general health of the patient. Surgery is usually necessary to remove the cancer.

During surgery, all the female reproductive organs, except for the vagina, may be taken out to try to ensure that no cancer is left behind. This operation is known as total abdominal hysterectomy with bilateral salpingo-oophorectomy.

During surgery, the surgeon may take out the lymph nodes as well as the omentum, a layer of fatty tissue that covers most of the abdominal contents. During surgery, the doctor also determines how much the cancer has spread. This is known as staging. If the cancer has spread, the surgeon removes as much of the cancer as possible.



Chemotherapy is also used to treat ovarian cancer. Chemotherapy (also called chemo) is the use of drugs to kill cancer cells. Chemotherapy is usually given after surgery to kill any remaining cancer cells.

If no surgery is performed, chemotherapy could be used to control tumor growth or to relieve pain and other symptoms of ovarian cancer.

Chemotherapy, like surgery, may cause infertility and premature menopause.

The chemo drugs can be given in various ways:

- Intravenously (IV)- The chemo drug is given through a needle into a vein.
- Intraperitoneal (IP)-The patient has an abdominal port placed during surgery. The nurses access the port with a needle and the chemo is given directly into the abdominal cavity.

Radiation therapy is another treatment option for ovarian cancer. It involves the use of high-energy rays to kill cancer cells. Radiation therapy affects the cancer cells in the treated tissues. In younger patients, who may still wish to become pregnant, only the affected ovary and fallopian tube is taken out. A small piece of the other ovary may also be taken out to make sure that all the cancer is removed.

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Summary

Ovarian cancer is not common. There is a lot higher chance of cure and successful treatment if it is discovered early. Yearly medical examinations help to find cancer in its early stages.

Women with a strong family history of ovarian cancer need to be examined more frequently by their doctors.

Thanks to advances in medicine, several treatment options are available to treat ovarian cancer.



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