



# GENITOURINARY SYSTEM

SUBJECT : Pathology\_\_\_\_\_

LEC NO. : 11\_\_\_\_\_

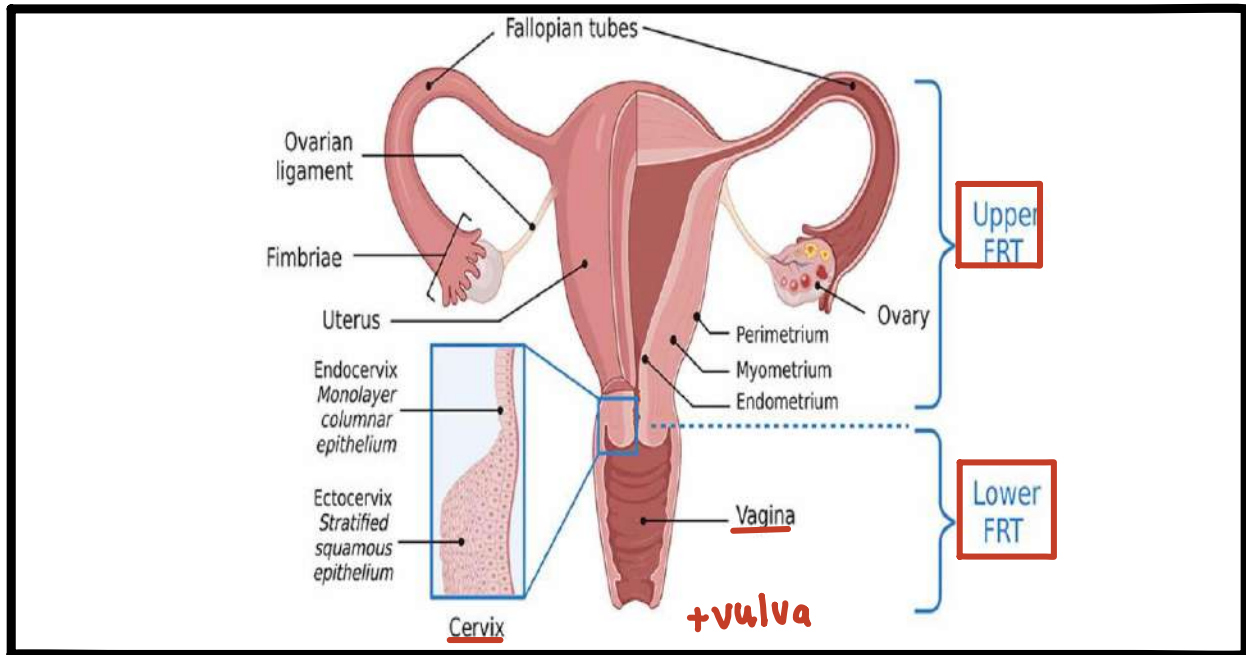
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# GENITOURINARY SYSTEM

بسم الله نبدأ بالFemale Genital Pathology، و تذكر أي نوت باللون الأحمر فهي شرح اضافي، اي نوت باللون الأخضر فهي اضافات من الدكتورة، و اي شي مهم سيكون عنده اشارة very important حنبداً بدراسة بارت بارت من الfemale genital system



**The female genital system anatomy includes several key structures:**

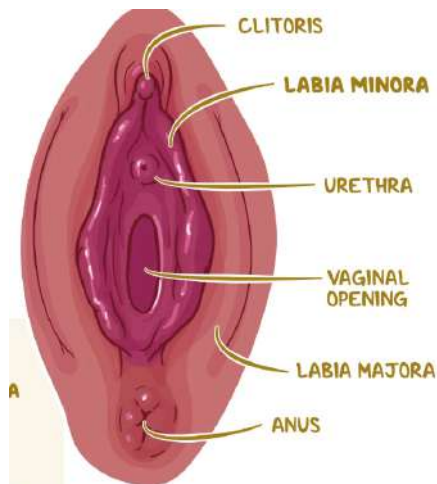
- 1. External Genitalia (Vulva):** Includes the labia majora, labia minora, clitoris, and vaginal opening.
- 2. Vagina:** A muscular canal that connects the cervix to the external genitalia.
- 3. Cervix:** The lower part of the uterus that connects to the vagina. It contains a small opening called the cervical os, which allows sperm to enter the uterus and menstrual blood to exit.
- 4. Uterus (Womb):** A muscular organ where a fertilized egg implants and develops into a fetus during pregnancy. It consists of the fundus (upper portion), body (middle portion), and cervix (lower portion).
- 5. Fallopian Tubes:** Two thin tubes that connect the ovaries to the uterus. They transport eggs from the ovaries to the uterus and provide the site for fertilization to occur.
- 6. Ovaries:** Paired organs responsible for producing eggs (ova) and hormones such as estrogen and progesterone.

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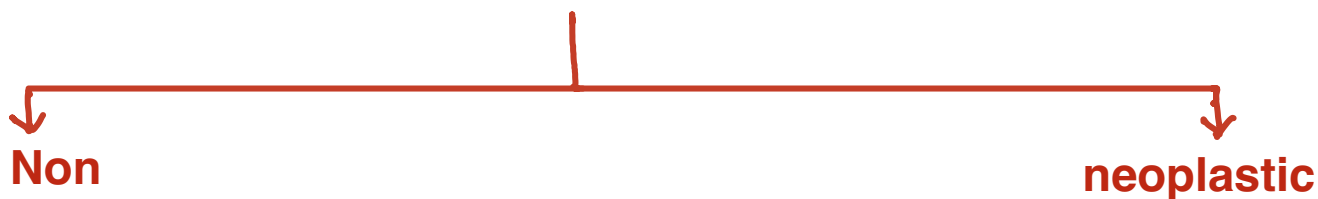


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حنداً المحاضرات بالحديث عن الأمراض التي بتصيب ال vulva التي هي عبارة عن skin و mucous membrane، و مهم كثير نكون عارفين انه نوع الخلايا هو squamous epithelium ✓  
خلينا شوي نحكي عن الأناطومي تبعها:



## Vulvar diseases



- 1- Condyloma
- 2- Lichen Sclerosis
- 3- Lichen Simplex Chronicus

Black like lesions .  
Depegmented (leukoplakia)

تغيرات في ال vulvar epithelium

- 1- Vulvar carcinoma
- 2- Extramammary pagets disease

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## Pathology of the lower female genital tract

### 1. Vulvar Diseases

- Include non-neoplastic and neoplastic diseases.
- The neoplastic diseases are much less common. Of those, **squamous cell carcinoma is the most common.**
- ▢ The **moist, hair-bearing skin & delicate membrane of the vulva** are vulnerable to many nonspecific microbe-induced inflammations & dermatologic disorders.
- ▢ Intense itching (**pruritus**) & subsequent scratching often exacerbate the primary condition.

كونها منطقة رطبة بصير فيها كثير التهابات فال clinical presentation يكون اما pruritus او vaginal discharge

The 5 most important **specific** forms of vulvar infection related to

- **Sexually Transmitted Diseases** in North America are:
  - (1) **human papillomavirus (HPV)**, producing **condylomata acuminata & vulvar intraepithelial neoplasia**;
  - (2) **herpes genitalis** {herpes simplex virus [**HSV1** or 2]} causing a vesicular eruption;
  - (3) **Gonococcal** suppurative infection of the vulvovaginal glands;
  - (4) **syphilis**, with its primary chancre at the site of inoculation;
  - (5) **candida vulvitis**. **immunocompromized female** فطريات غالباً عند

هو الاهم: HPV

High risk for cervical cancer (HPV16, HPV18)

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## Contact Dermatitis

- One of the most common causes of vulvar pruritus is a reactive inflammation to exogenous stimulus, whether
  - (I) **Irritant contact dermatitis** to an irritant e.g., urine, soaps, detergents, antiseptics, deodorants, or alcohol; or
  - المرضى بتكون عندهم مثلاً **asthma** او مثلاً **atopic** يعني عندها **IgE**
  - (II) **Allergic contact dermatitis** to an allergen e.g., allergy to perfumes & other additives in creams, lotions, & soaps, chemical treatments on clothing & other antigens.
- Grossly, Both irritant & allergic contact dermatitis may present as well-defined erythematous weeping & crusting papules & plaques, either as an
  - (1) acute spongiotic dermatitis or as
  - (2) subacute dermatitis with epithelial hyperplasia

Contact dermatitis in the vulva



Diaper Dermatitis



fungal infection

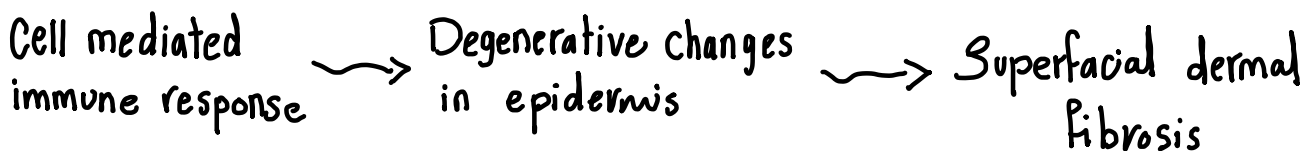


## Lichen Sclerosus

Source : Pathoma

- Thinning of epidermis and fibrosis of dermis
- Leukoplakia (white patch on their skin in this region) with parchment-like vulvar skin (the skin looks like thin paper)
- Most commonly seen in postmenopausal women
- Benign, associated with slightly increased risk of squamous cell carcinoma

etiology: considered to be Auto-immune.



## Lichen simplex chronicus

- Hyperplasia of vulvar squamous epithelium
- Leukoplakia with thick (عكس الي قبل), leathery vulvar skin
- Associated with chronic irritation and scratching
- Benign, no increased risk of squamous cell carcinoma

### Lichen sclerosis

- postmenopausal women.
- smooth, white plaques; thinned out skin
- Microscopically: thinning of epidermis, disappearance of rete pegs, hydropic degeneration of basal cells
- pathogenesis: uncertain, (?)autoimmune
- Although the lesion in lichen sclerosis is **not pre-malignant** by itself, women with symptomatic lichen sclerosis have 15% chance of developing SCCa in their lifetime.

نفس مبدأ  
BPH

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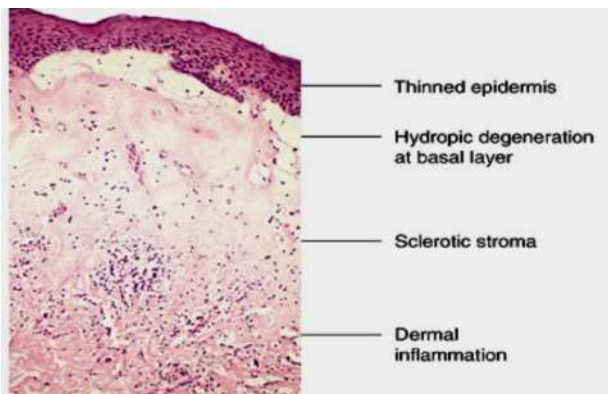
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Very important

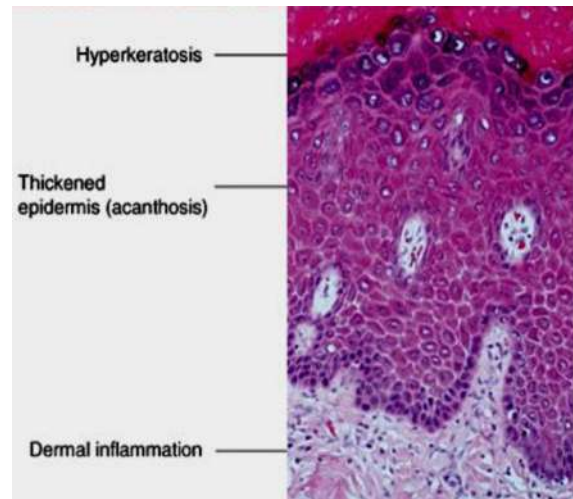
## Lichen Simplex Chronicus

- End result of many inflammatory conditions.
- Clinically appears as an area of **leukoplakia**.  
↳ **depigmented white area.**
- Microscopically :  
مستم hyperkeratosis + hypergranulosis + acanthosis +  
مستم epithelium shows **no** atypia with pronounced  
مستم leukocytic infiltration of the dermis
- **no increased predisposition to cancer**, however, maybe present at margins of adjacent cancer.

### Lichen sclerosis



### Lichen Simplex Chronicus



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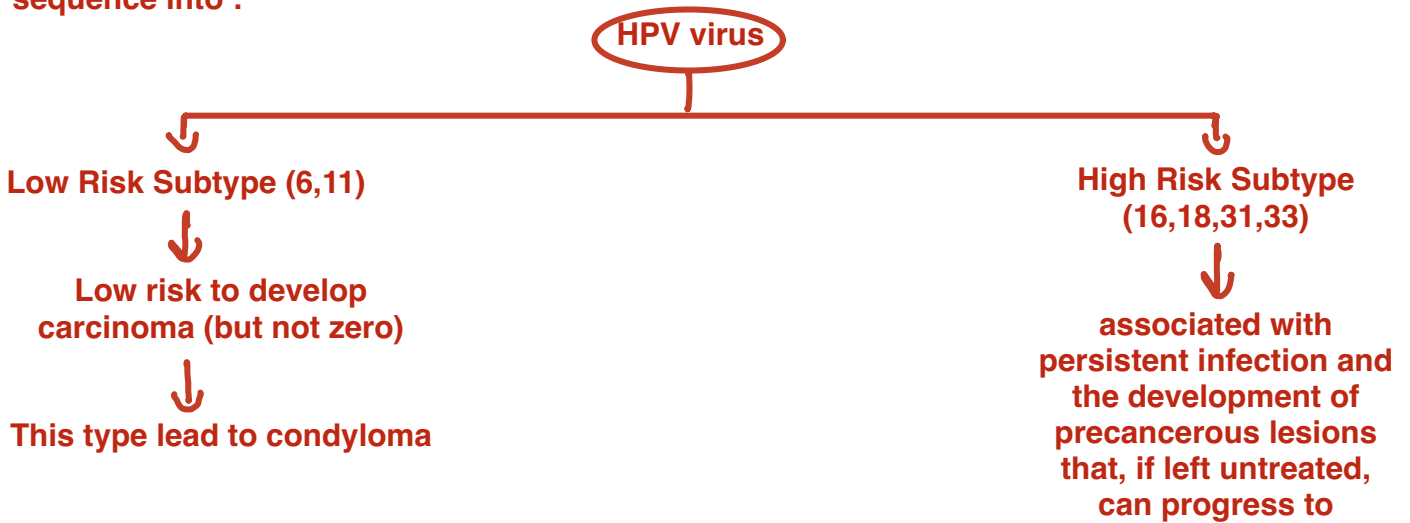
## Condyloma

Source : Pathoma

-watery neoplasm of vulvar skin

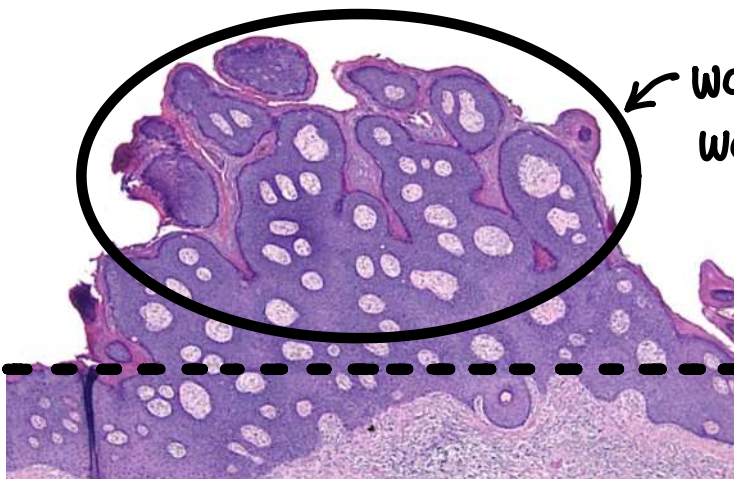
-often large

-most commonly due to HPV type 6 or 11(HPV virus can infect the lower genital tract that includes vulvar skin + vaginal canal + cervix), (and we can divide it according to its DNA sequence into :

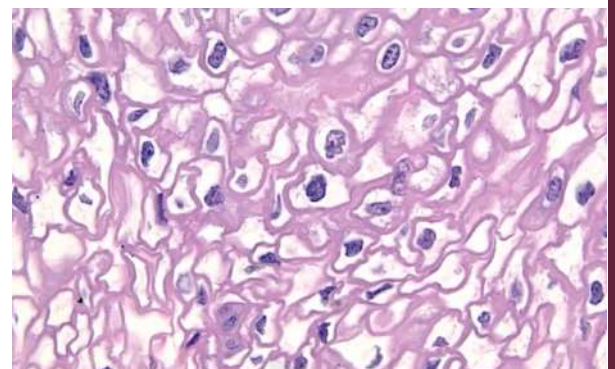


-characterized by koilocytic change (microscopic alterations that occur in cells infected with low-risk HPV. These changes are observed during histological examination of tissue samples taken from genital warts. Koilocytes are squamous epithelial cells that have distinct morphological features, including enlarged, irregularly shaped nuclei with perinuclear halos (clear areas around the nucleus) and hyperchromatic (darkly stained) nuclei).

-rarely progress to carcinoma



watery warts



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## Tumors Condylomas

- ❑ Condylomas fall into 2 distinctive biologic forms:  
(1) **Condylomata lata** that occur in **secondary syphilis** as moist, flat or minimally elevated, **highly infectious syphilitic lesions**, not commonly seen today,

- ❑ (2) The more common **condylomata acuminata** may be **papillary & distinctly elevated or flat & rugose**.
  - They occur anywhere on the anogenital surface, usually **single**, but more often **multiple**.
  - On the vulva, they range from a few mm to many cm in Ø & are red-pink to pink-brown

Very important

سلاية مهمة جداً

- ١٣٠ • **Anogenital warts (HPV type 6 and HPV type 11)**
  - They occur anywhere on the anogenital surface, usually **single**, but more often **multiple**. On the vulva, they range from a few mm to many cm in Ø & are red-pink to pink-brown.

١٤٠ • **Hallmark = koilocytosis (perinuclear cytoplasmic vacuolization + nuclear pleomorphism).**

١٥٠ • **HPV types isolated from cancers differ from those found in condylomas.**

• **Condyloma is not precancerous by itself.**

مهم نعرف انه النوع الي بسبب كانسرو هو 16-18

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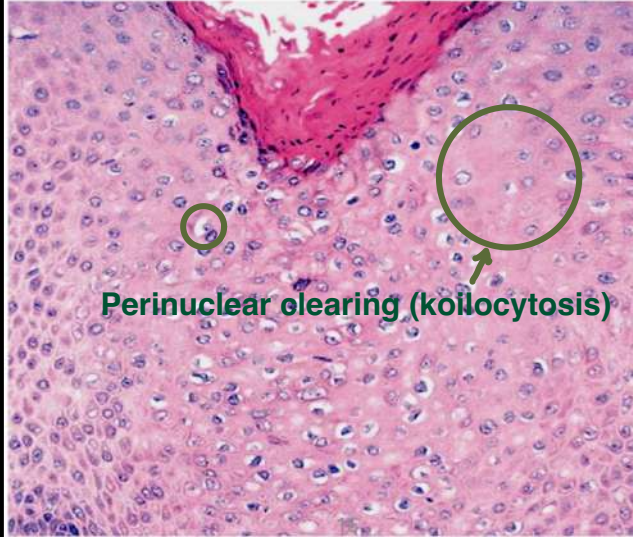


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Very important

صورة مهمة

Condyloma acuminatum



Perinuclear clearing (koilocytosis)

Numerous condylomata acuminata of the vulva.



## Condyloma of vulva watery lesions of vulva

ملخصيا

Condyloma lata  
{ flat }



Seen in Secondary Syphilis

Condyloma acuminata

{ may be flat with rugosities or }  
elevated



- \* Seen in HPV infection
- \* Caused by low risk HPV 6, 11
- \* Sexually transmitted.
- \* microscopic features → koilocytosis

Perinuclear cytoplasm vacuolization "halo"

irregular nuclear contour

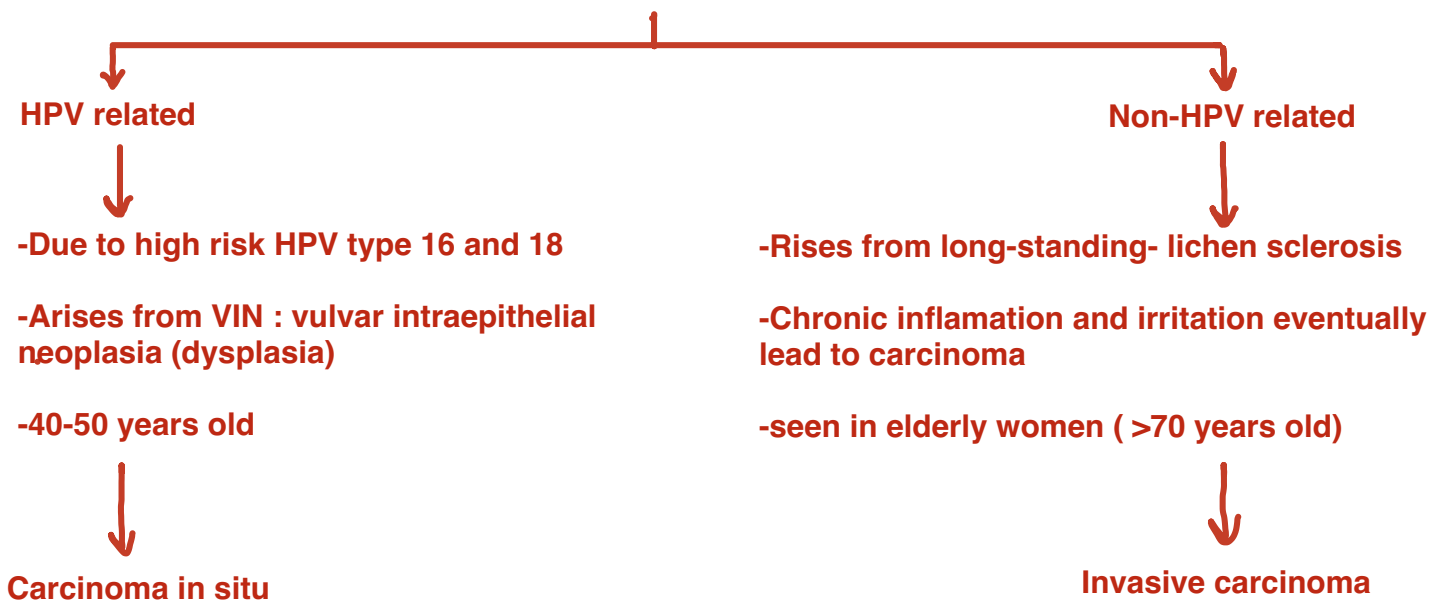
larger nucleus

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## Vulvar Carcinoma

- Arises from squamous epithelium lining vulva -> (squamous cell carcinoma)
- Relatively rare, accounts for only a small percentage of female genital cancers
- Presents as leukoplakia so biopsy is required to distinguish carcinoma from other causes of leukoplakia (شفناها بأمراض فوق)
- May be HPV related or non-HPV-related :





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## Neoplastic vulvar diseases

1-Vulvar Intraepithelial Neoplasia(VIN)

2-Invasive Carcinoma of Vulva:

**Squamous Cell Carcinoma (most common)**;adenocarcinomas, melanomas, or basal cell carcinomas

**VIN : Interapithelial dysplasia without basement membrane invasion**

### High-Grade Vulvar Intraepithelial Neoplasia and Carcinoma of the Vulva

- high grade VIN= VIN II or VIN III.
- VIN III = carcinoma in situ.
- may be multiple foci, or it may coexist with an invasive lesion.
- VIN may be present for many years before progression to cancer.
- genetic, immunologic, or environmental influences (e.g., cigarette smoking or super infection with new strains of HPV) determine the course.

**The whole thickness is involved by cancerous cells without basement membrane invasion.**

### Carcinoma of the Vulva

- 3% of all genital tract cancers in women.
- > 60 years.

**مهم** •90% →squamous cell carcinomas;

•**Squamous cell carcinoma SCC:** there are two biologic forms of vulvar SCC:

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## First type of SCC (basaloid or poorly differentiated SCC):

- ❖ most common (75% to 90%)
- ❖ relatively younger
- ❖ HPV-related (types 16 & 18)
- ❖ HPV lesions also in vagina and cervix.
- ❖ Poorly differentiated cells

## The second form of SCC (well-differentiated SCC):

- older women (60-70s).
- Not HPV-related → keratin pearls بنشوف
- Less common
- well to moderately differentiated
- Maybe found adjacent to lichen simplex or sclerosis
- The overlying epithelium **lacks** the typical cytologic changes of VIN & T tend to be well differentiated SCC

Because it is not related to HPV

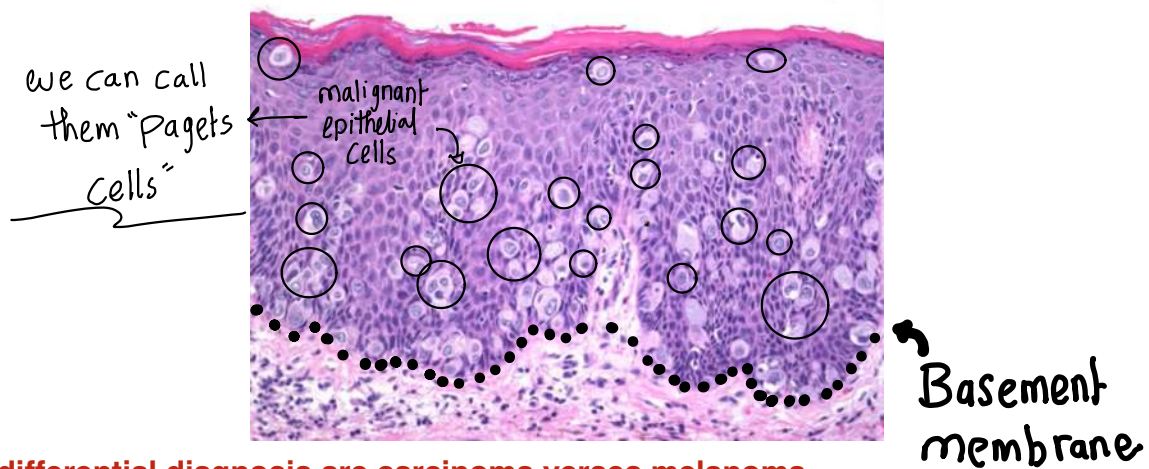


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## Extramammary Paget Disease

خلي ببالكم بالبداية انه في عنا paget disease كمان بالbone و nipple و ال ovum

- Malignant epithelial cell in the epidermis of the vulva
- Presents as erythematous, pruritic, ulcerated skin
- Represents carcinoma in situ, usually no underlying carcinoma



The differential diagnosis are carcinoma verses melanoma  
That's why it must be distinguished from melanoma by specific stains

الخليا داخلها mucin

- Paget cells: PAS+, keratin+, and S100-
- Melanoma: PAS-, keratin-, and S100+

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## Extramammary Paget Disease

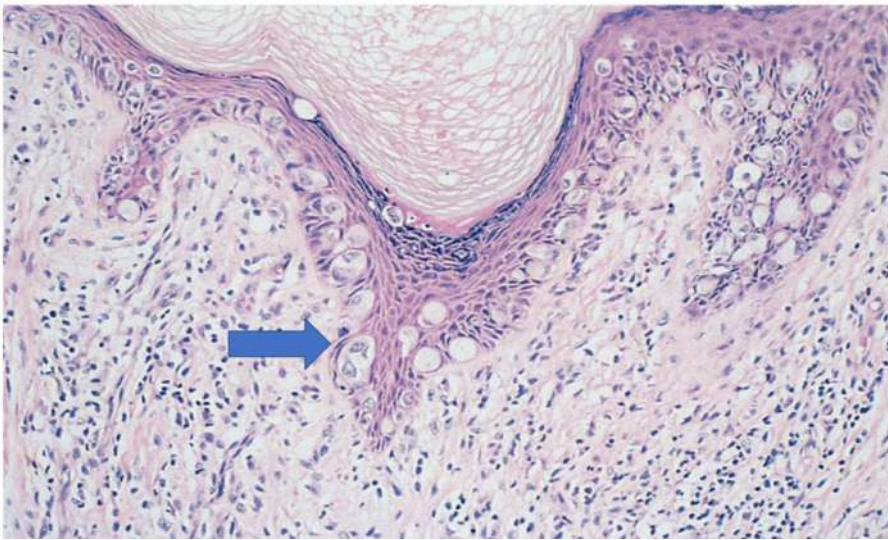
★ Vulvar Paget disease like that of the breast, is essentially a form of **intraepithelial carcinoma**.

مهم ★ Unlike the breast, where Paget disease is always associated with an underlying ca, the majority of cases of vulvar Paget disease have no demonstrable underlying ca.

★ Vulvar Paget disease presents as a red, scaly, crusted plaque or as an inflammatory dermatosis. يشبه الأكرزيمما

**Micro:** Show large malignant epithelioid cells infiltrate the epidermis, singly & in groups, with abundant granular cytoplasm & occasional cytoplasmic vacuoles containing mucin that stains positive for PAS. مزم  
When the Paget cells are confined to the epidermis, the lesion may persist for years or decades without evidence of invasion.

**Paget disease of the vulva.** Scattered large, clear tumor cells within the squamous epithelium.



هيك بنكون خلصنا ال vulvar diseases و هسا بدنا نحكي عن ال vaginal diseases

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## VAGINA VAGINITIS

- ❖ Vaginitis is a relatively common transient clinical problem produces a **vaginal discharge (leukorrhea)**. DM/pregnant  
وكمان غسل المنطقة بالصابون بأدي للقضاء على normal flora leading to flare up candida
- ❖ A large variety of organisms have been implicated, including bacteria, **fungi**, & parasites and .....
- ❖ Many represent **normal commensals** that become pathogenic in conditions such as
  - (1) DM,
  - (2) systemic antibiotic therapy that disrupts the normal microbial flora,
  - (3) after abortion or pregnancy, or
  - (4) in elderly persons with compromised immune function,
  - (5) in patients with AIDS.

- ❖ **Candidal (monilial) vaginitis** produces a curdy white discharge.
- ❖ This organism is present in about 5% of normal adults, & so the appearance of symptomatic infection almost always involves predisposing influences or sexual transmission of a new, more aggressive strain.
- STD → ❖ **T. vaginalis** produces a watery copious gray-green discharge in which parasites can be identified microscopically. **Flagellated**
- ❖ **Nonspecific atrophic vaginitis** may be encountered in **postmenopausal women** with preexisting mucosal atrophy.





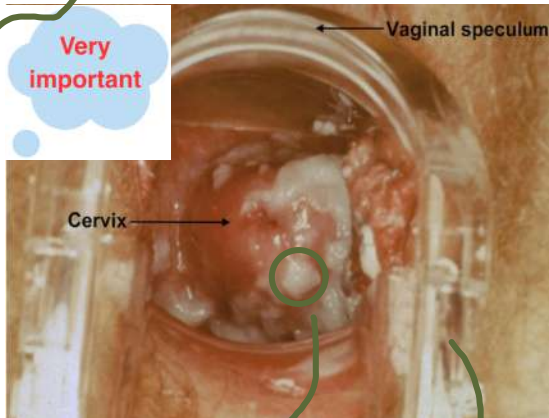
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## Types of candidal vulvovaginitis

- **Uncomplicated thrush**
  - single episode/less than four episodes in a year.
  - mild or moderate symptoms
  - caused by the *Candida albicans*.
- **Complicated thrush**
  - four or more episodes in a year.
  - severe symptoms.
  - Pregnancy
  - poorly controlled diabetes/immune deficiency.
  - not caused by the *Candida albicans*

سرطان

Very important



Thrush/pruritus/  
curdy whitish  
discharge

Candidal Vaginitis

## Trichomonus vaginalis



Cause Thick foul smell green gray discharge

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### Vaginal Neoplastic Diseases: vaginal clear cell adenocarcinoma

- are usually encountered in **young women** in their late teens to early 20s whose mothers took **diethylstilbestrol during pregnancy**.  
→ prohibited now
- Sometimes these cancers do not appear until the 3rd or 4th decade of life. The **risk for ca is less than 1 per 1000** of those exposed in utero.
- In about one-third of instances these **clear cell adenocarcinoma** arise in the **cervix**. → vagina لكن معظمها في الـ

بصيب البنات اللي امهاتهم اخدوا diethylstilbestrol اثناء حملها فيهم

هاد دواء كان يستخدم لتثبيت الحمل خوفا على البيبي من الاجهاض بس هسا صار ممنوع الاستخدام

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1- A 64-year-old woman has had itching with irritation of the vulvar region, along with vaginal dryness, for the past 8 months. On physical examination she has pale grey patches from 1 to 2 cm in size on the vulva. Biopsy of one lesion is performed and on microscopic examination shows epithelial thinning, dermal fibrosis, and perivascular chronic inflammation. Which of the following is the most likely diagnosis?

- A- Squamous cell carcinoma
- B- Lichen sclerosus
- C- Condyloma acuminatum
- D- Adenosis
- E- Extramammary Paget disease
- F- Dermatophyte infection

Answer : B

2- A 38-year-old woman has noted intermenstrual spotting of blood for the past 3 months. On pelvic examination, she has a nodular 2 x 3 cm mass in the upper vagina. Biopsy of the mass is performed and on microscopic examination shows a clear cell carcinoma. Which of the following risk factors probably preceded development of this carcinoma?

- A- Human papilloma virus infection
- B- Endometriosis
- C- Irregular menstrual cycles
- D- Diethylstilbestrol exposure
- E- Precocious pseudopuberty

Answer : D

3- A 19-year-old woman has noted increasing size and number of warty lesions on her external genitalia for the past 5 years. On physical examination she has several pink-tan rounded 1 to 2 cm slightly raised, rough lesions on the perineum and vulva. Biopsy of one lesion is performed and on microscopic examination shows acanthosis of squamous epithelium along with koilocytosis. Which of the following is the most likely risk factor for these lesions?

- A- Irritant chemical exposure
- B- Oral contraceptive use
- C- Candida vulvovaginitis
- D- Multiple sexual partners
- E- Turner syndrome

Answer : D