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**Q1: A 45 years old man, Sikandar is presented to the local hospital having an allergic attack just like asthma. Upon investigations of chest X-ray, fungus balls were seen that changed its position when the patient is moved from an erect to a supine position. What according to you is the possible diagnosis for this condition? What is the causative agent which causes the condition? (10)**

**Answer :-1**

- Investigation: chest x-ray
- CT scans of lung
- Tissues biopsy
- Causative agent: aspergillus

**(Q2) :- Discuss the following ?**

**(A) Definitive hosts :-**

The definitive host is the one in which a parasite

Reaches Sexual maturity and under goes sexual reproduction.

- It's mostly vertebrates.

**(B) intermediate host :-**

An organism that Herbors the sexually immature parasite and is required by the parasite to undergo development and complete its life cycle.

**(C) vector:-**

A living carrier ( e.g an arthropod) that transport a pathogenic organism from an infected to a non infected host . A typical example is the female Anopheles mosquito that transmits malaria .

**(Q3)** :- Explain the transmission and life cycle of plasmodium in your words ?

**Answer:.** Transmission :-

Malaria is transmitted primarily by mosquito bites, but transmission across the placenta in blood transfusion, and by intravenous drug abuse also occurs.

Life cycle in human :-

1) sporozoite in saliva of female anopheles mosquito -----this saliva of female anopheles mosquito injected in man blood by mosquito bites ----- they enter to liver cells where they grow and multiply (in this stage they don't attack on RBC and after injection firstly enter to liver -----there for this stage is called pre-erythrocytic stage) --in time the infected liver cells as known as (schizont) and the rupture and then release merozoites into the blood.

Merozoites invade RBC and grow and multiply (erythrocytic stage) ---RBC rupture and release of merozoites ----and some merozoites invade other RBC. While some differentiate into gametocyte -----these gametocyte are sucked by anopheles mosquito.

**Life cycle in mosquito =**

Gametocyte -----zygote -----and then ookinete ----oocyst ----and then sporozoite the sporozoite in saliva injection in man and then the cycle is repeated.