Cervical Cancer

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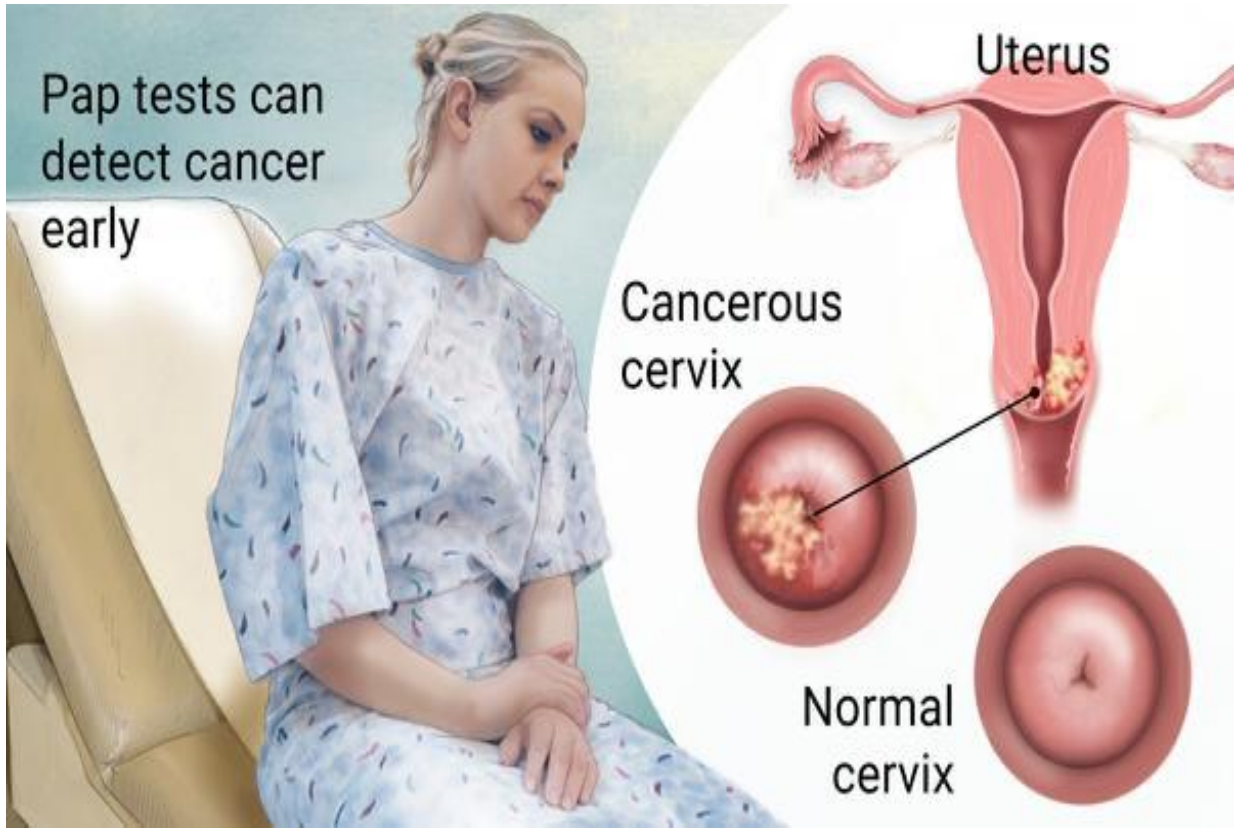
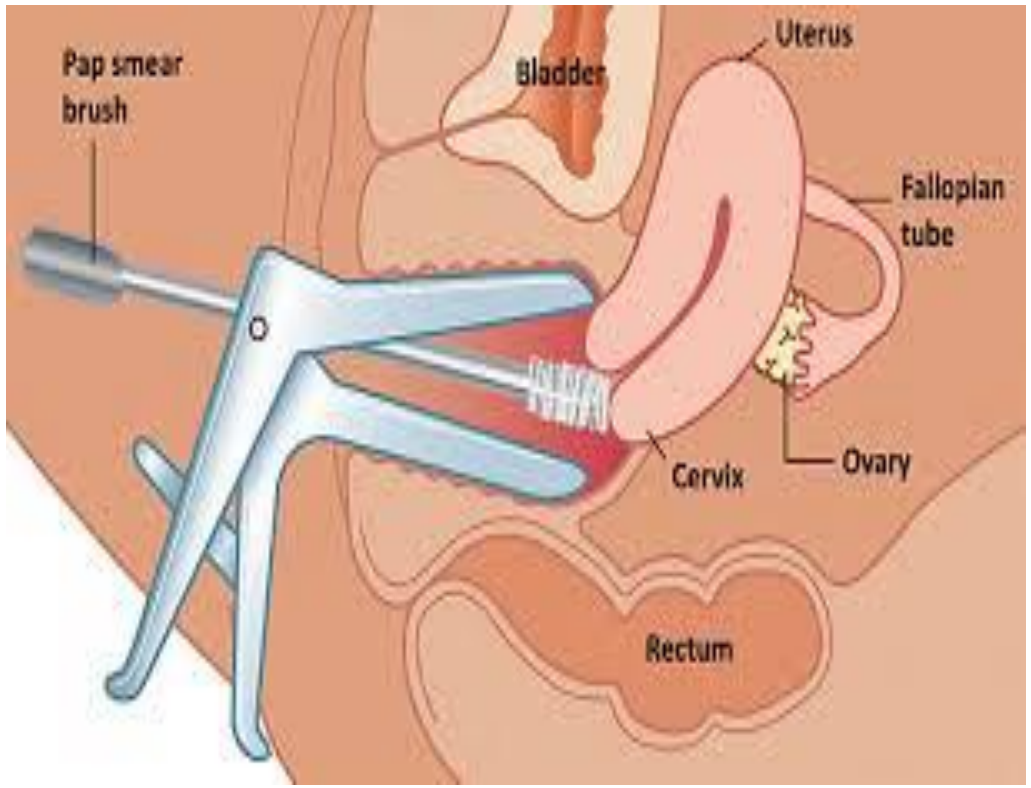
Case 1. Cervical Cancer

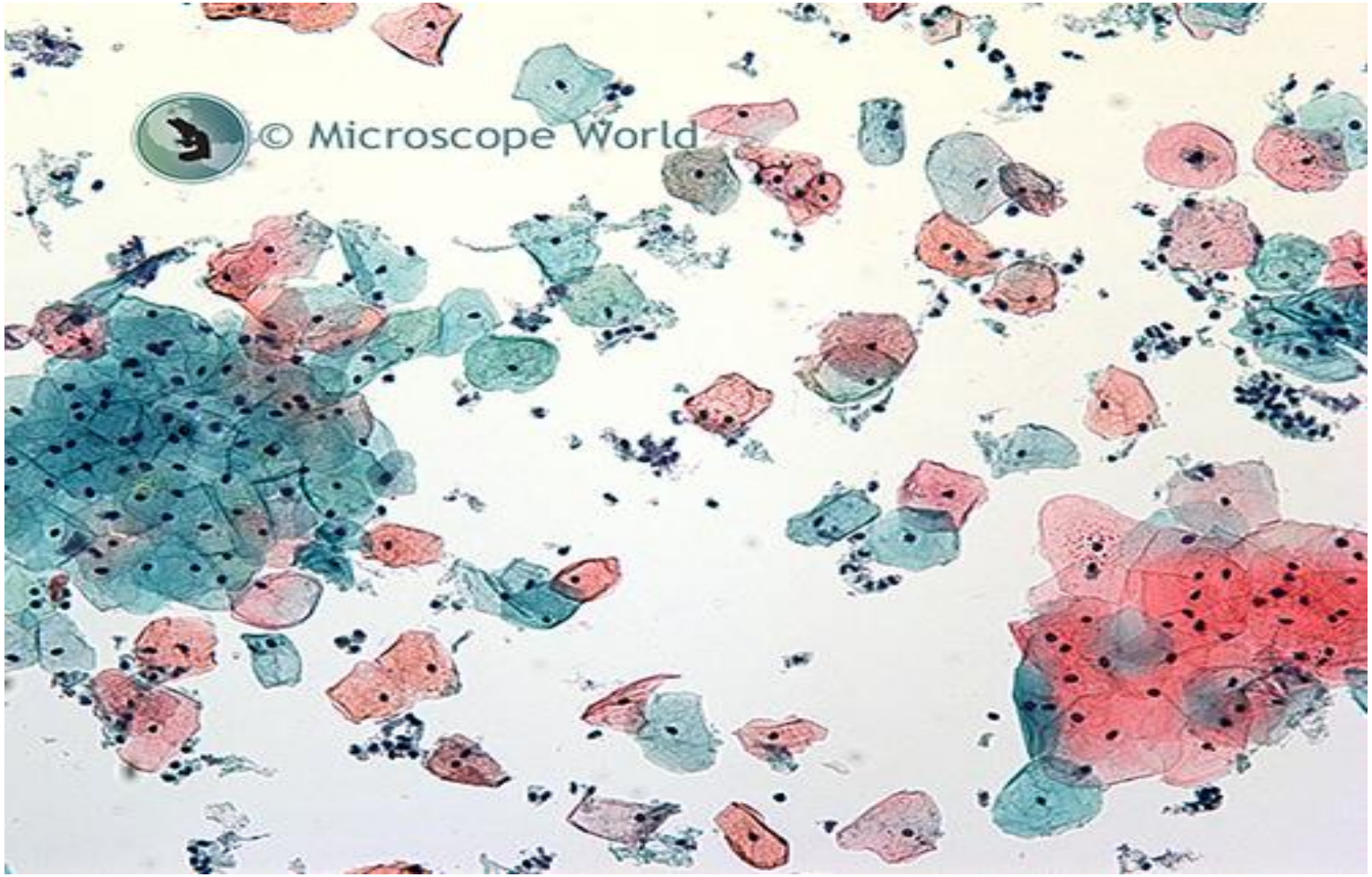
- A 37 yo woman complains of vaginal discomfort and spotting. She has no regular Primary Care Provider. A call to an urgent care center results in a referral to a gynecologist.

- As the gynecologist, what questions do you have of the patient?
- What tests and procedures would you order?

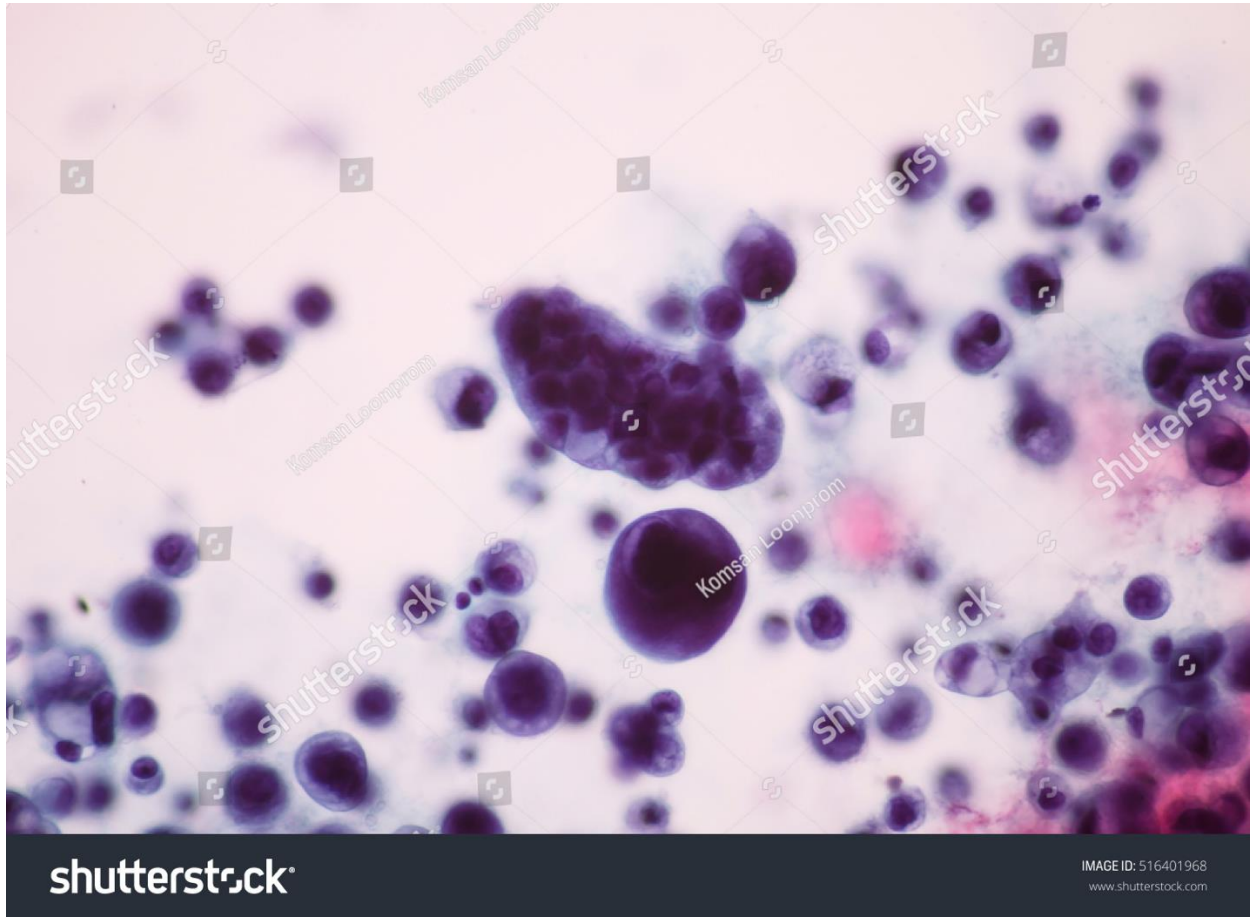

Pap tests can detect cancer early
Uterus
Cancerous cervix
Normal cervix

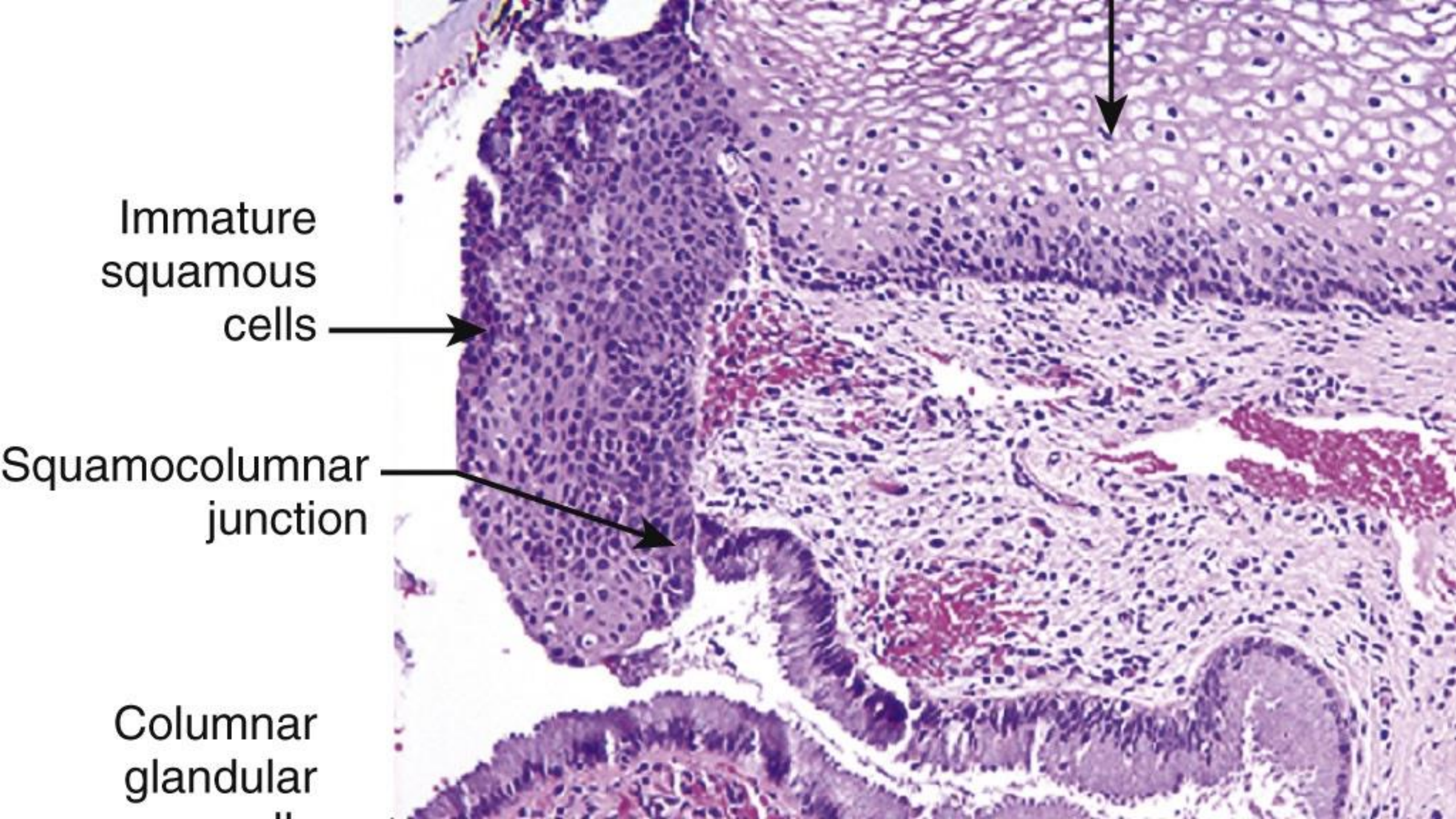

Pap smear
brush
Bladder
Uterus
Fallopian
tube
Cervix
Ovary
Rectum

Normal PAP smear



Patient 1: Pap Smear




Immature
squamous
cells
Squamocolumnar
junction
Columnar
glandular

Patient 1: Therapeutic Options

- What treatment options are available for this patient?

Screening for Cervical Cancer

- Gynecological exam
- PAP smear. At home self testing
- HPV detection

- HPV vaccination

Cervical Cancer

- 50 years ago Cervical cancer was the leading cause of cancer death in women
- The incidence of cervical cancer has since fallen 75% due to screening with PAP smear and the HPV vaccine

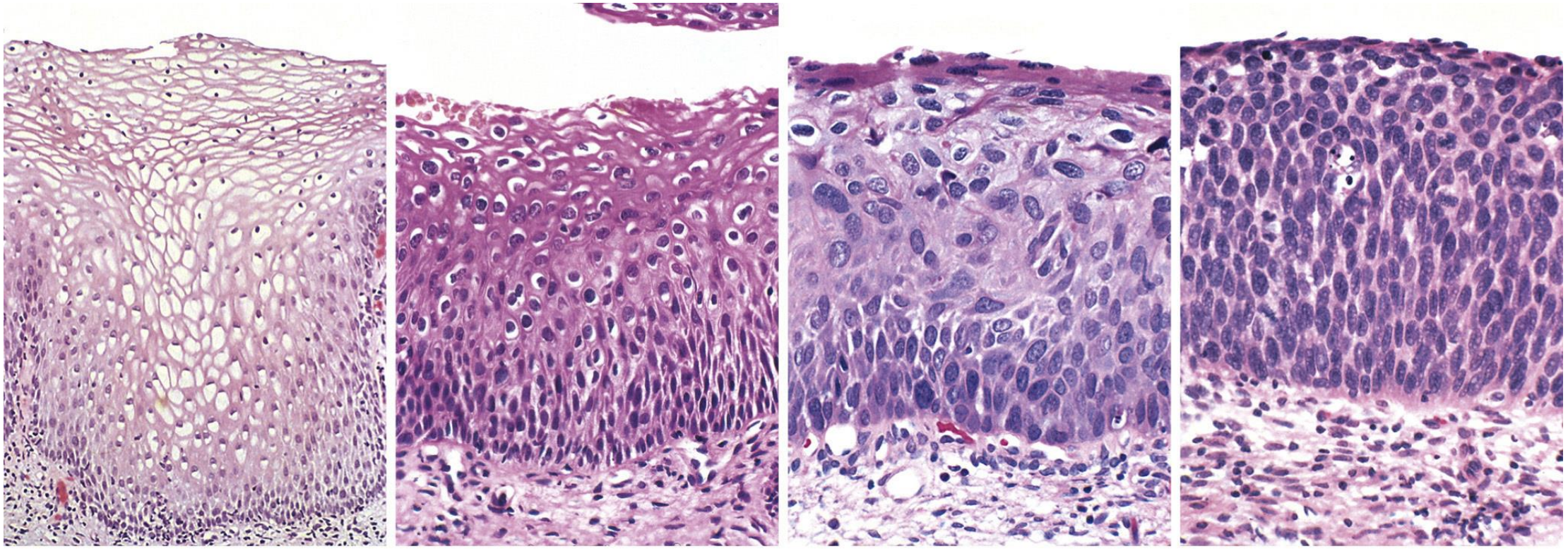
HPV is the cause of Cervical Carcinoma

- HPV. Human papilloma virus
- multiple strains. Low grade benign lesions, condyloma
- HPV 16, 18. Possible possible progression to carcinoma

- Natural History of SIL With 2-Year Follow-Up
- Lesion Regress Persist Progress
- LSIL 60% 30% 10% to HSIL
- HSIL 30% 60% 10% to carcinoma

- HSIL, High-grade squamous intraepithelial lesion;
- LSIL, low-grade squamous intraepithelial lesion.

Cervical biopsies

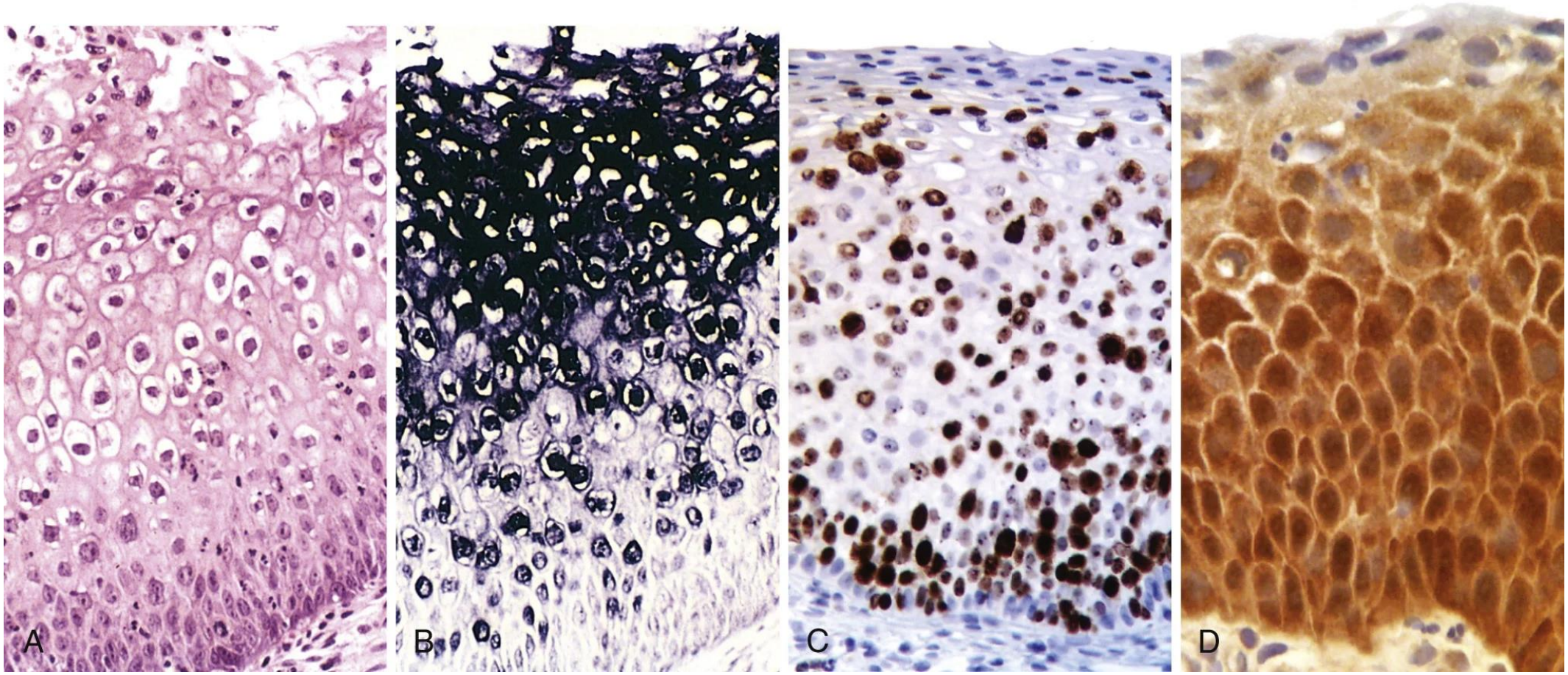


Normal CIN I CIN II CIN III

Where in the body are junctions between squamous and columnar epithelium

- Uterine cervix — endocervical canal
- Anus — lower colon (rectum)
- Esophagus —stomach
- Trachea — lung
- others

Immunohistochemistry of SIL

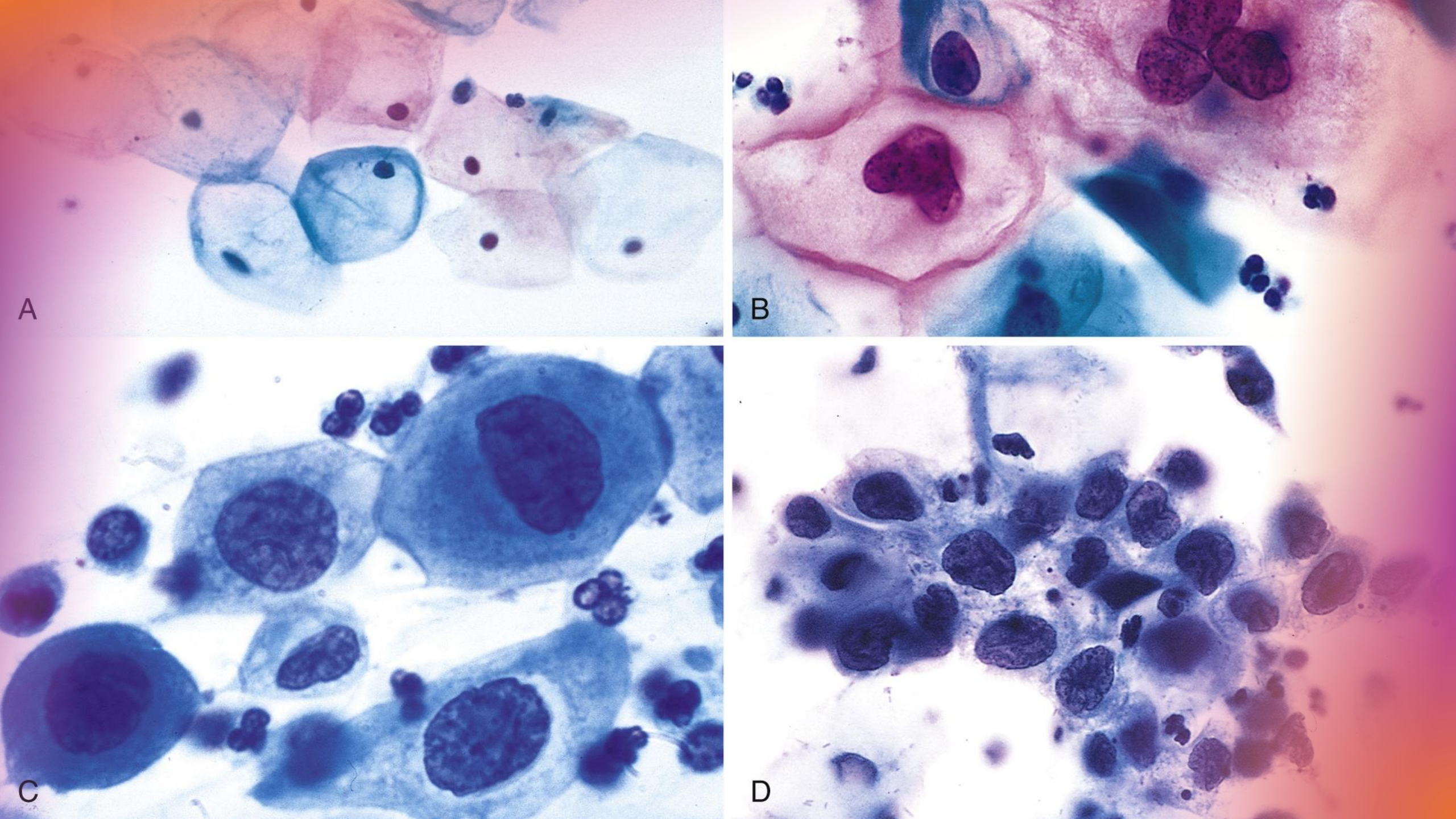


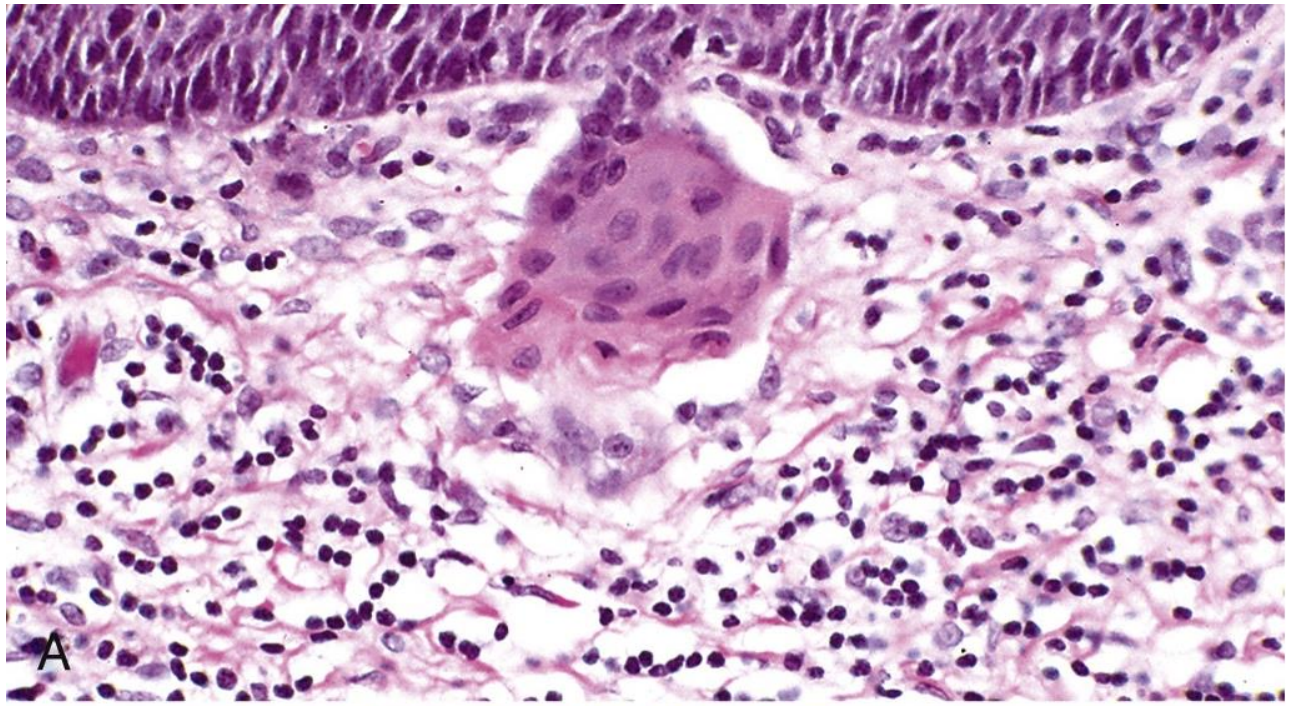
Mechanism of HPV infection

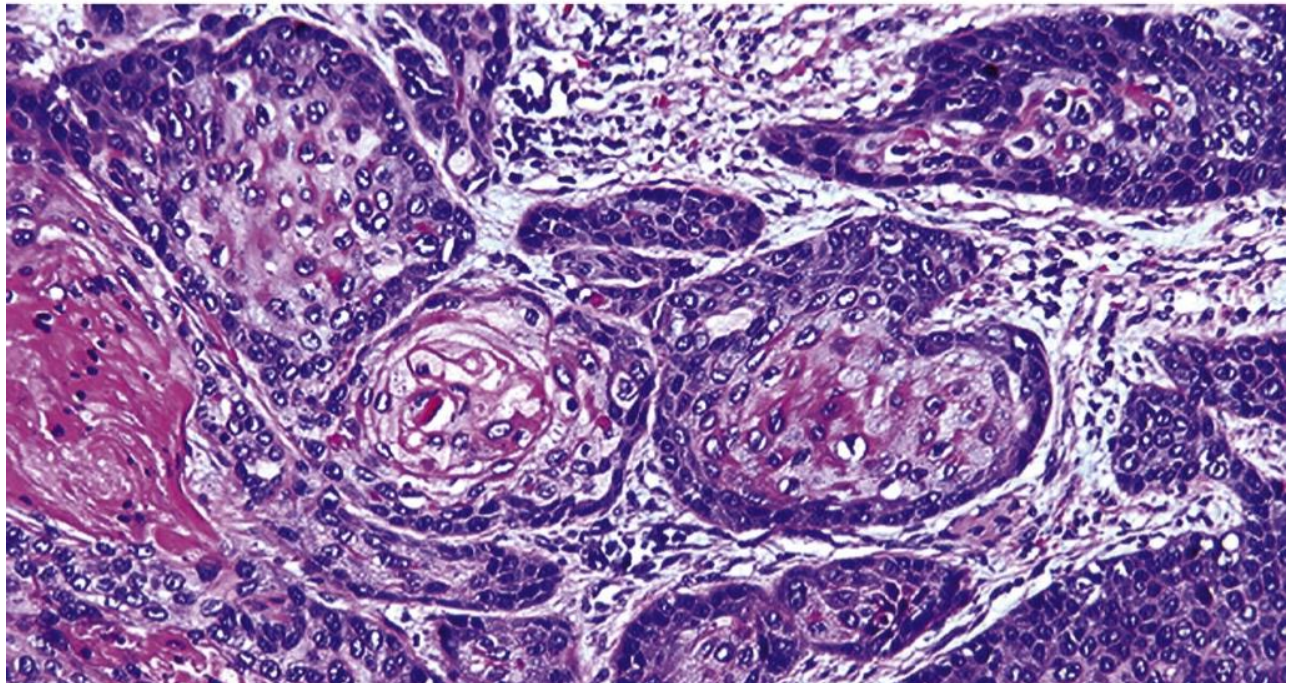
- Viral proteins E6 and E7 interfere with tumor suppressor gene proteins. P53. and RB

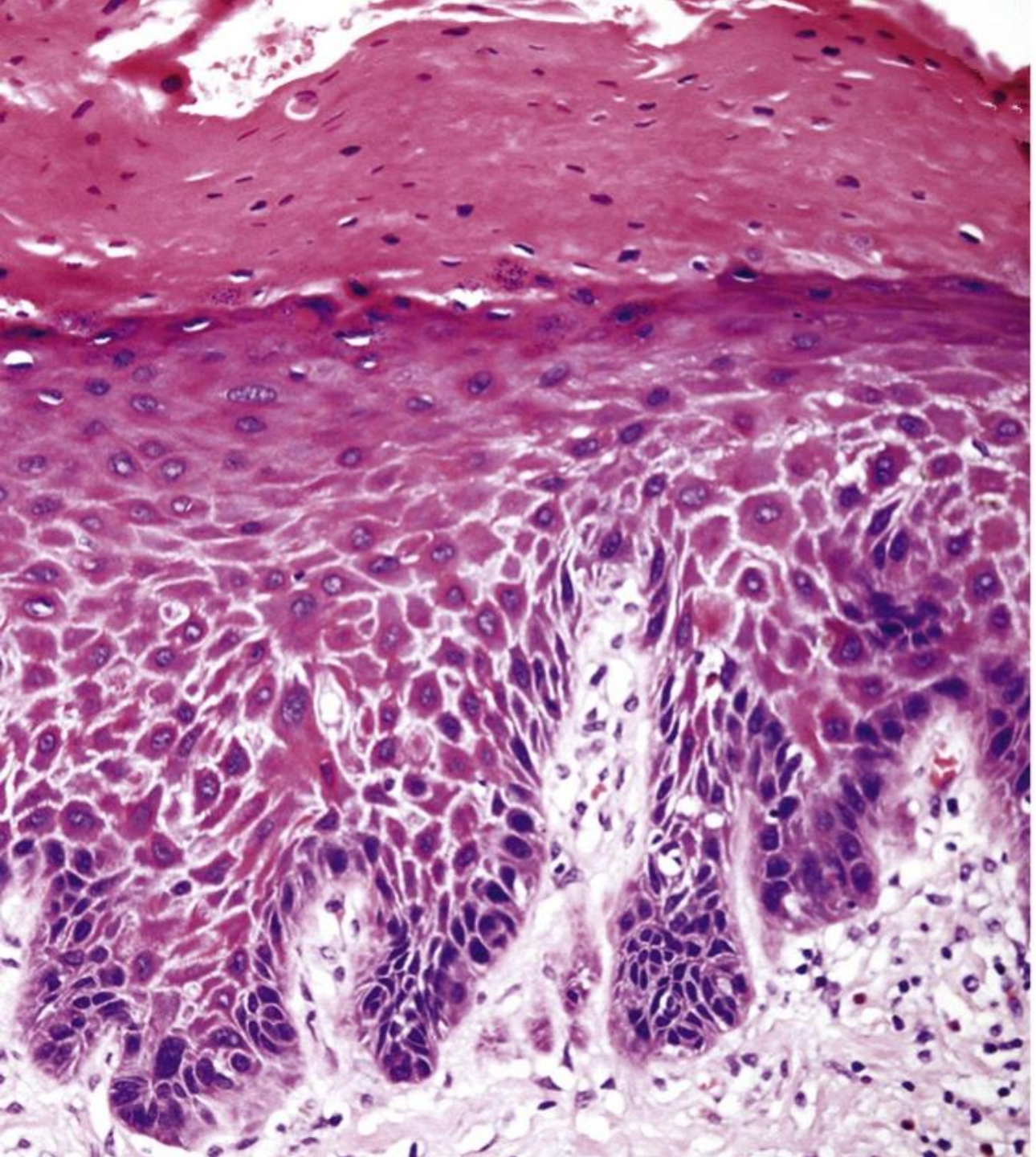
Time Course of Patient with Cervical CA

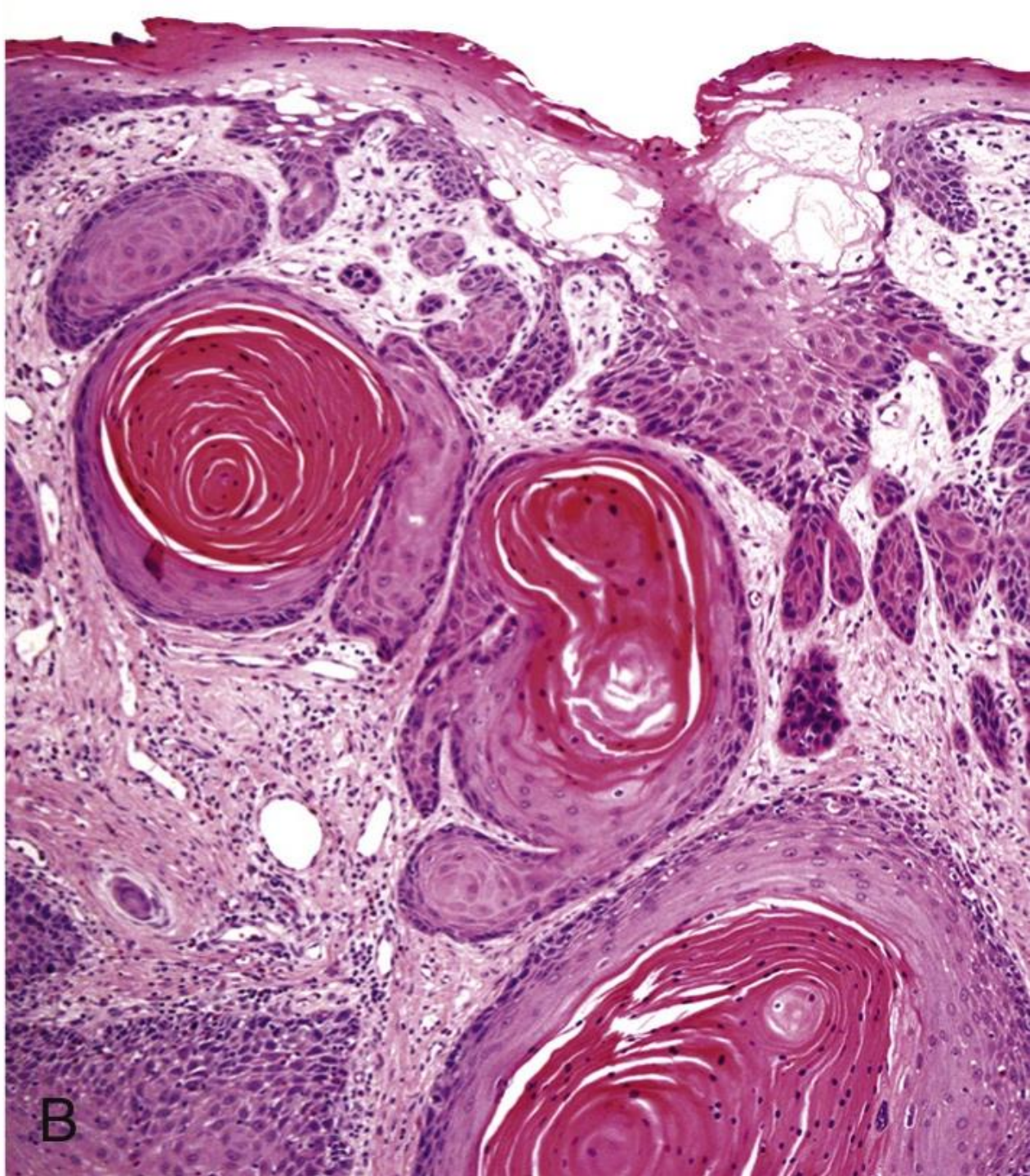
- Prevalence of HPV detected in PAP smears peaks at 20-24 yo
- Most infections are transient, 50% cleared in 8 month, 90% cleared in 2 years
- The progression to local and then invasive CA takes years


A
B
C
D


A



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Staging of Cervical Carcinoma

- Cervical cancer is staged as follows:
- Stage 0—Carcinoma in situ (CIN III, HSIL)
- Stage I—Carcinoma confined to the cervixIa—Preclinical carcinoma, that is, diagnosed only by microscopy—Stromal invasion no deeper than 3?mm and no wider than 7?mm (so-called superficially invasive squamous cell carcinoma)
- Ia2—Maximum depth of invasion of stroma deeper than 3?mm and no deeper than 5?mm taken from base of epithelium; horizontal invasion no more than 7?mm
- Ib—Histologically invasive carcinoma confined to the cervix and greater than stage Ia2
- Stage II—Carcinoma extends beyond the cervix but not to the pelvic wall. Carcinoma involves the vagina but not the lower third.
- 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. The tumor involves the lower third of the vagina.
- Stage IV—Carcinoma has extended beyond the true pelvis or has involved the mucosa of the bladder or rectum. This stage also includes cancers with metastatic dissemination.

Therapeutic Options

- Follow HPV positive HSIL neg with PAP smears
- Cervical conization for HSIL, early stage cancers
- Radical hysterectomy for middle and late stage cancers
- Radiation and chemotherapy for late stage cancers