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# Assess the frequency of different gynaecological cancers among females presenting in a tertiary care hospital

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***Abstract***

***Background:*** *Gynaecologic cancer is any cancer that starts in a woman's reproductive organs. It results in abnormal cells that have the ability to invade or spread to other parts of the body. It is due to the abnormal growth of cells that have the ability to invade or spread to other parts of the body. Cancer screening tests are effective when they can find disease early, which can lead to more effective treatment. Cancer has very negative impact on the life of people. Quality of life of females who develop different types of gynaecological cancers is found to be very poor. But no local evidence was found in literature. So, we conducted this study by using EORTC-QLQ scoring system in females presenting with different gynaecologic cancers.*

***Objective***

*To assess the frequency of different gynecological cancers among females presenting in a tertiary care hospital*
*To measure the mean score of Quality of life by using EORTC-QLQ scoring system in females presenting with different gyn ecologic cancers.*

***Material & Methods***

*This present cross-sectional study was conducted at Unit II, Department of Obstetrics & Gynaecology, PIMS Islamabad. This was conducted after the six months of approval of synopsis. The non-Probability, Consecutive Sampling was used in this study. Informed consent was obtained to use their data for research purpose. Demographic data (name, age, parity, duration of symptoms) was obtained. Medical record was obtained to note the type of gynecological cancer i.e. endometrial, cervical, ovaries or valvular. Then females underwent face to face interview using EORTC –QLQ C30 quality of index questionnaire. Each question was asked, and score was noted. All this information was recorded in Proforma. Effect modifiers like age, duration of cancer was controlled by stratification. Post stratification chi-square was applied for qualitative variables and t-test for quantitative outcome variables.*

***Results***

*In our study the mean age of the patients was 56.90±11.38 years, most of the 92(32.86%) females had five parity. In this study the mean duration of cancer 12.87±5.77 months. Most of 134(47.86%) patients appeared with ovarian cancer.*
*In our study 39(13.93%) patients had cervical cancer, 101(36.07%) patients had endometrial cancer, 134(47.86%) patients had ovarian cancer and only 6(2.14%) patients had vulvar cancer.*
*The mean value of EORTCQLQ score of the patients was 58.86±15.13. Statistically there is highly significant difference was observed between the EORTCQLQ score and type of cancer of the patients i.e. p-value=0.000.*

***Conclusion***

*According to our study the most frequent (47.86%) cancer was ovarian cancer, and the 2nd most frequent cancer was endometrial (36.07%), Statistically EORTCQLQ score is highly significant with type of cancer in our finding.*

***Keywords:***
*Gynecological Cancer, Cervical, Endometrial, Ovarian, Vulvar, Endometrial, EORTC-QLQ score*

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## NTRODUCTION:

Gynecological cancers make up for approximately 18% of all female cancers worldwide.(1) In a study conducted in 2011, 43.7% of the women were diagnosed with ovarian, 34.5% of the women had endometrial, 16.0% of the women had cervical and 5.9% of the women had vulvar cancer.(1)

QoL for patients is defined as "extend to which one's usual or expected physical, emotional and social well-being is affected by a medical condition or its treatment". The definition shows that the concept is subjective in nature, being comparison between person's present level of functioning and what is ideal according to him or her.(2, 3)

The WHO defines quality of life as 'the individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. Quality of life is a multidimensional concept which is defined as a person's view of life, and with his/her satisfaction and pleasure with life.(4)

All the aspects coming under definition of QOL are influenced negatively in cancer patients; hence it is important to assess QOL in these patients. Information obtained from this can be used for describing effects of disease and treatment and it can broaden clinician's point of view regarding needs of the patients.(5)

A variety of health-related QOL measures have been developed. EORTC QLQ C-30 is one of the cancer specific evaluation tool for QOL. EORTC QLQ-C 30 version 3.0 questionnaire is an integrated system for assessing the health related QOL of cancer patients. It was first released in 1993. (1, 6)

The mean of global health QoL score was reported to be 59.4±24.2 by using EORTC QLQ-C30 scores for women with gynecological cancer. The mean global health QoL score of females with endometrial carcinoma was 61.6 ± 21.1 while 65.3 ± 24.7 of females with ovarian cancer, 47.6±16.5 in females with valvular carcinoma and 43.0±24.1 in females with cervical cancer. The females with cervical cancer has very low QOL.(1)Similarly, Akkuzu study, reported that EORTC-QLQ-C30 of life" of the patients were found to be 60.5±25.0.(7)

It is know that the incidence of cancer is increasing day by day all over the world. Among all type of cancers, gynecological cancers are most common. The life of females is affected badly due to cancer, however, the treatment is available. But the word cancer has very negative impact on the life of people.

Rationale of this study is to determine frequency of different gynecological cancers in females presenting in our hospital and their quality of life by using EORTC-QLQ Quality of life scoring system. We observed in literature that there is only one international study which reported the quality of life of females who develop different types of gynecological cancers. Also we did not find any local study in which the QOL of females of Pakistani females was observed or measured. So we aimed to conduct this study to measure the frequency of different gynecological cancers to see which gynaecological cancer is most common, moreover, the QOL of females with different gynecological cancers. This will help us to gain local evidence as well as this will help in clinicians to tackle the most devastating cancer which affect QOL more badly.**LITERATURE REVIEW:**

**What are Gynecologic Cancers?**

Gynecologic cancer is any cancer that starts in a woman's reproductive organs. Cancer is always named for the part of the body where it starts.



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Gynecologic cancers begin in different places within a woman's pelvis, which is the area below the stomach and in between the hip bones.
**Cervical cancer** begins in the cervix, which is the lower, narrow end of the uterus. (The uterus is also called the womb.)
**Ovarian cancer** begins in the ovaries, which are located on each side of the uterus.

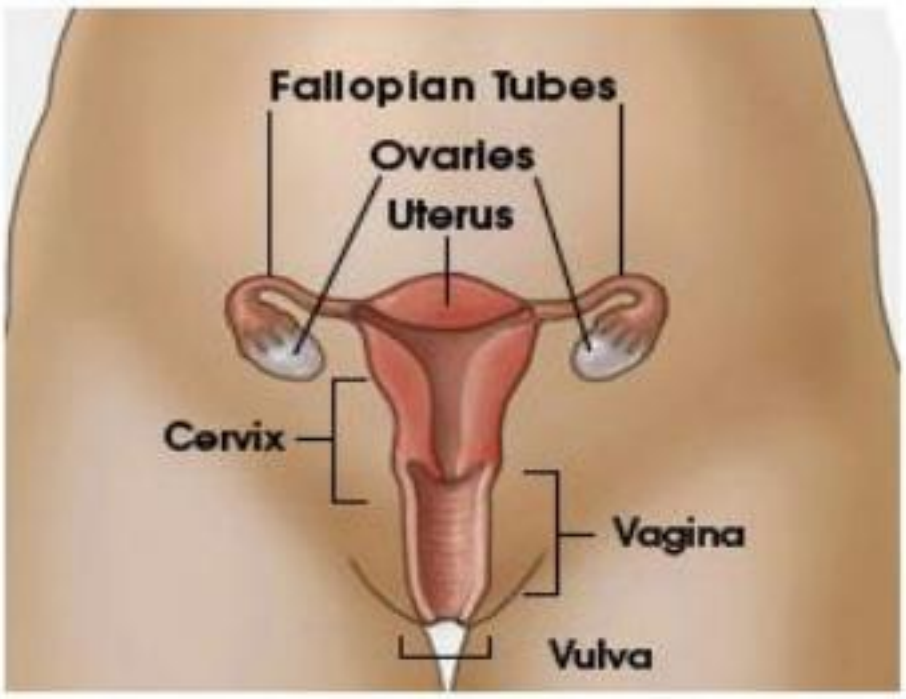


**Fig i: Gynecologic Cancer (8)**
NCI estimates that endometrial, or uterine, cancer will be diagnosed in an estimated 39,080 American women this year, more than twice the number of women who will be diagnosed with cervical (lower part of the uterus) and ovarian (female reproductive glands) cancers combined. However, in terms of 2007 deaths, ovarian cancer is forecast to kill 15,280 women, while deaths caused by uterine (7,400) and cervical (3,670) cancers are fewer than half that number. That is a combined 26,350 deaths in this country this year from cancers of the female reproductive system. To avoid these cancers, it's important to understand them.(9)

**Endometrial cancer:**
Although the exact cause of endometrial cancer is unknown, increased levels of estrogen appear to have a role. Estrogen helps stimulate the buildup of the lining of the uterus. (9)**Ovarian cancer:** This cancer

**History of cervical cancer**
400 BCE - Hippocrates noted that cervical cancer was incurable
1925 - Hinselmann invented the colposcope
1928 - Papanicolaou developed the Papanicolaou technique
1941 - Papanicolaou and Trout: Pap smear screening began
1946 - Aylesbury spatula was developed to scrape the cervix, collecting the sample for the Pap smear
1951 - First successful in-vitro cell line, HeLa, derived from biopsy of cervical cancer of Henrietta Lacks (10)
1976 - Harald zur Hausen and Gisam found HPV DNA in cervical cancer and genital warts; Hausen later won the Nobel Prize for his work
1988 - Bethesda System for reporting Pap results was developed
2006 - First HPV vaccine FDA was approved (10)
Epidemiologists working in the early 20th century noted that cervical cancer behaved like a sexually transmitted disease. In summary: (10)
Cervical cancer was noted to be common in female sex workers. (10)
It was rare in nuns, except for those who had been sexually active before entering the convent. (10)
It was more common in the second wives of men whose first wives had died from cervical cancer. (10)
It was rare in Jewish women. (10)
In 1935, Syverton and Berry discovered a relationship between RPV (Rabbit Papillomavirus) and skin cancer in rabbits. (HPV is species-specific and therefore cannot be transmitted to rabbits) (10)
These historical observations suggested that cervical cancer could be caused by a sexually transmitted agent. Initial research in the 1940s and 1950s attributed cervical cancer to smegma. During the 1960s and 1970s it was suspected that infection with herpes simplex virus was the cause of the disease. In summary, HSV was seen as a likely cause because it is known to survive in the female reproductive tract, to be transmitted sexually in a way compatible with known risk factors, such

**Uterine cancer** begins in the uterus, the pear-shaped organ in a woman's pelvis where the baby grows when a woman is pregnant.
**Vaginal cancer** begins in the vagina, which is the hollow, tube-like channel between the bottom of the uterus and the outside of the body.
**Vulvar cancer** begins in the vulva, the outer part of the female genital organs.

**Cervical cancer:**
The cancer is caused by several types of a virus called human papillomaviruses (HPV). HPV spreads through sexual contact. Most women's bodies are able to fight this infection. But sometimes the virus leads to cancer. The patient is at higher risk of cervical cancer if smoke, have many children, have many sex partners, use birth control pills for a long time, or have HIV infection. (9)
usually occurs in women over age 50 but can affect younger women. It causes more deaths than any other cancer of the female reproductive system and is the leading cause of death from gynecologic cancer in the developed world. Its cause is unknown. (9)
as promiscuity and low socioeconomic status. Herpes viruses were also implicated in other malignant diseases, including Burkitt's lymphoma, Nasopharyngeal carcinoma, Marek's disease and the Lucké renal adenocarcinoma. HSV was recovered from cervical tumour cells. (10)
A description of human papillomavirus (HPV) by electron microscopy was given in 1949, and HPV-DNA was identified in 1963. It was not until the 1980s that HPV was identified in cervical cancer tissue.[95] It has since been demonstrated that HPV is implicated in virtually all cervical cancers. Specific viral subtypes implicated are HPV 16, 18, 31, 45 and others. (10)
In work that was initiated in the mid1980s, the HPV vaccine was developed, in parallel, by researchers at Georgetown University Medical Center, the University of Rochester, the University of Queensland in Australia, and the U.S. National Cancer Institute. In 2006, the U.S. Food and Drug Administration (FDA) approved the first preventive HPV vaccine, marketed by Merck & Co. under the trade name Gardasil.(10)

**ymptoms of Gynecologic Cancer**
There is no way to know for sure if get a gynecologic cancer. That's why it is important to pay attention to body and know what is normal for, so the patient can recognize the warning signs or symptoms of gynecologic cancer.(11)
If patient have vaginal bleeding that is unusual for patient, talk to a doctor right away. Patient should also see a doctor if have any other warning signs that last for two weeks or longer and are not normal for patient. Symptoms may be caused by something other than cancer, but the only way to know is to see a doctor. (11)
Signs and symptoms are not the same for everyone and each gynecologic cancer (cervical, ovarian, uterine, vaginal, and vulvar cancers) has its own signs and symptoms. (11)



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**Table i: Gynecological cancer symptoms** (11)

| Symptoms | Cervical Cancer | Ovarian Cancer | Uterine Cancer | Vaginal Cancer | Vulvar Cancer |
|---|---|---|---|---|---|
| Abnormal vaginal bleeding or discharge | ● | ● | ● | ● | |
| Pelvic pain or pressure | | ● | ● | | ● |
| Abdominal or back pain | | ● | | | |
| Bloating | | ● | | | |
| Changes in bathroom habits | | ● | | ● | |
| Itching or burning of the vulva | | | | | ● |
| Changes in vulva color or skin, such as a rash, sores, or warts | | | | | ● |

**What is endometrial cancer?**

Endometrial cancer is a cancer that arises from the endometrium (the lining of the uterus or womb). It is the result of the abnormal growth of cells that have the ability to invade or spread to other parts of the body. The first sign is most often vaginal bleeding not associated with a menstrual period. Other symptoms include pain with urination or sexual intercourse, or pelvic pain. Endometrial cancer occurs most commonly after menopause.(12)

Approximately 40% of cases are related to obesity.(13) Endometrial cancer is also associated with excessive estrogen exposure, high blood pressure and diabetes. Whereas taking estrogen alone increases the risk of endometrial cancer, taking both estrogen and progesterone in combination, as in most birth control pills, decreases the risk. Between two and five percent of cases are related to genes inherited from the parents.(13) Endometrial cancer is sometimes loosely referred to as "uterine cancer", although it is distinct from other forms of uterine cancer such as cervical cancer, uterine sarcoma, and trophoblastic disease. The most frequent type of endometrial cancer is endometrioid carcinoma, which accounts for more than 80% of cases.(13) Endometrial cancer is commonly diagnosed by endometrial biopsy or by taking samples during a procedure known as dilation and curettage. A pap smear is not typically sufficient to show endometrial cancer.(14) Regular screening in those at normal risk is not called for.(15)

The leading treatment option for endometrial cancer is abdominal hysterectomy (the total removal by surgery of the uterus), together with removal of the fallopian tubes and ovaries on both sides, called a bilateral salpingo-oophorectomy. In more advanced cases, radiation therapy, chemotherapy or hormone therapy may also be recommended. If the disease is diagnosed at an early stage, the outcome is favorable, and the overall five-year survival rate in the United States is greater than 80%.(16)

In 2012, endometrial cancers occurred in 320,000 women and caused 76,000 deaths. This makes it the third most common cause of death from women's cancers, behind ovarian and cervical cancer.(16) It is more common in the developed world and is the most common cancer of the female reproductive tract in developed countries. Rates of endometrial cancer have risen in a number of countries between the 1980s and 2010.This is believed to be due to the increasing number of elderly people and increasing rates of obesity.(17)

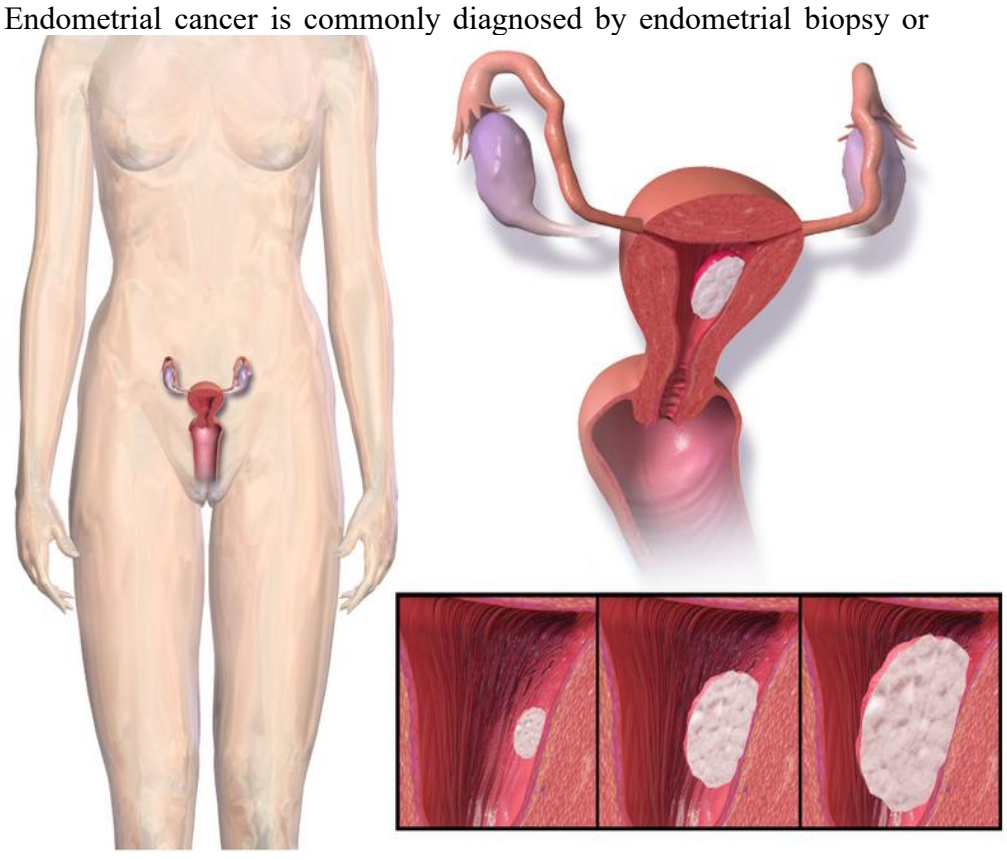

**Fig ii: The location and development of endometrial cancer (17)**

**Epidemiology of endometrial cancer**

As of 2014, approximately 320,000 women are diagnosed with endometrial cancer worldwide each year and 76,000 die, making it the sixth most common cancer in women. It is more common in developed countries, where the lifetime risk of endometrial cancer in people born with uteri is 1.6%, compared to 0.6% in developing countries.(18) It occurs in 12.9 out of 100,000 women annually in developed countries.(19)



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In the United States, endometrial cancer is the most frequently diagnosed gynecologic cancer and, in women, the fourth most common cancer overall,(20) representing 6% of all cancer cases in women. In that country, as of 2014 it was estimated that 52,630 women were diagnosed yearly and 8,590 would die from the disease.(21) Northern Europe, Eastern Europe, and North America have the highest rates of endometrial cancer, whereas Africa and West Asia have the lowest rates. Asia saw 41% of the world's endometrial cancer diagnoses in 2012, whereas Northern Europe, Eastern Europe, and North America together comprised 48% of diagnoses. Unlike most cancers, the number of new cases has risen in recent years, including an increase of over 40% in the United Kingdom between 1993 and 2013.(18) Some of this rise may be due to the increase in obesity rates in developed countries,[19] increasing life expectancies, and lower birth rates. The average lifetime risk for endometrial cancer is approximately 2–3% in people with uteruses.(22) In the UK, approximately 7,400 cases are diagnosed annually, and in the EU, approximately 88,000.(23)

Endometrial cancer appears most frequently during perimenopause (the period just before, just after, and during menopause), between the ages of 50 and 65; overall, 75% of endometrial cancer occurs after menopause. Women younger than 40 make up 5% of endometrial cancer cases and 10–15% of cases occur in women under 50 years of age. This age group is at risk for developing ovarian cancer at the same time.(24)The worldwide median age of diagnosis is 63 years of age;(23) in the United States, the average age of diagnosis is 60 years of age. White American women are at higher risk for endometrial cancer than black American women, with a 2.88% and 1.69% lifetime risk respectively.(21) Japanese-American women and American Latina women have a lower rates and Native Hawaiian women have higher rates.(25)

**hophysiology of endometrial cancer**

Endometrial cancer forms when there are errors in normal endometrial cell growth. Usually, when cells grow old or get damaged, they die, and new cells take their place. Cancer starts when new cells form unneeded, and old or damaged cells do not die as they should. The buildup of extra cells often forms a mass of tissue called a growth or tumor. These abnormal cancer cells have many genetic abnormalities that cause them to grow excessively.(26)

In 10–20% of endometrial cancers, mostly Grade 3 (the highest histologic grade), mutations are found in a tumor suppressor gene, commonly p53 or PTEN. In 20% of endometrial hyperplasias and 50% of endometrioid cancers, PTEN suffers a loss-of-function mutation or a null mutation, making it less effective or completely ineffective. Loss of PTEN function leads to up-regulation of the PI3k/Akt/mTOR pathway, which causes cell growth. The p53 pathway can either be suppressed or highly activated in endometrial cancer. When a mutant version of p53 is overexpressed, the cancer tends to be particularly aggressive. P53 mutations and chromosome instability are associated with serous carcinomas, which tend to resemble ovarian and Fallopian carcinomas. Serous carcinomas are thought to develop from endometrial intraepithelial carcinoma. (26)

PTEN and p27 loss of function mutations are associated with a good prognosis, particularly in obese women. The Her2/neu oncogene, which indicates a poor prognosis, is expressed in 20% of endometrioid and serous carcinomas. CTNNB1 (beta-catenin; a transcription gene) mutations are found in 14–44% of endometrial cancers and may indicate a good prognosis, but the data is unclear. Beta-catenin mutations are commonly found in endometrial cancers with squamous cells. FGFR2 mutations are found in approximately 10% of endometrial cancers, and their prognostic significance is unclear. SPOP is another tumor suppressor gene found to be mutated in some cases of endometrial cancer: 9% of clear cell endometrial carcinomas and 8% of serous endometrial carcinomas have mutations in this gene. (26)

Type I and Type II cancers (explained below) tend to have different mutations involved. ARID1A, which often carries a point mutation in Type I endometrial cancer, is also mutated in 26% of clear cell carcinomas of the endometrium, and 18% of serous carcinomas. Epigenetic silencing and point mutations of several genes are commonly found in Type I endometrial cancer. Mutations in tumor suppressor genes are common in Type II endometrial cancer. PIK3CA is ommonly mutated in both Type and Type II cancers. In women with Lynch syndrome-associated endometrial cancer, microsatellite instability is common. (26)

Development of an endometrial hyperplasia (overgrowth of endometrial cells) is a significant risk factor because hyperplasias can and often do develop into adenocarcinoma, though cancer can develop without the presence of a hyperplasia. Within ten years, 8–30% of atypical endometrial hyperplasias develop into cancer, whereas 1–3% of non-atypical hyperplasias do so. An atypical hyperplasia is one with visible abnormalities in the nuclei. Pre-cancerous endometrial hyperplasias are also referred to as endometrial intraepithelial neoplasia. Mutations in the KRAS gene can cause endometrial hyperplasia and therefore Type I endometrial cancer. Endometrial hyperplasia typically occurs after the age of 40. Endometrial glandular dysplasia occurs with an overexpression of p53, and develops into a serous carcinoma. (26)

**d symptoms of endometrial cancer**

Vaginal bleeding or spotting in women after menopause occurs in 90% of endometrial cancer.(12) Bleeding is especially common with adenocarcinoma, occurring in two-thirds of all cases. Abnormal menstrual cycles or extremely long, heavy, or frequent episodes of bleeding in women before menopause may also be a sign of endometrial cancer.(27)

Symptoms other than bleeding are not common. Other symptoms include thin white or clear vaginal discharge in postmenopausal women. More advanced disease shows more obvious symptoms or signs that can be detected on a physical examination. The uterus may become enlarged or the cancer may spread, causing lower abdominal pain or pelvic cramping. Painful sexual intercourse or painful or difficult urination are less common signs of endometrial cancer(27) The uterus may also fill with pus (pyometrea).(28) Of women with these less common symptoms (vaginal discharge, pelvic pain, and pus), 10–15% have cancer.(18)

**Causes of Endometrial cancer**

Infection with some types of human papilloma virus (HPV) is the greatest risk factor for cervical cancer, followed by smoking. Other risk factors include human immunodeficiency virus. Not all of the causes of cervical cancer are known, however, and several other contributing factors have been implicated.(29)

**Human papillomavirus**

Human papillomavirus type 16 and 18 are the cause of 75% of cervical cancer globally while 31 and 45 are the cause of another 10%.(30)

Women who have many sexual partners (or who have sex with men who have had many other partners) have a greater risk.(31)

Of the 150-200 types of HPV known, 15 are classified as high-risk types (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 73, and 82), 3 as probable high-risk (26, 53, and 66), and 12 as low-risk (6, 11, 40, 42, 43, 44, 54, 61, 70, 72, 81, and CP6108).(32)

Genital warts, which are a form of benign tumor of epithelial cells, are also caused by various strains of HPV. However, these serotypes are usually not related to cervical cancer. It is common to have multiple strains at the same time, including those that can cause cervical cancer along with those that cause warts.(32)

Infection with HPV is generally believed to be required for cervical cancer to occur.(33)

**Smoking**

Cigarette smoking, both active and passive, increases the risk of cervical cancer. Among HPV-infected women, current and former smokers have approximately two to three times the incidence of invasive cancer. Passive smoking is also associated with increased risk but to a lesser extent.(34)

Smoking has also been linked to the development of cervical cancer. There are a few different ways that smoking can increase the risk in women which can be by direct and indirect methods of inducing cervical cancer. A direct way of contracting this cancer is a smoker has a higher chance of CIN3 occurring which has the potential of forming cervical cancer. When CIN3 lesions lead to cancer, most of them have the assistance of the HPV virus, but that is not always the case which is why it can be considered a direct link to cervical cancer. Heavy smoking and long term smoking seem to have more of a risk of getting



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the CIN3 lesions than lighter smoking or not smoking at all. Although smoking has been linked to cervical cancer, it aids in the development of HPV which is the leading cause of this type of cancer. Also, not only does it aid in the development of HPV, but if the woman is already HPV-positive she is at an even greater likelihood of contracting cervical cancer.(10)

**Oral contraceptives**

Long-term use of oral contraceptives is associated with increased risk of cervical cancer. Women who have used oral contraceptives for 5 to 9 years have approximately three times the incidence of invasive cancer, and those who used them for 10 years or longer have approximately four times the risk.(10) **Multiple pregnancies**aving many pregnancies is associated with an increased risk of cervical cancer. Among HPV-infected women, those who have had seven or more full-term pregnancies have approximately four times the risk of cancer compared with women with no pregnancies, and two to three times the risk of women who have had one or two full-term pregnancies.(10)

**Ovarian cancer**

Ovarian cancer is a cancer that begins in an ovary. It results in abnormal cells that have the ability to invade or spread to other parts of the body. When this process begins, symptoms may be vague or not apparent, but they become more noticeable as the cancer progresses. These symptoms may include bloating, pelvic pain, and abdominal swelling, among others. Common areas to which the cancer may spread include the lining of the abdomen, lining of the bowel and bladder, lymph nodes, lungs, and liver.(35)

The risk of ovarian cancer increases in women who have ovulated more over their lifetime. This includes those who have never had children, those who begin ovulation at a younger age or reach menopause at an older age.(36)

Other risk factors include hormone therapy after menopause, fertility medication, and obesity.(37) Factors that decrease risk include hormonal birth control, tubal ligation, and breast feeding.(37)

About 10% of cases are related to inherited genetic risk; women with mutations in the genes BRCA1 or BRCA2 have about a 50% chance of developing the disease. The most common type of ovarian cancer, comprising more than 95% of cases, is ovarian carcinoma. There are five main subtypes of ovarian carcinoma, of which high-grade serous is most common. These tumors are believed to start in the cells covering the ovaries, though some may form at the Fallopian tubes. Less common types of ovarian cancer include germ cell tumors and sex cord stromal tumors. A diagnosis of ovarian cancer is confirmed through a biopsy of tissue, usually removed during surgery.(38)

Screening is not recommended in women who are at average risk, as evidence does not support a reduction in death and the high rate of false positive tests may lead to unneeded surgery, which is accompanied by its own risks.(39)

Those at very high risk may have their ovaries removed as a preventive measure. If caught and treated in an early stage, ovarian cancer may be curable. Treatment usually includes some combination of surgery, radiation therapy, and chemotherapy. Outcomes depend on the extent of the disease and the subtype of the cancer present. The overall five-year survival rate in the United States is 45%. Outcomes are worse in the developing world.(40)

In 2012, ovarian cancer occurred in 239,000 women and resulted in 152,000 deaths worldwide. This makes it, among women, the seventh-most common cancer and the eighth-most common cause of death from cancer. Death from ovarian cancer is more common in North America and Europe than in Africa and Asia.(36)

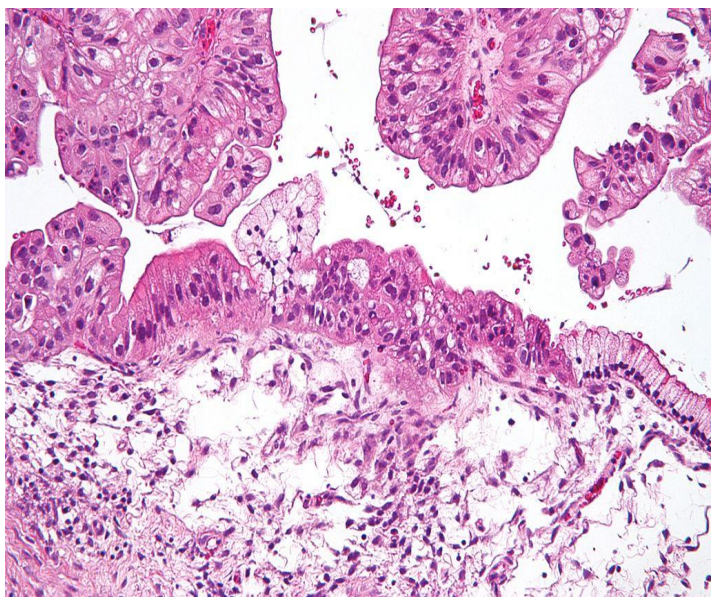

**Fig iii: Micrograph of a mucinous ovarian carcinoma stained by H&E(36)**

**Epidemiology of Ovarian cancer**

Globally, as of 2010, about 160,000 people died from ovarian cancer, up from 113,000 in 1990. As of 2014, more than 220,000 diagnoses of epithelial ovarian cancer were made yearly.(41) In 2010, in the United States, an estimated 21,880 new cases were diagnosed and 13,850 women died of ovarian cancer. Around 1800 of the new diagnoses were sex-cord or stromal tumors.(42)

In the United Kingdom as of 2014, approximately 7,000-7,100 yearly diagnoses were made and 4,200 deaths occurred. It is the 5th most common cancer in UK women. Ovarian cancer is most commonly diagnosed after menopause,(43) between the ages of 60 and 64. 90% of ovarian cancer occurs in women over the age of 45 and 80% in women over 50.(44)

The overall lifetime risk is around 1.6% (42) (one woman in 48-70). The risk in the UK is similar, at 1.7% (one woman in 60). Ashkenazi Jewish women carry mutated BRCA alleles at a rate five times that of the rest of the population, putting them at higher risk for ovarian cancer.(41)

In the US, ovarian cancer affects 1.3-1.4% and is the cause of death of about 1% of women.(45) This made it the fifth-leading cause of cancer-related deaths with an estimated 15,000 deaths in 2008.(45) Ovarian cancer represents approximately 4% of cancers diagnosed in women. It occurs more commonly in developed countries. (45)

Ovarian cancer is the fifth-most common cancer in women in the UK (around 7,100 women were diagnosed with the disease in 2011), and it is the fifth-most common cause of cancer death in women (around 4,300 women died in 2012).(44)

It is the most deadly gynecologic cancer. In 2014, the incidence rate for women in developed countries was about 9.4 per 100,000, compared to 5.0 per 100,000 in developing countries. In the US, the incidence rate in women over 50 is approximately 33 per 100,000. In Europe, Lithuania, Latvia, Ireland, Slovakia, and the Czech Republic have the highest incidences of ovarian cancer, whereas Portugal and Cyprus have the lowest incidences.(44)The rate of ovarian cancer between 1993 and 2008 decreased in women of the 40-49 age cohort and in the 50-64 age cohort, possibly due to this group's



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widespread adoption of oral contraceptives.(41) This decrease made it the ninth-most common cancer in women.(46)

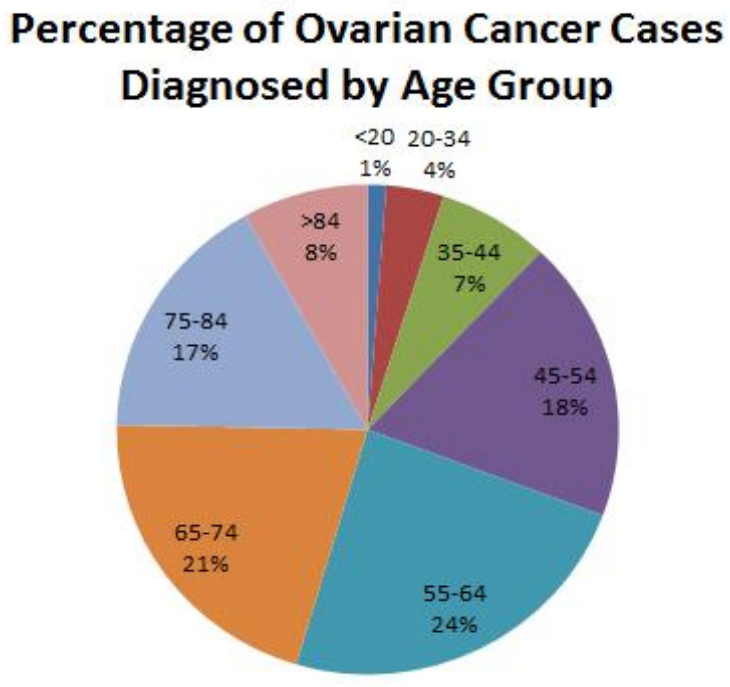


**Fig iv: Ovarian cancer cases diagnosed by age group (44)**

**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 there are typically no symptoms. 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.(47)

Human papillomavirus (HPV) infection appears to be involved in the development of more than 90% of cases;(48) most people who have had HPV infections, however, do not develop cervical cancer.(49)

Other risk factors include smoking, a weak immune system, birth control pills, starting sex at a young age and having many sexual partners, but these are less important. Cervical cancer typically develops from precancerous changes over 10 to 20 years. There are a few types of cervical cancer. About 90% are squamous cell carcinomas, 10% are adenocarcinoma and a small number are other types. Diagnosis is typically by cervical screening followed by a biopsy. Medical imaging is then done to determine whether or not the cancer has spread.(10)

HPV vaccines protect against between two and seven high-risk strains of this family of viruses and may prevent up to 90% of cervical cancers.(50)

As there still is a risk of cancer, guidelines recommend continuing regular Pap smears. Other methods of prevention include: never having sex or having few sexual partners and the use of condoms. Cervical cancer screening using the Pap smear or acetic acid can identify precancerous changes which when treated can prevent the development of cancer. Treatment of cervical cancer may consist of some combination of surgery, chemotherapy and radiotherapy. Five year survival rates in the United States are 68%. Outcomes, however, depend very much on how early the cancer is detected.(10)

Worldwide, cervical cancer is both the fourth most common cause of cancer and the fourth most common cause of death from cancer in women. In 2012, it was estimated that there were 528,000 cases of cervical cancer, and 266,000 deaths. This is about 8% of the total cases and total deaths from cancer. Approximately 70% of cervical cancers occur in developing countries. In low income countries it is the most common cause of cancer death. In developed countries, the widespread use of cervical screening programs has dramatically reduced rates of cervical cancer.(51)

In medical research, the most famous cell line known as HeLa was developed from cervical cancer cells of a woman named Henrietta Lacks.(52, 53)

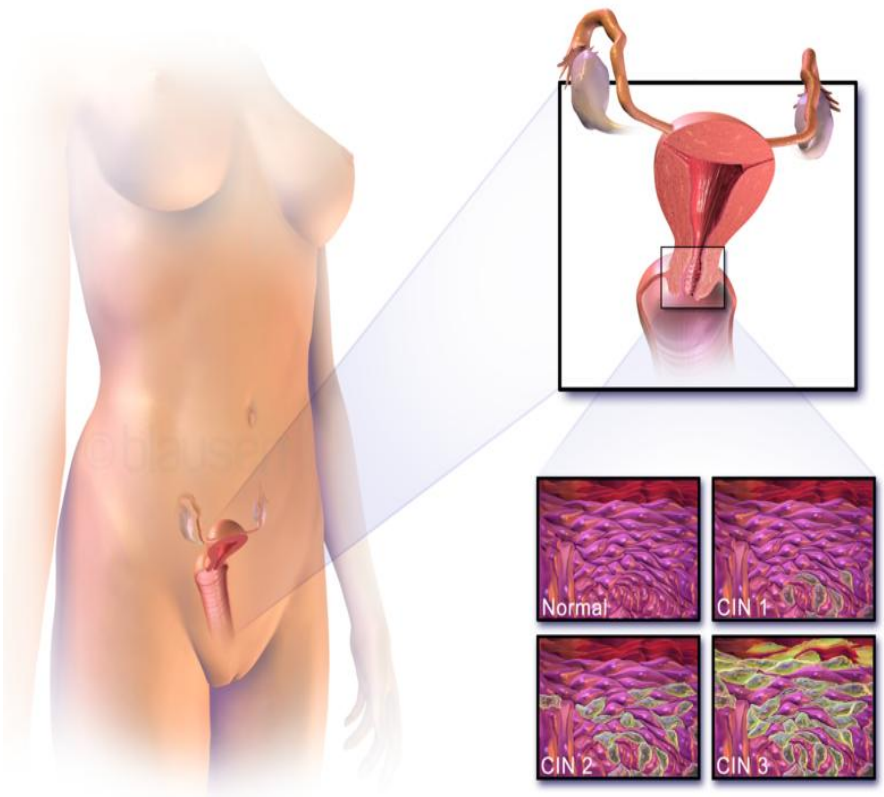


**Fig v: Location of cervical cancer and an example of normal and abnormal cells (10)**



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**Epidemiology of Cervical cancer**

**Worldwide**

Worldwide, cervical cancer is both the fourth most common cause of cancer and deaths from cancer in women. In 2012, it was estimated that there were 528,000 cases of cervical cancer, and 266,000 deaths.(51)

It is the second most common cause of female specific cancer after breast cancer accounting for around 8% of both total cancer cases and total cancer deaths in women. Approximately 80% of cervical cancers occur in developing countries.(54)

**United States**

An estimated 12,900 new cervical cancers and 4,100 cervical cancer deaths will occur in the United States in 2015. In the United States, it is the 8th most common cancer of women. The median age at diagnosis is 48. Hispanic women are significantly more likely to be diagnosed with cervical cancer than the general population.(55)

In 1998, about 12,800 women were diagnosed in the US and about 4,800 died.(52) In 2014 there was an estimated 12,360 new cases were expected to be diagnosed, and about 4,020 were expected to die of cervical cancer.(55)

Among cancers of the female reproductive tract it is less common than endometrial cancer and ovarian cancer. The rates of new cases in the United States was 7 per 100,000 women in 2004. Cervical cancer deaths decreased by approximately 74% in the last 50 years, largely due to widespread Pap smear screening. The annual direct medical cost of cervical cancer prevention and treatment prior to introduction of the HPV vaccine was estimated at $6 billion.(56)

**EU**

In the European Union, there were about 34,000 new cases per year and over 16,000 deaths due to cervical cancer in 2004.(57)

**UK**

Cervical cancer is the twelfth most common cancer in women in the UK (around 3,100 people were diagnosed with the disease in 2011), and accounts for 1% of cancer deaths (around 920 people died in 2012).(58)

With a 42% reduction from 1988-1997 the NHS implemented screening programme has been highly successful, screening the highest risk age group (25–49 years) every 3 years, and those ages 50–64 every 5 years.(58)

**Canada**

In Canada, an estimated 1,300 women will be diagnosed with cervical cancer in 2008 and 380 will die.(59)

**Australia**

In Australia, there were 734 cases of cervical cancer (2005). The number of women diagnosed with cervical cancer has dropped on average by 4.5% each year since organised screening began in 1991 (1991–2005). Regular two-yearly Pap tests can reduce the incidence of cervical cancer by up to 90% in Australia, and save 1,200 Australian women dying from the disease each year.(10)

**India**

In India,the number of people with uterine cervix cancer are rising but overall the age adjusted rates are decreasing. Study have shown that improvement of education in the female population has improved the survival of people with cancers of uterine cervix.(60)

**var cancer**

Vulvar cancer is a malignant, invasive growth in the vulva, or the outer portion of the female genitals. The disease accounts for only 0.6% of cancer diagnoses but 5% of gynecologic cancers in the United States. The labia majora are the most common site involved representing about 50% of all cases, followed by the labia minora. The clitoris and Bartholin glands may rarely be involved. Vulvar cancer is separate from vulvar intraepithelial neoplasia (VIN), a superficial lesion of the epithelium that has not invaded the basement membrane—or a pre-cancer. VIN may progress to carcinoma-in-situ and, eventually, squamous cell cancer.(61)

**Epidemiology of Vulvar cancer**

Vulvar cancer causes less than 1% of all cancer cases and deaths but around 6% of all gynecologic cancers diagnosed in the UK. Around 1,200 women were diagnosed with the disease in 2011, and 400 women died in 2012. Vulvar cancer causes about 0. 6% of all cancer cases but 5% of gynecologic cancers in the United States. About 4900 cases are diagnosed each year in the United States. (61)

**Causes of Vulvar cancer**

The cause of vulvar cancer is unclear; however, some conditions such as lichen sclerosus, squamous dysplasia or chronic vulvar itching may precede cancer. In younger women affected with vulvar cancer, risk factors include low socioeconomic status, human papillomavirus (HPV) infection, multiple sexual partners, cigarette use and cervical cancer.[9] Patients that are infected with HIV tend to be more susceptible to vulvar cancer as well.(61)

**Diagnosis of Gynecologic Cancer**

Some gynecologic cancers are caused by the human papillomavirus (HPV), a very common sexually transmitted infection. Vaccines protect against the HPV types that most often cause cervical, vaginal, and vulvar cancers. It is recommended for 11- and 12-year-old girls and boys. (Note: The vaccine can be given beginning at age 9.) It also can be given to females or males who are 13–26 who did not get any or all of the shots when they were younger. Ideally, girls and boys should get three doses of this vaccine before their first sexual contact. (62)

Among all three of these reproductive-system cancers, early detection is crucial. But detection can be very difficult, especially in the early stages.(9)

**Cervical cancer**

The cancer may not cause any symptoms at first, but later, you may have pelvic pain or bleeding from the vagina. It usually takes several years for normal cells in the cervix to turn into cancer cells. A test called a Pap smear is very effective in screening for cervical cancer.(9)

**Endometrial cancer**

A pelvic examination is frequently normal in the early stages of endometrial cancer. Changes in the size, shape, or consistency of the uterus or its surrounding, supporting structures may be seen when the disease is more advanced.(9)

**Ovarian cancer**

The sooner ovarian cancer is found and treated, the better the chance for recovery. But ovarian cancer is hard to detect early. Many times, women with ovarian cancer have no symptoms or just mild symptoms until the disease is in an advanced stage and hard to treat. To date, there is no effective screening regimen for ovarian cancer. More than half of women with ovarian cancer have advanced-stage disease at the time of diagnosis.(9)

Since there is no simple and reliable way to screen for any gynecologic cancers except cervical cancer, it is especially important to recognize warning signs and learn if there are things patient can do to reduce risk. Talk with doctor if believe that patient is at increased risk for gynecologic cancer.(62)

**Screening Tests**

Screening is when a test is used to look for a disease before there are any symptoms. Cancer screening tests are effective when they can find disease early, which can lead to more effective treatment. (Diagnostic tests are used when a person has symptoms. The purpose of diagnostic tests is to find out, or diagnose, what is causing the symptoms. Diagnostic tests also may be used to check a person who is considered at high risk for cancer.) (62)

Of all the gynecologic cancers, only cervical cancer has a screening test—the Pap test—that can find this cancer early, when treatment works best. The Pap test also helps prevent cervical cancer by finding precancers, cell changes on the cervix that might become cervical cancer if they are not treated appropriately. In addition to the Pap test, which is the main screening test for cervical cancer, a test called the HPV test looks for HPV infection. It can be used along with the Pap test for screening women aged 30 years and older. It also is used to provide more information when Pap test results are unclear for women aged 21 and older. Learn more about the Pap and HPV tests.(62)



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**necologic Cancers Treatment**

If doctor says to anyone have a gynecologic cancer, ask to be referred to a gynecologic oncologist—a doctor who has been trained to treat cancers of a woman's reproductive system. This doctor will work with patient to create a treatment plan. (63)

**Types of Treatment**

Current treatments for all three cancers, especially in advanced stages, include surgery followed by chemotherapy or a combination of chemo and radiation therapies. The exact mix of the cancer-fighting drugs, sometimes called a "cocktail," depends on the particular form and stage of the cancer.(9)

Gynecologic cancers are treated in several ways. It depends on the kind of cancer and how far it has spread. Treatments include surgery, chemotherapy, and radiation. Women with a gynecologic cancer often get more than one kind of treatment. (63)

**Surgery**

Doctors remove cancer tissue in an operation.

**Chemotherapy**

Using special medicines to shrink or kill the cancer. The drugs can be pills patient take or medicines given in veins, or sometimes both.

**Radiation**

Using high-energy rays (similar to X-rays) to kill the cancer. (63)

Different treatments may be provided by different doctors on medical team. (63)

Gynecologic oncologists are doctors who have been trained to treat cancers of a woman's reproductive system.

Surgeons are doctors who perform operations.

Medical oncologists are doctors who treat cancer with medicine.

Radiation oncologists are doctors who treat cancer with radiation. (63)**Prevention of Ovarian cancer**

People with strong genetic risk for ovarian cancer may consider the surgical removal of their ovaries as a preventative measure. This is often done after completion of childbearing years. This reduces the chances of developing both breast cancer (by around 50%) and ovarian cancer (by about 96%) in people at high risk. Women with BRCA gene mutations usually also have their Fallopian tubes removed at the same time (salpingo-oophorectomy), since they also have an increased risk of Fallopian tube cancer. However, these statistics may overestimate the risk reduction because of how they have been studied.(64, 65)

People with a significant family history for ovarian cancer are often referred to a genetic counselor to see if they should be tested for BRCA mutations.(46)**Prevention of cervical cancer**

**Screening**

Checking the cervix by the Papanicolaou test, or Pap smear, for cervical cancer has been credited with dramatically reducing the number of cases of and mortality from cervical cancer in developed countries. Pap smear screening every 3–5 years with appropriate follow-up can reduce cervical cancer incidence by up to 80%. Abnormal results may suggest the presence of pre cancerous changes allowing examination and possible preventive treatment. The treatment of low-grade lesions may adversely affect subsequent fertility and pregnancy. Personal invitations encouraging women to get screened are effective at increasing the likelihood they will do so. Educational materials also help increase the likelihood women will go for screening, but they are not as effective as invitations. (10)

According to the 2010 European guidelines, the age at which to start screening ranges between 20–30 years of age, "but preferentially not before age 25 or 30 years", and depends on burden of the disease in the population and the available resources. (10)

In the United States it is recommended that screening begin at age 21, regardless of age at which a woman began having sex or other risk factors. Pap tests should be done every three years between the ages of 21 and 65. In women over the age of 65, screening may be discontinued if there was no abnormal screening results within the previous 10 years and no history of CIN 2 or higher. HPV vaccination status does not change screening rates. Screening can occur every 5 years between aged 30–65 when a combination of cervical cytology screening and HPV testing is used and this is preferred. However, it is acceptable to screen this age group with a Pap smear alone every 3 years.[45] Screening is not beneficial before age 25 as there is a very low rate of disease. Screening is not beneficial in women older than 60 years if they have a history of negative results. (10)

Liquid-based cytology is another potential screening method. Although it was probably intended to improve on the accuracy of the Pap test, its main advantage has been to reduce the number of inadequate smears from around 9% to around 1%. This reduces the need to recall women for a further smear. The United States Preventive Services Task Force supports screening every 5 years in those who are between 30 and 65 years when cytology is used in combination with HPV testing. (10)

Pap smears have not been as effective in developing countries. This is in part because many of these countries have an impoverished health care infrastructure, too few trained and skilled professionals to obtain and interepret Pap smears, uninformed women who get lost to follow-up, and a lengthy turn-around time to get results. These realities have resulted in the investigation of cervical screening approaches that use fewer resources and offer rapid results such as visual inspection with acetic acid or HPV DNA testing. (10)

**Barrier protection**

Barrier protection and/or spermicidal gel use during sexual intercourse decreases cancer risk. Condoms offer protection against cervical cancer. Evidence on whether condoms protect against HPV infection is mixed, but they may protect against genital warts and the precursors to cervical cancer. They also provide protection against other STIs, such as HIV and Chlamydia, which are associated with greater risks of developing cervical cancer. (10)

Condoms may also be useful in treating potentially precancerous changes in the cervix. Exposure to semen appears to increase the risk of precancerous changes (CIN 3), and use of condoms helps to cause these changes to regress and helps clear HPV. One study suggests that prostaglandin in semen may fuel the growth of cervical and uterine tumors and that affected women may benefit from the use of condoms. (10)

Abstinence also prevents HPV infection. (10)

**Vaccination**

There are two HPV vaccines (Gardasil and Cervarix) which reduce the risk of cancerous or precancerous changes of the cervix and perineum by about 93% and 62%, respectively. The vaccines are between 92% and 100% effective against HPV 16 and 18 up to at least 8 years. (10)

HPV vaccines are typically given to women age 9 to 26 as the vaccine is only effective if given before infection occurs. The vaccines have been shown to be effective for at least 4 to 6 years, and it is believed they will be effective for longer; however, the duration of effectiveness and whether a booster will be needed is unknown. The high cost of this vaccine has been a cause for concern. Several countries have considered (or are considering) programs to fund HPV vaccination. (10)

Since 2010, young women in Japan have been eligible to receive the cervical cancer vaccination for free. In June 2013, the Japanese Ministry of Health, Labor and Welfare mandated that, before administering the vaccine, medical institutions must inform women that the Ministry does not recommend it. (10) However, the vaccine is still available at no cost to Japanese women who choose to accept the vaccination. (10)

**Nutrition**

Vitamin A is associated with a lower risk as are vitamin B12, vitamin C, vitamin E, and beta-carotene.(10)**The EORTC score**

The European Organisation for Research and Treatment of Cancer (EORTC) was founded in 1962, as an international non-profit organisation. The aims of the EORTC are to conduct, develop, coordinate and stimulate cancer research in Europe by multidisciplinary groups of oncologists and basic scientists. Research is accomplished mainly through the execution of large, prospective, randomised, multicentre, cancer clinical trials. The EORTC Central Office Data Center, created in 1974, is concerned with all aspects of phase II and phase III cancer clinical trials, from their design to the publication of the final results. Since its inception, over 80,000 patients have been entered in trials handled by the EORTC Data Center. In 1980, the EORTC created the Quality of Life Group, which in 1986 initiated a research program to develop an integrated, modular approach for evaluating the QoL of patients participating in cancer clinical trials. This led to the development of the EORTC QLQ-C30, a quality of life



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instrument for cancer patients. To date, more than 2200 studies using the QLQ-C30 have been registered.(66)

**OBJECTIVES:**

The objectives of this study are:

To assess the frequency of different gynecological cancers among females presenting in a tertiary care hospital

To measure the mean score of Quality of life by using EORTC-QLQ scoring system in females presenting with different gynecologic cancers.

**Operational Definition**

**Gynecological cancer**

It was defined as females presenting with first time diagnosis of cancer of endometrium, cervix, ovaries or valvular region, while diagnosis is made through clinical, radiological and histopathological findings.(see attached annexure B)

**Quality of life**

It was measured by using EORTC-QLQ scoring system (1,8). All of the scales and single-item measures range in score from 0 to 100. (annexure A attached).

**MATERIAL AND METHODS:**

**Study design**

Cross–sectional study

**Setting**

Unit II, Department of Obstetrics & Gynecology, PIMS Islamabad

**Duration Of Study**

06 months from the time of approval of synopsis.

**Sample Size**

Sample size of 280 cases is calculated with 95% confidence level, 2.8% margin of error and taking expected percentage of valvular cancer i.e. 5.9% in females presenting with gynecological cancer in a tertiary care hospital.

**Sampling tehcnique**

Non-Probability, Consecutive Sampling

**Sample Selection Inclusion criteria:**

Age >20 years married females

Diagnosed cases of gynecological tumors (ovarian, endometrial, cervical, valvular) of any stage assessed through medical record presenting ≥3 months after diagnosis.

**Exclusion criteria:**

With recurrent disease (medical record and history of treatment before for any gynecological or other malignancy of body)

Patients with any psychiatric disease (medical record)

Accompanying severe medical conditions (BP≥104/90mmHg, BSR>186mg/dl, cardiac problems like IHD, abnormal ECG or asthma)

**Data Collection Procedure**

280 females fulfilling selection criteria were enrolled in the study from OPD of Department of Obstetrics & Gynecology, PIMS Islamabad. Informed consent was obtained to use their data for research purpose. Demographic data (name, age, parity, duration of symptoms) was obtained. Medical record was obtained to note the type of gynecological cancer i.e. endometrial, cervical, ovaries or valvular. Then females undewent face to face interview using EORTC –QLQ C30 quality of index questionnaire. Each question was asked and score was noted. All this information was recorded in proforma (attached).

**Data Analysis Procedure**

The statistical analysis was performed in SPSS Version 20.0. Age and EORTC-QLQ QOL was measured in terms of means ± SD. Parity and type of gynecological cancer was presented in terms of frequency. The EORTC-QLQ QOL for all type of gynecological cancers (endometrial, cervical, ovaries or valvular) was also measured as means ± SD.

Effect modifiers like age, duration of cancer was controlled by stratification. Post stratification chi-square was applied for qualitative variables and t-test for quantitative outcome variables.

**RESULTS:**

In this present study total 280 cases were enrolled. The mean age of the patients was 56.90±11.38 years with minimum and maximum ages of 35 & 75 years respectively. **Table#1**

In this study 17(6.07%) patients had parity three, 55(19.64%) patients had parity four, 92(32.86%) patients had parity five, 64(22.86%) patients had parity six, 39(13.93%) patients had parity seven and 13(4.64%) patients had parity eight. **Fig#1**

The study results showed that the mean duration of cancer diagnosis was 12.87±5.77 months with minimum and maximum duration of 3 & 24 months respectively. **Table#2**

The study results showed that the mean value of EORTCQLQ score of the patients was 58.86±15.13 with minimum and maximum values of 20 & 89 respectively. **Table#3**

In our study 39(13.93%) patients had cervical cancer, 101(36.07%) patients had endometrial cancer, 134(47.86%) patients had ovarian cancer and only 6(2.14%) patients had vulvar cancer. **Fig#2**

In this study the mean value of EORTCQLQ score in cervical cancer patients was 44.10±10.24, its mean value in endometrial cancer patients was 56.91±19.84, the mean value of EORTCQLQ score in ovarian cancer patients was 64.41±7.36 and its mean value in vulvar cancer patients was 63.83±6.40. Statistically there is highly significant difference was observed between the EORTCQLQ score and type of cancer of the patients. i.e p-value=0.000 **Table#4**

In our study in below 50 years patients the mean value of EORTCQLQ score of the patients was 58.91 and it mean value in above 50 years patients was 58.84±15.66. Statistically there is insignificant difference was found between the EORTCQLQ score and the age categories of the patients i.e. p-value=0.97.**Table#5**

In this study cancer duration <12 months patients the mean EORTCQLQ score of the patients was 58.51±15.11 and the mean EORTCQLQ score of the patients who had cancer duration ≥12 months was 59.27±1521. Statistically there is insignificant difference was found between the EORTCQLQ score and the cancer duration of the patients i.e. p-value=0.68.**Table#6**

The study results showed that the in 89 age <50 years patients, 10 had cervical cancer, 37 had endometrial cancer, 39 had ovarian cancer and 3 had vulvar caner. In 191 patients of age ≥ 50 years patients, 29 had cervical cancer, 64 had endometrial cancer, 95 had ovarian and 3 had vulvar cancer. Statistically there is insignificant difference was found between the cancer and age of the patients i.e. p-value=0.37 **Table#7**

In 152 patients with duration of cancer <12 months, 23 had cervical cancer, 52 had endometrial cancer, 73 were with ovarian cancer and 4 had vulvar cancer. In 128 patients who had cancer duration ≥ 12 months, 16 had cervical cancer, 49 had endometrial cancer, 61 had ovarian cancer and 2 had vulvar cancer. Statistically there is insignificant difference was found between the cancer types and cancer duration of the patients i.e. p-value=0.79 **Table#8**

**Table#1**
**Descriptive statistics of age (years)**

| | | |
|---|---|---|
| **Age (years)** | **n** | 280 |
| | **Mean** | 56.90 |
| | **SD** | 11.38 |
| | **Minimum** | 35.00 |



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| | | |
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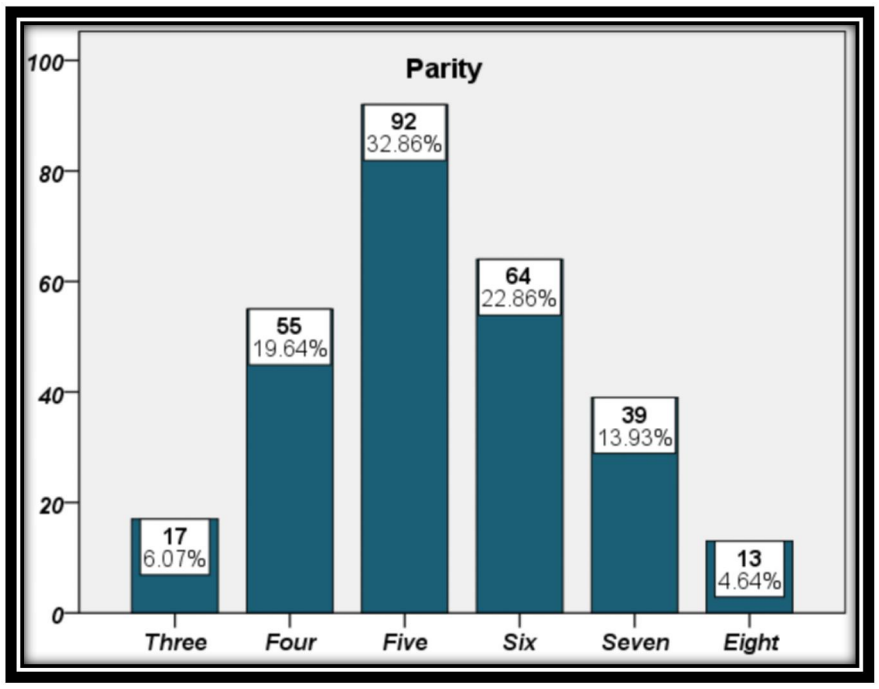
| | **Maximum** | 75.00 |



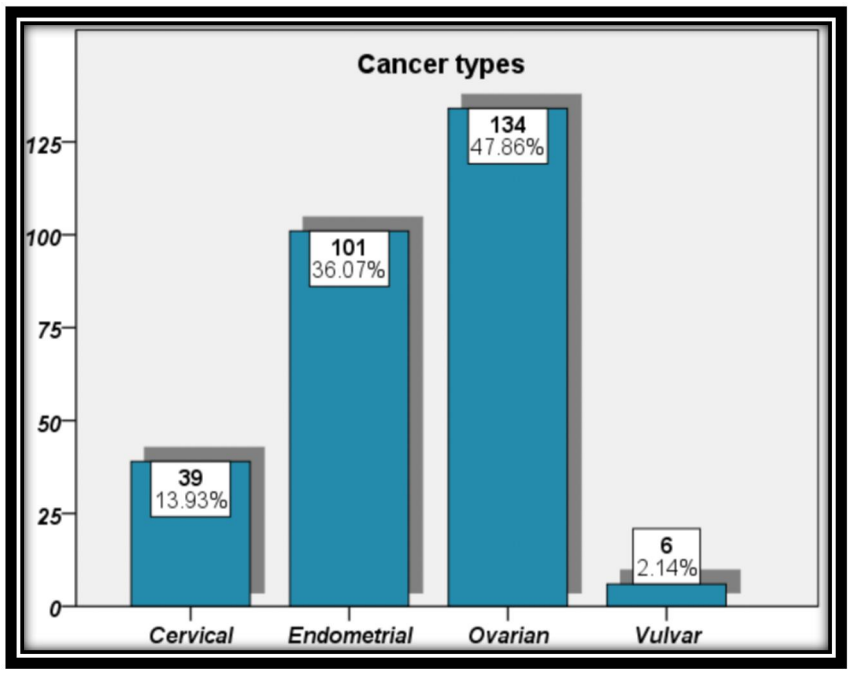

**Fig#1**
**Frequency distribution of parity**

**Table#2**
**Descriptive statistics of duration of diagnosis (months)**

| | | |
|---|---|---|
| **Diagnosis duration (months)** | **n** | 280 |
| | **Mean** | 12.87 |
| | **SD** | 5.77 |
| | **Minimum** | 3.00 |
| | **Maximum** | 24.00 |

**Table#3**
**Descriptive statistics of EORTCQLQ score**

| | | |
|---|---|---|
| **EORTCQLQ score** | **n** | 280 |
| | **Mean** | 58.86 |
| | **SD** | 15.13 |
| | **Minimum** | 20.00 |
| | **Maximum** | 89.00 |



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**Fig#2**
**Frequency distribution of type of cancer**

**Table#4**
**Comparison of EORTCQLQ score in different type of cancer**

| **Type of cancer** | | **n** | **Mean±SD** |
|---|---|---|---|
| **EORTCQLQ score** | **Cervical** | 39 | 44.10±10.24 |
| | **Endometrial** | 101 | 56.91±19.84 |
| | **Ovarian** | 134 | 64.41±7.36 |
| | **Vulvar** | 6 | 63.83±6.40 |

p-value = 0.000 (Significant)
**Table#5**
**Comparison of EORTCQLQ score in age groups**

| | | **Age (years)** | |
|---|---|---|---|
| | | **<50** | **≥ 50** |
| **EORTCQLQ score** | **n** | **89** | **191** |
| | **Mean** | 58.91 | 58.84 |
| | **SD** | 14.02 | 15.66 |

p-value = 0.97 (Insignificant)
**e#6**
**Comparison of EORTCQLQ score according to cancer duration**

| | | **Cancer duration (months)** | |
|---|---|---|---|
| | | **<12** | **≥ 12** |
| **EORTCQLQ score** | **n** | 152 | 128 |
| | **Mean** | 58.51 | 59.27 |
| | **SD** | 15.11 | 15.21 |

p-value = 0.68 (Insignificant)
**Table#7**
**Comparison of cancer types in different age groups**

| | | **Cancer types** | | | | **Total** |
|---|---|---|---|---|---|---|
| | | **Cervical** | **Endometrial** | **Ovarian** | **Vulvar** | |
| **Age (years)** | **<50** | 10 | 37 | 39 | 3 | **89** |
| | **≥ 50** | 29 | 64 | 95 | 3 | **191** |
| **Total** | | **39** | **101** | **134** | **6** | **280** |

**Chi value=3.14**
**p-value=0.37 (Insignificant)le#8**
**Comparison of cancer types in according to cancer duration**

| | | **Cancer types** | | | | **Total** |
|---|---|---|---|---|---|---|
| | | **Cervical** | **Endometrial** | **Ovarian** | **Vulvar** | |
| **Cancer duration (months)** | **< 12** | 23 | 52 | 73 | 4 | **152** |
| | **≥ 12** | 16 | 49 | 61 | 2 | **128** |
| **Total** | | **39** | **101** | **134** | **6** | **280** |

**Chi value=1.03**
**p-value=0.79 (Insignificant)**

**DISCUSSION:**
This present cross sectional study was conducted at Unit II, Department of Obstetrics & Gynecology, PIMS Islamabad to assess the frequency of different gynecological cancers and measure the mean score of Quality of life by using EORTC-QLQ scoring system in among females presenting in a tertiary care hospital
Gynecological cancers are a frequent group of malignancies in women, accounting for approximately 18% of all female cancers worldwide. The most common are, in order, endometrial, ovarian and cervical cancer. Vaginal and vulvar cancers are rare. Cervical cancer is more common in premenopausal women, whereas the incidence of endometrial and ovarian cancers increase in the perimenopausal years.(67)
In our study 13.93% patients appeared with cervical cancer, 36.07% patients appeared with endometrial cancer, 47.86% patients appeared with ovarian cancer and 2.14% patients appeared with vulvar cancer.
According to 2007 year data of the American Cancer Society, endometrial and ovarian cancers are in the fourth and fifth rank. Cervical cancer is the eighth most frequent cancer in general now, as a result of scanning tests and early diagnosis and third among gynecological cancer cases.(68)



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In a study conducted in 2011, 43.7% of the women were diagnosed with ovarian, 34.5% of the women had endometrial, 16.0% of the women had cervical and 5.9% of the women had vulvar cancer.(1)
G. Chakalova et al showed in their study that Breast and gynecological cancers (cervical, uterine and ovarian) comprised almost half of all incident cancer cases in Bulgarian women and about one third of all cancer deaths in females Breast cancer was the most common site (23% of the new cases), followed by cancer of the uterine body (8%), cervix (7%) and ovary (5%).(69)
Takeda et al demonstrated in their retrospective study that the multiple primary neoplasms were detected in 45 (4.3%) cases, including 16 (2.1%) out of 733 cervical cancers, 14 (8.2%) out of 166 endometrial cancers, three (15%) out of 20 vaginal cancers and 12 (9.8%) out of 123 ovarian cancers. (70)
Wilailak et al in their study divided gynecologic cancer patients into those with cervical cancer (n=571, 65.6%), ovarian cancer (n=149, 17.1%), endometrial cancer (n=108, 12.4%), uterine sarcoma (n=15, 1.7%), gestational trophoblastic neoplasia (n=22, 2.5%), vulvar cancer (n=3, 0.3%) and vaginal cancer (n=2, 0.2%).(2)
One study showed that 43.7% of the women were diagnosed with ovarian, 34.5% of the women had endometrial, 16.0% of the women had cervical and 5.9% of the women had vulvar cancer. (1)
According to our study results mean value of EORTCQLQ score in cervical cancer patients was 44.10±10.24, in endometrial cancer patients was 56.91±19.84, in ovarian cancer patients was 64.41±7.36 and its mean value in vulvar cancer patients was 63.83±6.40. Statistically there is highly significant difference was observed between the EORTCQLQ score and type of cancer of the patients. i.e p-value=0.000.
The mean of global health QoL score was reported to be 59.4±24.2 by using EORTC QLQ-C30 scores for women with gynecological cancer. The mean global health QoL score of females with endometrial carcinoma was 61.6 ± 21.1 while 65.3 ± 24.7 of females with ovarian cancer, 47.6±16.5 in females with valvular carcinoma and 43.0±24.1 in females with cervical cancer. The females with cervical cancer has very low QOL.(1)
Akkuzu study, reported that EORTC-QLQ-C30 Quality of Life Index mean points for “general well-being and quality of life” of the patients were found to be 60.5±25.0.(7)
One study in Turkey, which evaluated QoL of women using EORTC QLQ-C30 scale, stated that emotional (49.55±32.42) aspects of QoL were mostly affected among the functional parameters and cognitive function (66.33±27.45) was found higher.(71)
Matulonis et al. (2008), studied QoL of 58 early stage ovarian cancer patients and observed that patients reported good physical QoL scores.(72)
In literature, ovarian cancer survivors have good QoL, with few physical symptoms. Cervical cancer survivors treated with radiotherapy reported more QoL impairments than survivors treated with other approaches.(67)

**CONCLUSION:**

According to our study the most frequent (47.86%) cancer was ovarian cancer and the 2nd most frequent cancer was endometrial (36.07%), Statistically EORTCQLQ score is highly significant with type of cancer ur finding.

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**PERFORMA**

**QUALITY OF LIFE EVALUATION USING "EORTC-QLQ C-30 QUALITY OF LIFE INDEX" IN PAKISTANI WOMEN WITH DIFFERENT TYPE OF GYNAECOLOGICAL CANCER**

Sr#: OPD#: Date:
Name:
Age :
Parity:

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Duration of diagnosis:
Address:
Contact:
Marital status:
**Type of cancer:**
Endometrial □
Cervical □
Ovarian □
Valvular □
**EORTC-QLQ score:**
[1] **Appendix[(8)]**

**THE QLQ- C30 VERSION 1.0 WITH FUNCTIONAL / SYMPTOM SCALES INDICATED**

| | **SCALE** | | **NO** | **YES** | |
|---|---|---|---|---|---|
| Do you have any trouble doing strenuous activities, like carrying a heavy shopping bag or a suitcase? | Physical | | 1 | 2 | |
| Do you have any trouble taking a **long** walk? | Physical | | 1 | 2 | |
| Do you have any trouble take a **short** walk outside of the house? | Physical | | 1 | 2 | |
| Do have to stay in bed or a chair for most of the day? | Physical | | 1 | 2 | |
| Do you need help with eating, dressing, washing yourself or using the toilet? | Physical | | 1 | 2 | |
| Are you limited in any way in doing either your work or doing household jobs? | Role | | 1 | 2 | |
| Are you completely unable to work at a job or to do household jobs? | Role | | 1 | 2 | |
| **During the past week:** | **SCALE** | **Not at all*** | **A little**** | **Quite a bit***** | **Very much****** |
| Were you short of breath? | Dyspnoea | 1 | 2 | 3 | 4 |
| Have you had pain? | Pain | 1 | 2 | 3 | 4 |
| 10. Did you need rest? | Fatigue | 1 | 2 | 3 | 4 |
| 11. Have you had trouble sleeping? | Insomnia | 1 | 2 | 3 | 4 |
| 12. Have you felt weak? | Fatigue | 1 | 2 | 3 | 4 |
| 13. Have you lacked appetite? | Appetite Loss | 1 | 2 | 3 | 4 |
| 14. Have you felt nauseated? | Nausea and Vomiting | 1 | 2 | 3 | 4 |
| 15. Have you vomited? | Nausea and Vomiting | 1 | 2 | 3 | 4 |
| **During the past week:** | **SCALE** | **Not at all*** | **A little**** | **Quite a bit***** | **Very much****** |
| 16. Have you been constipated? | Constipation | 1 | 2 | 3 | 4 |
| 17. Have you had diarrhoea? | Diarrhoea | 1 | 2 | 3 | 4 |
| 18. Were you tired? | Fatigue | 1 | 2 | 3 | 4 |
| 19. Did pain interfere with you daily activities? | Pain | 1 | 2 | 3 | 4 |
| 20. Have you had difficulty in concentrating on things, like reading newspaper or watching TV? | Cognitive | 1 | 2 | 3 | 4 |
| 21. Did you feel tense? | Emotional | 1 | 2 | 3 | 4 |
| 22. Did you worry? | Emotional | 1 | 2 | 3 | 4 |
| 23. Did you feel irritable? | Emotional | 1 | 2 | 3 | 4 |
| 24. Did you feel depressed? | Emotional | 1 | 2 | 3 | 4 |
| 25. Have you had difficulty remembering things? | Cognitive | 1 | 2 | 3 | 4 |
| 26. Has your physical condition or medical treatment interfered with your **family** life? | Social | 1 | 2 | 3 | 4 |
| 27. Has your physical condition or medical treatment interfered with your **social** activities? | Social | 1 | 2 | 3 | 4 |
| 28. Has your physical condition or medical treatment caused you financial difficulties? | Financial Difficulties | 1 | 2 | 3 | 4 |
| **GLOBAL HEALTH STATUS** | | | | | |
| 29. How would you rate your overall **physical condition** during the past week? | | | | | |
| 1 Very poor | 2 | 3 | 4 | 5 | 6 | 7 Excellent |
| 30. How would you rate your overall **quality of life** during the past week? | | | | | |
| 1 Very poor | 2 | 3 | 4 | 5 | 6 | 7 Excellent |

Not at all* : not once
A little ** : 1 to 3 times a week
Quiet a bit*** : 4 to 6 times a week
Very much**** : all the time
**NEXURE**
DIAGNOSIS OF GYNAECOLOGICAL CANCERS



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| **CANCER** | CLINICAL FINDINGS (history & examination) | INVESTIGATIONS | HISTOPATHOLOGICAL |
|---|---|---|---|
| **CERVICAL** | Symptoms:<br>Postcoital bleeding<br>Abnormal menstruation<br>Postmenopausal bleeding<br>Vaginal discharge<br>Signs:<br>Roughned ,hard,irregular cervix<br>VIA : positive<br>Abnormal vessels on colposcopy | Pap smear (showing dyskaryosis)<br>Punch biopsy<br>MRI pelvis(showing abnormal MR signals) | Increased nuclear /cytoplasmic ratio<br>Poikilocytosis (abnormal shape of nucleus)<br>Koilocytosis (abnormal density of nucleus) |
| **OVARIAN** | Symptoms:<br>Abdominal distension<br>Urinary symtoms(dysuria,hesitancyetc)<br>Change in bowel habits<br>Abnormal vaginal bleeding<br>Pelvic mass<br>Signs :<br>Abdominal mass<br>Ascites | USG Pelvis (multiseptated mass with solid &cystic components , ascites)<br>Raised Tumour markers (CA 125,CEA,CA19-9,@FP,Bhcg)<br>CT abdomen & pelvis(showing multiseptated with solid & cystic component mass) | Epithelial ,sex cord – stromal or germ cell on basis which ovarian cells are differentiating into malignant cells |
| **UTERINE** | Symptoms :<br>Post menopausal bleeding<br>Irregular menstrual bleeding(heavy menstrual bleeding, continuous bleeding) | Hysteroscopy & curettage<br>Transvaginal USG (thickened endometrium)<br>MRI pelvis | Increased number of malignant looking endometrial glands |
| **VULVAL** | Symtoms :<br>Lump<br>Discoloured skin area on vulva<br>Irritation<br>Local Bleeding<br>Signs :<br>Palpable growth or vulval ulcer<br>Palpable groin lymph nodes | Punch biopsy of vulval lesion | Squamous cell carcinoma or melanoma |
| **VAGINAL** | Symptoms :<br>Vaginal discharge & bleeding<br>Signs :<br>Vaginal growth | Pap smear<br>Growth biopsy | Squamous cell carcinoma |



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