



# Lecture 5: Pathology of Cervix



## Objectives:

- Some common benign conditions and infections
- Understand the concepts of dysplasia and intraepithelial neoplasia in the female genital tract and the role of a cervical screening program.
- Know the incidence, risk factors, clinical presentation, pathological features and prognosis of cervical squamous cell carcinoma.



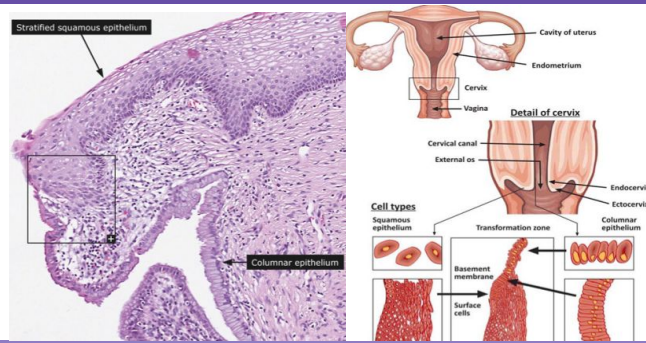
MED437  
KING SAUD UNIVERSITY



**Important**  
**Terminology**  
**Doctor's Notes**  
Extra Information

You should understand the normal histology of the cervix:

- 1- Ectocervix: stratified squamous epi.  
(Basal- Parabasal- Intermediate- Superficial)
- 2- Endocervix: simple columnar mucinous epi.
- 3- Transformation zone: area between ecto & endo



## 1. Cervical Ectropion (Erosions)

- When **squamous epithelium** “ecto” is replaced by **columnar epithelium** “endo” grossly resulting in an erythematous area. So the columnar instead of just being restricted to the endocervical canal, it goes out of the cervical os and start lining ectocervix
- It is a typical response to a variety of stimuli including hormones, chronic irritation and inflammation (chronic cervicitis).
- It is benign and has **no malignant potential**.

## 2. Squamous Metaplasia

- In this condition, the **columnar** “endo” cells are replaced by **squamous** “ecto” cells.
- It is seen in the cervix at the squamo-columnar junction “transformational zone”
- Squamous metaplastic epithelium is the area most affected by HPV infection and the area where dysplasia and malignant transformation starts, however, the **squamous metaplastic** epithelium is **benign** and by itself not considered premalignant.

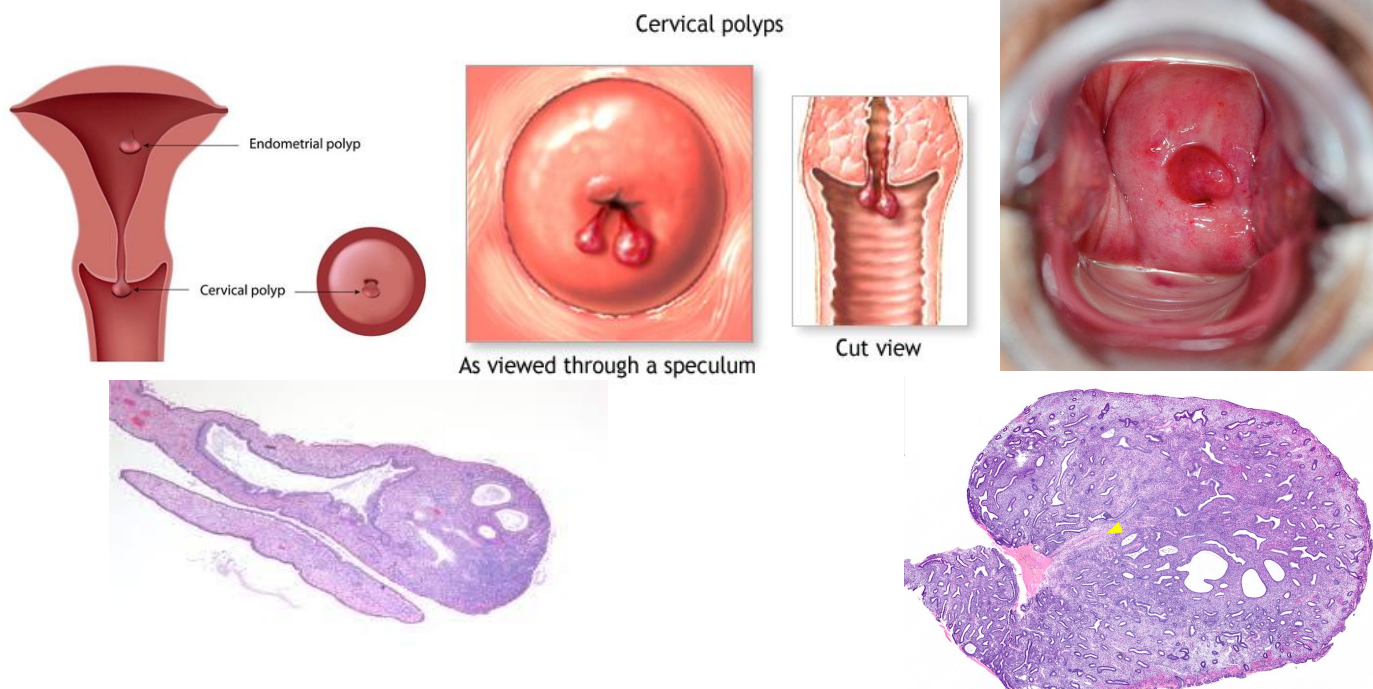
in other words: metaplasia can happen normally in transformation zone and it's benign. However, because this area is so active, it's susceptible to get infected by HPV which could lead to dysplasia and malignancy.

## 3. Cervical Polyp

- This is a small pedunculated mass.
- **Most** polyps originate from the **endocervix** (endocervical polyps) and few from the ectocervix (ectocervical polyps).
- They are **not true neoplasms**.
- The lesion is characterized by overgrowth of benign cervical stroma covered by cervical epithelium:

1. The epithelium covering the polyp can be columnar or stratified squamous or sometimes partly both.

2. The stroma is made up of **fibrous tissue** with **thick-walled blood vessels** and inflammatory cells.



## 4. Noninfectious Nonspecific Cervicitis

- It is inflammation of the cervix caused by **chemical** (e.g. douche) or **mechanical** (e.g. tampon, diaphragm) irritation.
- It can be acute or chronic.
- Clinically, it is often **asymptomatic**.
- The cervix appears **red** and **swollen**. *No malignant potential.*
- Histologically, inflammatory cells are seen (neutrophils, plasma cells and lymphocytes).
- Squamous metaplasia is also common in chronic cervicitis. *“Chronic irritation can cause squamous metaplasia and cervical ectropion”*

## 5. Infectious Cervicitis

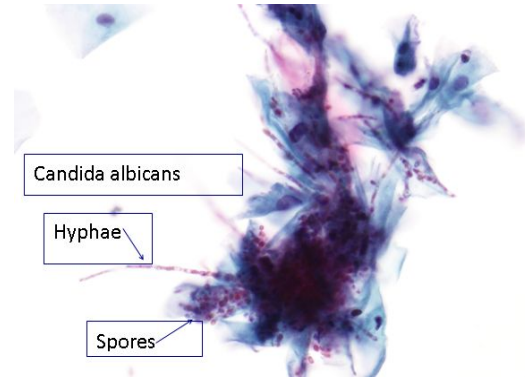
- It can be caused by various organisms e.g. Staphylococci, Enterococci, Gardnerella vaginalis, Trichomonas vaginalis, Candida albicans and Chlamydia trachomatis and HPV.
- They **most** often involves the **endocervix**.
- They may be **asymptomatic** or manifest as a **vaginal discharge or itching**.

## 5A. Candidiasis (Moniliasis)

- It is a common infection caused by *Candida albicans*, a normal component of the vaginal flora.
- It involves the **cervix** and **vagina**.
- It is associated with diabetes mellitus, pregnancy, antibiotic therapy, oral contraceptive use and immunosuppression. *These conditions might activate candida to cause inflammation.*
- **Clinically:** It is characterized by **white patchy** mucosal lesions with thick curdy white discharge and vulvovaginal pruritus.
- **Ulcers** may develop.

Cytology smears show :

- fungal colonies in the form of **spores** and branching **pseudohyphae** on the cervical epithelium.
- Chronic inflammatory cells are present.

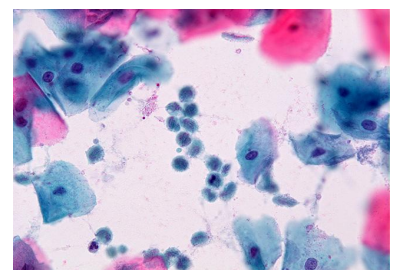
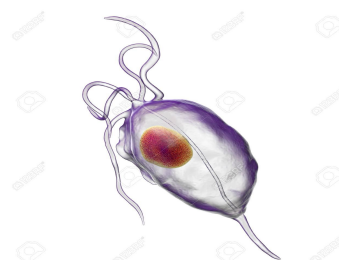
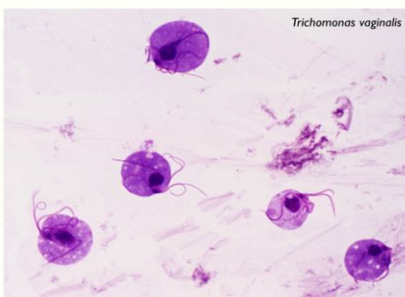


## 5B. Trichomoniasis

- It is caused by a unicellular flagellated protozoan called *Trichomonas vaginalis*.
- It is a sexually transmitted disease that involves the **vagina** and **cervix**. *uncommon in SA*
- **Clinically,** a **greenish-yellow** frothy and foul smelling vaginal discharge is seen with **painful urination**, vulvovaginal itching or irritation and dyspareunia.

Pap smear (cytology):

- The organism can be identified in the in Pap smear slides in a background of inflammatory cells.
- They can also be visualized by examination of a **saline wet preparation** in which the motile trophozoites are seen.



## 5C. Chlamydia Trachomatis Cervicitis

- Chlamydia trachomatis is an obligate, gram-negative intracellular pathogen.
- Chlamydial cervicitis is the most **common** sexually transmitted disease in developed countries. *It causes pelvic inflammatory diseases and ectopic pregnancy.*
- **It may coexist with Neisseria gonorrhoeae infection.**
- It is a frequent cause of pelvic inflammatory disease and a condition known as **lymphogranuloma venereum**. *Know the name only*
- Clinically, is most often **asymptomatic**. In symptomatic cases there is a **mucopurulent** *“pus and mucous”* **cervical discharge** with a reddened, **congested** and edematous cervix. It may be associated with urethritis.

## 5D. Herpes Simplex Virus Infection

- **HSV type 2** infection accounts for the majority of **genital** herpes cases and it is spread by **sexual contact**.
- It produces **vesicles** and **ulcers** that can involve the cervix, vagina, vulva, urethra and perianal skin.

“Cytology” Pap smears show :

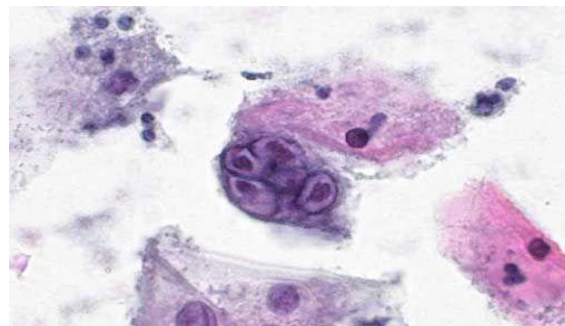
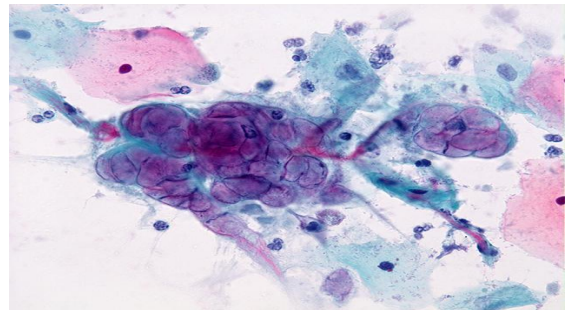
- multinucleated cells with intranuclear **“Cowdry type”** viral inclusions (nuclei have ground glass appearance due to the accumulation of viral particles).

3 "M's"

Multinucleation

Margination of the chromatin

Molding of the nuclei



## 5E. Human Papillomavirus Infection

- HPV infection is common with over 20 serotypes that infect the female genital areas and cause a variety of different lesions depending on the serotypes.

Infect genital area:

Female (vulva, vagina, cervix and rarely perianal area). Male (penis, anal area, perianal area)

### Clinical Behavior:

- HPV infection causes **koilocytic atypia** in the cervical squamous epithelium.
- HPV infection is associated with increased risk of subsequent cervical cancer.

HPV infection may cause any of the following depending on the HPV serotype:

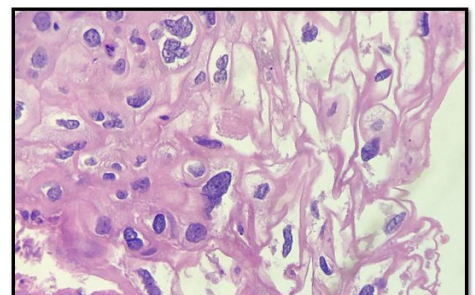
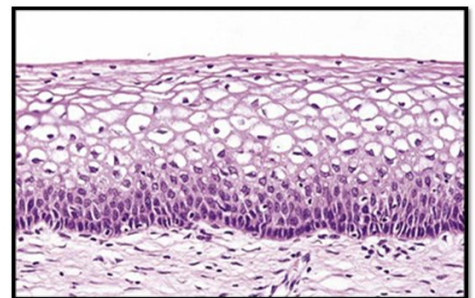
1. **Condyloma:** It is usually caused by HPV serotypes 6 and 11. It develops in the squamous epithelium of the ectocervix. The lesions may be flat or exophytic (called exophytic **condyloma acuminatum** "warts").
2. **Low grade dysplasia:** is usually caused by "low risk" HPV serotypes, **6 and 11**
3. **High grade dysplasia:** is caused by "high risk" HPV (types **16 and 18**) and "moderate risk" HPV (types 31, 33 and 35).

### Koilocytes

- Koilocytes are squamous epithelial cells that has **undergone structural changes due to an infection by HPV**. They show koilocytosis or koilocytic atypia which is the following cellular changes:

- Nuclear enlargement
- Irregular nuclear membrane
- Nuclear hyperchromasia
- Perinuclear halo (clear area around the nucleus)

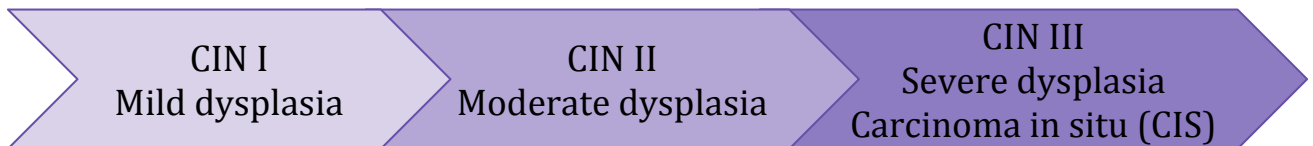
Notice the normal maturation of stratified squamous in the first picture "basal-parabasal-intermediate-superficial" As you go up, nucleus get smaller & cytoplasm increases.



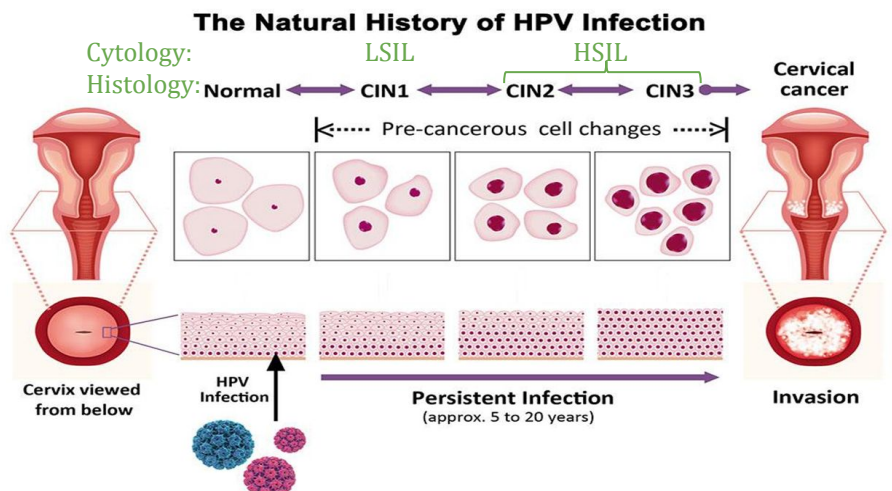
## 5F. Cervical Cancer

- The most **common cervical cancer** is *squamous cell carcinoma*. Other types are adenocarcinoma, neuroendocrine carcinoma, etc.
- Cervical carcinoma used to be a major causes of cancer-related death in women.
- Nowadays there is a dramatic improvement in the management of this disease because of the **early diagnosis** and therefore the **early treatment**. As a result, deaths due to cervical cancer are decreasing. The early diagnosis is due to the use of a screening method/program called the **PAP screening test**.
- The wide use of **PAP screening** program has **lowered** the incidence of **invasive cancer and deaths**.
- All invasive squamous cell carcinomas arise from **non invasive pre-cancerous** cervical squamous epithelium called:  
*cervical intraepithelial neoplasia (CIN)* → in histology  
*squamous intraepithelial lesions (SIL)* → in cytology
- Not all cases of CIN/SIL progress to invasive cancer and **some cases** of CIN/SIL may spontaneously **regress**.
- Cases of **high grade CIN/SIL** have a **higher risk of progression to cancer**. High grade CIN/SIL are associated the high-risk HPV serotypes.
- Timely detection and diagnosis of CIN/SIL is essential in preventing the development of invasive carcinoma.
- CIN lesions may begin as Low Grade CIN and progress to High Grade CIN, or they might start straight away as High Grade CIN.

On the basis of histology, pre-cancer lesions are graded as follows:

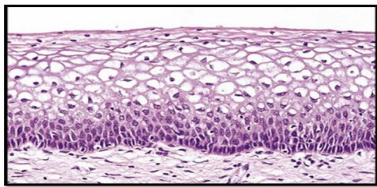


In Pap smear "cytology" we can't differentiate between CIN II/CIN III (moderate and severe dysplasia are High-grade squamous intraepithelial lesion HSIL)

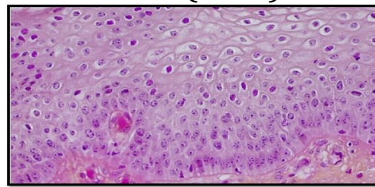


# Cervical Cancer Histology

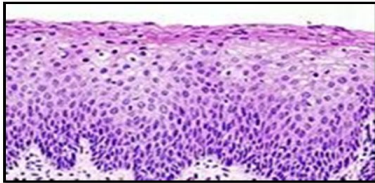
Normal



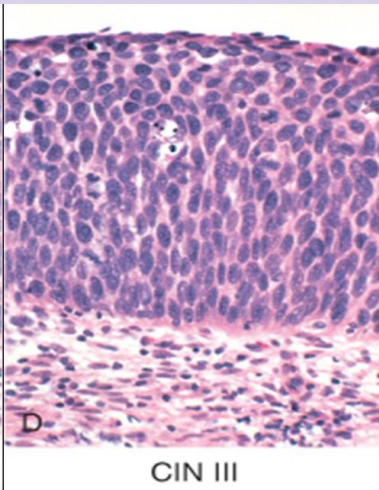
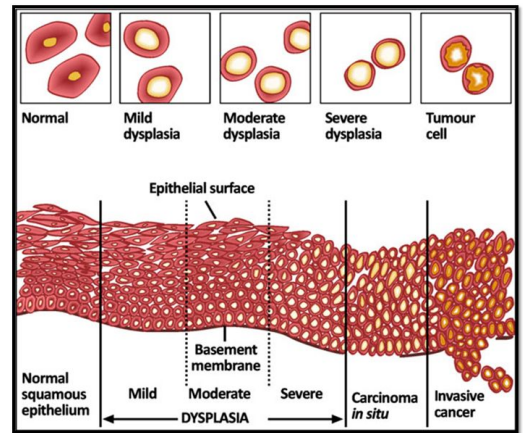
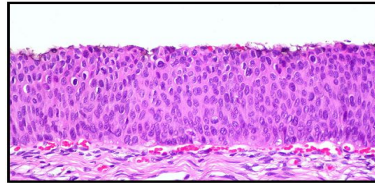
CIN 1 (LSIL)



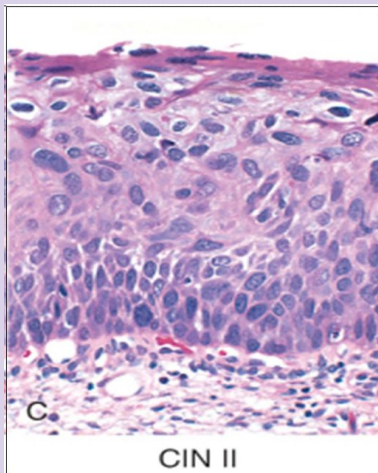
CIN 2 (HSIL)



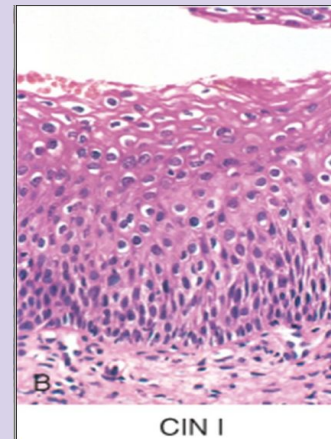
CIN 3 (HSIL)



CIN III



CIN II



CIN I

Severe dysplasia = CIN III (CIS). There is diffuse atypia and loss of maturation. All levels of the epithelium are replaced by pleomorphic cells, (full thickness).

Moderate dysplasia = CIN II. There is progressive atypia in the layers of the epithelium; lower 2/3rd of the epithelium is replaced by pleomorphic cells.

Mild dysplasia = CIN I with HPV associated koilocytes. Lower 1/3rd of the epithelium is replaced by pleomorphic cells.



# Pap Screening Test: Cytology Screening For Precancerous Lesions

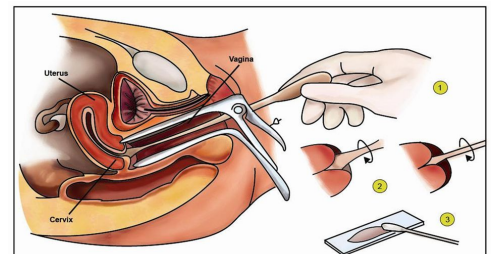
- **Cytologic** examination can **detect precancerous** squamous intraepithelial lesions long before any abnormality can be seen grossly, using the PAP screening test.
- PAP test is the cytologic examination of the cells of cervix. In it the cervix is examined and the cells lining the **cervical wall** at the **transformation zone** are scrapped off (sampled) with a spatula and then transferred onto a slide, processed, stained (Papanicolaou stain) and then examined under a light microscope to look for squamous intraepithelial lesions (SIL) and a diagnosis is made. *make sure that the spatula reach transformation cells.*
- This screening for pre-cancer should be done on **all women** usually from age of **21** years and onwards.
- **Pap Screening Test: Cytology Screening For Precancerous Lesions**
- The terminology used in Pap smears is squamous intraepithelial lesions (SIL). SILs are divided into low grade and high grade SIL.

## In cytology smear report these are few of the possible diagnoses:

- Normal cells/ Negative for squamous intraepithelial lesion
- Low Grade SIL = LSIL (= CIN1/mild dysplasia on histology)
- High Grade SIL = HSIL (= CIN2 and CIN3/ moderate to severe dysplasia on histology)

- About 1 to 5% of low grade SIL become invasive squamous cell carcinomas
- About 6 to 74% of high grade SIL become invasive squamous cell carcinomas

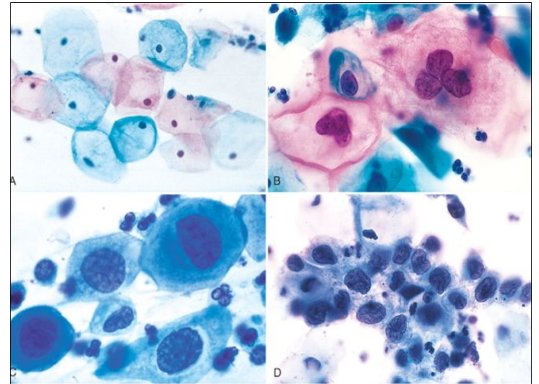
*HSIL is more susceptible to be cancerous*



# Pap Screening Test: Cytology Screening For Precancerous Lesions

- Pap Screening Test: Cytology Screening For Precancerous Lesions
- The **cytology** of CIN as seen on the **Pap Smear**.
- The cytoplasmic staining in superficial cells (A&B), may be either red or blue.

- A. Normal exfoliated superficial squamous epithelial cells.
- B. CIN I/ low grade SIL
- C. CIN II/ high grade SIL.
- D. CIN III/ high grade SIL.



Note the **reduction in cytoplasm** and the **increase in the nucleus** to cytoplasm ratio, which occurs as the grade of the lesion increases. This reflects the progressive loss of cellular differentiation on the surface of the lesions from which these cells are exfoliated.

- Women with SIL/CIN have **no visible** signs or symptoms and it is **difficult to diagnose** SIL/CIN **without a Pap smear/exam**.
- Therefore **regular pap exams** should be done on women, to detect any SIL.
- It is a common testing procedure for HPV infection. The Pap smear **detects HPV infection early**.
- This HPV DNA in-situ hybridization (ISH) test “**blood test**” is called the Diegene Hybrid Capture test. It is done to identify the **serotype of the HPV**. This test will determine whether you carry high or low risk strains of the virus. HPV DNA screening test should not be used before age 30 if Pap test is normal.

## General rules of Pap screening (pap smear test) are:

- Should start pap test by the age of 21.
- For women between age 21 to 29: pap test should be done every 3 years
- For women between age 30 to 64 : there are 2 possibilities
  - Either do only Pap test once every 3 years
  - Or do two tests (co-testing) at the same time → the Pap test + DNA in-situ hybridization HPV testing, every 5 years.

## Risk Factors of CIN

- Early age at first intercourse
- Multiple sexual partners
- A male partner with multiple previous sexual partners
- Persistent infection by high risk papillomaviruses
- Low socioeconomic groups
- Rare among virgins and multiple pregnancies

## Causes of CIN

HPV virus. The HPV is the number one cause for abnormal cells of the cervix.

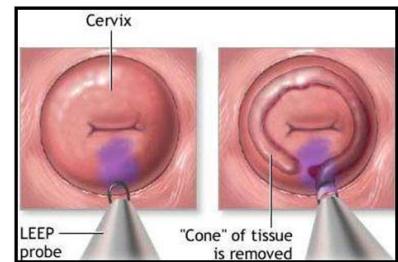
- HPV is a skin virus, which results in **warts**, common warts, flat warts, genital warts (condylomas), planter warts, and precancerous lesions.
- HPV can be detected in 85 -90 % of pre-cancer lesions.

**High risk types** → HPV: 16, 18, 31, 33, 35, 39, 45, 52, 56, 58, and 59.

**Low risk types** → HPV: 6, 11, 42, 44. These types result in condylomas.

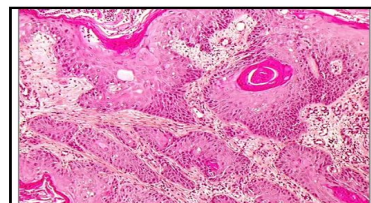
## Treatment of CIN

**Laser** or **cone** biopsy is the most effective method of managing patients with high grade SIL in cancer prevention.



## Invasive Cervical Cancer

- About 75-90% of invasive cancers are squamous cell carcinomas.
- The remainder are adenocarcinoma.
- It is the 8th most common cause of cancer death in women in US now (was #1 in 1940's). It is still #1 in other countries.
- Reduction in the West is due to Papanicolaou smear test which detects premalignant lesions.
- The tumors may be invisible or present as an exophytic mass.
- Cervical carcinomas are **graded** from 1 to 3 (i.e. well, moderately and poorly differentiated) based on cellular differentiation and **staged** from 1 to 4 depending on clinical spread. "TNM"



# Invasive Cervical Cancer

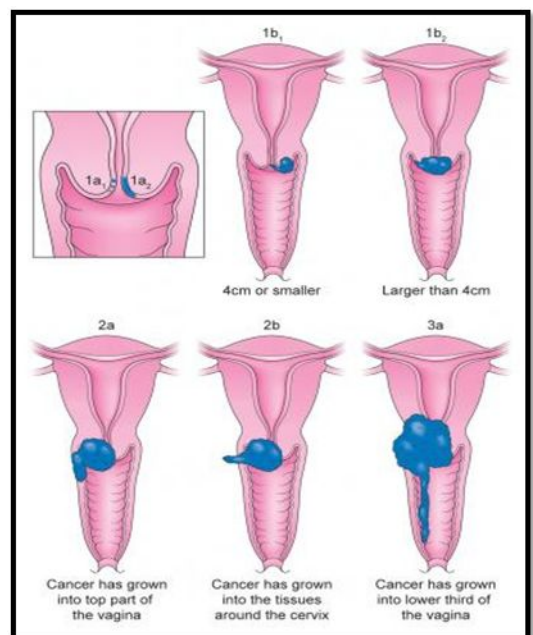
- Squamous cell carcinomas typically arise from pre-cancer CIN/SIL lesions at the transformation zone.
- Mean age: 51 years, uncommon before age 30 years but most are ages 45 - 55 years
- Nowadays, due to the Pap screening test, many of cervical cancers are diagnosed in early stages, and majority are diagnosed in the pre-invasive CIN/SIL phase.
- Advanced cases of squamous cell carcinoma are seen in women who either have never had a Pap smear or have waited many years since the last pap smear.

## Clinical Features

- The early stages of cervical cancer may be completely **asymptomatic**.
- On **colposcopic** examination, the cervix shows a mosaic vascular pattern and the lesions appear as **white** patches after the application of **acetic acid to cervix**.
- Vaginal bleeding, contact bleeding, cervical mass, dyspareunia.
- In advanced disease, metastases may be present in the abdomen, lungs or elsewhere.
- Symptoms of advanced cervical cancer may include: loss of appetite, weight loss, fatigue, pelvic pain, back pain, leg pain, swollen legs, heavy bleeding from the vagina, bone fractures, and/or (rarely) leakage of urine or feces from the vagina.

## Staging

0. Carcinoma in Situ
1. Confined to the cervix
2. Extension beyond the cervix without extension to the lower third of Vagina or Pelvic Wall
3. Extension to the pelvic wall and/or lower third of the vagina
4. Extends to adjacent organs



# Invasive Cervical Cancer

## Treatment

**Depending on the stage** there are different treatment options:

- If patient wants to be able to have children, the cancer is removed with a cone biopsy (cervical **conization**), and then followed up regularly.
- **Simple hysterectomy** (removal of the whole uterus including part of the vagina).
- **Radical hysterectomy** “usually” (removal of the whole uterus including part of the vagina along with the removal of lymph nodes in the pelvis).
- Chemotherapy and radiotherapy maybe needed in advanced cases.

# Doctors notes

## Cervical Ectropion

- It happens when When **squamous** epithelium is replaced by **columnar** epithelium, grossly we see erythema.
- **benign** and has no malignant potential.

## Squamous Metaplasia

- **columnar** cells are replaced by **squamous** cell.
- seen in the cervix at the squamo-columnar junction, it is the area **most** affected by HPV infection and the area where **dysplasia** starts, but metaplasia itself is **benign**.

## Cervical polyp

- Polyp is epithelial outgrowth in hollow organ, most originate from **endocervix**.
- The center is made of **fibrous stroma** and **blood vessels**, the top is lined by either **squamous** epithelium or **endocervical** epithelium.

## Infectious Cervicitis

1. **Candidiasis**:characterized by white patchy mucosal lesions with **thick** curdy **white** discharge, **itching**, cytology smears shows **spores** and branching **pseudohyphae**.
2. **Trichomoniasis**: greenish-**yellow** frothy and **foul** smelling vaginal discharge,itching, dyspareunia, organism can be seen by examination of a **saline wet** preparation you will see **trophozoites** and **flagella**.
3. **Chlamydia Trachomatis**: frequent cause of **pelvic inflammatory disease and** a condition known as **lymphogranuloma venereum**, mostly asymptomatic but it may present as **mucopurulent** cervical discharge.

Fungal and bacterial infections cause inflammatory cells infiltrates the cervix, clinically asymptomatic or either discharges, itching, dyspareunia.

4. **Herpes Simplex Virus**:It produces vesicles and ulcers,Pap smears show multinucleated cells with intranuclear "Cowdry type".
5. **Human Papilloma Virus**: type **6 and 11** cause **Condyloma** which develops in the squamous epithelium of the **ectocervix**, a part of condyloma will cause low grade dysplasia. Type **16 and 18** associated with **high** risk for high grade dysplasia, type **31 and 35 and 33** associated with **moderate** risk for high grade dysplasia. The virus causes koilocytic atypia which characterized by: Nuclear enlargement , Irregular nuclear membrane, Nuclear hyperchromasia Perinuclear halo.

## Cervical cancer

- The most common cervical cancer is **squamous cell carcinoma**.
- All invasive squamous cell carcinomas arise from non invasive pre-cancerous cervical squamous epithelium called cervical intraepithelial neoplasia (**CIN**) or squamous intraepithelial lesions (**SIL**).
- On the basis of histology, pre-cancer lesions are graded as follows **IMP**:  
CIN I : Mild Dysplasia> on cytology its called Low grade SIN  
CIN II : Moderate Dysplasia> on cytology its called High grade SIN, also CIN3 thats why we can not differentiate between them on cytology.  
CIN III : Severe Dysplasia and Carcinoma in situ (CIS)> on cytology its called high grade SIN.
- The early diagnosis is done by **PAP screening test**.

# Pathoma summary

## I. BASIC PRINCIPLES

- A. Anatomically, comprises the "neck" of the uterus
- B. Divided into the exocervix (visible on vaginal exam) and endocervix
  - 1. Exocervix is lined by non keratinizing squamous epithelium.
  - 2. Endocervix is lined by a single layer of columnar cells.
  - 3. Junction between the exocervix and endocervix is called the transformation zone

## II. HPV

- A. Sexually transmitted DNA virus that infects the lower genital tract, especially the cervix in the transformation zone
- B. Infection is usually eradicated by acute inflammation; persistent infection leads to an increased risk for cervical dysplasia (cervical intraepithelial neoplasia, CIN).
- C. Risk of CIN depends on HPV type, which is determined by DNA sequencing.
  - 1. High-risk-HPV types 16, 18, 31, and 33
  - 2. Low-risk-HPV types 6 and 11
- D. High-risk HPV produce E6 and E7 proteins which result in increased destruction of p53 and Rb, respectively. Loss of these tumor suppressor proteins increases the risk for CIN.

## III. CERVICAL INTRAEPITHELIAL NEOPLASIA

- A. Characterized by koilocytic change, disordered cellular maturation, nuclear atypia, and increased mitotic activity within the cervical epithelium.
- B. Divided into grades based on the extent of epithelial involvement by immature dysplastic cells
  - 1. CIN I involves < 1/3 of the thickness of the epithelium.
  - 2. CIN II involves < 2/3 of the thickness of the epithelium.
  - 3. CIN III involves slightly less than the entire thickness of the epithelium
  - 4. Carcinoma in situ (CIS) involves the entire thickness of the epithelium.
- C. CIN classically progresses in a stepwise fashion through CIN I, CIN II, CIN III, and CIS to become invasive squamous cell carcinoma.
  - 1. Progression is not inevitable (e.g., CIN I often regresses).
  - 2. The higher the grade of dysplasia, the more likely it is to progress to carcinoma and the less likely it is to regress to normal.

## IV. CERVICAL CARCINOMA

- A. Invasive carcinoma that arises from the cervical epithelium
- B. Most commonly seen in middle-aged women (average age is 40- 50 years)
- C. Presents as vaginal bleeding, especially postcoital bleeding, or cervical discharge
- D. Key risk factor is high-risk HPV infection; secondary risk factors include smoking and immunodeficiency (e.g., cervical carcinoma is an AIDS-defining illness).
- E. Most common subtypes of cervical carcinoma are squamous cell carcinoma (50% of cases) and adenocarcinoma (15% of cases). Both types are related to HPV infection.
- F. Advanced tumors often invade through the anterior uterine wall into the bladder, blocking the ureters. Hydronephrosis with postrenal failure is a common cause of death in advanced cervical carcinoma.

# Pathoma summary

## V. SCREENING AND PREVENTION OF CERVICAL CARCINOMA

- A. The goal of screening is to catch dysplasia (CIN) before it develops into carcinoma.
  - 1. Progression from CIN to carcinoma, on average, takes 10-20 years.
  - 2. Screening begins at age 21 and is initially performed yearly.
- B. Pap smear is the gold standard for screening.
  - 1. Cells are scraped from the transformation zone using a brush and analyzed under a microscope.
  - 2. Dysplastic cells are classified as low grade (CIN I) or high grade (CIN II and III).
  - 3. High-grade dysplasia is characterized by cells with hyperchromatic (dark) nuclei and high nuclear to cytoplasmic ratios
- C. Pap smear is the most successful screening test developed to date.
  - 1. It is responsible for a significant reduction in the morbidity and mortality of cervical carcinoma (cervical carcinoma went from being the most common to one of the least common types of gynecologic carcinoma in the US).
  - 2. Women who develop invasive cervical carcinoma usually have not undergone screening.
- D. An abnormal Pap smear is followed by confirmatory colposcopy (visualization of cervix with a magnifying glass) and biopsy.
- E. Limitations of the Pap smear include inadequate sampling of the transformation zone (false negative screening) and limited efficacy in screening for adenocarcinoma.
  - 1. Despite Pap smear screening, the incidence of adenocarcinoma has not decreased significantly.
- F. Immunization is effective in preventing HPV infections.
  - 1. The quadrivalent vaccine covers HPV types 6, 11, 16, and 18.
  - 2. Antibodies generated against types 6 and 11 protect against condylomas.
  - 3. Antibodies generated against types 16 and 18 protect against CIN and carcinoma.
  - 4. Protection lasts for 5 years.
  - 5. Pap smears are still necessary due to the limited number of HPV types covered by the vaccine.



# Questions

1- A 29-year-old woman is evaluated for an abnormal cervical Pap smear. Colposcopy reveals condyloma acuminatum of the exocervix. A biopsy of the cervix is shown in the image. PCR amplification of this biopsy specimen will most likely demonstrate evidence of which of the following infectious agents?

- (A) Cytomegalovirus
- (B) Herpes simplex virus
- (C) Human Papillomavirus
- (D) Molluscum contagiosum

2- A 31-year-old Haitian woman is evaluated for infertility. Pelvic examination shows a markedly enlarged vulva, inguinal lymph node enlargement, and rectal stricture. Biopsy of an inguinal lymph node reveals necrotizing granulomas, neutrophilic infiltrates, and inclusion bodies within macrophages. Which of the following is the most likely etiology of infertility in this patient?

- (A) Chlamydia trachomatis
- (B) Gardnerella vaginalis
- (C) Molluscum contagiosum
- (D) Mycobacterium tuberculosis

3- A routine cervical Pap smear taken during a gynecologic examination of a 31-year-old woman shows numerous, loosely arranged cells with high nuclear-to-cytoplasmic ratio. Colposcopy shows white epithelium, punctuation, and a mosaic pattern in the transformation zone (shown in the image). Which of the following is the most likely diagnosis?

- (A) Adenocarcinoma of endocervix
- (B) Chronic cervicitis
- (C) Clear cell adenocarcinoma
- (D) Dysplasia of the cervix

4- A 36-year-old woman is evaluated for an abnormal Pap smear. A cervical biopsy shows atypical squamous cells throughout the entire thickness of the epithelium, with no evidence of epithelial maturation (shown in the image). The basal membrane appears intact. What is the appropriate diagnosis?

- (A) Clear cell adenocarcinoma
- (B) Invasive squamous cell carcinoma
- (C) Mild dysplasia (cervical intraepithelial neoplasia [CIN]-1)
- (D) Severe dysplasia (CIN-3)

1- C

2- A

3- D

4- D

5- A 39-year-old woman presented with leukorrhea and painful coitus. The physician performed a physical examination from which he identified a barrel cervix. Which of the following is true in her case?

- (A) HSIL in an early stage.
- (B) CIN I
- (C ) Invasive carcinoma of the cervix.
- (D) Cervicitis.

6- A 34-year-old woman has a routine Pap smear for the first time. The results indicate that dysplastic cells are present, consistent with HSIL, also called cervical intraepithelial neoplasia III. Which of the following is likely to be done in her case?

- (A) Observe for 3 months.
- (B) Conization.
- (C ) Aggressive chemotherapy.
- (D) Radiotherapy.

7- A 37-year-old sexually active woman comes for a routine examination. She has been taking Oral contraceptives for 7 years. PAP smear revealed HSIL. Which of the following is the most likely pathogenesis?

- (A) Multiple sexual partners.
- (B) Estrogen stimulation.
- (C ) Inheritance of Tumor suppressor gene mutation.
- (D) Viral inactivation of Rb1 gene.

HPV alone is not sufficient to drive the neoplastic process. Which of the following also contribute to neoplasia of the cervix?

- (A) Co-Infections.
- (B) LKB1 Mutations.
- (C ) Immunodeficiency.
- (D) All of the above.

9- HPV causes differentiated squamous cells which don't normally replicate DNA to replicate HPV's own DNA. How?

- (A) By immaturation.
- (B) Acting on CTKLA.
- (C ) Inactivating P53 and Rb.
- (D) By division.

10- Which of the following is false about HPV?

- (A) The main cause of Cervix neoplasia.
- (B) Most are non-transient and chronic.
- (C) Acts on immature squamous cells.
- (D) Replicates its DNA in differentiated squamous.

5- C

6- B

7- D

8- D

9- C

10- B



Team Members: Team leader:  
Aljouhara Alibrahim Balqes Alrajhi  
Maha Alamri  
Batoul AlRuhaimi  
Danah Alkadi  
Alanoud Alessa

### References:



MED437  
KING SAUD UNIVERSITY

