

Unit IV – Problem 8 – Pathology: Cervical Intraepithelial Neoplasia (CIN)



- Exfoliative cytology:

- It is the study of cells which shed from any surface. It is a branch of cytopathology.
- It is used as a screening method for asymptomatic population, but especially to detect abnormal cells in the cervix (malignant or dysplastic). It can also detect some infectious microorganisms.

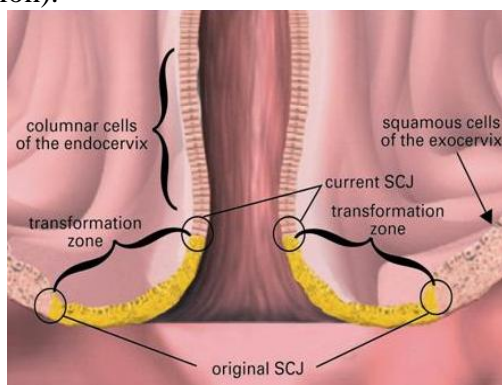
- Pap smear:

- It is a Gynecological screening test done by using a spatula or endocervical brush and spreading on a slide (conventional method) or immersing in fluid (liquid-based cytology).
- The specimen is taken from the transition zone and stained with papanicolaou stain.
- Human Papilloma Virus (HPV) is related to cervical cancer which arises in the transition zone.

- Histology of the cervix of uterus:

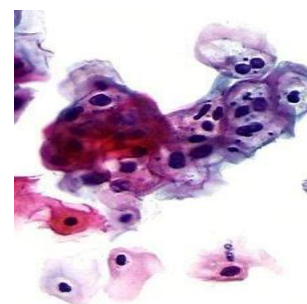
- **Exocervix:** squamous epithelium.
- **Endocervix:** columnar epithelium.

Note: between these two is the transition zone (which is also known as squamocolumnar junction).



- Human Papilloma Virus (HPV):

- DNA virus infecting the cervix in transition zone.
- **Classification:**
 - ✓ Low-risk types: 6 and 11 (causing condyloma: raised growth of the skin resembling a wart).
 - ✓ High-risk types: 16 and 18 (why?) → because they are producing two proteins:
 - ❖ E6: destroying p53 suppressor gene.
 - ❖ E7: destroying Rb suppressor gene.



- Cervical Intraepithelial Neoplasia (CIN):

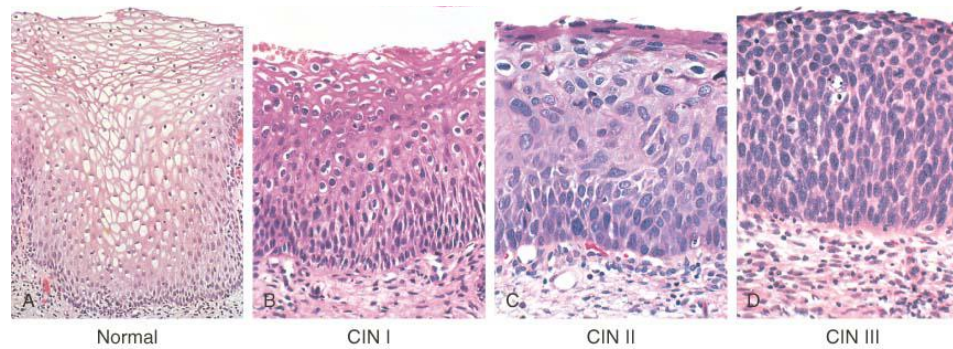
- It is an epithelial dysplasia (bad growth) resulting characteristically in koilocytes (see the image: hyperchromatic; single or double nuclei surrounded by sharply demarcated perinuclear clear zones).

• **Classification:**

CIN-I	Involving the basal 1/3 of cervical epithelium
CIN-II	Involving the basal 2/3 of cervical epithelium
CIN-III	Dysplasia involving most of cervical epithelium (unlikely to reverse).
CIS (Carcinoma In Situ)	Dysplasia involving the whole thickness of epithelium and it will progress to invasive carcinoma (irreversible)

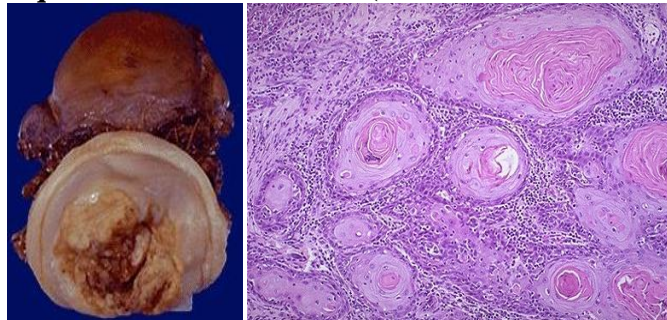
Note: classification based on Bethesda system:

- ✓ Low-grade SIL (Squamous Intraepithelial Lesion): mild dysplasia (CIN-I).
- ✓ High-grade SIL: moderate dysplasia (CIN-II) and severe dysplasia (CIN-III).



- **Cervical carcinoma:**

- **Age:** middle-aged females.
- **Presentation:** abnormal vaginal bleeding especially after intercourse (postcoital).
- **Risk factors:**
 - ✓ High-risk HPV types (16 and 18).
 - ✓ Smoking.
 - ✓ Multiple sexual partners.
 - ✓ Early sexual intercourse.
 - ✓ HIV-infection.
- **Most commonly squamous cell carcinoma (there is keratinization).**



- Advanced tumors can invade through anterior wall of the uterus into the bladder producing hydronephrosis and subsequent renal failure.
- **Aim of screening:** to catch dysplasia before it develops to carcinoma. This is done by pap smear.
- **Management:**
 - ✓ Low-grade SIL: repeat smear after 6 months → if positive → do colposcopy.
 - ✓ High-grade SIL: colposcopy and biopsy of any abnormal area.