



What is Cervical Cancer?



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Introduction

Cervical cancer is one of the most preventable cancers

It is a cancer found in the cells of the cervix (The cervix is the lower part or 'neck' of the uterus where it joins the inner end of the vagina).

Epidemiology

Second most common cancer among women worldwide, next only to breast cancer. Every year cervical cancer is diagnosed in about 500,000 women globally and is responsible for more than 280,000 deaths annually. Wide variation in the incidence of cervical cancer across the globe. 80% of cases occurs in developing countries, like India (reports one fourth of cervical cancer each year). In India - the commonest cancer among women. Cancer breast is the leading cancer among females as reported in registries from Mumbai, Delhi and Bangalore while in rest of registries, cancer cervix is the leading cancer followed by breast cancer [1-3].

India has the largest burden of cervical cancer patients in the world. 1 woman dies of cervical cancer every 8 minutes in India. Every year in India, 122,844 women are diagnosed with cervical cancer and 67,477 die from the disease. ICO Information Centre on HPV and cancer (Summary Report 2014-08-22). HPV and Related Diseases in India 2014 [4].

Peak age of incidence is 55-59 years although bimodal. Most of the women report in the late stage of disease. 5-year survival rate of Cervical Cancer is 67.5%. 80% of the cervical cancers can be prevented by HPV vaccine and smears.

Risk Factors

- Sexual history- young age at first intercourse (<16 years),
- multiple sexual partners
- Cigarette smoking

- High parity
- Low socio-economic status
- Poor genital hygiene
- Chronic immune suppression (HIV).

Pathogenesis

The process of carcinogenesis starts at the 'transformation zone' (TZ).

- Ectocervix: pink stratified squamous epithelium
- Endocervix: single layer of tall columnar epithelium with reddish hue. Point at which columnar and squamous epithelium meet is original squamo columnar junction.

Human Papilloma Virus (HPV)

Infection with HPV

- Cause of 90% of cervical cancer.
- initiating event in cervical dysplasia and carcinogenesis

HPV subtypes

- High oncogenic risk- Types 16 & 18, found in up to 62% of cervical carcinomas.
- Low oncogenic risk- Types 6,11.

Symptoms

Vaginal bleeding

Most common symptom

- Postcoital bleeding
- Irregular or postmenopausal bleeding
- Offensive vaginal discharge
- Pelvic pain

- e. Increased frequency of micturition, diarrhea
- f. Ureteral obstruction d/t progressive growth of tumor laterally

Ultimately, the patient may be cachectic, anemic with edema legs

- a. Preclinical invasive cancer refers to early cervical cancer, with minimal stromal invasion, often without any symptoms or clinical features [5].
- b. As the stromal invasion progresses, the disease becomes clinically obvious, revealing several growth patterns visible on speculum examination.
- c. Histological 90-95% of invasive cervical cancers are squamous cell cancers; adenocarcinoma constitutes less than 5% of cervical cancers in most developing countries.
- d. The most widely used staging system for invasive cervical cancer is based on tumor size and the spread of disease into the vagina, parametrium, urinary bladder, rectum and distant organs.
- e. Clinical stage of disease at presentation is the single most important predictor of survival from invasive cervical cancer.
- f. Speculum examination

Very early lesion

Rough, reddish, granular area that bleeds on touch.

More advanced cancer can be

- a. Exophytic
- b. Endophytic
- c. Combination of both
- d. Cervical Cancer Screening

What is screening?

Screening is looking for cancer before a person has any symptoms. This can help find cancer at an early stage. When abnormal tissue or cancer is found early, it may be easier to treat. By the time symptoms appear, cancer may have begun to spread [6-8].

Principles of cervical screening

- a. To reduce the incidence and mortality of cervical cancer
- b. Cervical screening should be population based with wide coverage (aim for at least 80% coverage of the population).
- c. Cervical cytology is the most used method of screening.

Why is screening effective for cervical cancer?

- a. well defined premalignant lesion.

- b. Long latent period
- c. A clearly defined viral etiology which could be incorporated as a marker in mass screening program
- d. Easy and direct access of the uterine cervix for examination and sampling
- e. Effective treatments available for the premalignant changes.

Recommendations for screening

- a. Screening should begin at 21 years of age
- b. Screening before 21 should be avoided
- c. Between 21 and 29 years screen every 2 yearly
- d. Women aged 30 years who have
 - a. three consecutive negative cervical cytology screening test results
 - b. no history of CIN 2 or CIN 3
 - c. not HIV infected
 - d. not immuno compromised
 - e. not exposed to diethylstilbestrol in utero

Discontinue screening between 65 and 70 years of age in women who have

- a. three or more negative cytology test results
- b. no abnormal test results in the past 10 years.

Techniques of screening

- a. Pap smear cytology
- b. HPV Testing
- c. Visual inspection of cervix after acetic acid (VIA) or Lugol's iodine (VILI).
- d. Colposcopy
- e. Endocervical sampling should be done with cytobrush.
- f. Single pap smear has a sensitivity of only about 50-60%.
- g. False negative pap smear may result from either errors of sampling, fixation, thick slide, or obscured by vaginal discharge, blood, or mucus.
- h. Benefits:
 - i. Pap smear test has been effective reducing the incidence of cervical cancer by 80% and the mortality by 70%.

HPV triage Strategy

- a. Pap smear test
- b. Hybrid capture 2 for HPV DNA.

- c. HPV DNA test-
- d. Positive (High risk viruses)→ Colposcopy→ Biopsy
- e. Negative→ Repeat smear after one year.
- f. COLPOSCOPY:
- g. Prominent white line corresponds to the new SCJ and tongues of immature
- h. squamous metaplasia
- i. (a) with crypt opening at 4-8 o'clock
- j. positions
- k. (b) (after application of 5% acetic acid)

HPV vaccine

Prophylactic vaccine to protect against HPV infection.

Gardasil-

Quadrivalent vaccine, VLPs (Virus like Particles) for HPV- 6,11,16& 18.

Cervarix-

Bivalent vaccine, VLPs for HPV- 16 & 18

- a. Effective in prevention of about 90% cervical cancer.
- b. HPV vaccine does not eliminate the need for routine cervical screening.
- c. All the vaccines have some cross protection against other HPV types 31,33 and 45.

Vaccine Recommendations

Age group

- a. 9-26 years.
- b. Impact is greatest when given to females who are not already affected, so given ideally to girls aged 9-13 years.

3-dose schedule

0, 1 to2, 6 months

Vaccines are effective for at least 7.5 years.

- a. Preventing Cervical Cancer in Resource-Poor Countries
- b. In developing world- it is leading cause of death.

- c. Bulk of cervical cancer (80%) occurs in resource- poor countries.
- d. Only 5% of women in the developing world undergo screening in comparison to 50% or more in the developing world [9,10].

Why lack of progress??

- a. Absence of an organized screening programme.
- b. Lack of awareness amongst women & care providers
- c. Inadequate training
- d. Limited financial resources
- e. Poor quality of cytological & colposcopy services
- f. Lack of political will

How much cervical cancer screening effective?

- a. Colorectal cancer and cervical cancer are only 2 cancers which can be prevented by screening.

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