CERVICAL INTRAEPITHELIAL NEOPLASIA (CIN) & CANCER CERVIX

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CERVICAL INTRAEPITHELIAL NEOPLASIA (CIN)

CIN is a potentially premalignant transformation and abnormal growth of the squamous cells on the surface of the cervix.

Cervical neoplasia represents a continuum of disease and the preinvasive (confined to the epithelium) can spontaneously regress to normal epithelium or progress to invasive cancer.

The major cause of CIN is chronic infection of the cervix with the sexually transmitted human papilloma virus (HPV), especially the high-risk HPV serotypes 16 or 18.

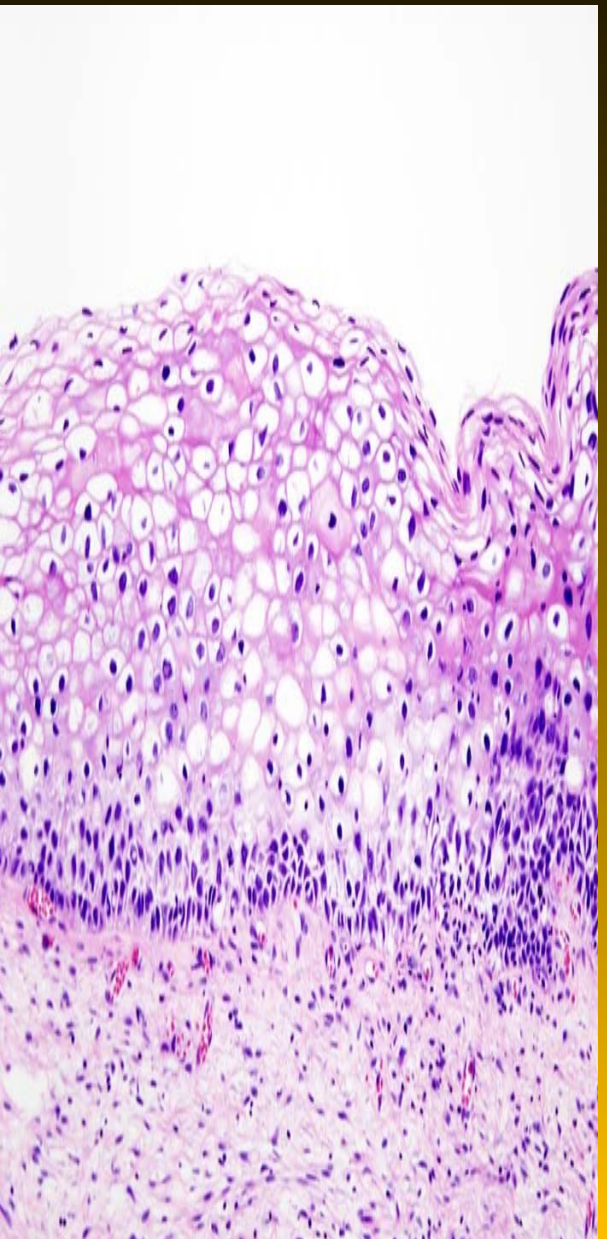
Grades of CIN:

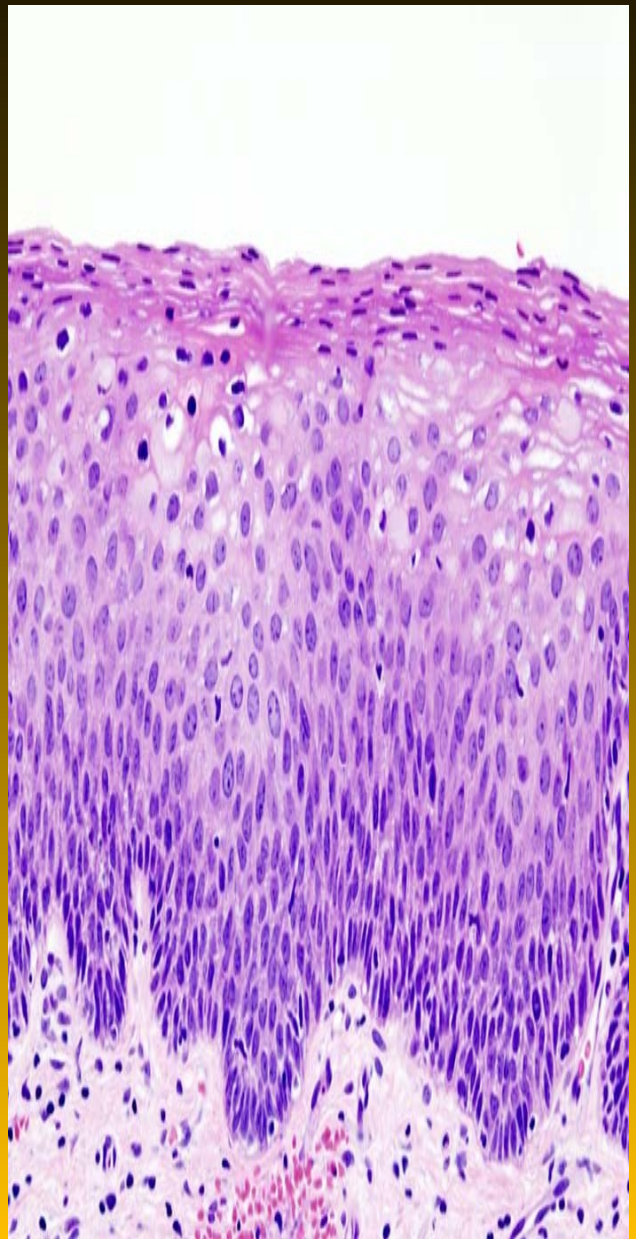
CIN1: It is the least risky. The abnormal cell growth is confined to the basal 1/3 of the epithelium.

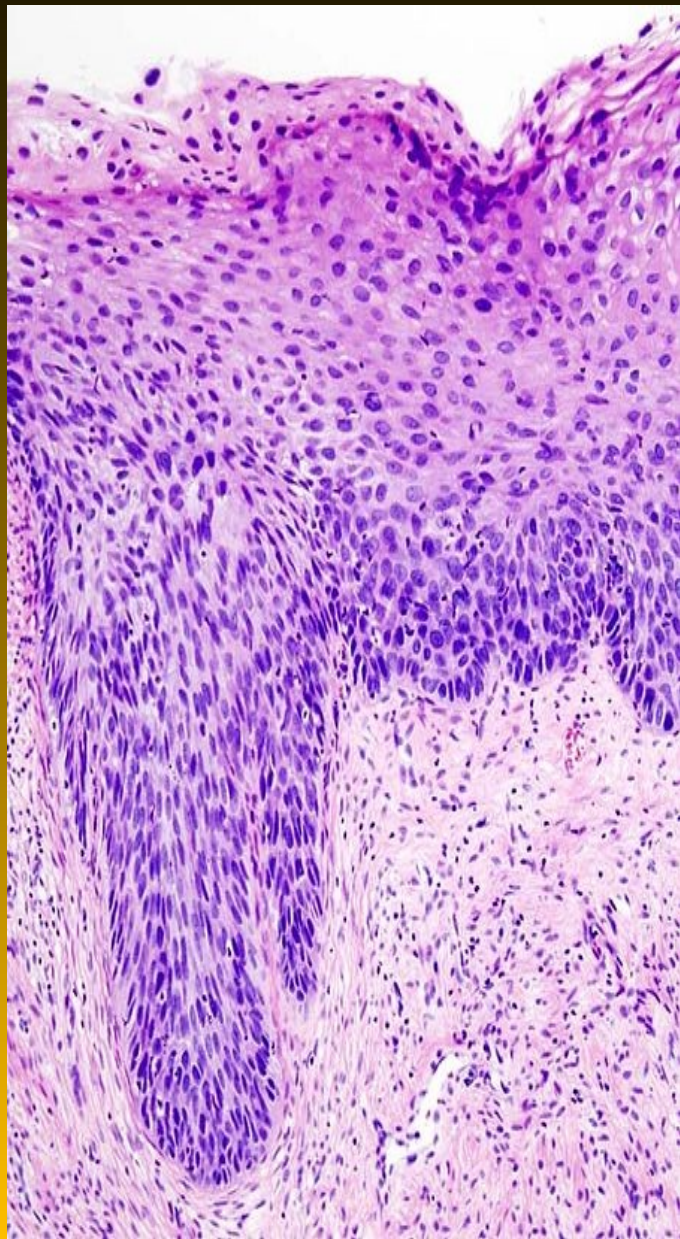
CIN2: The abnormal cell growth is confined to the basal 2/3 of the epithelium .

CIN3: The abnormal cell growth involves more than 2/3 of the epithelium, and may involve the full thickness. This lesion may sometimes also be referred to as cervical carcinoma in situ.

CIN1 CIN2 CIN3







Diagnosis of CIN:

Screening by Papanicolaou smear:
(pleomorphism, nuclear irregularity, hyperchromasia, the presence of multiple nucleoli, and an increased nuclear-cytoplasmic ratio). Smearing every 3 years for women who are between the ages of 20 and 65 years decreases the incidence and mortality rate of invasive cervical cancer by approximately 90%.

Colposcopy and biopsy of the cervix:
Once an abnormality is found

CIN1:

Treatment is not recommended, as it resolves spontaneously. The case is followed up for later testing rather than treated.

CIN2 & CIN3:

Treatment involves removal or destruction of the neoplastic cervical cells by cryocautery, electrocautery, laser ablation, loop electrical excision procedure (LEEP), or cervical conization.

Hysterectomy is reserved for patients who have completed childbearing and who have severe precancerous lesions that have been resistant to repetitive treatment.

INVASIVE CERVICAL CANCER

Fifty years ago carcinoma of the cervix was the leading cause of death from malignant disease in American women. Since 1940, however, the mortality rate from cervical carcinoma has declined by more than 50%. Yet it still ranks sixth in cancer mortality, and it results in an estimated 4500 deaths each year in the United States.

The peak incidence in women between ages 45 to 55 years of age, and more than 44,000 new cases of in situ cervical carcinoma are diagnosed each year.

Diagnosis:

There are no specific symptoms, especially in early stages. There may be only a discharge. As the disease progresses, the discharge may become grossly hemorrhagic. In the advanced stages, a characteristic bloody, malodorous discharge may develop.

Postcoital bleeding or irregular vaginal bleeding may be noted.

Diagnosis:

Pain is a late symptom and is typically of a sciatic distribution that radiates down the back of the buttock, thigh, and knee.

Endocervical tumors may cause little or no bleeding or discharge, however, the cancer may spread rapidly to the sacral plexus and produce severe pain.

Diagnosis:

The gross clinical appearance of invasive cervical lesions is generally of two types: exophytic (proliferative) and endophytic (ulcerating). The exophytic lesion may involve the entire cervix and have a cauliflower like appearance, whereas the endophytic lesion has a predilection to invade upward into the endocervical canal, often expanding the lower uterine segment and giving rise to the so-called barrel-shaped cervix.

Differential Diagnosis:

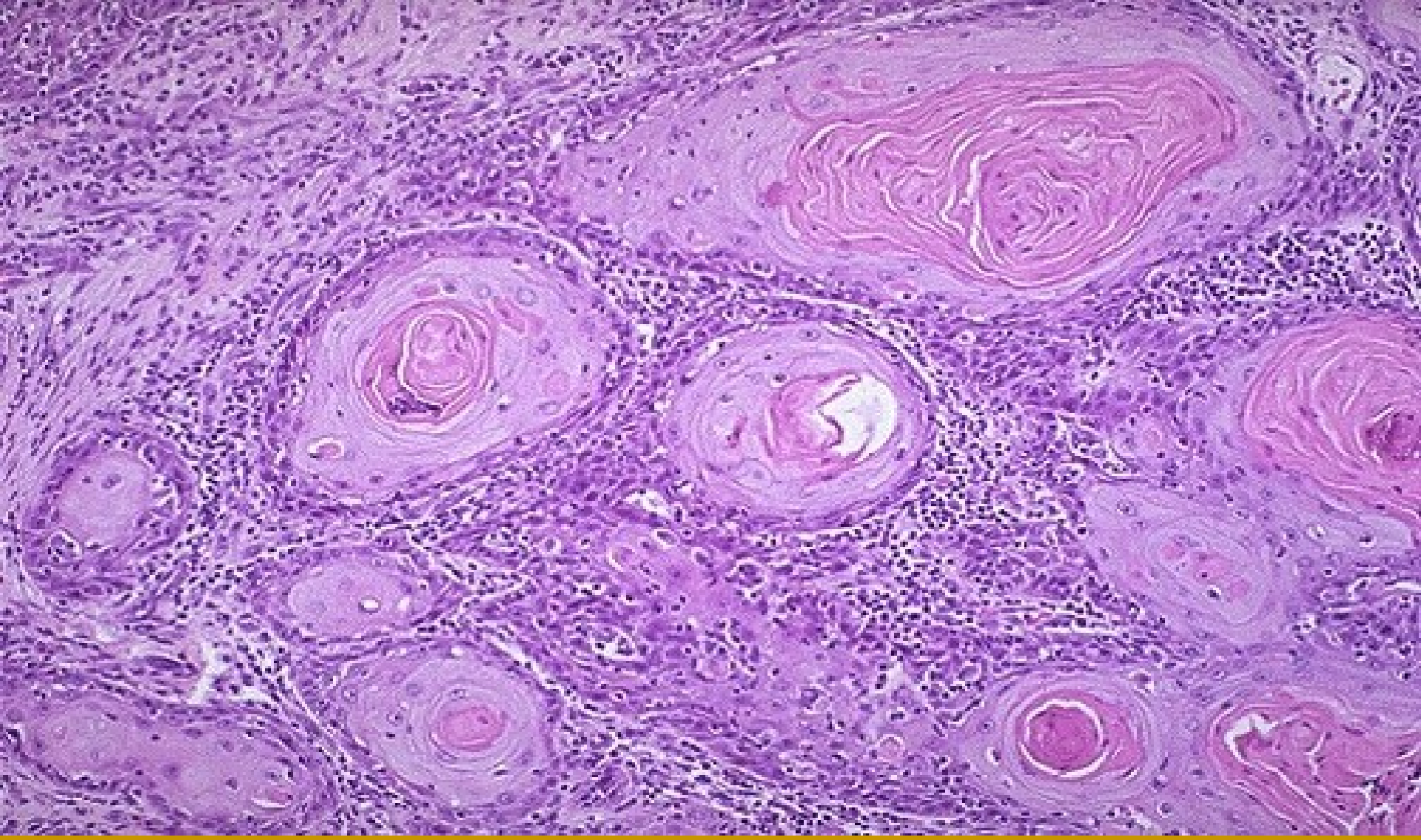
Lesions most commonly confused with cervical cancer are eversions, polyps, papillary endocervicitis, and papillomas. Tuberculosis, syphilitic chancres, and granuloma inguinale rarely involve the cervix. It may be impossible to differentiate these benign lesions from early invasive cancer by any method other than biopsy.

Secondary carcinoma of the cervix may occur by direct extension from the corpus or the vagina. Metastatic ovarian, and bladder,

Pathology:

Squamous cell carcinoma accounts for 85% of invasive cervical cancer. Adenocarcinoma accounts for approximately 10% to 15%, and the remainders are sarcomas and lymphomas.

Squamous cell carcinoma is divided into three types: keratinizing, nonkeratinizing, and small-cell carcinoma. Keratinizing cells show foci of keratinization with cornified "pearls." Nonkeratinizing cells have well-demarcated tumor-stromal borders but no evidence of keratinization or cornified pearls. The small-cell type consists of small, round, or spindle-shaped cells with poorly defined tumor-stromal borders.



Invasive squamous cell carcinoma of the cervix keratinizing type.

Mode of spread:

Direct spread to the vagina and uterine cavity and laterally through the cardinal and uterosacral ligaments. Lateral spread may occur within the substance of the ligaments or in the areolar tissue adjacent to them.

Laterally extending carcinoma may encompass and obstruct the ureters as they traverse the paracervical region and ultimately cause hydroureter, hydronephrosis, and eventual loss of kidney function. The cancer may traverse the paravaginal fascia with extension into the bladder or bowel and can result in vesicovaginal or rectovaginal fistulas.

Mode of spread:

Lymphatic spread is to the external iliac, hypogastric, and obturator lymph nodes.

The next most commonly involved groups are the common iliac, parametrial, and paracervical lymph nodes.

The sacral and the periaortic nodes are less commonly involved

Clinical staging (FIGO):

Clinical staging remains the most important prognostic criterion in determining the patient's response to therapy. The staging process includes pelvic and rectal examination, evaluation of the urinary tract by either IVP or CT proctoscopy and cystoscopy.

Clinical staging (FIGO):

Stage 0 Carcinoma in situ

Stage I Carcinoma confined to the cervix

Stage IA Preclinical carcinoma; diagnosis only by microscopy

Stage IA-1 Microscopically measured invasion of stroma less than or equal to 3-mm depth; 7-mm horizontal spread maximum

Stage IA-2 Microscopically measured invasion of stroma greater than 3 mm ; 7-mm horizontal spread

Clinical staging (FIGO):

Stage IB Clinically confined to the cervix
Stage IB-1 Clinical lesion not greater than 4 cm diameter
Stage IB-2 Clinically confined to cervix; greater than 4 cm diameter

Stage II Carcinoma extends beyond the cervix but has not extended to the pelvic wall; it involves the vagina but not the lower third
Stage IIA No obvious parametrial involvement
Stage IIB Obvious parametrial involvement

Clinical staging (FIGO):

Stage III Carcinoma has extended to the pelvic wall; on rectal examination there is no cancer-free space between the tumor and the pelvic wall; tumor involves the lower third of the vagina; all patients have hydronephrosis or nonfunctioning kidney

Stage IV Carcinoma has extended beyond the true pelvis or has clinically involved the mucosa of the bladder or rectum; bullous edema is not classified as stage IV

Stage IVA Spread of the growth to adjacent organs

Stage IVB Spread to distant organs

Treatment:

Radical hysterectomy:

Radical hysterectomy requires removal of the uterus, cervix, parametrial tissues, and upper vagina in conjunction with a pelvic lymphadenectomy from the bifurcation of the iliac vessels to approximately the level of the inguinal ligament.

Because cervical cancer rarely metastasizes to the ovaries, they may be preserved in younger patients to avoid the need for replacement therapy.

Treatment:

Radical hysterectomy:

The mortality rate from radical hysterectomy is 1% or less in appropriately skilled hand.

Morbidity rate may approach 30% and includes:

--Bladder dysfunction because of denervation injury

--Urinary stasis may result in chronic cystitis, ureteritis, and pyelonephritis.

--Urinary tract fistulas, either ureteral or vesicular, are a result of vascular compromise

--Thromboembolic sequelae

Treatment:

Radiation therapy:

Radiation therapy is administered in two forms: *external beam whole pelvic radiation* and *transvaginal intracavitary cesium*.

The ability to cure cervical cancer with an acceptable level of complication is achieved by the intracavitary technique that permit high-dose delivery to the cervix and vagina while minimizing the dosage to the bladder or the rectum.

Treatment:

Radiation therapy:

The most common side effects:

--Cystitis and proctitis
--Vesicovaginal and rectovaginal fistulas may rarely result
--Aggravation of PID
--Vaginal stenosis and dyspareunia
--loss of ovarian function resulting in decreased libido and menopausal symptoms
--small-bowel obstruction and perforation

THANK YOU