

Pathology Question & Answers

1. Define oligospermia and azoospermia.

Oligospermia: It is defined as presence of only a few motile spermatozoa.

Azoospermia: It is defined as complete absence of spermatozoa.

2. What are the indications for bone marrow trephine biopsy?

Indications common to both bone marrow aspirations and trephine biopsy.

Exclusive indications of bone marrow trephine biopsy:

Anaemias

Suspected leukaemias

Myeloma

Lymphomas

Aplastic anaemia

Carcinomatosis

3. What is macropolycyte?

Macropolycyte or polycyte is a large polymorphonuclear leukocyte with 6 to 14 lobes in the nucleus.

seen in

pancytopenia

Vitamine B12 or folic acid deficiency

Intoxications involving neutrophilic leukocytosis.

4.Mention four acquired coagulation disorders.

Disseminated intravascular coagulation

Vitamin K deficiency

coagulation disorders in liver diseases

Fibrinolytic defects.

5.List the population at risk of developing AIDS.

Doctors and paramedical staff

Sex workers

Person with multiple sex partners

Homosexuals

Drug abusers

Patient requiring repeated blood transfusion or blood products.

6.Mention three anticoagulants used in blood bank.

Acid citrate dextrose(ACD)

Citrate phosphate dextrose(CPD)

EDTA

7.Mention two causes of impaired clot retraction.

a)Thrombocytopenia:

Drug induced thrombocytopenia

Idiopathic thrombocytopenic purpura

Thrombotic thrombocytopenic purpura.

b)Disorders of platelet function:

Defective platelet adhesion

Defective platelet aggregation

Defective platelet release reaction.

8.Mention the complication of venipuncture.

Bleeding

Shock.

9.Mention four radiation-induced cancers.

Osteosarcoma

Leukemias expert CLL

Breast cancer

Colon cancer

Lung cancer

Thyroid cancer

Skin cancer

Salivary gland cancer.

10.Name those parasites that causes anemia.

plasmodium falciparum

plasmodium vivax

plasmodium ovale

plasmodium malariae

leishmania donavani

Tinea solium

Necator americanus.

11.Grading and staging of Cancer.

Grading and staging are two systems to determine the prognosis and choice of treatment of malignant cancer.

Grading:

Grading is defined as the macroscopic and microscopic degree differentiation of the tumour.

A cancer can be graded grossly and microscopically.

Gross features like exophytic and fungating appearances are indicative of less malignant growth than diffusely infiltrating tumour.

Grading is largely based on 2 important histological features, the degree of anaplasia and the rate of growth.

However, grading of tumour is subjective and degree of differentiation varies from tumour to tumour.

Thus it is common to grade the tumours as well differentiated, undifferentiated, keratinising, non-keratinising, etc.

Staging:

Staging means extent of spread of tumour within the patient.

It can be assessed by clinical examination, investigation and histopathologic examination.

The important systems of staging are TNM staging and AJC staging.

Both systems take into account three criteria for staging any neoplasm.

primary tumour

Nodal involvement

Metastasis.

TNM staging:

It was developed by Union International Centre Cancer, Geneva (UICC)

It indicates the three components of staging

T: primary tumour

N: Regional nodal involvement

M: Distant metastases

AJC staging:

It was developed by AMERICAN JOINT COMMITTEE and it also taken into account the 3 components.

it divides all cancers into 0 to iv.

12. WHAT IS GUMMA? DESCRIBE IT.

Gumma is a lesion seen in tertiary syphilis.

It is also called as syphilitic gumma.

It is solitary localized rubbery lesion with central necrosis.

It is usually seen in organs like liver, testis, bone and brain.

In liver the gumma is associated with scarring of hepatic parenchyma.

Histologically, a gumma shows a central coagulative necrosis resembling caseation but is less destructive so that in the outlines, the necrosed cells can still be seen faintly.

It is surrounded by a zone of palisaded macrophages with lymphocytes, plasma cells, giant cells and fibroblasts.

13. What are Extracardiac lesions of subacute bacterial endocarditis?

Bacterial endocarditis is a serious infection of the of the valvular and mural endocardium caused by different forms of bacteria and is characterized by typical infected and friable vegetations.

Extra-cardiac Lesions:

These are very common and very serious and are produced by the embolism caused by the dislodgement of the friable vegetations.

i) Infraction, abscesses and mycotic aneurysms

-Emboli origination from the left side of the heart enter enter systemic circulation affects organs like spleen, kidney and brain causing infarcts, abscesses and mycotic aneurysms.

-Emboli originating from the right side of the heart enter pulmonary circulation producing pulmonary abscesses.

ii) Petechiae

-Emboli obstruction or toxic damage to the capillaries produce petechiae in the skin and conjunctiva.

iii)Osler's nodes

-These are painful, tender nodules on the finger tips of hand and feet produced due to toxic or allergic inflammation of the vessel wall.

iv)Focal necrotising glomerulonephritis

-It is produced due to circulating immune complexes.

-Occasionally the glomerulonephritis may be diffuse.

14. Write briefly about erythrocyte sedimentation rate.

Erythrocyte sedimentation rate or ESR is the rate of sedimentation of the RBCs in an anticoagulant added specimen of blood allowed to stand undisturbed in a test tube.

It is expressed in terms of mm/1st hr.

mechanism:

The sedimentation continues in three stages.

-A short stage of aggregation with a little fall.

-True sedimentation following maximum velocity of fall.

-Finally, slowing until packing is complete leaving an upper layer of clear plasma.

ESR depends upon

-The difference in densities between RBCs and plasma.

-The degree of adherence of RBCs to one other or rouleaux formation which is related to the plasma protein content.

The resistance exerted by plasma on the RBCs surface.

Red blood cells carry a negative charge and hence any condition which increases the positive charge in plasma accelerates the ESR.

Normal value:

ESR is usually determined by method of Westergreen's or Wintrobe's.

The normal ESR is

By Westergreen's method

- male:3-7mm/1st hr
- Female:5-9mm/1st hr

By Wintrobe's method

- male:0-6/1st hr
- Female:0-15mm/1st hr

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Significance:

ESR has more of prognostic importance rather than diagnostic, i.e. A raised ESR is not important but a raise in ESR of a subject than his/her previous ESR reading is important. Progressive ESR recording is helpful in assessment of chronic disorders like tuberculosis, rheumatic fever, rheumatoid arthritis.

It can also act as aid in differential diagnosis of certain conditions.

15. Write briefly about sputum examination.

Sputum is the material coughed out from the lungs, bronchi, trachea and larynx and consists of mucous secreted by the respiratory mucosa, tissue disintegration products due to diseases, exudate from lesions and materials from nearby structures that might have established communication with respiratory tract.

Collection

The patient is instructed wash the mouth with water to avoid contamination by food residue, etc.

He is further explained that the material required is the expectoration brought out after a fit of coughing and not saliva.

The sputum obtained in the manner is collected directly into the container. The container should be clean, wide mouthed bottle with a capacity of 30-60 ml and a cap that can be screwed tightly.

The sputum should be sent to laboratory immediately.

The patient, who is not having spontaneous cough may be made to inhale a heated mixture of a mildly irritative solution that induces cough.

In children, the sputum may be collected by a gastric aspiration tube as they usually swallow the sputum.

The material may also be collected through bronchoscopic apparatus.