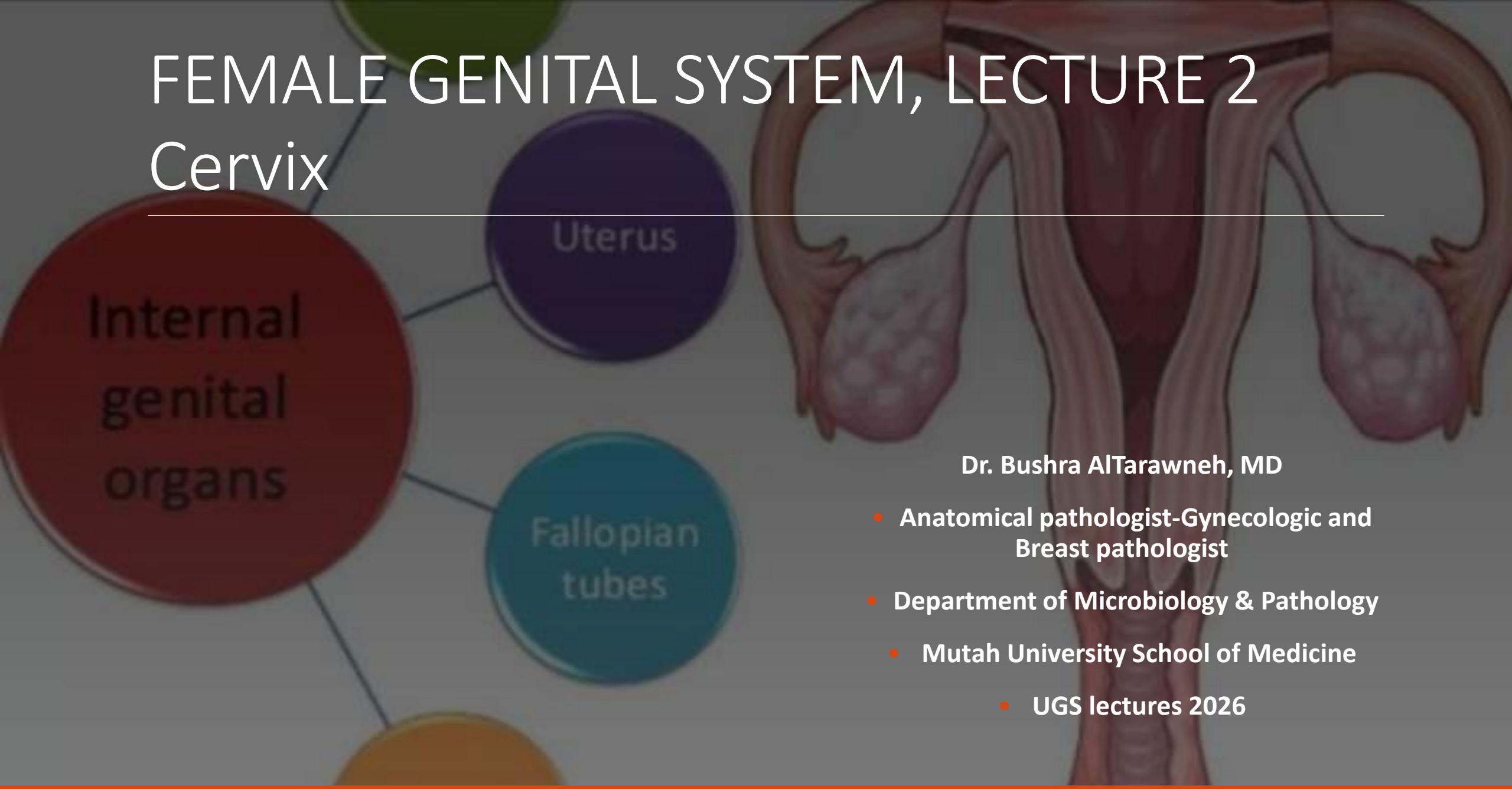
FEMALE GENITAL SYSTEM, LECTURE 2
Cervix



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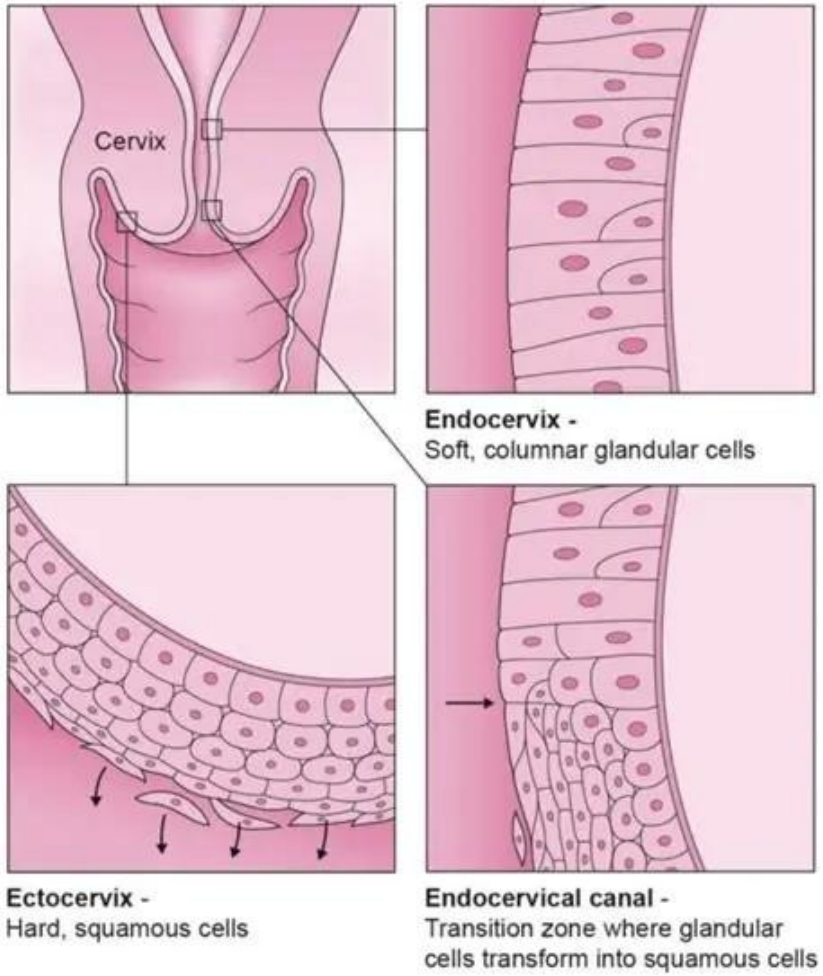
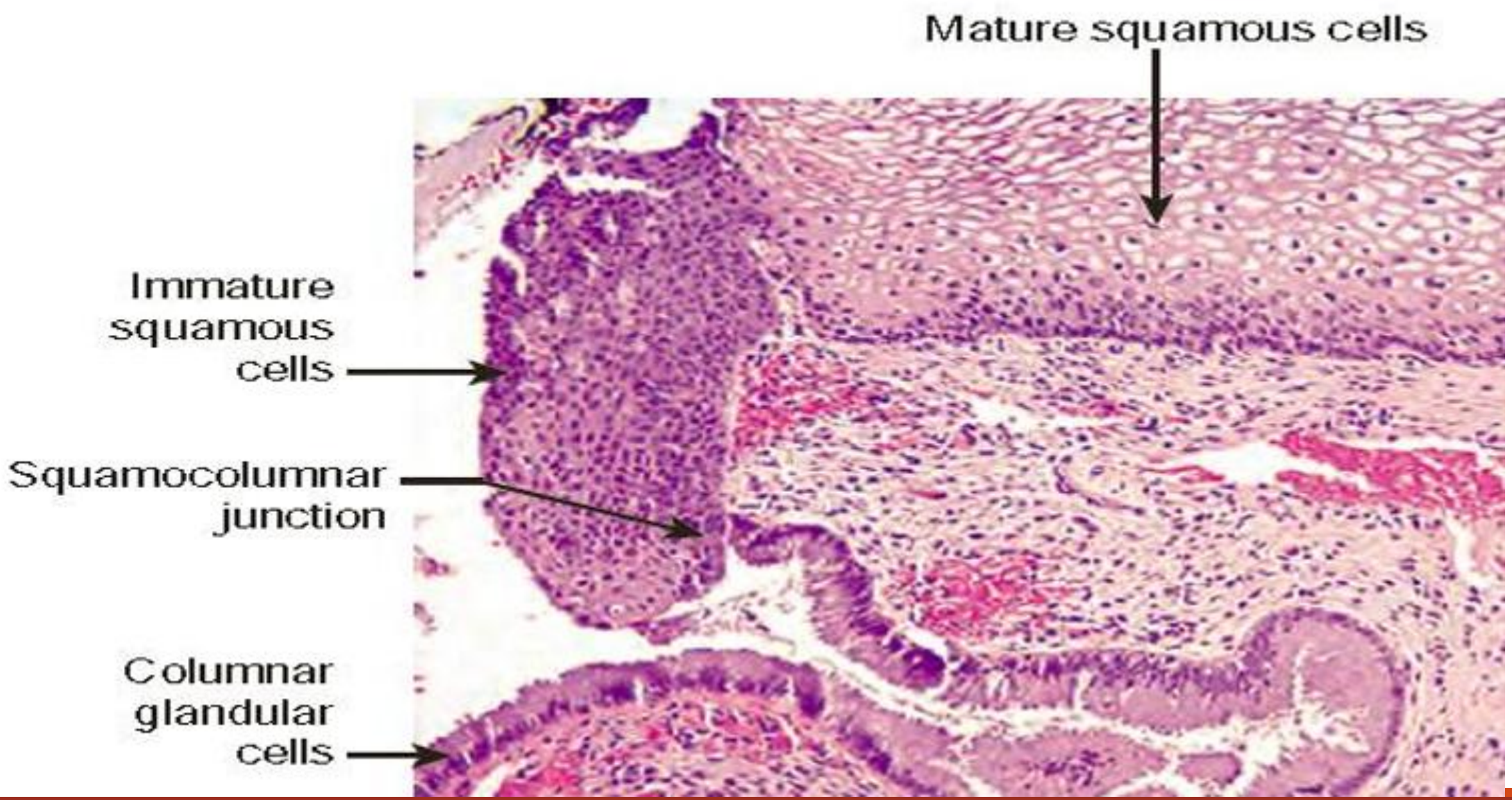

Cervix
Endocervix -
Soft, columnar glandular cells
Ectocervix -
Hard, squamous cells
Endocervical canal -
Transition zone where glandular cells transform into squamous cells
© Jo's Cervical Cancer Trust


Mature squamous cells
Immature squamous cells
Squamocolumnar junction
Columnar glandular cells

CERVICAL CARCINOMA

-Was the most common cancers in women worldwide. Was →Papanicolaou (Pap) smear → the most successful cancer-screening test ever developed.

- Most common form is SCC 75%, adenoCa. & adenosquamous (mixed) Ca. 20%, & neuroendocrine Ca 5%.

- All are ass with HPV infection.

- Peak at 45 years, 10-15 years after detection of their precursors: cervical intraepithelial neoplasia (CIN)

Cervical intraepithelial neoplasia (CIN)

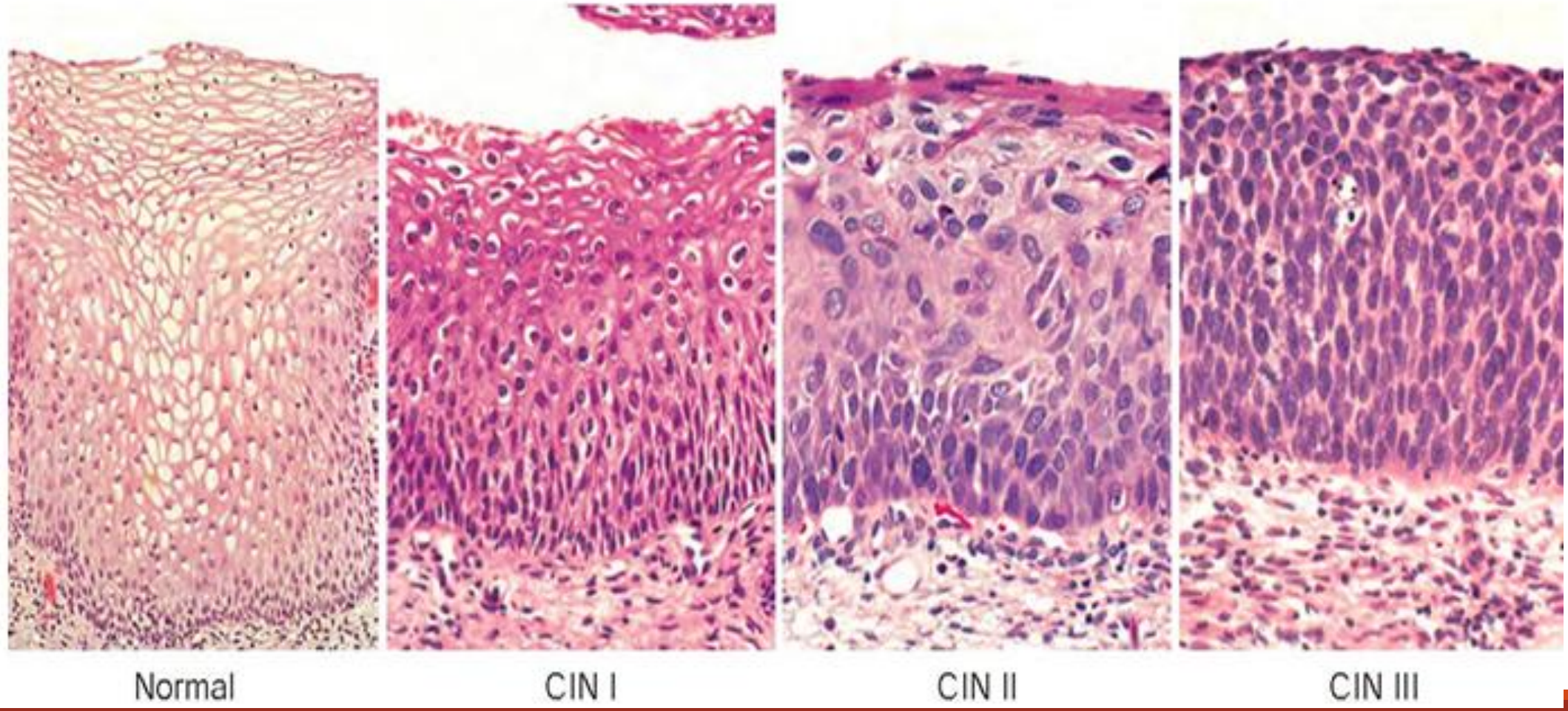
Dysplasia in epithelial cells, graded depending on the extent of epithelial involvement:

-CIN I: Mild dysplasia (involves a third or less of thickness)

-CIN II: moderate dysplasia (involves 2/3 of thickness).

-CIN III: severe dysplasia (involves full thickness) → carcinoma in situ

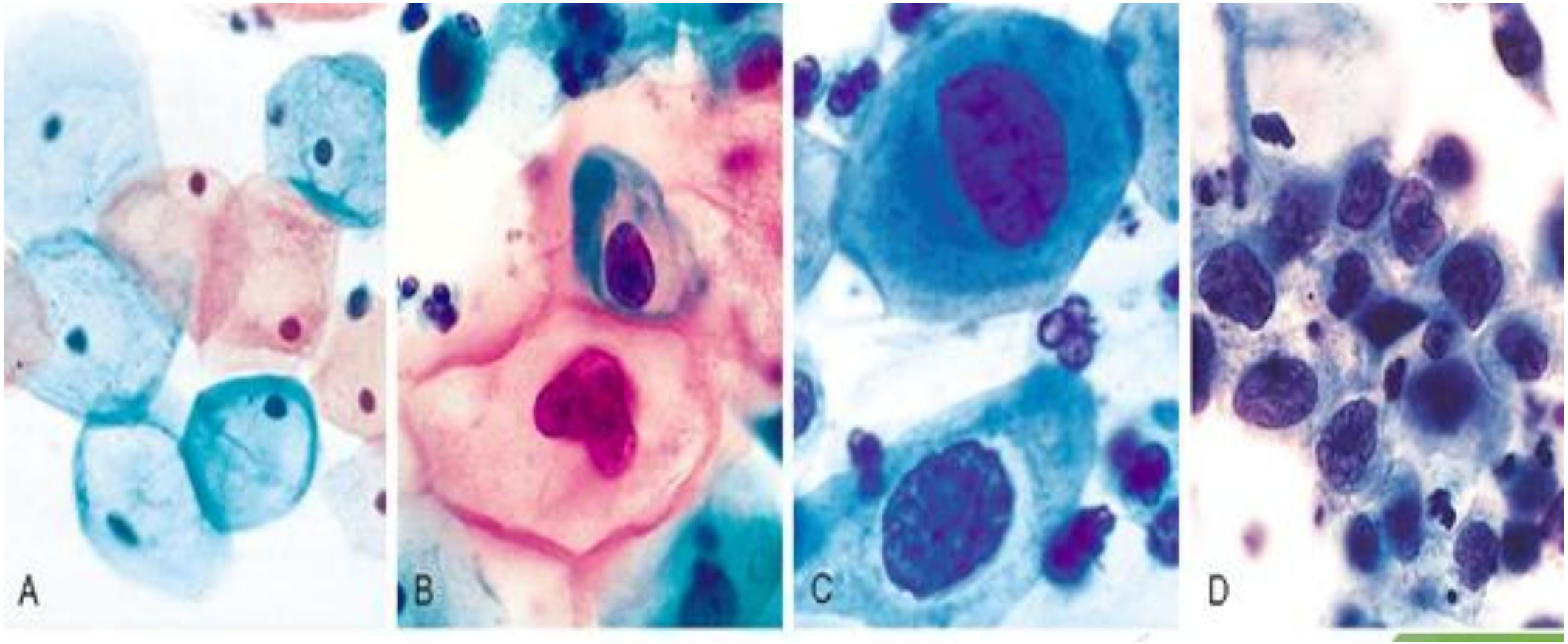
CIN → Dysplasia: nuclear enlargement, hyperchromasia (darker), coarse chromatin, & variation in nuclear size & shape



CIN and Pap smear!

- Cervical precancerous lesions are associated with abnormalities in cytologic preparations → Can be detected long before abnormality is visible on gross inspection.
- Cells are scraped from the transformation zone & examined microscopically
- Pap screening has dramatically lowered the incidence of invasive cervical tumors & it is no longer ranks among the top 10 causes of cancer deaths in U.S. women.

CIN → Dysplasia: nuclear enlargement, hyperchromasia (darker), coarse chromatin, & variation in nuclear size & shape



CIN → SIL (squamous intraepithelial lesion)

The decision with regard to patient management is two-tiered (observation versus surgical treatment) → Three-tier classification system → recently simplified to a two-tiered system → Low grade squamous intraepithelial lesion (LSIL) & high grade squamous intraepithelial lesion (HSIL)

Dysplasia/Carcinoma in Situ	Cervical Intraepithelial Neoplasia (CIN)	Squamous Intraepithelial Lesion (SIL), Current Classification
Mild dysplasia	CIN I	Low-grade SIL (LSIL)
Moderate dysplasia	CIN II	High-grade SIL (HSIL)
Severe dysplasia	CIN III	High-grade SIL (HSIL)
Carcinoma in situ	CIN III	High-grade SIL (HSIL)

CIN, Cervical intraepithelial neoplasia; SIL, squamous intraepithelial lesion.

CIN– Pathogenesis & epidemiology

- Peak incidence at 30s (SCC at 45 years of age).
- HPV can be detected in nearly all CIN and invasive carcinoma. (mostly subtype 16 & 18).
- These subtypes show a propensity to integrate into host genome, & express large amounts of E6 & E7 proteins → inhibit tumor suppressor genes p53 & RB, respectively.
- HPV vaccine is recently introduced → very effective in preventing HPV infections → expected to lower frequency of genital warts & cervical Ca.

CIN– Clinical

-SIL is asymptomatic and comes to clinical attention through an abnormal Pap smear result.

-Women with biopsy-documented LSIL are managed with careful observation.

-HSILs & persistent LSIL are treated with surgical excision (laser or cone biopsy) & follow up.

Invasive Carcinoma of the Cervix: Clinical

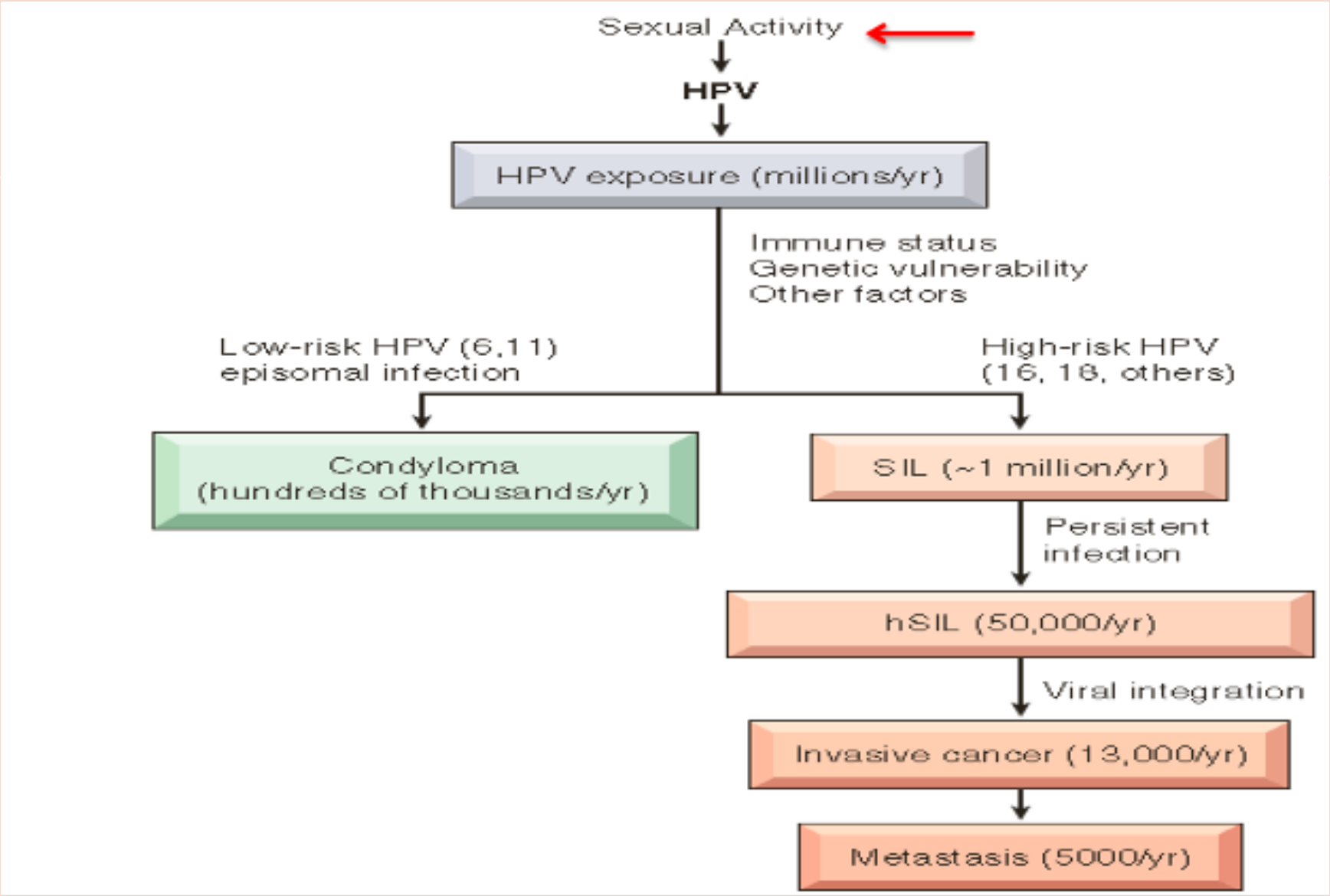
- Progression of SIL to invasive carcinoma is variable & unpredictable. (smoking is a risk factor).

- LSIL →10% →HSIL → 10% in ~ 10 years → carcinomas.

- Most often is seen in women who have never had a Pap smear or who have not been screened for many years.

- Tx: Hysterectomy+ radiotherapy and chemotherapy in advanced cases (high stage).

- 5-year survival: SIL: 100%; stage 1: 90%; stage 2 82%; stage3: 35%; & stage 4: 10%.


Sexual Activity
HPV
HPV exposure (millions/yr)
Immune status
Genetic vulnerability
Other factors
Low-risk HPV (6,11)
episomal infection
High-risk HPV
(16, 18, others)
Condyloma
(hundreds of thousands/yr)
SIL (~1 million/yr)
Persistent
infection
hSIL (50,000/yr)
Viral integration
Invasive cancer (13,000/yr)
Metastasis (5000/yr)

Endocervical Polyp

- Endocervical polyps are benign polypoid masses seen protruding from the endocervical mucosa (sometimes through the exocervix).

-They can be as large as a few centimeters, are soft and yielding to palpation, and have a smooth, glistening surface with underlying cystically dilated spaces filled with mucinous secretions.

-The surface epithelium and lining of the underlying cysts are composed of the same mucus-secreting columnar cells that line the endocervical canal. The stroma is edematous and may contain scattered mononuclear cells.

-Superimposed chronic inflammation may lead to squamous metaplasia of the overlying epithelium and ulcerations.