

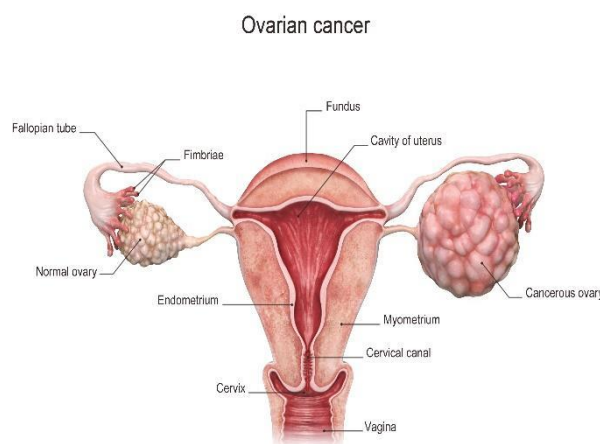
Ovarian Cancer

Introduction:

Definition and overview:

Ovarian cancer is the growth in the cells of the ovaries. They multiply quickly and can invade and destroy healthy body tissue.

The female reproductive system contains two ovaries one on each side of the uterus in the size of an almond. They produce eggs and hormones like estrogen and progesterone.



Historical context:

On Christmas Day 1809, Jane Todd Crawford was the first documentary case for ovarian cancer removal. A 22-pound tumor extracted from her abdomen. This event was significant in medical history.

Epidemiology:

Globally, ovarian cancer is the eighth most common cancer in women, accounting for an estimated 3.7% of cancer diagnoses and 4.7% of deaths in 2020, although incidence varies markedly between countries.

Etiology:

Causes and Risk factors:

The causes of ovarian cancer are not clear although the doctors have identified some risk factors that can increase the percentage of having it.

These risk factors include old aged, being overweight, having family history of ovarian cancer, inherited gene changes, taking hormone replacement therapy to control menopause signs,

never being pregnant, having menstruation in early age, starting menopause at a later age and endometriosis.

Genetic and Environmental influences:

There are some cases of ovarian cancer caused by a gene inherited from the parents. The genes that increase the risk of ovarian cancer include BRCA1 and BRCA2. These genes also increase the risk of breast cancer.

Clinical features:

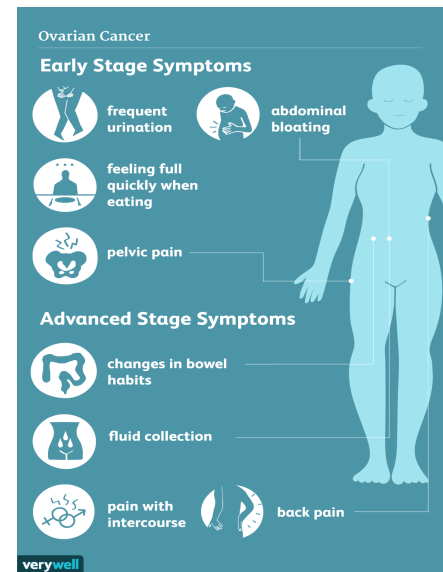
Signs and symptoms:

When ovarian cancer first starts its symptoms may not be noticeable. The symptoms that are common include abdominal bloating or swelling, quickly feeling full when eating, weight loss, discomfort in the pelvic area, fatigue, back pain, changes in bowel habits, such as constipation and a frequent need to urinate.

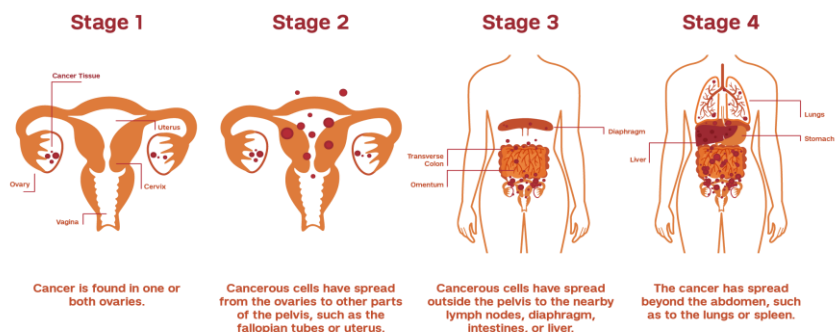
Disease Stages and Progression:

Complications:

Complications of ovarian cancer may include bowel obstruction, perforated colon, urinary problems, fluid in the membranes of the lungs, and bone pain.



Ovarian Cancer



Diagnosis:

Diagnostic criteria:

During a pelvic exam, the doctor inserts gloved fingers into the vagina and presses a hand on your abdomen to feel your pelvic organs. The doctor also visually examines external genitalia, vagina and cervix.

Diagnostic Tests and Procedures:

Imaging tests can help determine the size and the shape of the ovaries. These tests include ultrasound or CT scans of abdomen and pelvis.

Blood tests can help determine the health of the ovaries. For example, a cancer antigen (CA) 125 test can detect a protein that's often found on the surface of ovarian cancer cells.

Sometimes the doctor cannot make sure until removes the ovary by surgery and has it tested for the signs of cancer.

Differential Diagnosis:

The symptoms of ovarian cancer are sometimes confusing as they are similar to some other conditions like ovarian cysts, irritable bowel syndrome, premenstrual syndrome, pelvic infection, uterine fibroids or menses.

Pathophysiology:

Mechanism of Disease Development:

Doctors know that ovarian cancer begins when cells in or near the ovaries develop changes (mutations) in their DNA. The changes tell the cells to grow and multiply quickly, creating a mass (tumor) of cancer cells.

Cellular and Molecular Changes:

Ovarian cancer occurs when cells in the ovary grow and divide uncontrollably. The cells may form a tumor on the ovary.

The most common genomic changes in borderline and low-grade tumors are mutually exclusive mutations of BRAF, KRAS, and NRAS all upstream regulator genes of the mitogen-activated protein kinase (MAPK) pathway.

Impact on Body Systems:

The cells can break off and spread into the entire body although in most cases the cells do not leave abdomen and affects organs such as the intestines, liver and stomach.

Management and Treatment:

Medical and Surgical Treatments:

Treatment of ovarian cancer usually involves a combination of surgery and chemotherapy. Other treatments may be used in certain situations.

Surgery can include surgery to remove one ovary, surgery to remove both ovaries, surgery to remove both ovaries and uterus and surgery for advanced cancer

Pharmacological Therapies:

Chemotherapy is a drug treatment that uses chemicals to kill fast-growing cells in the body, including cancer cells. Chemotherapy drugs can be injected into a vein or taken by mouth. Chemotherapy is often used after surgery to kill any cancer cells that might remain. It can also be used before surgery.

Lifestyle and Dietary Modifications:

Having a healthy lifestyle can reduce the risk of having ovarian cancer. It is recommended to avoid smoking, maintain a healthy weight and breastfeed.

Rehabilitation and Supportive Care:

Palliative care is provided by a team of doctors, nurses and other specially trained professionals. Palliative care teams aim to improve the quality of life for people with cancer and their families.

This form of care is offered alongside curative or other treatments you may be receiving. Some women can have depression during or after treatment. They may need help from your healthcare team. They can also ask to be referred to by a mental health professional.

Prevention and Control:

Primary, Secondary, and Tertiary Prevention Strategies:

There is no way to prevent ovarian cancer but there are ways to reduce the risk such as taking control pills can reduce the risk, but they have side effects, so it is recommended to ask the

doctor first if it is okay in this case. If there is a family history of ovarian cancer discuss this with the doctor. If you're found to have a gene change that increases your risk of ovarian cancer, you may consider surgery to remove your ovaries to prevent cancer.

Public Health Interventions:

Educating the public about ovarian cancer symptoms and risk factors so early detection is possible. Developing tools to identify women at higher risk.

Vaccination and Screening programs:

There is currently no vaccine for ovarian cancer. A person should not confuse the HPV vaccine as a vaccine for ovarian cancer. The HPV vaccine reduces the risk of developing cancers of the vagina, vulva, anus, cervix, and throat but does not protect against ovarian cancer.

Prognosis:

Disease Outcomes and Survival Rates:

For all types of ovarian cancer taken together, about 78% of women with ovarian cancer live for at least 1 year after diagnosis. More than 60% live for at least 3 years after being diagnosed, and over 50% of women with ovarian cancer are still alive at least 5 years after diagnosis.

Factors Influencing Prognosis:

Factors that affect survival rate, the stage of ovarian cancer at the time of diagnosis, the type and grade of ovarian cancer, a person's overall health and a person's age due to other health conditions.

Quality of Life:

Treatment for ovarian cancer can cause physical changes to your body which can affect how you feel in yourself. Physical changes include hair loss, hormonal changes and tiredness. There is support available to help you cope during and after treatment.

Current Research and Future Directions:

Recent Advances and Discoveries:

Researchers are combining bevacizumab with new drugs to improve outcomes. One example is a monoclonal antibody recently approved by the Food and Drug Administration (FDA) called mirvetuximab soravtansine for people with ovarian cancer recurrence.

Ongoing Clinical Trials:

- A Study of Adding AMG 479 to First Line Chemotherapy in Patients with Optimally Debulked Epithelial Ovarian Cancer.
- A Study for Women who have Platinum Resistant Ovarian Cancer to Evaluate EC145 Combined with Pegylated Liposomal Doxorubicin, Compared to Pegylated Liposomal Doxorubicin Alone.

Future Research Needs:

Although there are some developments in ovarian cancer treatment they still need to develop many other things including development of targeted therapies, combination therapies, overcoming drugs resistance.

Case Studies:

Example Cases:

A 57-year-old woman who presented with progressive abdominal discomfort and bloating, as well as early satiety, new onset constipation, and unintentional weight loss. Her past medical history is significant for hypertension, but this has been controlled with medications.

She undergoes imaging, including an ultrasound, which reveals a 4.5-cm ovarian mass. A CT scan reveals this mass, along with what appears to be lymphadenopathy and ascites. She undergoes paracentesis for further evaluation, with cytology from that study revealing high-grade serous ovarian cancer.

The patient underwent up-front surgery, which included a debulking with total abdominal hysterectomy, bilateral salpingo-oophorectomy, and resection of those involved lymph nodes. The patient is doing well and is being monitored with a plan to continue this therapy until she experiences either additional toxicity or evidence of disease progression.

