The Causes, Symptoms, Diagnosis, And Treatment Of Cervical Cancer

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The cervix is the lower part or organ of the uterus that connects with the vagina. The growth of cancerous cells in the tissues of the cervix is known as cervical cancer. This cancer spreads slowly and may not reveal any symptoms. Characterized as one of the most commonly occurring cancers among women worldwide, cervical cancer is a sexually transmitted disease. The risk of cervical cancer can be reduced by regularly getting tested for sexually transmitted diseases and receiving timely vaccines. This brief definition, however, does not encompass the disease in its entirety. This paper, therefore, aims to further elaborate upon the causes, symptoms, diagnosis, and treatment of cervical cancer.

Etiology

Extensive research has been conducted regarding cervical cancer and the pathogen that causes it. Human Papillomavirus is the primary cause of cervical cancer in humans. This virus is sexually transmitted and has more than a hundred variations. It is a very commonly occurring virus in sexually active people; many may contract it more than once in their lifetime. It is generally non-threatening and can be treated with vaccines. However, some types can lead to genital warts and, in the worst-case scenario, cancer in the anus, throat, and cervix (Schiffman et al., 2007).

Pathogenesis

As previously stated, Human Papillomavirus is the pathogen that causes cervical cancer, or oncogenic types, to be more exact. Approximately 95 per cent of invasive cervical cancer cases were diagnosed with oncogenic human papillomavirus DNA. However, the specific cells that are targeted by HPV and lead to cervical cancer remain elusive. The pathogenesis of cervical cancer is multistage, with stage 1 and stage 2 expected to have regressive lesions. By stage 3, therapeutic interventions are required as the growth of cancerous cells increases (Fischer et al., 2001). This tumour grows in multiple ways, namely exophytic, ulcerative, and endophytic. This is a slow-developing cancer and may become invasive over 10 to 12 years. As cancer becomes invasive, the tumour may break through the membrane and enter the cervical stroma. Ultimately, it may become an ulcer or exophytic tumour and may start spreading to nearby organs.

Clinical Manifestations (Signs And Symptoms)

Cervical cancer does not show any symptoms until the late stages, and even then, it can be misdiagnosed as menstrual periods and urinary tract infections (UTIs). Some common signs and symptoms of cervical cancer include:

Vaginal Bleeding – Sometimes, the symptoms include heavy vaginal bleeding, which may lead the patients to believe that they are having heavier periods than normal and may not get it checked. Bleeding in between normal menstrual period cycles, after intercourse, and menopause may also occur. If vaginal bleeding occurs at any other time other than normal monthly cycles, it can be a cause for concern.

Urination – Patients may notice an increased need to urinate, and they may also feel pain while urinating.

Pelvic pain – Pain in the pelvis for no apparent reason is also an early sign of cervical cancer. Pain in the lower back, abdomen, and below the belly button may also be observed. This may be a sharp stabbing pain or feel like heavy pressure in the aforementioned areas.

Vaginal discharge – If the colour and odour of the discharge change, then it is a cause for concern, especially when the discharge is tinged with red. An increase in vaginal discharge can be a symptom of cervical cancer.

These symptoms are similar to other urinary tract infections, so the reason behind misdiagnosis is understandable, but tests should be done regardless to rule out the possibility of cervical cancer (*Cervical Cancer*, 2014). Symptoms of advanced stages of cervical cancer include; swelling or pain in the legs, difficulty urinating, leakage of faecal matter through the vagina, fatigue, weight loss, back pain, bone fractures, and blood in the urine.

Labs And Diagnostic Tests

Cervical cancer shows no symptoms in the early stages, but the only way to detect it early is through Pap screening, as it is used to see the development of any abnormal cell growth in the cervix. It is important to remind the patients to get Pap tests regularly if they are sexually active and if they are off or past the age of 21 years. If the Pap test shows abnormal cell growth, then a cervical cancer treatment plan may be devised. A thorough pelvic exam should be conducted to examine the vaginal area along with the uterus, cervix, ovaries, fallopian tubes, and rectum for the formation of bumps. This exam may be conducted extensively using imaging technology. A doctor may conduct a colposcopy using specialized equipment called a colposcope to inspect the cervical area. Two forms of biopsy procedures may be employed for the diagnosis of cervical cancer: sentinel lymph node biopsy and cone biopsy/LEEP. Cone biopsy is done after the Pap test, and colonoscopy results may indicate

cervical carcinoma. This biopsy is conducted to make sure the diagnosis is correct. Utilizing a scalpel, cone-shaped tissue is removed from the surface of the cervix. In some cases, an electrified wire loop is also employed. This tissue is then sent to the pathologist to check for cancerous growth in the tissue. If the biopsy results indicate the growth of cancer in the cervix, a second biopsy, called sentinel lymph node biopsy, is conducted to determine the spread of cancer from the primary tumour.

Imaging tests that include CT scans, PET/CT scans, and MRI are conducted. CT scan is conducted to acquire a three-dimensional image of the abdominal and pelvic area to determine the location and size of the tumour. It also helps to see if any other organs have been affected by the growth of cancer. PET/CT scan is an advanced nuclear imaging technique that helps determine the spread of cancer in a single imaging session. An MRI is used to check the spread of cancer through the abdomen and may be conducted instead of or along with the CT scan. The advanced genomic test is the main lab test for cervical cancer. It identifies the mutations in the cancer cell's genome and the way the mutation is acting. This helps in understanding the mutation and tailoring the treatment according to the findings (Markman, 2018).

Complications

The complications of cervical cancer can be of two types. The first may be caused by the treatment as its side effects, and the second type of complication is due to the advanced stages of cervical cancer. Early menopause may occur if the patients' ovaries are surgically removed or damaged during radiotherapy. This can be reversed by hormone replacement therapy. Radiotherapy may lead to the narrowing of the vagina. However, this, too, can be reversed through medication. Removal of lymph nodes from the cervix can disrupt the normal working of the lymphatic system. One of the functions of the lymphatic system is to drain out fluids, but due to the disruption, fluid starts to accumulate in the tissues and leads to swelling in different parts of the body. Depression is also common in cancer patients; the distress that they feel during the diagnosis and treatment can be nerve-wracking.

During advanced cervical cancer, patients can feel severe pain if cancer spreads to nerve endings, bones, and muscles. Cervical cancer can cause kidney failure as a result of hydronephrosis, leading to the loss of most or all kidney functions. Chemotherapy can increase the risk of blood clotting. Cancer can cause severe damage to the vagina, bowel, and bladder resulting in excess bleeding. Another rare complication is fistula; it is a development of a channel between the bladder and vagina that causes a persistent discharge of fluids from the vagina. This can be extremely distressing for the patient. Doctors must control these symptoms and prevent them from getting out of hand (Maduro et al., 2003).

Treatment Implications

When a patient is diagnosed with cervical cancer, treatment depends on the stage of cancer. If it is in

the early stages, then surgery may be conducted to remove the tumour. If it is far along, then radiation therapy may be used. This type of therapy uses X-rays to destroy cancerous cells. Radiation therapy may be used to shrink or eradicate the size of the tumour. Depending on the patient's condition, systemic therapy may be advised. This type of therapy introduces medicine into the bloodstream to combat the cancer cells. Chemotherapy, targeted therapy, and immunotherapy are the types of systemic therapy. Use the advanced genomic test to determine the best treatment plan for the patient (Patel, 2012). In most cases, the goal is to cure the patient by surgically removing the tumour. If that is not possible, then a different treatment plan is presented to contain cancer as much as possible so it may go into remission. However, the mortality rate of cervical cancer is low, so it is curable in most cases.

Conclusion

Although the Pap screening test is a valuable test to spot early symptoms of cervical cancer and has reduced the mortality of this cancer, there are some ethical concerns involved. These concerns are raised by patients of religious backgrounds who are not comfortable with discussing their sexual lives. HPV screening can be a cause for concern for them, and they may not be willing to get tested. In such situations, it is best to explain the benefits of the test and the prevention of the disease before it gets out of hand. Taking them into confidence can be a way to help them through this, as patients do not fully understand that having such problems is not shameful. It is the job of the caretakers and the doctors to alleviate the doubts of their patients so that proper treatment can take place.

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