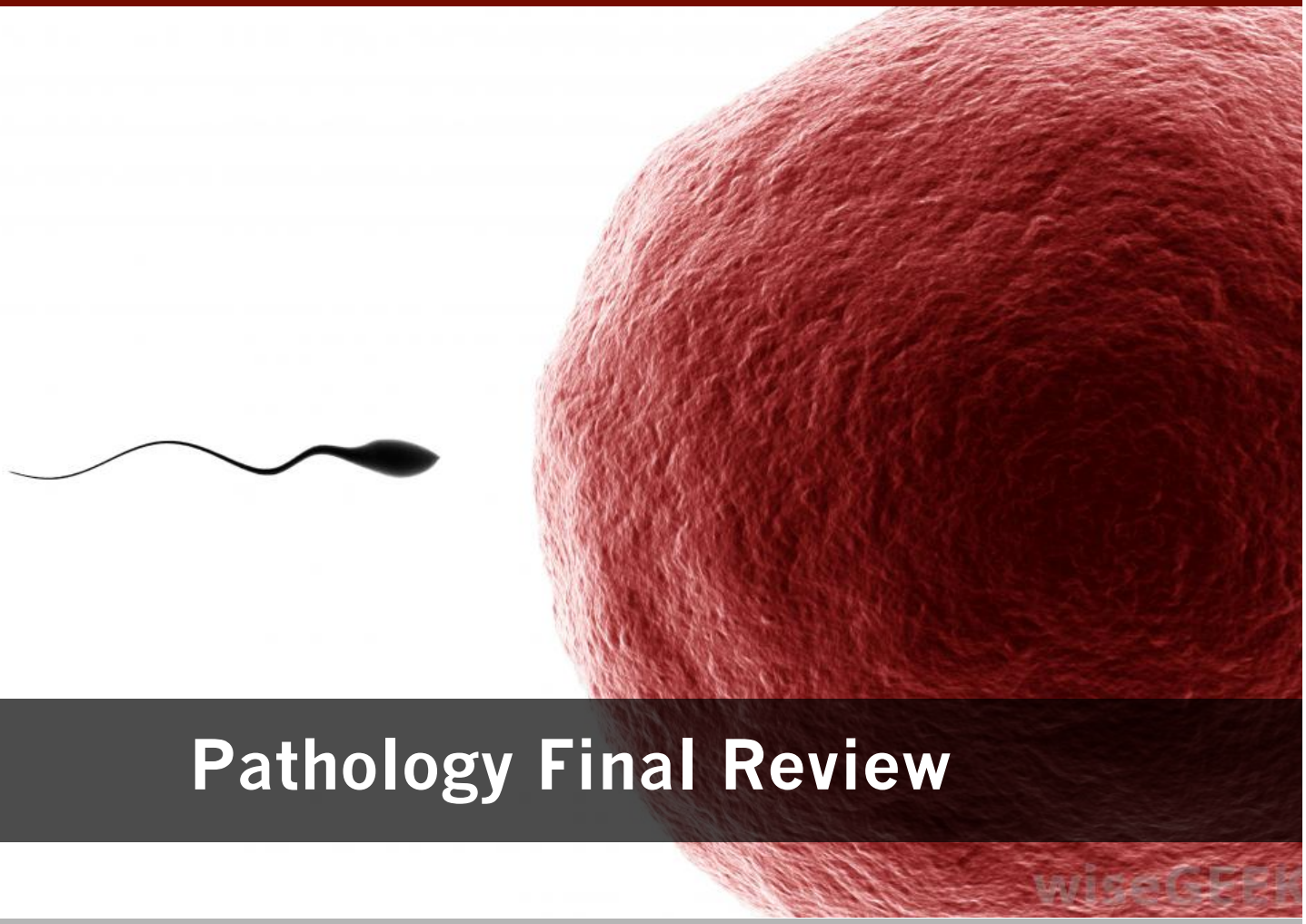

Pathology Final Review

We'd like to thank Maan Alherbish for showing a unique quality of work, time and all his effort that is unusually good, that surpassed ordinary standards. Thank you Maan.

Deepest gratitude,
Pathology Team

Done by:

Maan Alherbish
Abdulhamid Alghamdi
Ahmad Alqahtani
Ahmad Alzoman
Awatif Alenazi
Bdour Alsalman
Hajar Alotaibi
Hisham Ghabbani
Latifa AlAnazi
Latiffah Albatli
Majed altulian
Mohammad Alnafisah
Turki Alotaibi
Ziyad Alajlan

Team Leaders: Abdullah Alatar & Ghaida Alawaji

Reproductive Block

Pathology of Pregnancy and Placenta

- Ectopic pregnancy (EP)

Implantation of a fertilized ovum in any site other than the endometrium of the uterine cavity. The most common site of EP in the fallopian tubes.

❖ Clinical features:
1-Tubal rupture and hemorrhagic shock (Emergency).
2-Abdominal bleeding and pelvic pain.

- Diagnosis is made by Ultrasound (with positive HCG) and fetal or placental tissue under microscope.

- Risk factor (Any condition retards the passage of the fertilized ovum toward the uterus).

Pelvic inflammatory conditions – Tubal ligation – Congenital anomalies – Smoking – DES exposure.

- Spontaneous Abortion (Miscarriage)

It is the spontaneous end of a pregnancy at a stage where the embryo or fetus is incapable of surviving (After the sixth week, Otherwise it's called chemical pregnancy).

- Most miscarriage cases are in the 1st trimester of pregnancy

❖ Causes:
1/Chromosomal abnormalities: Most common cause, highly associated with old age women.
2/Hormonal problems: Such as Cushing syndrome – Thyroid diseases – Diabetes …etc.
3/Infections 4/Poor lifestyle. 5/Old age. 6/Trauma. 7/Abnormal structure.

❖ Diagnosis: ultrasound + microscopy of the passed tissue + chromosomal testing.

❖ Gestational trophoblastic disease (Abnormal placental proliferation)
-Mostly associated with increased Beta HCG.
-Can be divided into:
(Benign non-neoplastic trophoblastic lesion – Hyditiform mole (Partial/Complex) – Neoplastic lesions).

- Hyditiform mole: Benign Lesions result from abnormalities in fertilization. However it may progress to Choriocarcinoma.

HM	Paternal Ch.	Maternal Ch.	HCG	Villi	Treatment	Fetal tissue	Choriocarcinoma
Complete	46XX	Absent	Very High	Large villi	Evacuation, and sometimes Chemotherapy	No fetal tissue	2% of patients
Partial	46X	23X	High	Mixture of large and small		Present	Less than complete

- When the mole invade the myometrium to reach the blood vessels and migrate to distant tissues, We call it (Invasive mole)

❖ Choriocarcinoma

-A Malignant tumor characterized by proliferation of cytotrophoblast and syncytiotrophoblast.
-High levels of HCG.
-Respond well to chemotherapy.
-Can metastasize to other organs.
-Half are preceded by complete Hyditiform mole.

Pathology of the Cervix

1/EROSION/ECTROPION (When the columnar epithelium replaces the squamous epithelium).

2/SQUAMOUS METAPLASIA (When columnar cells are replaced by squamous cells), common in the transformation zone.

- ❖ Cervical polyps are not true neoplasms (always benign), this lesion is characterized by overgrowth of benign stroma (containing thick blood vessels) covered by epithelium which is usually columnar (Endocervical polyp).
- ❖ Cervicitis (can be infectious or non-infectious):

1/Noninfectious (Nonspecific) Cervicitis caused usually by chemicals or mechanical irritation, usually asymptomatic. Under microscope, dilated glands filled with mucous are observed (Nabothian cysts).

2/Infectious Cervicitis is usually caused by the following organisms:
- Candidiasis: very common in Diabetes, pregnancy, antibiotic therapy, can involve the vagina as well.
-Trichomoniasis: The most common parasitic STD, presented with greenish frothy malodorous vaginal discharge, can be seen through a vaginal smear as motile trophozoite.
- Chlamydia trachomatis: most common sexually transmitted disease in the developed countries, usually coexist with N.gonorrhoeae. Ranges from asymptomatic presentation to mucopurulent discharge with congested cervix.
- Herpes simplex virus type2: presented with vesicles and painful ulcers in the cervix, vagina and vulva.
- HPV infection: Associated with increased risk of subsequent cervical cancer (koilocytic Atypia in the squamous epithelium), Lesions caused by HPV:

1/Condyloma usually caused by HPV serotypes 6 and 11.
2/Mild 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).

4/Cervical carcinoma: most common cervical cancer is squamous cell carcinoma

- All invasive cervical squamous cell carcinomas are developed from precancerous non-invasive cervical lesions, Cervical intraepithelial neoplasia (CIN) or squamous intraepithelial lesions (SIL). However, not all cases progress to cancer.
- CIN and SIL are graded according to severity of dysplasia by using biopsies and Pap smear respectively.
- Pap smear testing has markedly increase the early diagnosis of cervical carcinoma. Therefore, regular pap exams should be done to detect any abnormal cells by the age of 21 every 3 years.

Pathology of Polycystic ovarian syndrome and Endometriosis

- Polycystic ovarian syndrome (Also called Stein-Leventhal syndrome).

Characterized by bilaterally enlargement of ovaries by multiple small cysts, High production of Estrogen and Androgens (Due to excess LH), and chronic anovulation (Due to deficient FSH).

❖ Clinical features: include secondary amenorrhea or oligomenorrhea / Hairsitusim and virilizing effects as well as Infertility.
-Many patients also present with acnes and increase weight.

- Morphology: The ovaries are double in size showing multiple subcortical cysts (0.5 – 1.5 cm).
-Microscopically: Thickened fibrotic outer surface of the ovary, Absence of corpus luteum.

Consequences include endometrial hyperplasia – CVS diseases – Insulin resistance – Depression – Dyslipidemia – Hypertension – Miscarriage – Acanthosis Nigerians …etc.

- Treatment options are either drugs induce ovulation or wedged resection.

❖ Endometriosis (A non-neoplastic condition characterized by the presence of ectopic endometrial glands and stroma outside the uterus).
-Frequent locations are Ovaries, pouch of Douglas, Uterine ligaments and many more.
-It respond to hormones and undergo menstrual cycle with bleeding each month to form a blood filled cyst (Chocolate cyst).

- Clinical picture: Dysmenorrhea / Abdominal pain / Dyspareunia, Often results in infertility.

- Morphology: multiple red or brown nodules (some may form larger masses or cysts) with dense fibrous adhesions that surround the foci.
Histologically:
1/Ectopic endometrial glands and stroma
2/Blood
3/Macrophages containing hemosiderin
4/Hyperplastic surrounded smooth muscles

❖ Adenomyosis (presence of endometrial glands and endometrial stroma in the myometrium)
-A condition of parous women, usually involves the posterior wall of the uterus.
-Occasionally the surrounding smooth muscles proliferate to form a tumor (Adenomyoma).

Pathology of Benign breast lesions

- Clinical presentation of breast diseases: non-cyclical mastalgia / mass / bloody or milky discharge (these presentations are usually in benign lesions)
- Palpable mass is the most serious problem of breast lesions.
- Bloody/Serous discharge: common with nipple duct papilloma.
- Mammography is used to screen females over 40 years old, two signs can be useful in mammography:

  1/Calcification is very important sign of breast lesions (e.g. fibroadenomas, and sclerosing adenosis
  Ductal carcinoma in situ).

2/Densities are also effective to diagnose some types of breast tumors.

- Fat necrosis (is usually due to a mechanical trauma in the breast) and is present as a mass lesion, very irregular and poorly defined with irregular borders.
- Inflammatory conditions such as acute mastitis are common in breast. However, you should note that breast and even ovaries are resistance to TB.
  - Acute mastitis: Most of the cases are associated with breast-feeding (especially in first month), most commonly caused by Staphylococcus aureus.

  The three basic types of benign epithelial lesions of the breast are classified according to the possibility of progression into cancer:

1/Fibrocystic Change: no risk of progression into breast cancer. (22-50 years old)

- Could present with palpable breast mass, mammographic densities, calcifications, or nipple discharge.
- Histologically: Cysts (within ducts, lobules), adenosis (Hyperplastic lobules within the lobes).

2/Proliferative disease without Atypia (Rarely present with palpable mass)

They are (Epithelial hyperplasia, sclerosing adenosis, complex sclerosing lesions and papilloma)

<u>They are summarized in the table below</u>

Epithelial hyperplasia	- presence of more than 2 layers - Both epithelial and myoepithelial cells proliferate - can be seen in the ducts and the lobules
sclerosing adenosis	- often occurs as an incidental microscopic finding - may be mistaken clinically for cancer - Diffuse microcalcifications are commonly seen - Microscopically, characterized by adenosis
complex sclerosing lesions	- These lesions typically present as an irregular mammographic density and closely mimic an invasive carcinoma
papilloma	- It arises more often in the central part of the breast - Large duct papillomas are usually solitary and situated in the lactiferous sinuses of the nipple - Small duct papillomas are commonly multiple and located deeper within the ductal system - Nipple discharge (bloody) is the most common presentation - 30-50 years old

3/Proliferative lesions with Atypia:

- 4-5 times risk of breast cancer.
- Can be atypical ductal hyperplasia or atypical lobular hyperplasia.

Pathology of Breast cancer

- Carcinoma of the breast is the most common cancer in women.

-There are many risk factors of developing breast carcinoma, major ones are:
Older ages - Genetics (BRCA 1/2) - Race (Caucasians) - Estrogen Exposure - Radiation exposure
Benign Breast Disease - high fat intake and excessive alcohol consumption - Obesity - Tobacco …etc.

-Breast carcinoma are classified into Adenocarcinoma (invasive and noninvasive) / Stromal tumors.

Non-Invasive breast carcinoma (when the epithelial proliferation is still confined to the ducts or lobules and has not invaded beyond the basement membrane, so it's incapable of metastasis.	
Ductal carcinoma in-situ	- Have a very high risk of development of subsequent invasive carcinoma. - 50-59 years old. - Often *multifocal*, not palpable, mammographically detected as microcalcifications. - *Subtypes are (comedo – cribiform – micropapillary – solid)* according to pattern of growth. - Comedocarcinoma has essentially a 100% chance of becoming invasive if left untreated.
Lobular carcinoma in-situ	- Always an incidental finding (as it lacks clinical presentations and not detected by mammography). - Infrequent, often Bilateral with 30% progression to invasive cancer if left untreated.
Paget's disease	- Red pruritic eczematous scaly lesion on the nipple and areola. Present as palpable mass - Malignant Paget's cells infiltrating the epidermis. - Paget's cells are ductal neoplastic cells with clear or pale cytoplasm and prominent nucleoli.
Invasive carcinoma (*usually palpable and with lymph node metastases*), patients present with retracted nipple or a skin change referred to as *peau d'orange*. By mammographic screening they present as density (if large in size) and microcalcifications (if small in size).	
Invasive Ductal Carcinoma	- The commonest type of breast cancer. - Associated with pronounced fibroblastic stromal (so it's referred to as scirrhous carcinoma). - Grossly are firm, hard and have an irregular borders. However, Could be soft and well demarcated. - Histologically, the tumor cells are larger than normal epithelium within a dense stroma in a specific pattern.
Invasive Lobular Carcinoma	- the second most common type of invasive breast cancer - Bilateral and multicentric - The amount of stromal reaction to the tumor varies from dense desmoplasia to little reaction. - Firm, hard with irregular margins, Microscopically Single infiltrating cells in one cell width (Indian file pattern).
Medullary Carcinoma	- Well circumscribed mass, may be mistaken for fibroadenomas. - It does not produce any fibroblastic reaction. - Microscopically, seen as solid sheets of malignant cells and frequent mitoses.
Colloid Carcinoma	- In older women. - Sharply circumscribed and lacks fibrous stroma, they appear soft and gelatinous in cut surface. - Small islands of tumors cells floating in pools of extracellular mucin.

Pathology of AIDS and Syphilis

❖ Syphilis Infection:

-Is transmitted sexually. However it can be transmitted also vertically (mother to baby) and also through blood transfusion.

-It is caused by Treponema pallidum which doesn't grown in vitro except in cultured mammalian cells.

- Three phases of syphilis:

1/Primary syphilis (Starts as genital chancres or ulcers, usually are not painful and has sharp edges, common locations are in the glans penis and vulva0

- Ulcers usually heal spontaneously (with or without treatment), within 3 weeks, but it can be treated by penicillin (better to be used) to prevent progression to secondary syphilis.

2/Secondary syphilis occurs as disseminated skin rash, papules or vesicles especially in the palm and sole of feet, also can affect mucosal membranes especially around the anus (Condulomata lata) in 1/3 of patients.

3/Tertiary syphilis (rare nowadays), a triad of manifestations:

A-Affect CVS and cause thoracic aortic aneurysm and vasculitis especially in the vasa vasorum.

B-Cause gumma (Localized granulomatous reaction like nose and bones)

C-Affect CNS and cause tabes dorsalis as the most major Neurosyphilis manifestation.

❖ Human Immunodeficiency Virus (HIV):

-Is caused by a retrovirus (an RNA virus).

-HIV contain 2 strands of RNA, and three enzymes (Reverse transcriptase, Protease and Integrase).

-HIV affects cells with CD4 receptor like macrophage, T-helper and dendritic cells by Interaction between GP120 molecule of the viral surface and CD4 receptor.

- Transmitted by Sexual intercourse, Blood transfusion, transplacentally, Shared infected needles, saliva, breast feeding and many more.
- After infection, patients suffer from headache, runny nose, muscle ache, diarrhea …etc. (influenza like symptoms), it takes 3 weeks maximally, during this time patients' serum becomes positive for HIV antibodies. Then, patients get into latent period for years.
- Patients will develop AIDS if the number of T-cells is lower than 200 cells/microliters.
  After that, anemia, weight loss, enlargement of the lymph nodes and opportunistic infections such as herpes, CMV, TB, Pneumocystis jiroveci and fungal infections can be the manifestations.
- Malignant Neoplasms associated with AIDS:

1/Kaposi's sarcoma (KS):

- It is a sarcoma of the mesenchymal tissue caused by a herpesvirus called Kaposi sarcoma herpesvirus (KSHV), or human herpesvirus-8.
- Produces reddish purple patches or nodules over the skin and spindle cells microscopically.

2/Malignant lymphomas:

- Commonly, B-cell Non-Hodgkin's Lymphoma which has an association with EBV.

MCQs

1-A 25-year-old woman presents to the emergency room with a 2-hour history of acute abdominal pain and vaginal bleeding. Her vital signs are normal. Physical examination reveals blood from the vaginal opening. Laparotomy shows an enlarged right fallopian tube with hemorrhage and rupture. What is the most likely cause of hemorrhage in this patient?

A) **Choriocarcinoma**

B) **Ectopic pregnancy**

C) **Infarcted tubal polyp**

D) **D- Intramural leiomyoma**

2-A 15-year-old woman presents to her gynecologist with a 5-day history of vaginal bleeding. A pregnancy test had been positive 1 week previously. This morning, the patient passed tissue with the appearance of small grapes. An ultrasound shows a dilated endometrial cavity but no evidence of a fetus. Endometrial evacuation of the uterus by suction curettage reveals grapelike clusters, with individual units measuring up to 5 mm in diameter. Cytogenetic examination of this tissue will most likely demonstrate which of the following genetic patterns?

A) **Triploidy.**

B) **Diploidy.**

C) **Haploidy.**

D) **Polyploidy.**

3-A 22-year-old woman presents to her gynecologist with a 3-day history of vaginal bleeding. An ultrasound shows a dilated endometrial cavity. Evacuation of the uterus by suction curettage reveals grapelike clusters and fetal parts. Cytogenetic examination of this tissue will most likely demonstrate which of the following genetic patterns?

A) **Aneuploidy.**

B) **Diploidy.**

C) **Euploidy.**

D) **Triploidy.**

4-What is the most common site of ectopic pregnancy?

A) **ovaries**

B) **fallopian tube**

C) **uterus**

D) **vagina**

5-Most miscarriages occur during which of the gestational trimesters?

A) **1st trimester.**

B) **2nd trimester.**

C) **3rd trimester.**

D) **4th trimester.**

6-Which one of the following cannot be a site of ectopic pregnancy?

A) **Fallopian tubes.**

B) **Abdominal cavity.**

C) **Ovaries.**

D) **Vagina.**

7-A 45 pregnant women present with vaginal bleeding, severe nausea and vomiting. The ultrasound show "cluster of grapes" appearance and signifying an abnormal placenta, Chromosomal analysis shows 46XX karyotype. What is the most likely diagnosis?

A) **Chorioadenoma.**

B) **Complete Hydatidiform mole.**

C) **Neoplastic lesions.**

D) **Partial hydatidiform mole.**

8-From the previous scenario, which hormone is expected to be highly elevated?

A) **LH.**

B) **Estrogen.**

C) **Human chorionic gonadotropin.**

D) **FSH.**

9-Which one of the following does not cause spontaneous abortion?

A) **Cushing syndrome.**

B) **Nephrotic syndrome.**

C) **Smoking.**

D) **Systemic lupus erythematosus.**

10-Which sentence best describes the pathogenesis behind ectopic pregnancy?

A) **The cilia of the fallopian tube catch the ovum to be fertilized and implanted there.**

B) **Fibrous tissue in the fallopian tube retard the passage ovum.**

C) **Immovable fertilized ovum stays in fallopian tube to be fertilized there.**

D) **Any condition block the passage of the ovum toward uterus lead to ectopic implant.**

11-A 25 year-old lady came to the clinic with mild suprapubic pain and reddened swollen vulva, in the clinical examination through speculum, the cervix seemed to be inflamed. She reported that she were using douche frequently one month ago.
The diagnosis of non-infectious cervicitis was made. What is expected to be seen under the microscope of a biopsy taken from the patient cervix?

A) **Shiller-Duval bodies.**

B) **Orphan Annie nuclei.**

C) **Nabothian cysts.**

D) **Psammoma bodies.**

12-A routine cervical Pap smear taken during a gynecologic examination of a 31- year-old woman shows numerous, loosely arranged cells with high nuclear/cytoplasmic ratio. Colposcopy shows white epithelium, punctuation, and a mosaic pattern in the transformation zone. 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.

13-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. The basal membrane appears intact. What is the appropriate diagnosis?

A) Clear cell adenocarcinoma.

B) Invasive squamous cell carcinoma.

C) Mild dysplasia (CIN1).

D) Severe dysplasia (CIN3).

14-A 35-year-old woman presents with a 6-week history of vaginal discharge, which is occasionally blood tinged. Pelvic examination reveals a 2-cm pedunculated, lobulated, and smooth cervical growth; it is excised. Histologic examination of the specimen would most likely reveal which of the following?

A) Condyloma acuminata.

B) Embryonal rhabdomyosarcoma.

C) Endocervical polyp.

D) Leiomyosarcoma.

15-A 38-year-old healthy woman has had a white, curd-like vaginal discharge for the past week. There is no bleeding. A Pap smear demonstrates normal appearing squamous epithelial cells along with scattered neutrophils and budding cells with pseudohyphae. Which of the following infectious agents is most likely to be present in this woman?

A) **Treponema pallidum.**

B) **Chlamydia trachomatis.**

C) **Herpes simplex virus.**

D) **Candida albicans.**

16-What is the most common sexually transmitted disease (40%) in the developed countries?

A) **Chlamydial cervicitis.**

B) **Trichomonas vaginalis**

C) **Candidiasis.**

D) **Herpes simplex virus (HSV) Cervicitis.**

17-Which one of the following organisms can spread by sexual contact and produces vesicles and ulcers that can involve the cervix, vagina, vulva, urethra and perianal skin?

A) **HSV type 2.**

B) **Trichomoniasis.**

C) **Chlamydia trachomatis.**

D) **Neisseria gonorrhea.**

18-Which serotype of HPV more commonly cause Condyloma?

A) **45 and 52.**

B) **31, 33 and 35.**

C) **6 and 11.**

D) **16 and 18.**

19-What is the most common cervical cancer?

A) **Squamous cell carcinomas.**

B) **Neuroendocrine cell tumors.**

C) **Adenocarcinoma.**

D) **None of them.**

20-Which of the following test will determine whether you carry high or low risk strains of Human papilloma virus?

A) **Cytology screening Pap test.**

B) **HPV DNA in-situ hybridization (ISH) test.**

C) **ELISA test.**

D) **Immunofluorescence.**

21-Which of the following is a feature of polycystic ovarian syndrome?

A) **Oligomenorrhea.**

B) **Infertility.**

C) **Hairsitusim.**

D) **All of the above.**

22-Which one of the following best define polycystic ovarian syndrome?

A) **Multiple huge cyst occupying the whole ovary.**

B) **Unilateral large ovary due to the presence of multiple small cysts.**

C) **Bilaterally enlarged ovaries due to the presence of multiple small cysts.**

D) **Multiple blood filled cysts in one or both ovaries.**

23-Polycystic ovarian syndrome is associated with which one of these clinical findings?

A) **High LH – High Androgens – low FSH.**

B) **High LH – Low Androgens – Low FSH.**

C) **High LH – High Androgens – High FSH.**

D) **Low LH – High Androgens – High FSH.**

24-A 23 year-old female presented to the clinic because of dysmenorrhea and cyclical abdominal pain, pelvic MRI done to show a cyst filled with a white fluid (Which indicate blood), a diagnosis of endometriosis was done. What do you expect to see histologically of that lesion?

A) **Malignant endometrial glandular proliferation.**

B) **Chronic inflammatory cells.**

C) **Hemosiderin engulfed by macrophage.**

D) **Malignant smooth muscle cells surrounding the endometrial tissue.**

25-Based on the previous question, what could be the complication of that lesion if the surgical intervention was not done?

A) **Chronic abdominal pain.**

B) **Infertility due to obstruction.**

C) **Infertility due to chronic anovulation.**

D) **Malignant transformation of the endometrial tissue.**

26-A 40-year-old woman presents with a 5-year history of dysmenorrhea. Physical examination and endocrine studies are normal. A hysterectomy is performed. Histologic examination of the uterine wall reveals areas of extensive Adenomyosis. Which of the following best describes this patient's uterine pathology?

A) **Benign neoplasm of glandular epithelial cells.**

B) **Displacement of the myometrial tissue by endometrial glands and stroma.**

C) **Endometrial intraepithelial neoplasia.**

D) **Hyperplasia of trophoblast as a sequel of incomplete abortion.**

27-A 25-year-old woman is referred to the gynecologist for treatment of infertility. The patient is obese (BMI = 32 kg/m2) and has pronounced facial hair. She states that she has always had irregular menstrual periods. On gynecologic examination, both ovaries are found to be symmetrically enlarged. This patient's ovaries would likely show which of the following pathologic findings?

A) **Bilateral endometriosis.**

B) **Cystic teratoma.**

C) **Mucinous cystadenoma.**

D) **Multiple subscapsular cysts.**

28-Endocrine studies of the woman described in Question (27) would most likely show which of the following results in the serum?

A) **High levels of corticosteroids.**

B) **High levels of follicle-stimulating hormone.**

C) **High levels of luteinizing hormone.**

D) **Low levels of estrogens.**

29-When the smooth muscle around a focus of Adenomyosis proliferate producing a tumor, we call that condition?

A) **Adenomyoma.**

B) **Adenomyosarcoma.**

C) **Adenoliomyoma.**

D) **Adenorrhabdomyoma.**

30-Grossly, an Adenomyosis seen as?

A) **Myometrial thickening with multiple small cysts containing mucoid material.**

B) **Cysts filled with blood in the myometrial tissue with no change in the myometrial size.**

C) **Thicken pale myometrial tissue with no cystic changes.**

D) **Myometrial thickening with small yellow or brown cystic spaces containing blood.**

31-Which one of the following breast diseases possess the highest risk of developing cancer?

A) **Papilloma.**

B) **Radial scar.**

C) **Atypical lobular hyperplasia.**

D) **Sclerosing adenosis.**

32-A biopsy sample was taken from a breast lump of a patient. The pathological findings were central nidus (nests like) consisting of small tubules entrapped in a dense fibrotic stroma surrounded by radiating arms of epithelium. Which of the following is the most likely pathologic diagnosis?

A) **Papilloma.**

B) **Radial scar.**

C) **Atypical lobular hyperplasia.**

D) **Sclerosing adenosis.**

33-A 47-year-old woman presented to an obstetrician, upon physical examination, the doctor palpated a mass behind the areola with nipple discharge. Which of the following is the most likely pathologic diagnosis?

A) **Papilloma.**

B) **Radial scar.**

C) **Atypical lobular hyperplasia.**

D) **Sclerosing adenosis.**

34-A 32 smoker women she felt change in her breast. She was diagnosed in the past with vitamin A deficiency. A breast biopsy revealed differentiation of the ductal epithelium. Which of the following is the most likely pathologic diagnosis?

A) **Duct ectasia.**

B) **Fat necrosis.**

C) **Fibrocystic change.**

D) **Periductal mastitis.**

35-A 30-year-old woman suffered from a traumatic injury to her breast while she was playing soccer. Physical examination revealed a 3-cm area of ecchymosis on the left breast. Two weeks later, the patient palpates a firm lump beneath the area where the bruise had been located. Which of the following is the most likely pathologic diagnosis?

A) **Duct ectasia.**

B) **Fat necrosis.**

C) **Fibrocystic change.**

D) **Granulomatous mastitis.**

36-A 35-year-old nulliparous woman complains that her breasts are swollen and nodular upon palpation. A mammogram discloses foci of calcification in both breasts. A breast biopsy reveals cystic duct dilation and ductal epithelial hyperplasia without Atypia. What is the appropriate diagnosis?

A) **Ductal carcinoma in situ.**

B) **Fibroadenoma.**

C) **Fibrocystic change.**

D) **Granulomatous mastitis.**

37-A 24-year-old woman delivers a 3.5-kg baby and begins breastfeeding her infant. The patient presents 2 weeks later with a fever of 38°C. Physical examination shows no abnormal vaginal discharge or evidence of pelvic pain but does reveal redness on the lower side of the left breast. The patient stops nursing the infant temporarily, but the symptoms persist, and the entire breast becomes swollen and painful. What is the most likely diagnosis?

A) **Acute mastitis.**

B) **Chronic mastitis.**

C) **Duct ectasia.**

D) **Granulomatous mastitis.**

38-The most common causative organism of acute mastitis is?

A) **E.coli.**

B) **Staphylococcus aureus.**

C) **Staphylococcus epidermidis.**

D) **Group A Streptococci.**

39-Which is the most sensitive diagnostic procedure for detecting DCIS?

A) **Tissue biopsy.**

B) **X-ray.**

C) **MRI.**

D) **Mammography.**

40-Microscopically we will find that the tumor is composed of solid sheets of malignant cells, frequent mitoses, scant fibrous stroma and lymphoplasma cells surrounding the tumor, what is the most likely tumor that present with the mentioned features?

A) **Lobular carcinoma.**

B) **Ductal carcinoma.**

C) **Medullary carcinoma.**

D) **Papillary carcinoma.**

41-What is the most expected diagnosis after the clinical examination of a solitary discrete, freely movable firm rubbery nontender well-circumscribed breast lesion?

A) **Fibrocystic disease.**

B) **Fibroadenoma.**

C) **Medullary carcinoma.**

D) **Colloid carcinoma.**

42-Single filed chords of cells filling the stroma in an Indian files pattern is the hallmark of?

A) **Invasive ductal carcinoma.**

B) **Comedocarcinoma.**

C) **Invasive lobular carcinoma.**

D) **Papillary-cribriform carcinoma.**

43-A 27-year-old woman requests a mammogram because both her mother and sister died of metastatic breast cancer before 40 years of age. Which of the following would be added to this patient's risk factors for breast cancer?

A) **Multiparity.**

B) **High-fiber diet.**

C) **Oral contraceptive use.**

D) **BRCA-1 mutation.**

44-The most important factor related to the prognosis of breast cancer is?

A) **The presence of activated oncogenes.**

B) **The status of axillary lymph nodes.**

C) **The histologic type and grade.**

D) **The size of the tumor.**

45-A female presents with complaints of her breast "looking like an orange." Examination reveals a tumor. Biopsy shows pinpoint streaks of chalky white elastotic stroma. The pathologist mentions a distinct grinding sound while cutting the tumor with a scalpel. Which of the following is most likely?

A) **Invasive ductal carcinoma**

B) **Comedocarcinoma**

C) **Papillary-cribriform carcinoma**

D) **Invasive lobular carcinoma**

46-A 57-year-old woman who has not seen a physician in more than 20 years, now presents with left breast pain. On examination, the left breast is markedly erythematous, swollen, and warm to touch. There is also significant dimpling of the breast (peau d'orange). In addition, the left nipple is completely retracted. Which of the following is the likely diagnosis?

A) **Mastitis.**

B) **Invasive ductal carcinoma.**

C) **Medullary carcinoma.**

D) **Inflammatory carcinoma.**

47-A 36 year-old female presented to the hospital because she feels a burning sensation over the tip of her right breast. A clinical examination revealed an edematous reddened area around the nipple of the right breast, a biopsy was taken from the skin of that area to show malignant ductal cells infiltrating the epidermis. What is the most likely diagnosis?

A) **Lobular carcinoma in situ.**

B) **Invasive ductal carcinoma.**

C) **Paget's disease.**

D) **Both A and B.**

48-Which one of the following facts is true about the diagnosis of the previous question?

A) **Highly metastatic.**

B) **Stain positive for mucin.**

C) **Associated with bloody discharge.**

D) **Always preceded by LCIS.**

49-Which one of these is not a type of invasive breast carcinoma?

A) **Medullary.**

B) **Lymphoid.**

C) **Mucinous.**

D) **Papillary.**

50-An old lady was taken by her son to the clinic for follow up as she was diagnosed with Ductal carcinoma in situ. The doctor told her that unfortunately she most likely is going to develop invasive breast cancer after investigation.
What is the most likely type of ductal carcinoma in situ she has?

A) **Comedo.**

B) **Cribriform.**

C) **Micropapillary.**

D) **Solid.**

51-Which of the following is the most common opportunistic infectious organism in AIDS patients?

A) **Pneumocystis jiroveci.**

B) **Cytomegalovirus.**

C) **Mycobacterial infections.**

D) **Candida Albicans.**

52-An AIDS patient came to hospital with reddish purple patches over the skin of his neck ,histologically they found hyperplastic pleomorphic spindle cells with surrounding areas of hemorrhage, which of the following is the causative agent of that lesion?

A) **Human herpesvirus-8.**

B) **Cryptococcus neoformans.**

C) **CMV.**

D) **HPV.**

53-Which one of the following tests is used as a confirmatory test in AIDS patients?

A) **ELISA**

B) **PCR**

C) **Western blot**

D) **ESR**

54-Which one of these viruses is behind the pathogenesis in one of the most tumors in AIDS patients?

A) **CMV.**

B) **HPV.**

C) **EBV.**

D) **Adenovirus.**

55-Name the most common lymphoma that is associated to EBV in AIDS patients?

A) **B-cell Non-Hodgkin's Lymphomas.**

B) **Hodgkin's lymphoma.**

C) **Adult T-cell lymphoma.**

D) **Extranodal T-cell lymphoma.**

56-An AIDS patient who presented to the hospital with fever and shortness of breath, a biopsy of the lung revealed soap bubble, when a silver stained slide has done it showed an organism which in a comma shape, which of the following is most likely to be the organism?

A) **Histoplasma capsulatum.**

B) **Coccidioides immitis.**

C) **Pneumocystis jiroveci.**

D) **Mycobacterium avium.**

57-Which one of these groups is the most vulnerable one of getting HIV?

A) **People who receive multiple blood transfusions.**

B) **People with multiple sexual partners.**

C) **IV drugs abusers.**

D) **Homosexual men.**

58-A 54 years old married man has visited the clinic to complain of disseminated skin itchy reddened papules. He also revealed that travels a lot for business issues.
He was hesitating after he was asked about sexual actions by the doctor, he mentioned that he had an unprotected sexual intercourse 1 and a half months ago. What infection is expected to be affecting that patient and what was the route of transmission?

A) **AIDS – Sexual.**

B) **Syphilis – Sexual.**

C) **AIDs – Blood contact.**

D) **Syphilis – Blood contact.**

59-Based on the previous infection, what was the phase of the infection during the time of the diagnosis?

A) **Primary.**

B) **Secondary.**

C) **Tertiary.**

D) **Latent.**

60-What other route can the organism be transmitted in syphilis?

A) **Blood transfusion.**

B) **Transplacentally.**

C) **Both.**

D) **None of them.**

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Answer	B	B	D	B	A	D	B	C	B	D	C	D	D	C	D	A	A	C	A	B
Question	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Answer	D	C	A	C	B	B	D	C	A	D	C	B	A	D	B	C	A	B	D	C
Question	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Answer	B	C	D	B	A	D	C	B	B	A	A	A	C	C	A	C	D	B	B	C

Thank You