



Northern Technical University
College of Health and Medical Technologies
Department of Optics Technology

Eye problems



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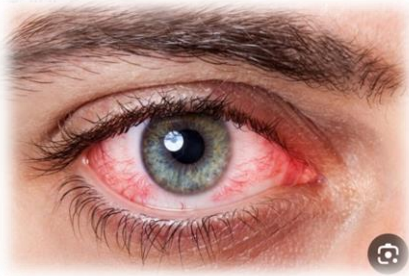
مشاكل العين - تقنيات البصريات

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[8 :البلد]

د علي احمد - 2024-2025

Ocular manifestations



Pre-test:

What are ocular manifestation?

What are importance of ocular manifestation?

What are types of eye problems?

Introduction:

Several terms used to describe eye problems, including problems, disorders, conditions, diseases, impairment, or manifestations of the eye, vision, or sight.

Visual impairment occurs when an eye disorder affects the visual system and the function of one or more of the visual functions. It can affect the individual throughout his or her life. Also ocular manifestations are a feature of numerous congenital syndromes, including Down syndrome, myotonic dystrophy, tuberous sclerosis, metabolic disorders involving lysosomal storage and carbohydrate metabolism, and neurofibromatosis.

Eye disorders that can cause visual impairment and vision loss, such as cataracts, trabecular ophthalmia and refractive error, are, for good reason, the main focus of prevention and other eye care strategies; however, the importance of those eye disorders that do not usually lead to visual impairment, such as dry eye and conjunctivitis, should not be overlooked.

Global Dimension:

Eye Disease and Visual Impairment are very common. People who live to see will suffer from at least one of them in their lifetime. Globally, at least 2.2 billion people have visual impairment, of whom at least 1 billion could be prevented or are not yet treated. However, more reliable data on met and unmet eye care needs are needed for planning.

The burden of eye disease and visual impairment is not evenly distributed. This burden tends to be greatest in low- and middle-income countries, and among underserved population groups, such as women, migrants, indigenous peoples, people with certain disabilities, and rural communities. Population growth and ageing, coupled with behavioural and lifestyle changes and urbanization, will result in a dramatic increase in the number of people with eye conditions, vision impairment and vision loss in the coming decades.

Common Eye Conditions:

- Age-Related Macular Degeneration
- Amblyopia (Lazy Eye)
- Astigmatism
- Cataracts
- Color Blindness
- Diabetic Retinopathy
- Dry Eye
- Floaters
- Glaucoma
- Pink Eye
- Retinal Detachment

Vascular Disorders:

Diseases and conditions that affect the blood vessels in the eyes can lead to vision impairment and vision loss.

Circulatory vascular emboli (Occlusion):

Emboli to the ophthalmic circulation can lodge in the ophthalmic artery or the central retinal artery, producing severe loss of vision that can be transient or permanent. In the elderly, the most common source of emboli is fibrin and cholesterol from ulcerated plaques in the wall of the carotid artery.

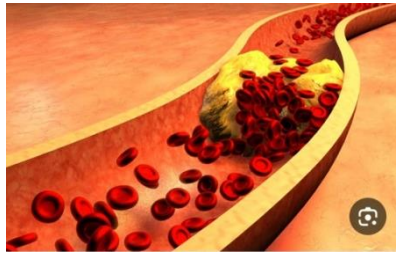


Figure (1): Circulatory vascular emboli.

Emboli of cardiac origin may come from calcified heart valves in patients with a history of rheumatic fever, from an atrial myxoma, or from fibrin-platelet emboli in patients with mitral valve prolapse.

Visual loss may be due to occlusion of the central retinal artery. Edema with loss of retinal transparency in all areas except the fovea gives rise to the appearance known as the “cherry-red spot”.

Emboli that temporarily obstruct the ophthalmic artery may produce painless, transient loss of vision, called amaurosis fugax.

Other sources of emboli include talc in intravenous drug abusers and fat in patients with long bone fractures. Talc emboli do not typically cause occlusion or ischemia although rarely they may be associated with retinal neovascularization.

Retinal Disorder:

Retinal vascular disorders can result in serious harm to your vision, and they're often linked to other wellness issues. It is often associated with other medical problems, such as hypertension, atherosclerosis.

Most common types of retinal vascular disorders:

Retinal artery occlusion (RAO)

A retinal artery blockage can cause sudden, painless vision loss, blindness, or sudden blurry vision in one eye. This blockage can happen due to various reasons like clots, cholesterol buildup, inflammation, or spasms in the blood vessels and can be linked to atrial fibrillation or carotid artery stenosis.

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When an artery is blocked, it can deprive an organ of this oxygen-rich blood. Atherosclerosis is commonly linked to this condition.

Retinal vein occlusion (RVO):

(RVO) sometimes referred to as an eye stroke. It is usually occurs by thrombus formation and many cases are related to the risks of atherosclerosis, blood coagulation disorders (leukaemia, macroglobulinaemia, changes in the protein C pathway) and systemic inflammatory disorders.

Patients with retinal vein occlusion are only symptomatic if complications develop, such as visual impairment in macular oedema, and vitreous haemorrhage in retinal ischaemia and neovascularization. This blockage can cause hemorrhaging of a vein, which can leak onto the retina and cause loss of vision.



Figure (2): Retinal vascular disorder.

Migraine:

Migraine is a transient vasospastic phenomenon affecting the cerebral and/or ocular circulations. Paroxysmal neurologic or visual symptoms include scintillations, amaurosis fugax, transient cortical blindness, and transient homonymous hemifield loss, which consists of nasal field loss in one eye and temporal field loss in the other. These symptoms, which are presumably due to focal cortical or ocular ischemia, may last from 15 to 45 minutes.

Blood Dyscrasias:

A blood dyscrasia is any abnormal or pathologic condition of the blood. Blood dyscrasias with ocular manifestations include hyperviscosity syndromes, thrombocytopenia, and all forms of anemia, including sickle cell anemia.

hyperviscosity syndromes:

Patients with hyperviscosity syndromes such as polycythemia, multiple myeloma, dysproteinemia, and leukemia may present with visual complaints. These include amaurosis fugax and permanent visual loss.

Initial fundus changes are retinal vein dilation, retinal hemorrhages, and varying amounts of disc edema.

Direct leukemic infiltration of the optic nerve can cause pronounced optic nerve swelling and vascular congestion with edema and hemorrhages of the surrounding retina. This can rapidly lead to blindness if not treated promptly with radiation.

Sickle Cell Anemia

Sickle cell retinopathy occurs most frequently in the sickle cell disease, and in sickle thalassemia. Sickling can produce retinal arterial occlusions, especially in the retinal periphery.

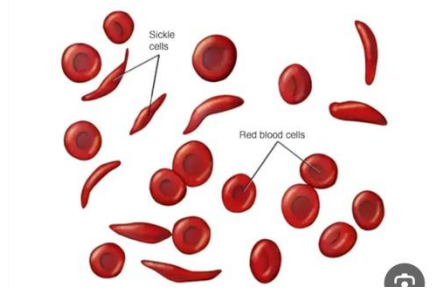


Figure (3): Sickle cell shape.

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Ocular ischaemic syndrome

This is linked with severe narrowing of the carotid artery, leading to reduced blood flow to the eyes. Symptoms include visual loss, light-induced transient visual loss and ischaemic ocular pain.

Roth's spots

It is a manifestation of infective endocarditis. The differential diagnosis include anaemia, leukaemia, retinal phlebitis, candida albicans infection, vascular diseases, bacterial sepsis and viral pneumonia.



Figure (4): Roth spot.

The changes in the cardiovascular system

The changes in the cardiovascular system are associated with ocular manifestations, often as a consequence of pathological alteration in the ocular vasculature. The ease of visualization of these retinal changes makes the eye a window to the cardiovascular system. Certain congenital cardiac defects lead to changes in the retinal vascularity due to increased tortuosity and dilatation.

Post-test:

Q1: Define ocular manifestation in detail.

Q2: Outline common eye problems?

Q3: Speak about retinal disorder.

Q4: What do you know about emboli?

Thank you for listening

5-2-2025

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2025–3–5



Lecture 5: Ocular manifestation of diabetes

اهداف الدرس:

- 1- ان يتعرف الطالب على داء السكر Diabetes Mellitus.
- 2- ان يتعرف الطالب على امراض العين المرافقة لداء السكر.
- 3- ان يفهم الطالب الفسلجة المرضية لأمراض العين السكرية.



Pre-test

1-What are Diabetes Mellitus (DM)? ☐

2-What are ocular manifestation with diabetes? ☐

3-How are diabetes affect eye? ☐

□ **Diabetes Mellitus(DM)**

- **Diabetes** is a chronic (Hyperglycaemic) disease that occurs either when the pancreas does not produce enough insulin or insulin dysfunction. It leads to serious damage to many of the body's systems, especially the nerves and blood vessels.

□ .

□ **Diabetes manifestation:**

- 1-Fatigue 2-Thirsty 3-Frequent urination 4-Vision problems
- 5-Sweeting disorder 6-Insect attraction (ant, flies and mosquitos)

□

Types of Diabetes

1-Type 1 diabetes (Insulin-dependent or childhood DM): It is characterized by deficient insulin production, as a result of destroy insulin producing pancreatic B-cells, there for they require insulin administration.

2-Type 2 diabetes (Insulin-independent or Adult DM): It is occurs because body cells resist the effects of insulin.

3-Gestational diabetes (GD): It is occurs during pregnancy. Changes that help your body support a growing baby may put stress on the blood vessels in your eyes. There for suggest regular eye exams during pregnancy.

4-Other Types of Diabetes: It contain cystic fibrosis-related diabetes, medication Diabetes, and syndrome diabetes (Down syndrome, etc).





Laboratory Diagnosis of Diabetes

- ❑ 1-Random blood glucose (RBG) test: (110-180 mg\dl).
- ❑ 2-Fasting blood glucose (FBG) test: (after 8 hours of fasting-before eating breakfast (60-110mg\dl).
- ❑ 3-Glucose tolerance test: Before drinking a certain sugary liquid, and then 2 hours after drinking it.
- ❑ 4-Glycated hemoglobin (A1C) test: It indicates your average blood sugar level for the past two months.
- ❑
- ❑ **Prevention of DM:**
- ❑ Exercise (15-20) minutes daily.
- ❑ Healthy (avoid sugar and saturated fat).
- ❑ Avoid psychological stress.
- ❑ Don't smoke.
- ❑ Healthy lifestyle.



Diabetic eye disease (Diabetic Ocular Problem)

□ Diabetic eye disease (Diabetic Ocular Problem):

It is a group of eye problems that can affect people with diabetes. These conditions include diabetic retinopathy, diabetic macular edema, cataracts, and glaucoma.

-
- **Pathophysiology of diabetic eye problems:**
- Diabetes affects your eyes when your blood glucose, is too high. This can change fluid levels or cause swelling in the tissues of your eyes , causing blurred vision. High glucose can damage the tiny blood vessels in the back of your eyes. This disorder may leak fluid and cause swelling. These blood vessels can bleed into the middle part of the eye, lead to scarring, or cause dangerously high pressure inside your eye. There for diabetes can cause damage to your eyes that can lead to poor vision or even blindness.

□

□



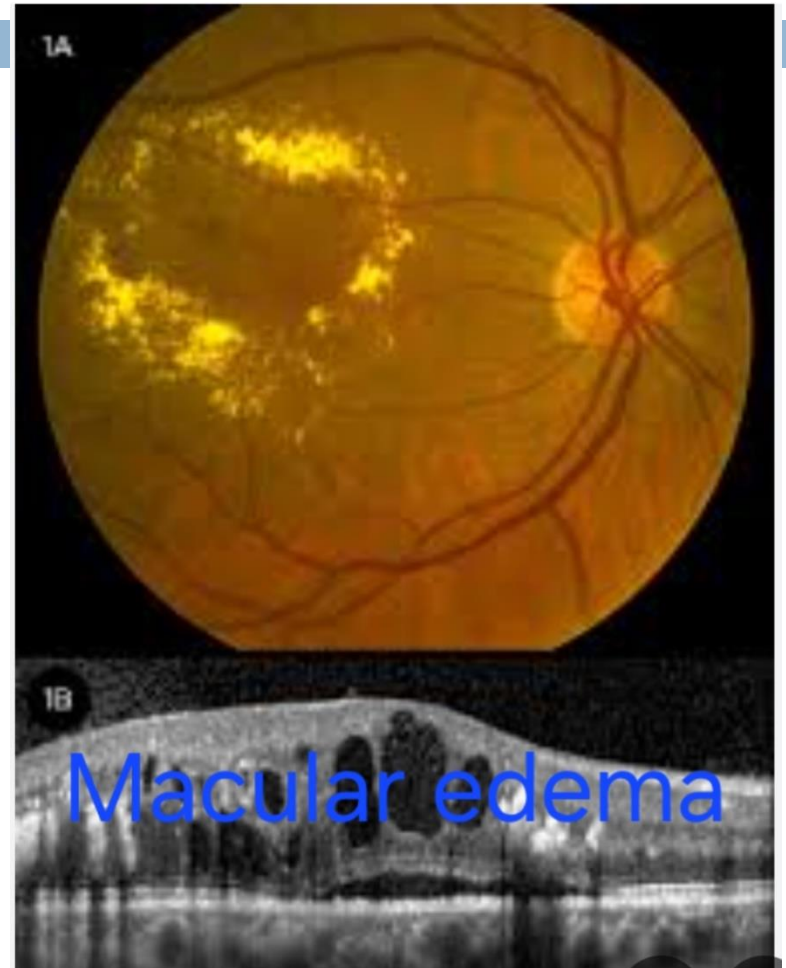
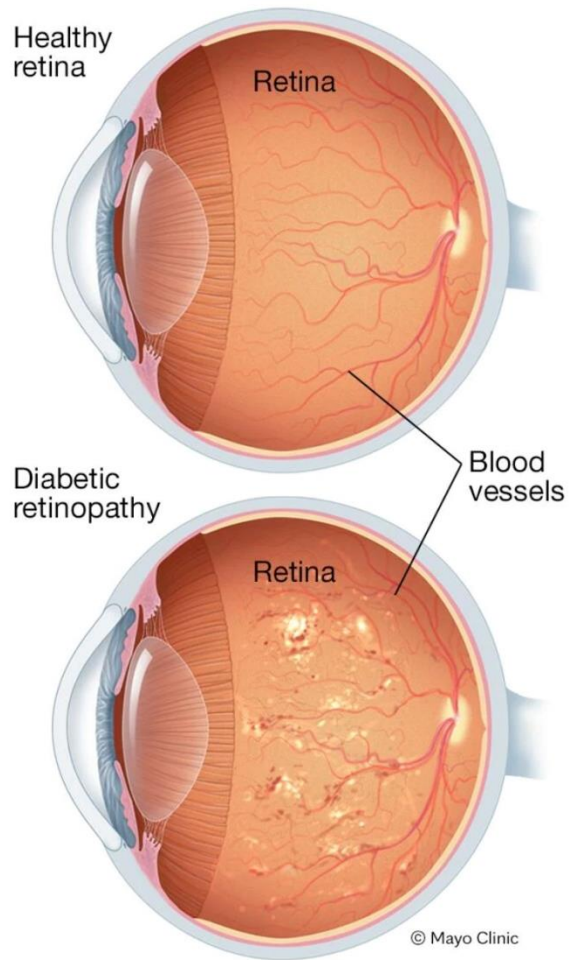
Types of ocular disease

1-Diabetic retinopathy: Damaged blood vessels can harm the retina, causing a disease called diabetic retinopathy. This disease can lead to serious vision problems.

2-Diabetic macular edema: Diabetes can lead to swelling in the macula, which is called diabetic macular edema. This disease can destroy the sharp vision in this part of the eye, leading to vision loss or blindness.

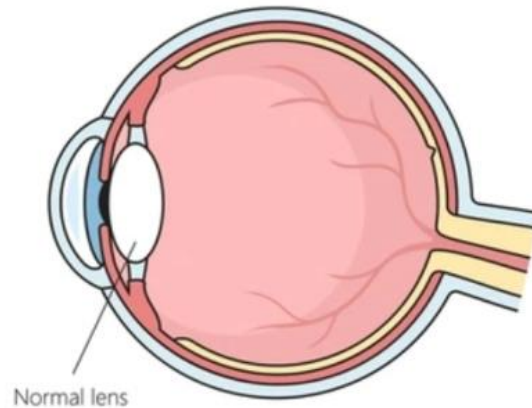
3-Glaucoma: Glaucoma can damage the optic nerve, and can leads to vision loss and blindness.

4-Cataracts: People with diabetes are more likely to develop cloudy lenses, called cataracts (as a results of abnormal structures of lenses). This may be a because that high glucose levels cause deposits to build up in the lenses of eyes.

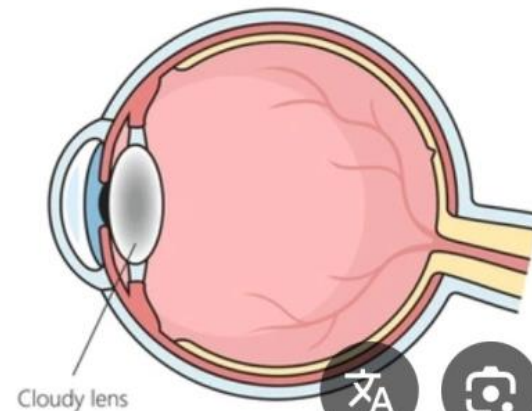


Cataract

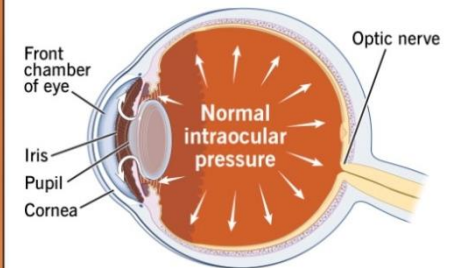
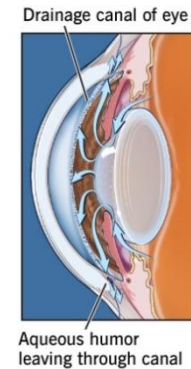
Normal eye



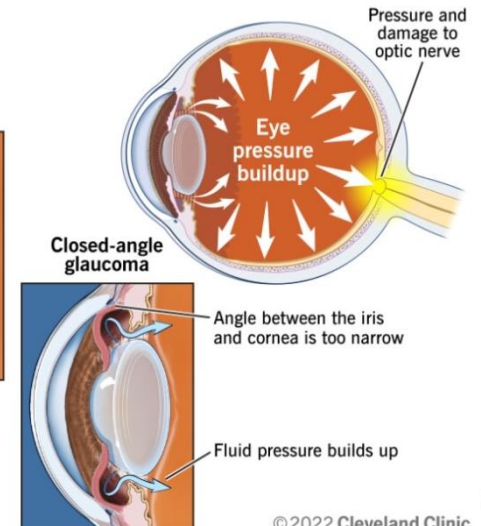
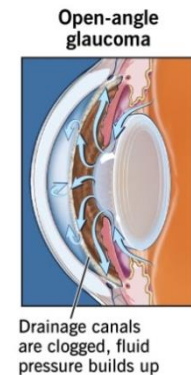
Eye with cataract



Healthy Eye



Glaucoma



Symptoms of diabetic eye disease

- ❑ blurry or wavy vision
- ❑ frequently changing vision
- ❑ dark areas or vision loss
- ❑ poor color vision
- ❑ spots or dark strings (floaters)
- ❑ flashes of light



Post-test

1-Define: Diabetes Mellitus 2-Diabetic ocular manifestation ☐

2-Outline Types or manifestation of diabetes. ☐

3-Describe diabetic ocular manifestation pathophysiology. ☐



Thank you □

5- 3-2025 □

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Lecture 6: Ocular manifestation of hypertension

اهداف الدرس:

- 1- ان يتعرف الطالب على ضغط الدم المرتفع **hypertension**.
- 2- ان يتعرف الطالب على امراض العين المرافقة لضغط الدم المرتفع.
- 3- ان يفهم الطالب الفسلجة المرضية لأمراض العين في حالة ضغط الدم المرتفع.



Pre-test

- 1-What are Hypertension ? ●
- 2-Outline ocular manifestation with Hypertension ? ●
- 3-How retinopathy diagnosis? ●

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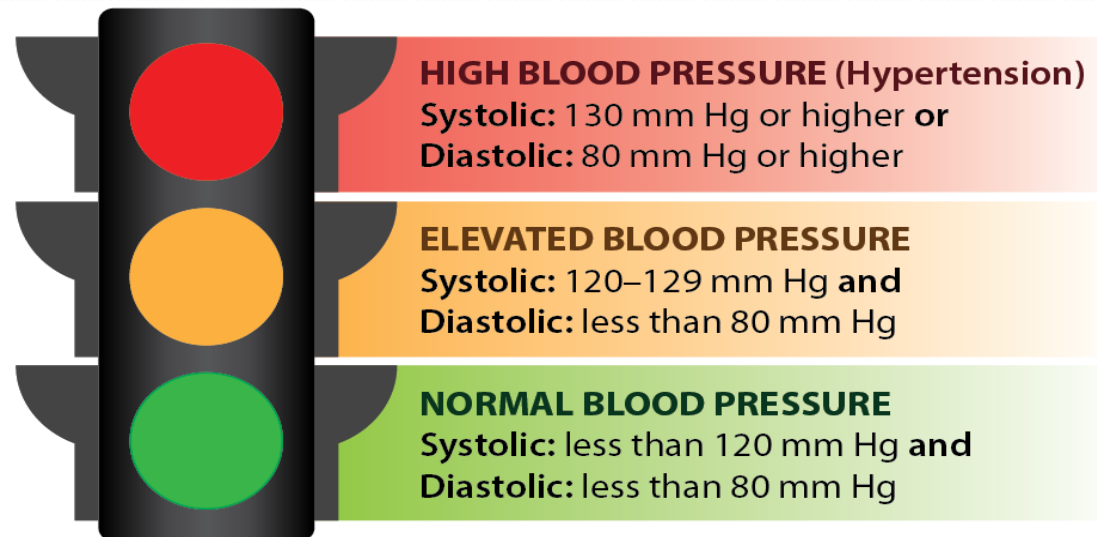
- **Hypertension “silent killer”**

- Hypertension is a common condition that occurs when the pressure in blood vessels is higher than normal (120/80 mm Hg).
-
- **Manifestation of Hypertension:**
- 1-Headaches 2-chest pain 3-dizziness 4-difficulty breathing
- 5-anxiety 6-confusion 7-buzzing in the ears 8-nosebleeds
- 9-Nausea and vomiting 10-Organ dysfunction or failure (heart, kidney, and vision)



Hypertension Diagnosis

- It is done by reviewing blood pressure levels (by sphygmomanometer) and comparing them to guidelines.





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- **Risk factors of hypertension:**

- 1-older age 2-genetics (family history and Race) 3-obesity and Hyperlipidemia 4-unhealthy diets (high salt, saturated fat and trans fats, sugar, or low potassium, fruits and vegetables) 5-physical inactivity 6- pollution (e. g. smoking) 7-co-existing diseases (diabetes or kidney disease) 8-Gender (men) 9-Stress 10-Pregnancy



- **Prevention:**

- By avoiding some risk factors



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Ocular manifestations of hypertension

- 1-retinopathy (hypertensive and diabetic)
- 2-retinal vascular occlusion and macroaneurysm
- 3- optic neuropathy
- 4-age-related macular degeneration
- 5- choroidopathy



Hypertensive Retinopathy (HR)

Hypertensive Retinopathy (HR):

It is an ocular condition that occurs when the retinal vessels get damaged due to elevated blood pressure.

Symptoms Hypertensive Retinopathy:

vision problems

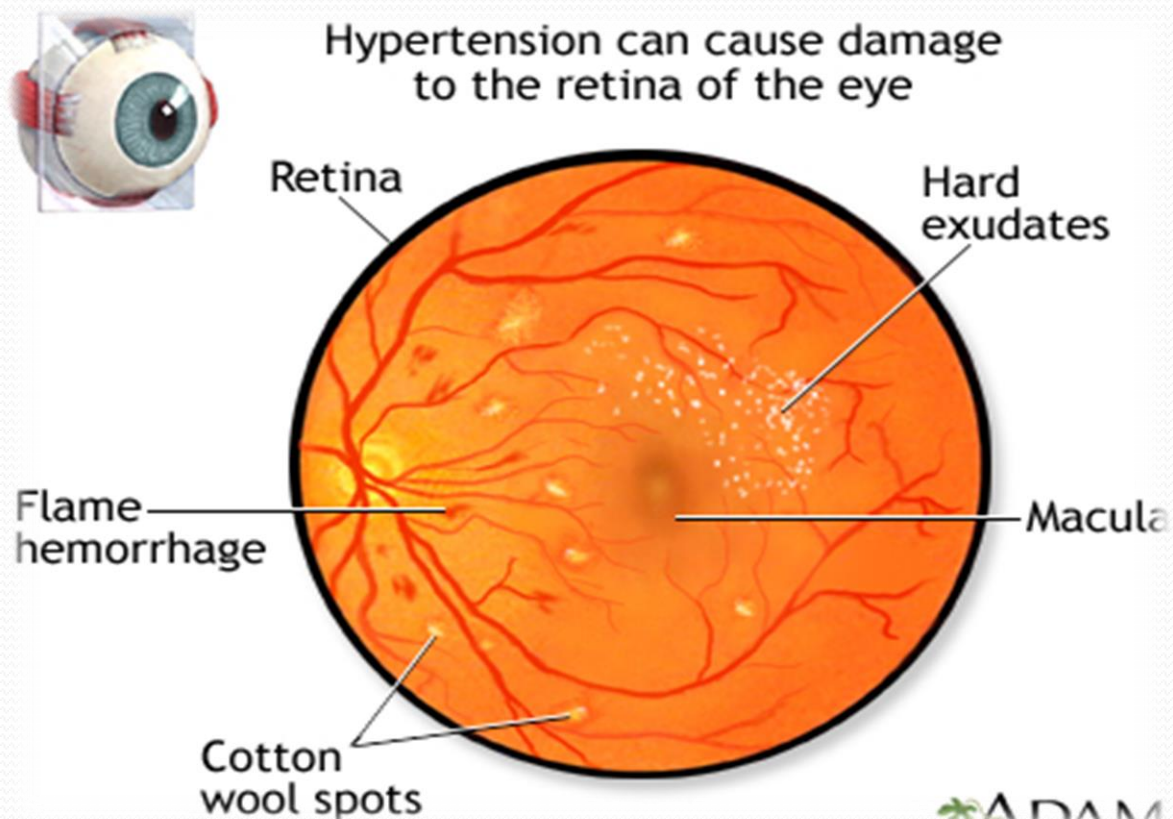
Headache

Hypertension

Diagnosis of retinopathy

- Fundoscopy is investigation (by ophthalmoscope) used to look for narrowing of the blood vessels and signs that fluid has leaked from blood vessels.
-
- **Findings of fundoscopy:**
- **Normal retina:** red due to its rich blood supply.
- **Abnormal retina:** flame hemorrhages and cotton wool spots.
- **Retinal Changes:** Retinal hemorrhage and exudates (Lipid deposits)
- **Macular Changes:** (deposition of hard exudates)
- **Optic Nerve Changes:** swelling (hypertensive optic neuropathy)

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2025-3 - 11



Post-test

- 1-Define: 1-Hypertention 2-Fundoscopy ●
- 2-Outline Types of ocular Hypertension manifestation? ●
- 3-Describe findings of retinopathy with drawing. ●



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Thank you •

11- 3-2025 •

Intracranial Aneurysm, Cerebrovascular Accident, and Hydrocephaly



Pre-test:

What are aneurysm, cerebrovascular accident, or hydrocephaly?

What are cause and manifestation of above problems?

How are above problem diagnosed?

Intracranial (cerebral) aneurysm:

A brain (cerebral) aneurysm is a bulging, weak area in the wall of an artery that supplies blood to the brain, that balloons or bulges out and fills with blood.

The bulging aneurysm can put pressure on the nerves or brain tissue. It may also burst or rupture, spilling blood into the surrounding tissue (hemorrhage). Depending on the severity of the damage, a ruptured aneurysm can cause serious health problems such as hemorrhagic stroke, brain damage, coma, and even death.

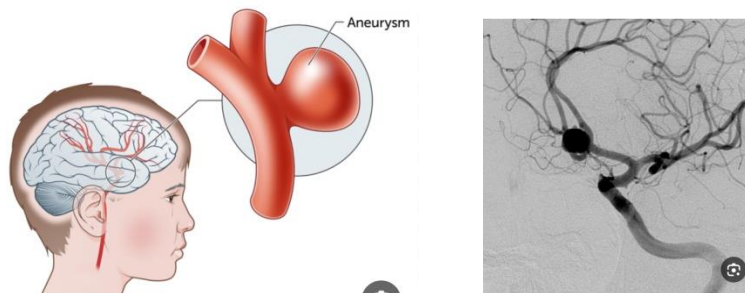


Figure (1): Intracranial (cerebral) aneurysm

Aneurysm commonly develop at sites of vessel branching where wall shear stress is high. Histologically, cerebral aneurysms have lost the internal elastic lamina of the vessel wall which separates the intima from the concentric smooth muscle layer called the media. Loss of elastic fibers promotes outpouching of the remaining vessels layers.

Symptoms of aneurysm:

• pain above and behind the eye • numbness • weakness • paralysis on one side of the face • a dilated pupil in the eye • vision changes or double vision. nausea • vomiting • stiff neck • sensitivity to light • seizure • loss of consciousness • cardiac arrest.

Types of aneurysms:

- **Saccular aneurysm:** (rounded sac containing blood, that is attached to a main artery or one of its branches).
- **Fusiform aneurysm:** A fusiform aneurysm balloons or bulges out on all sides of the artery.
- **Mycotic aneurysm:** A mycotic aneurysm occurs as the result of an infection that can sometimes affect the arteries in the brain. The infection weakens the artery wall, causing a bulging aneurysm to form.
- **Small aneurysms:** are less than 11 millimeters in diameter
- **Large aneurysms:** are 11 to 25 millimeters
- **Giant aneurysms:** are greater than 25 millimeters in diameter

Etiology of cerebral aneurysm:

Inherited risk factors:

- genetic connective tissue disorders that weaken artery walls
- polycystic kidney disease • arteriovenous malformations

- history of aneurysm in a first-degree family member

Other risk factors:

- untreated high blood pressure • cigarette smoking • drug abuse • age over 40. • head trauma • brain tumor • infection in the arterial wall

Diagnosis of aneurysm:

- 1-Computed tomography (CT).
- 2-Magnetic resonance imaging (MRI).
- 3-Cerebral angiography.
- 4-Cerebrospinal fluid (CSF) analysis.

Cerebrovascular Accident:

Transient Ischemic Attack (Ischemic Stroke) (TIA) and stroke are caused by loss of blood flow to the brain potentially (ischemia).

• **Embolic or thrombotic stroke:** An episode of symptomatic neurological dysfunction caused by focal ischemia. Sources of emboli include fat, air, tumor, bacterial clumps and foreign bodies.

• Hemorrhagic Stroke

Risk Factors of Stroke:

- Age (> 65 years) • Atrial fibrillation • History of TIA • Smoking
- Hypertension • Hyperlipidemia • Diabetes mellitus • Heart disease
- Carotid stenosis • Drug abuse • Alcohol • Obesity • Neck injury
- Stressful environment • Sedentary lifestyle • Trauma • Bleeding disorders, medications (warfarin) • Amyloid angiopathy • Arteriovenous malformations • Brain tumours •

Diagnostic Tests:

- Glasgow Coma Scale
- Blood pressure
- Clinical features
- Diabetes score
- ECG
- Chest X Ray
- Blood Glucose (BG)
- CBC
- Electrolytes
- Troponin
- Creatinine
- Urea Nitrogen
- Toxicology screen
- β HCG (urine or serum)
- Blood cultures
- Urinalysis
- Blood type and cross match

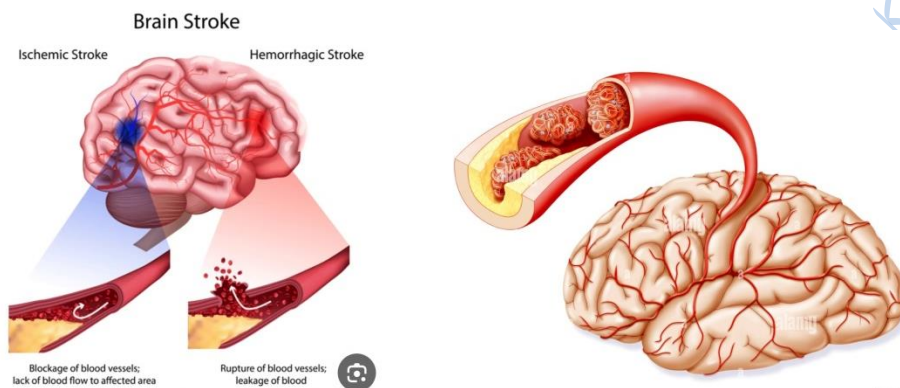


Figure (2): Cerebrovascular Accident

Hydrocephalus:

Hydrocephalus is an abnormal accumulation of cerebrospinal fluid within cavities called ventricles inside the brain. The excess fluid leads to increased pressure on the brain which can cause damage to its tissue.

Types of hydrocephalus:

- Congenital hydrocephalus
- Acquired hydrocephalus
- Normal pressure hydrocephalus (in older people)

Etiology of acquired hydrocephalus:

- Head Injuries
- Brain Tumour
- Meningitis

- Cerebrovascular accident Congenital

Symptoms of hydrocephaly:

- Headaches • Nausea and Vomiting • Neck Pain • Confusion
- Abnormal enlargement of the baby's head. Sleepiness irritability and downward deviation of the baby's

Diagnostic tests of hydrocephaly:

Lumbar Puncture CT scan (X-ray examination). MRI scan

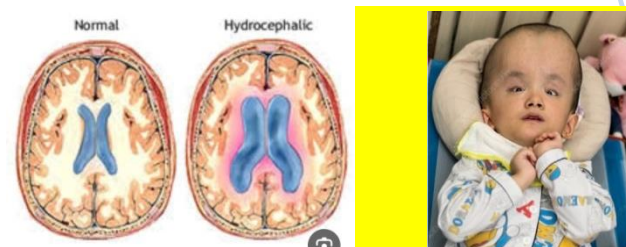


Figure (3): Hydrocephaly

DIAGNOSTIC TESTS:

- 1-Ultrasonography
- 2-Computed tomography (ct scans) CT
- 3-Magnetic resonance imaging (Mri) Like the CT scan, MRI

Post-test:

Q1: Define aneurysm, cerebrospinal accident, and hydrocephaly.

Q2: Outline the causes and manifestation of aneurysm, cerebrospinal accident, or hydrocephaly.

Q3: How are above problem diagnosed?

Thank you

12-2-2025

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2025-2024 المحاضرة 3
2025-2-19



Lecture 3: Infection

اهداف الدرس:

- 1- ان يتعرف الطالب على مفهوم الاصابة infection .
- 2- ان يتعرف الطالب على الية حصول المرض الاصابي pathogenesis .
- 3- ان يتعلم الطالب كيفية حصول الاستجابة للاصابة response .

Infected person



الاختبار القبلي (العصف الذهني)

- 1-What are Infection? •
- 2-What are types of infection? •
- 3-What are etiology of infection? •



Infection •

Infection is the condition resulting from an invasion and multiplication of microorganisms (bacteria, viruses, and fungi) that are not normally present within the body. Disorders that are caused by this method is called (Infectious diseases).

- **Infectious agents:**

- 1. Viruses and prions
- 2. Bacteria
- 3. Fungi
- 4. Parasites

Infectious agents (Microbes)





Types of infection :

- **Endogenous infection:** It is caused by organisms normally present within an individual's body (normal flora), it is also called (Opportunistic infection).
- **Exogenous infection:** It is caused by organisms from a source outside of the individual's body.
- **Subclinical infection:** An infection may cause no symptoms.
- **Clinically apparent infection:** It may cause symptoms.





Host barriers to infection : •

1-Skin 2-Respiratory system 3-Digestive
tract 4- Urogenital tract

•



How are infectious disease spread?

1-Direct contact: (Personal touching)

2-Indirect contact: (By touching a contaminated surface).

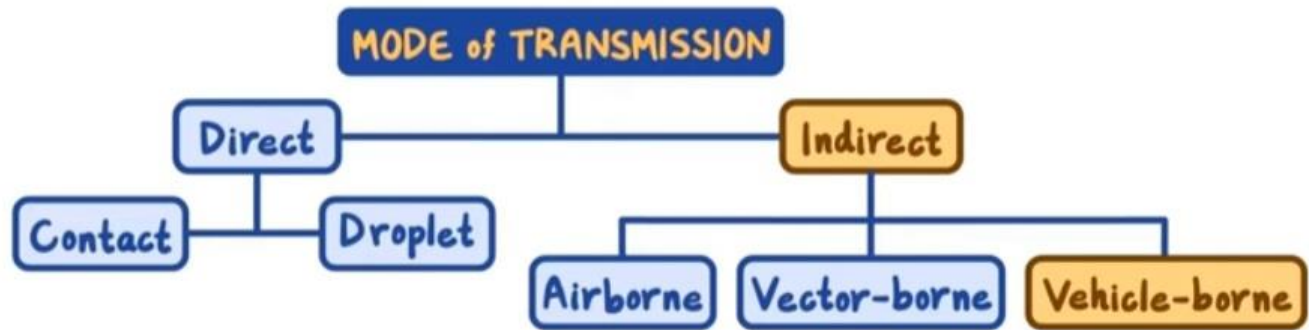
3-Airborne: (droplets or aerosols).

4-Vector-borne: (insect or bite).

5-Non-contact vehicle transmission: (By food or in water).

6-Blood borne: (person's blood or other body fluids).

Mode of transmission (Spreading)



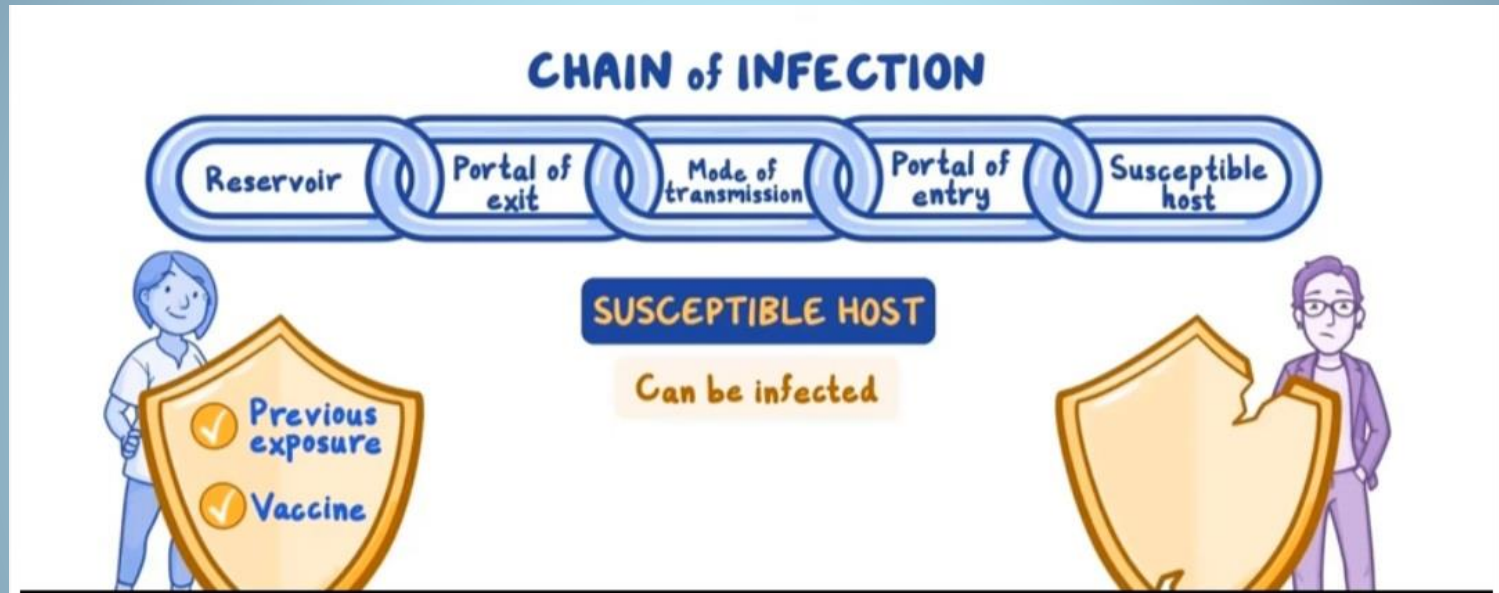
Non-living object carries agent from reservoir to susceptible host





- **Disease transmission cycle (Infection cycle elements):**
- 1-agent (disease-producing microorganism), 2-reservoir (place where agent lives—humans, animals, plants, soil, air, water), 3-mode of escape—how the agent exits the reservoir, 4-mode of transmission, 5-place of entry, and 6-susceptible host.

Infection cycle (Infection chain)





- **Pathogenesis:**
- The infectious agents damage the tissue in 3 ways:
- Enter the cell and cause death or dysfunction directly.
- Injury may be due to local or systemic release of microbial products (toxins or antigens).
- Induce host cellular responses which may cause additional damage to the surrounding tissues e.g suppuration, scarring, hypersensitivity reactions.



- **Inflammatory Responses to Infection:**
- Microbes produce 5 types of tissue reaction :
- 1. Suppurative (Purulent) Inflammation
- 2. Mononuclear & granulomatous inflammation
- 3. Cytopathic-cytoproliferative response
- 4. Tissue necrosis and scarring
- 5. Chronic inflammation





Symptoms progression:

Symptoms vary according to the type of microorganism and the location of the infection. Symptoms are a result of the actions of the microorganisms on the body (e.g., diarrhea, necrotic tissue) and the immune response to them (e.g., fever, purulence).

Infection test samples

TEST SAMPLES

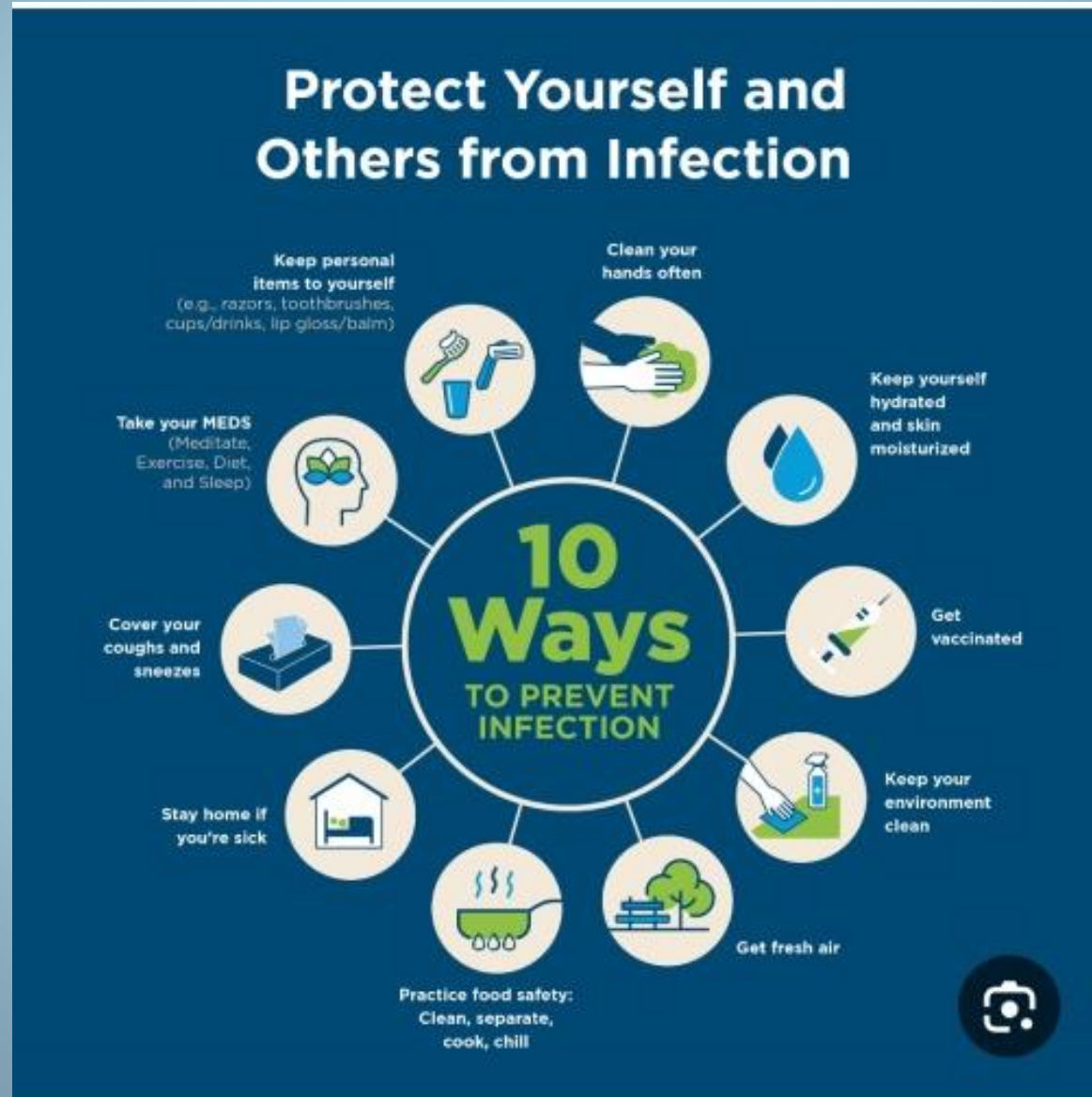
Blood

Mucus

Urine

Stool

Prevention from infection



الاختبار البعدي (العصف الذهني)

- 1-Define: 1-Infection 2-infectiousdisease 3- •
endogenousinfection
- 2-Outline infectious cycle elements •
- 3-Explain pathogenesis of infection •

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2025-2-19



Thank you for listening •

18-2-2025 •

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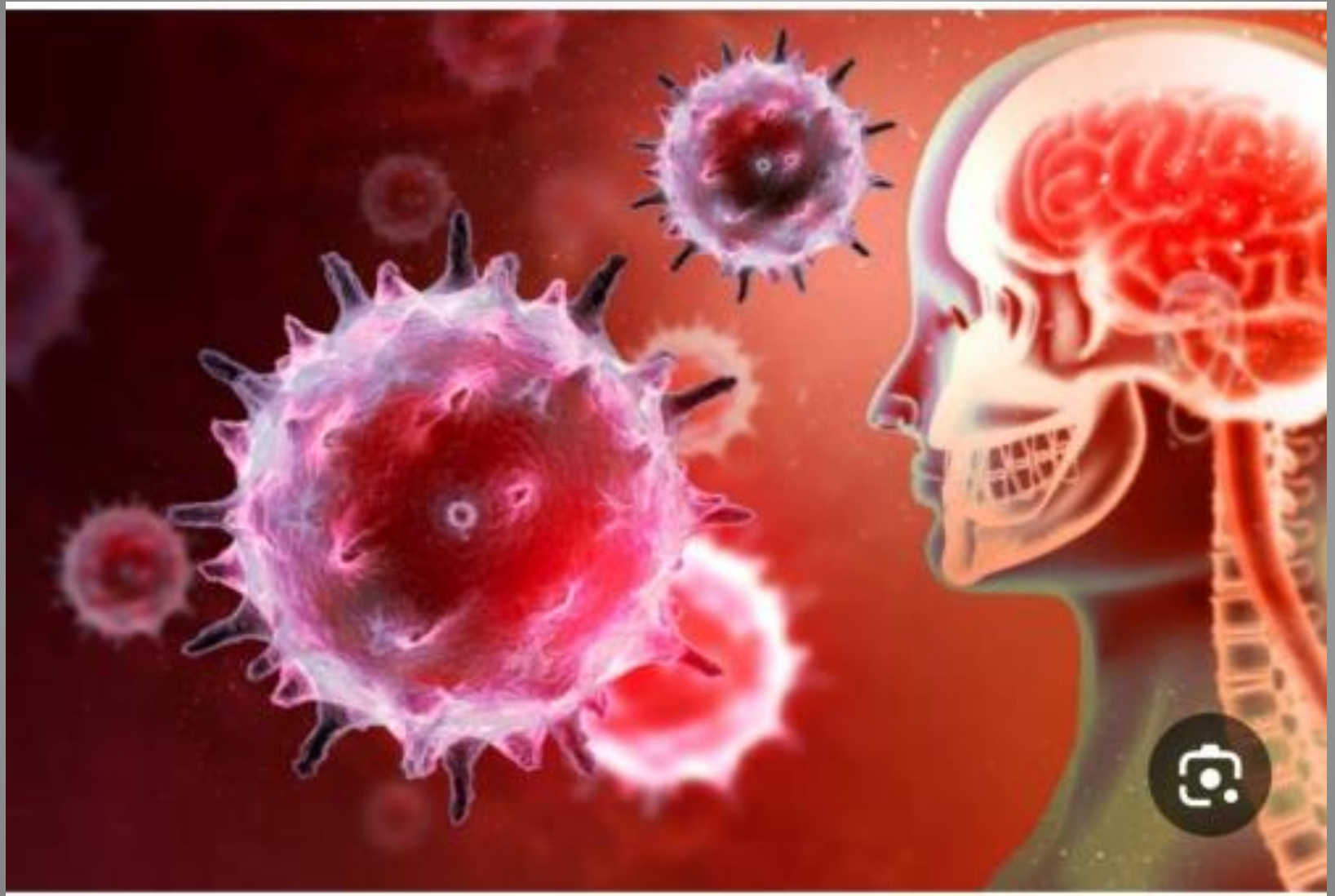
2025-2-26



Lecture 4: Neurologic Infection

اهداف الدرس:

- 1- ان يتعرف الطالب على التهاب اغلفة الدماغ Meningitis.
- 2- ان يتعرف الطالب على التهاب الزهري Syphilitis.
- 3- ان يتعرف الطالب على التهاب الدماغ Encephalitis.
- 4- ان يتعرف الطالب على مشاكل العين في الالتهابات المذكورة.



Pre-test

1-What are Meningitis? •

2-What are Syphilis, and encephalitis? •

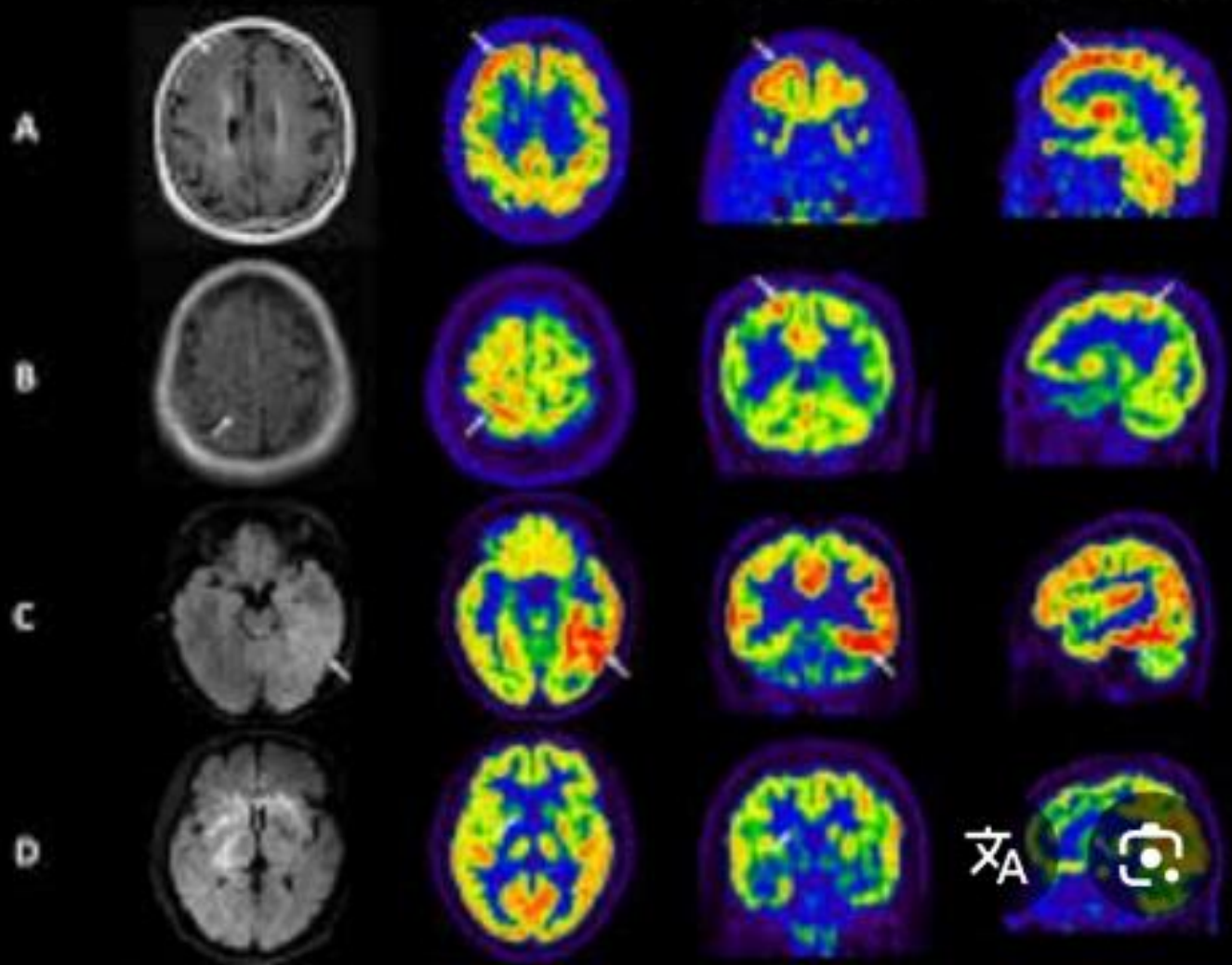
3-What are ocular manifestation with this infections? •



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• Meningitis (Spinal Fever)

- Meningitis is the inflammation of the meninges, that caused by biological, physical or chemical agents (such as infections, injuries, or drugs). It leads to headache, fever and stiff neck., damage to the brain and spinal cord, and can be fatal and requires immediate medical care.
-
- **Meningitis Etiology:**
- **1-Microbial agents:**
- **Bacteria (Bacterial meningitis):** • Neisseria meningitidis • Streptococcus pneumoniae • Haemophilus influenzae
- **Viruses (viral meningitis):** Enteroviruses, Mumps, and Influenza Virus
- **Fungi (Fungal meningitis):** Candida
- **Parasites:** Plasmodium malaria, Toxoplasma, and Amoeba.
- **2-Physical agents:** Injuries, surgery.
- **3-Chemical agents (Chemical meningitis):** Drugs
- **4-Other agents:** Immune weakness (diabetes), or cancer.





- **Meningitis Diagnosis:**
- 1- Medical history 2-Clinical examination
- 3-Laboratory tests: Microscopic examinations of CSF, Blood tests (e.g. C-reactive protein, complete blood count-(CBC), Bacterial culture of Blood, Polymerase chain reaction (PCR), Serotyping
- 4-Radiology investigations: CT scans and MRI scan
-
- **Risk factors of meningitis:**
- 1-Crowding (e.g. universities) 2-Immune deficiencies (e.g. diabetes)
- 3-Smoking 4-Extremes of age 5-Pregnancy



- **Transmission:**
- Systemic secretions, mother to child around the time of birth, birds, bats, Rodents such as mice.
-
- **Signs and symptoms:**
- Fever, pain, vision disorders, diarrhea, Photophobia, swelling of the nerves behind the eyes, stroke, Skin rash
-
-



Prevention:

1. Vaccination
2. Antibiotics: Ciprofloxacin, ceftriaxone, penicillin
- 3-Routine cleaning procedures
- 4- healthy food and exercising.

Syphilis

- **Cause:** Treponema pallidum bacteria
- **Signs and symptoms:** It can be difficult to recognize and you might not notice them.
- **Transitions:** Sexual contact, blood transfusion, and mother-to-child transmission (congenital syphilis).
- **Syphilis diagnosis:** clinical history, physical examination, laboratory testing and radiology.

Syphilis manifestation





- **Encephalitis**

- Encephalitis is an inflammation of the brain. It usually caused by microbial, chemical agents, or problems with the immune system.
-
- **Etiology:**
- **Microbial agents:** Over 100 different pathogens can cause encephalitis; such as viral, bacterial, parasitic, fungal infections.
- Viral infections: encephalitis virus (EV), measles virus , mumps virus, and human immunodeficiency virus (HIV).
- **Autoimmune encephalitis.**
- **Chemical agents.**

•

- **Transition:** Viruses blood-feeding arthropods (mosquitoes, ticks, and certain mites and gnats).
-
- **Prevention:** by vaccination or treated with antimicrobials; no specific treatment is available, personal protection and mosquito control.
-
- **Manifestation of encephalitis:**
- Flu-like symptoms that develop (headache, fever), problems with memory, speech problems, sensitivity to bright.

•

Post-test

- 1-Define: Meningitis 2-Encephalitis •
- 2-Outline etiology agents of meningitis, syphilitic, or encephalitis. •
- 3-Describe ocular manifestation with meningitis, syphilitic, or encephalitis. •

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2025-2-26



Thank you for listening •

18-2-2025 •

What is thyroid disease?

What are thyroid ocular disease?

How are thyroid disorder affect eye?

Thyroid Disease (Goiter or Enlarged Thyroid):

It is a thyroid enlargement that occurs when the thyroid fails to function properly, either by releasing too much or too little thyroid hormone (T3, T4);. Also it occurs when an abnormal growth develops (lump or nodule).

Types of Thyroid Disorders:

- 1-Hyperthyroidism 2-Hypothyroidism 3-Hashimoto's Thyroiditis
- 4-Thyroid Tumors 5-Thyroiditis

Thyroid Eye Disease (TED):

It is is a chronic immune orbital inflammation. Its damage to tissues around the eyes, especially extraocular muscle, connective and fatty tissue.

Symptoms and complications of thyroid eye disease:

- 1-Dry irritated eyes 2-Double vision (diplopia) 3-Eyelid retraction
- Eye protrusion 4-Vision loss 5-Redness and swelling
- Bulging of the eye (proptosis) 6-A gritty feeling in the eyes (like "sand")
- 7-Pain behind your eyes or with eye movement 8-Extra tearing of the eyes

Etiology (causes) of thyroid eye disease:

systemic hyperthyroidism or Graves' disease.

antibodies attack the muscles associated with eye and eyelid movement.

Risk Factors of thyroid eye disease:

1. Ethnicity:
2. Age
3. Gender
4. Genetics
5. Stress
6. Pregnancy
7. Trauma.
8. Smoking
9. Radioactive iodine therapy
10. High serum cholesterol.

Diagnosis of thyroid eye disease:

symptoms, and they examine your eyes.

Laboratory testing:

Measurement of the amount of bulging of your eye

Tests to check your visual field, and color vision

A computed tomography (CT) scan or magnetic resonance imaging (MRI)

Demyelinating Eye Diseases:

Demyelinating diseases are disorders of nervous system with destruction of myelin and *relative* preservation of axons. mechanisms range from direct infection and lysis of oligodendrocytes to immune destruction of myelin or supporting cells by cell-mediated immune responses, antibody, or cytokines. This disorders cause some ocular manifestation such as pain and vision disorder.

Genetic Eye Disease:

It can result from a change in the normal genetic code (DNA sequence), this change called mutation. The resultant disease can affect the eyes.

Genetic eye disease includes congenital eye malformations, congenital cataracts, congenital glaucoma, inherited retinal degenerations, optic atrophy and certain types of strabismus with a family history.

Toxic Eye Disease:

Toxicological exposures, can induce ocular disease. Pathology can range from the ocular surface to the optic nerve.

... Best wishes.

20-4-2025