
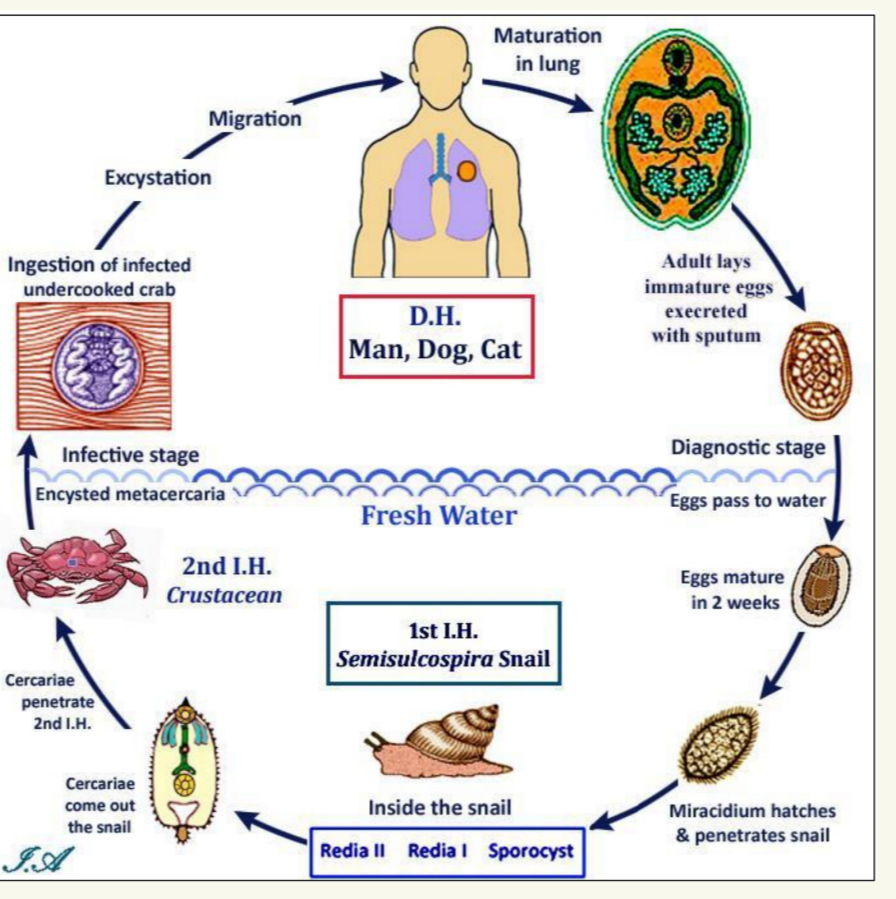

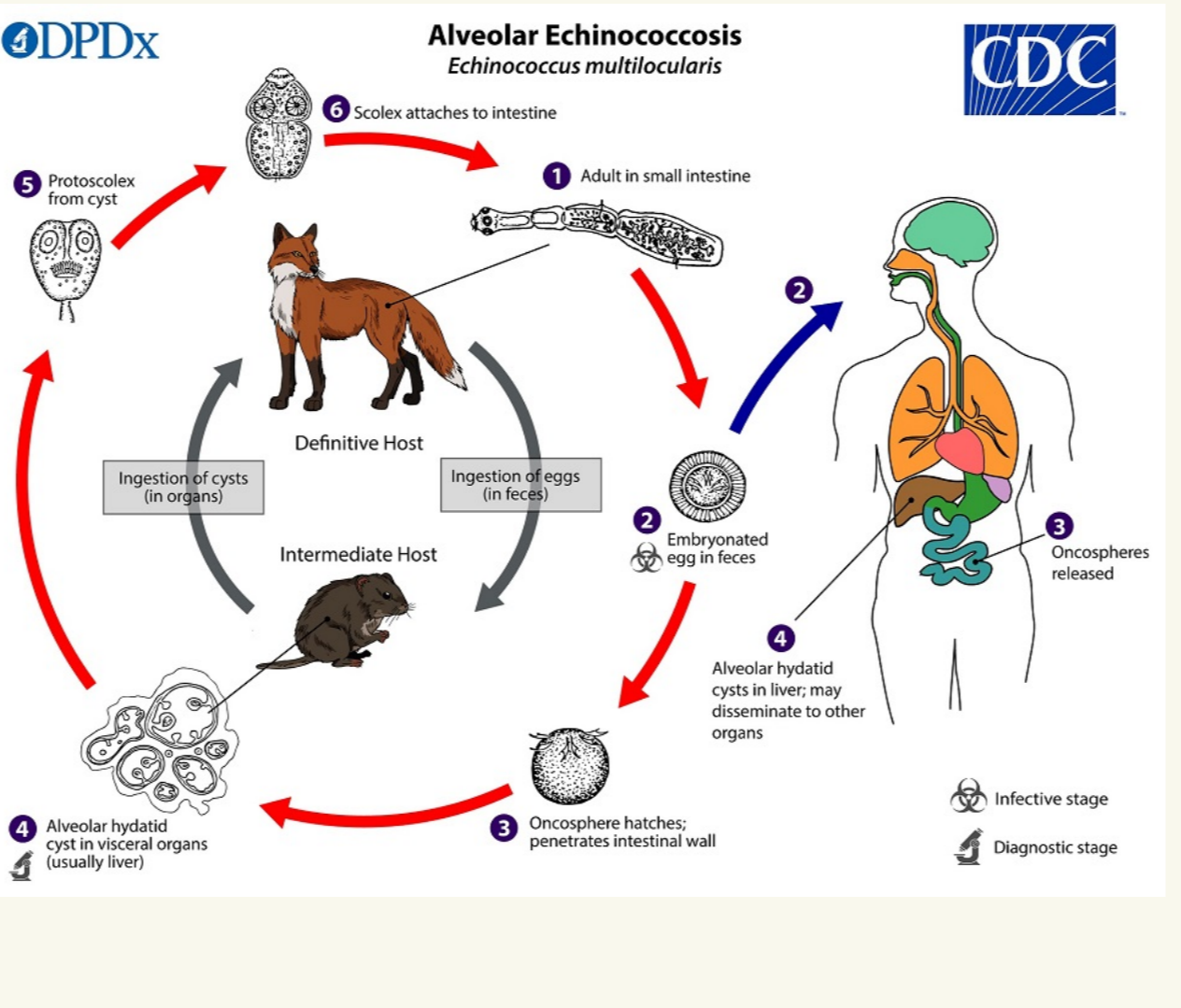

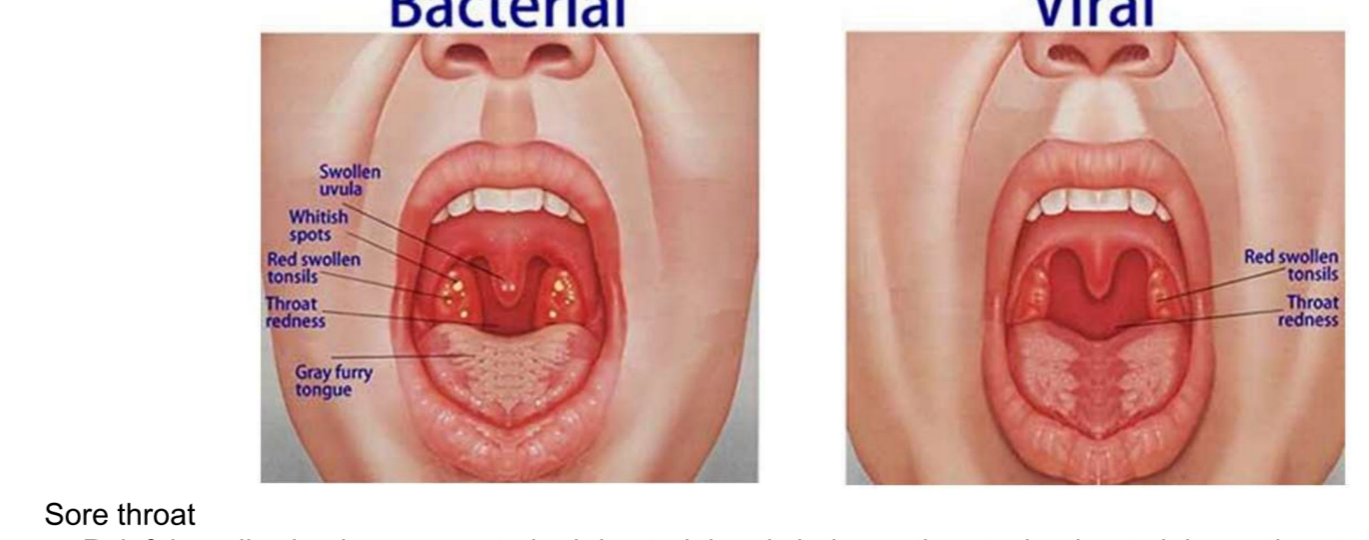


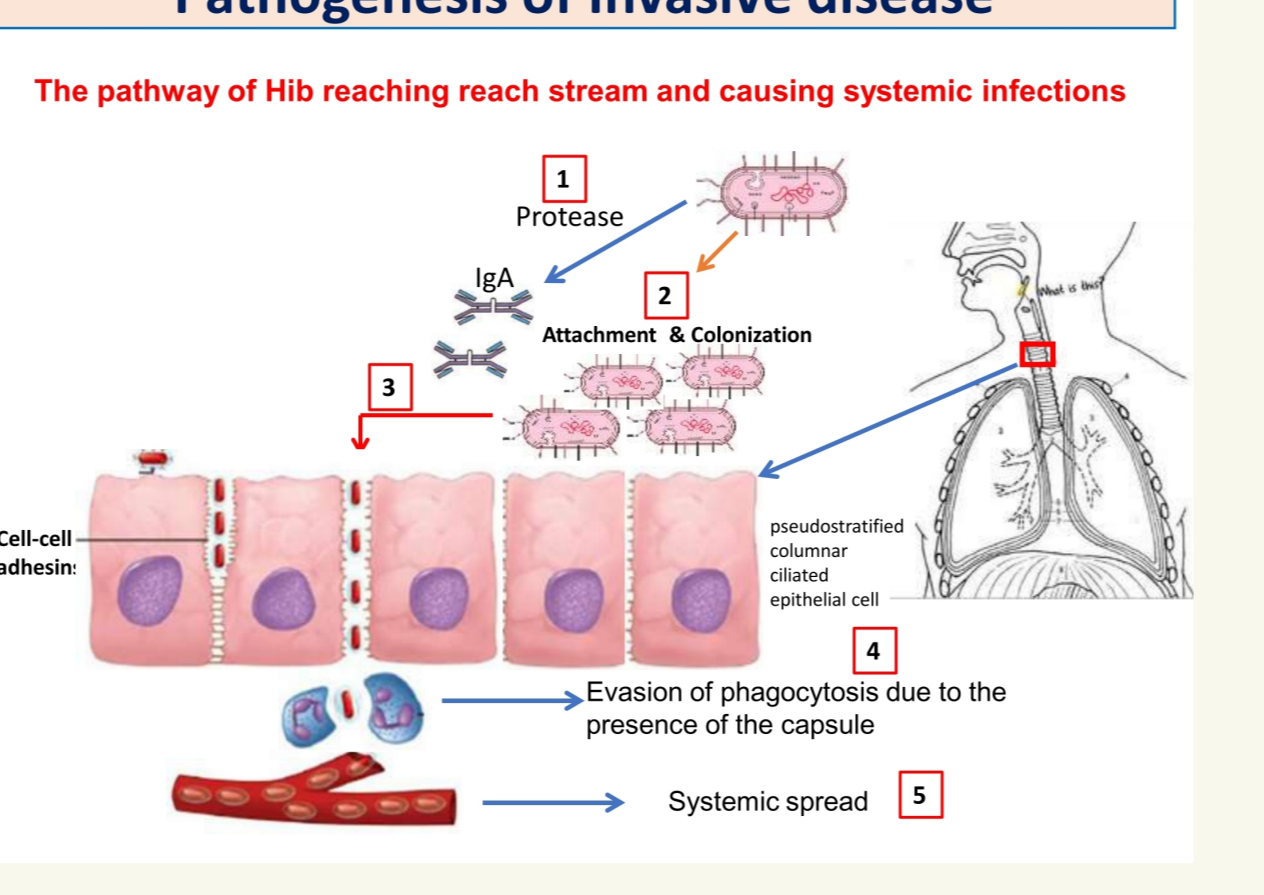
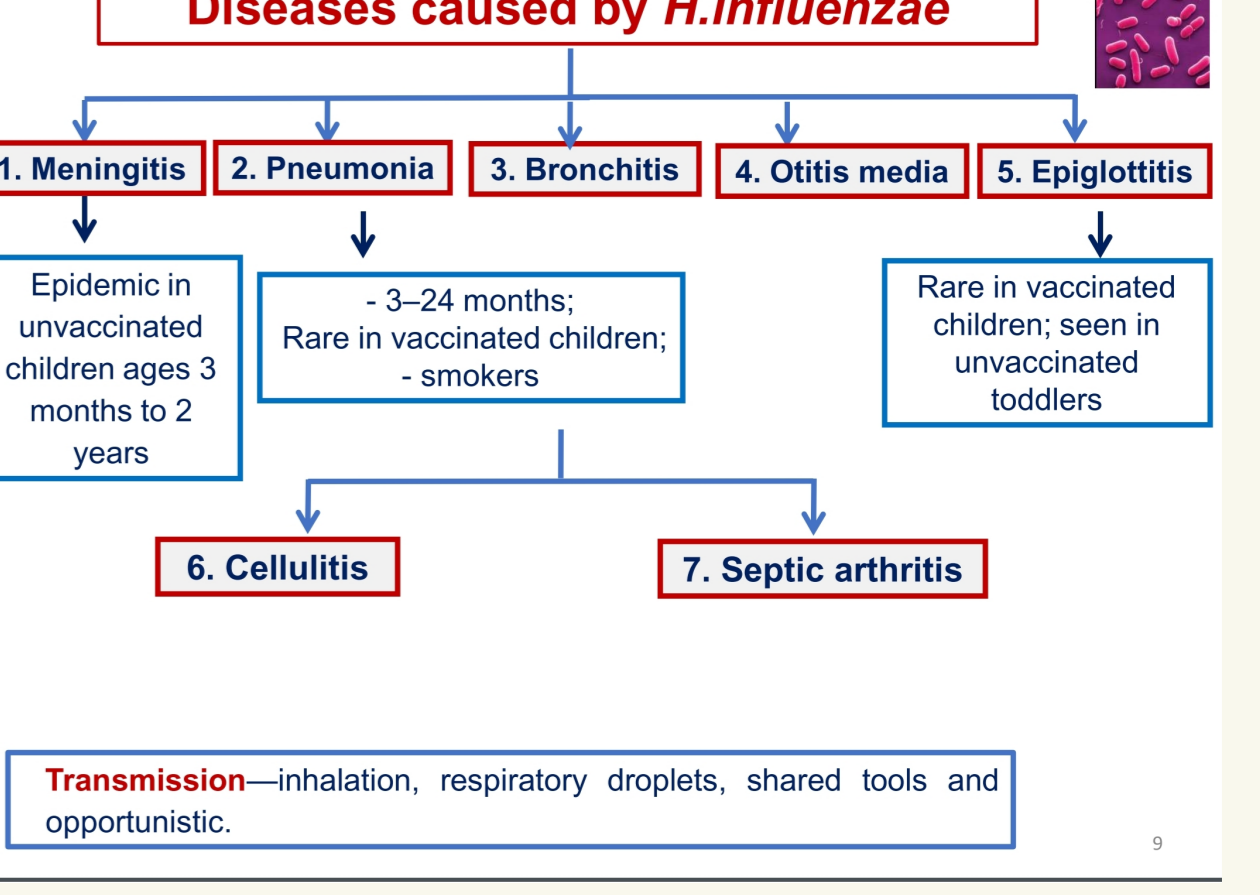
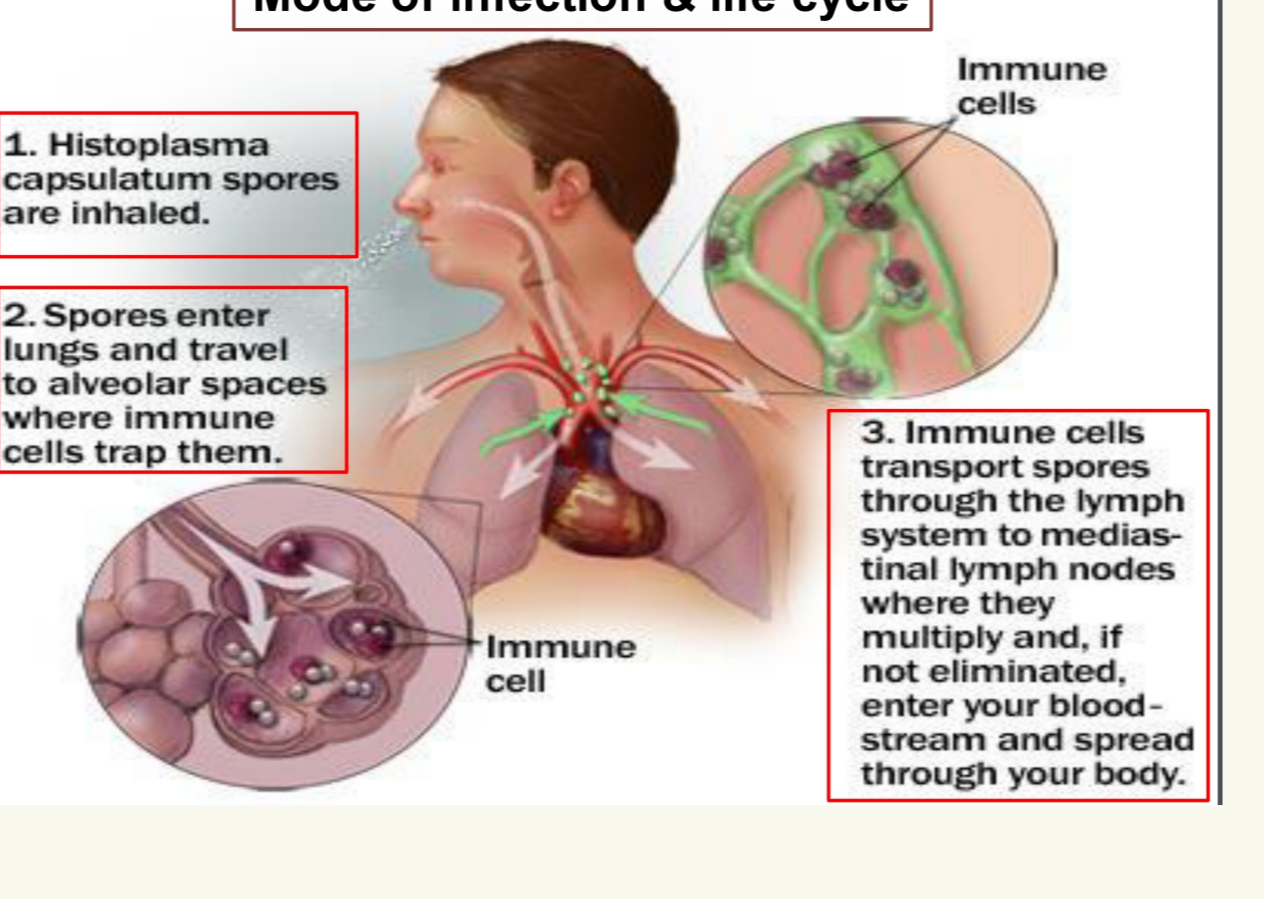

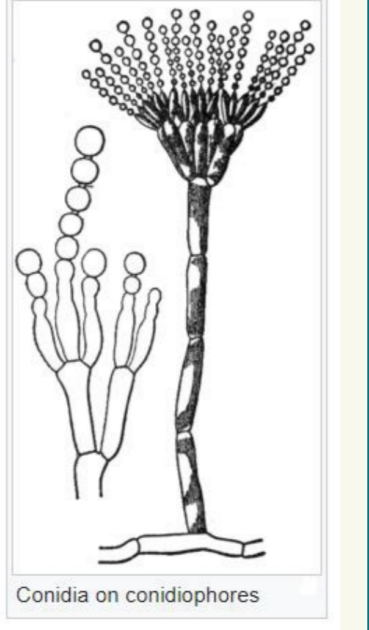




	charectires	transmission	virulence factors	pathogenesis & life cycle	diagnosis	important notes	symptoms
Paragonimus westermani	<p>1. It is trematoda ( has 1 segment )</p> <p>2. its egg has thick shell with operculum .</p> <p>3. egg color are golden brownish</p> <p>4. stages are :</p> <p>egg (D.S) ----&gt; sporocyst ----&gt; redia ----&gt; microcercus cercaria ----&gt; Encysted metacercaria (L5)</p> <p>5. Habitat : Lung in cyst like pockets.</p>	<p>eating raw or undercooked crabs or cray fish containing encysted metacercaria</p>			<p><b>Laboratory Diagnosis</b></p> <p><b>Direct</b></p> <ul style="list-style-type: none"> <li>Detection of eggs &amp; sometimes adult in rusty sputum.</li> <li>Detection of eggs in stool.</li> </ul> <p><b>Indirect</b></p> <ul style="list-style-type: none"> <li>Serological tests: CFT and ELISA</li> <li>High eosinophilia.</li> <li>Chest X ray &amp; CT : ring shadow opacity comprising several small contiguous cavities resembling bunch of grapes.</li> </ul>	<p>❖DH: Man</p> <p>❖RH: fish eating animals &amp; carnivorous.</p> <p>❖IH:</p> <p>1st: Fresh water snail (Semisulcospira libertina).</p> <p>2nd: Fresh water cray fish or crabs.</p> <p>- Treatment : Praziquantel</p>	<p><b>Pathogenesis &amp; Symptomatology</b></p> <p><b>Diseases : Paragonimiasis</b></p> <ul style="list-style-type: none"> <li>Adult worms live in lung and stimulate granulomatous tissue → fibrous capsule surrounding worms and eggs forming cyst containing tinged fluid.</li> <li>Rupture of the cyst into bronchioles causes pulmonary symptoms such as fever, chest pain and cough with rusty sputum tinged with eggs &amp; endemic haemoptysis.</li> <li>Chronic cases resemble pulmonary tuberculosis.</li> <li>Complications: Pulmonary pneumonia, bronchitis, lung abscesses, Spleno-hoemato-thorax and pleural effusion. CNS: seizures, coma, paralysis. GIT: abdominal pain &amp; diarrhea. Skin: migratory allergic skin lesions.</li> </ul>
echinococcus granulosus	<p>1. It is cestode ( has multiple segments , here : 1 mature , 1 immature, 1 gravid )</p> <p>2. Habitat: Small intestine of the D.H.</p> <p>3. adult has 4 suckers &amp; multiple hooks.</p> <p>4 egg (L5 to man) has radially striated embryophore, described as <b>mature hexacanth embryo (onchosphere)</b></p>	<p>Infection occurs by <b>Ingestion of eggs</b> with food or drinks contaminated with dogs' faeces or by handling dogs whose hair are usually contaminated with eggs.</p> <p>18</p>			<p><b>Diagnosis</b></p> <p><b>Clinical</b></p> <ul style="list-style-type: none"> <li>History of contact with dogs.</li> <li>Slowly growing cystic tumour.</li> <li>Hydatid thrill.</li> </ul> <p><b>Laboratory</b></p> <p><b>Direct</b></p> <ul style="list-style-type: none"> <li>X-ray for calcified cyst.</li> <li>Ultrasoundography, CT scan and MRI.</li> <li>Scotches in sputum or urine due to rupture of the cyst in bronchus or urinary tract.</li> <li>Puncture or aspiration of hydatid fluid may lead to anaphylactic shock due to leakage of the fluid.</li> </ul> <p><b>Indirect</b></p> <ul style="list-style-type: none"> <li>Eosinophilia.</li> <li>Intradermal test (Casoni test).</li> <li>Serological tests.</li> <li>PCR</li> </ul>	<p>❖ Hydatid cyst disease : It is a parasitic infection of both humans and other mammals such as sheep, and cattle with hydatid cysts, the larval stage of Echinococcus granulosus.</p> <p>❖ <b>Man is an intermediate and blind host for Echinococcus granulosus</b></p> <p>❖ <b>Infection occurs by ingestion of eggs</b> with food or drinks contaminated with dogs' faeces or by handling dogs whose hair are usually contaminated with eggs.</p> <p>- treatment by :</p> <ol style="list-style-type: none"> <li>Surgical removal of the cyst: The most efficient treatment</li> <li>Percutaneous treatment (PAIR) in three steps ( slides ) : This procedure is indicated in inoperable cases and who have drug resistance (no response to medical treatment).</li> <li>Medical treatment: Indications: In inoperable cases and before and after surgery.</li> </ol> <p>➢ Albendazole (Drug of choice).</p> <p>➢ Mebendazole.</p> <p>➢ The combination of ABZ and Praziquantel (PZO) may provide synergistic effect and better efficacy.</p> <p>Disadvantages:</p> <ul style="list-style-type: none"> <li>It may lead to drug resistance.</li> <li>It is used for long time in high dose.</li> </ul>	<p><b>Pathogenesis &amp; Symptomatology</b></p> <ul style="list-style-type: none"> <li>Local inflammatory reaction around the hydatid cyst, ending in formation of a fibrous capsule which may become calcified or even ossified.</li> <li>The symptoms depend on the size &amp; site of the cyst.</li> <li>Large sized cysts pressure atrophy of affected organ: Liver (70%) enlargement and dysfunction (fever, pain and jaundice), Lung (20%) pain, cough and dyspnea. Brain epilepsy. Eye protrusion of the eye ball. Bones Pain &amp; spontaneous fracture. Kidney membranous nephropathy.</li> <li>Spontaneous rupture of cyst into peritoneal cavity or pleura may lead to severe allergic reaction (anaphylactic shock) or secondary cysts.</li> </ul>
Spyoegenes	<p>1. Facultative anaerobes</p> <p>2. Fastidious growth requirements</p> <p>3. Catalase negative : Separation of streptococci from staphylococci</p> <p>4. Oxidase negative</p> <p>5. Beta hemolysis on blood agar</p> <p>6. It is Group A Hemolytic streptococci ( GAS )</p> <p>7. Gram-Positive Cocci in Pairs or Chains</p> <p>8. Spyoegenes tends to colonize the upper respiratory tract and is highly virulent as it overcomes the host defense system.</p> <p>9. The antigenic components of the cell are the virulence factors.</p>	<p>- Transmitted by droplets from respiratory secretions</p> <p>- Crowding increases risk</p>	<p><b>A. Extracellular Virulence Factors</b></p> <ul style="list-style-type: none"> <li>Streptolysin O (SLO): Lytic for variety of cells</li> <li>Streptolysin S (SLS): Lytic for red and white blood cells</li> <li>Nucleases</li> <li>Streptokinases</li> <li>C5a Peptidase</li> <li>Hyaluronidase</li> </ul> <p><b>B. Cellular Virulence Factors</b></p> <p>LM-Protein</p> <ul style="list-style-type: none"> <li>Adhesin</li> <li>Antiphagocytic</li> <li>Inhibits alternate Complement pathway and opsonization</li> </ul> <p>Capusle</p> <p>Antiphagocytic: Nonspecific adherence</p> <p>Hyaluronic acid (polysaccharide) mimics animal tissue (immune evasion)</p>		<p><b>Streptococcus pyogenes</b></p> <p><b>Lab Identification</b></p> <ol style="list-style-type: none"> <li><b>Culture</b> <ul style="list-style-type: none"> <li>Encapsulated cells produce mucoid colonies</li> <li>Beta-hemolytic: zone several times greater than diameter of colony</li> </ul> </li> <li><b>Catalase Negative:</b> Differentiates from Staphylococcus</li> <li><b>Bactracin test:</b> S. pyogenes is bacitracin sensitive</li> <li><b>Rapid Identification Tests:</b> Based on extraction of Group A carbohydrate directly from throat swabs                     <ul style="list-style-type: none"> <li>ELISA</li> <li>Fluorescent antibody</li> </ul> </li> <li><b>A rapid strep test (also called rapid antigen detection testing or RADT):</b> It employs latex beads covered with antigens that will visibly agglutinate around GAS antibodies if these are present</li> </ol>	<p><b>Bacterial vs. Viral Pharyngitis</b></p>  <p>Sore throat</p> <ul style="list-style-type: none"> <li>Partial swallowing is common to both bacterial and viral sore throats, but bacterial sore throats often come with red and swollen tonsils at the back of the throat.</li> <li>Cough with a viral sore throat.</li> <li>You may very well also see white patches or streaks of pus there.</li> <li>Fever is also common to both, but the fever associated with bacteria tends to be higher and more severe than with a viral infection.</li> </ul>	<p><b>Symptoms of Streptococcal pharyngitis</b></p> <ol style="list-style-type: none"> <li>Absence of a cough</li> <li>Swollen and tender cervical lymph nodes</li> <li>Temperature &gt;38.0 °C (100.4 °F)</li> <li>Tonsillar exudate or swelling</li> <li>Other symptoms include:             <ul style="list-style-type: none"> <li>Headache</li> <li>Nausea</li> <li>Vomiting</li> <li>Abdominal pain</li> <li>Muscle pain</li> </ul> </li> </ol> <p>Ratatal petechiae: uncommon but highly specific finding.</p> <p>The incubation period: between 1-3 days post contact.</p> <p>Strept throat is unlikely when any of the symptoms of red eyes, hoarseness, runny nose, or mouth ulcers are present, and when there is no fever</p>
Spneumone	<p>1. Commonly referred to as pneumococcus</p> <p>2. Gram-positive diplococci (in pairs)</p> <p>3. Non-motile</p> <p>4. Fastidious (enriched media)</p> <p>5. Alpha haemolysis + draughtsman appearance</p> <p>6. Some strains are mucoid</p> <p>7. Soluble in bile</p> <p>8. Optochin sensitive</p>		<p><b>Streptococcus pneumoniae-Pathogenesis</b></p> <ul style="list-style-type: none"> <li>Virulence factors             <ul style="list-style-type: none"> <li>Capsular polysaccharide                     <ul style="list-style-type: none"> <li>The major factor</li> <li>84 serotypes</li> <li>Both antigenic and type specific</li> <li>Antiphagocytic</li> <li>Serotype 3, 7 are most virulent</li> <li>90% of cases of bacteraemic pneumococcal pneumonia and meningitis are caused by 23 serotypes</li> <li>Quellung reaction , india ink</li> </ul> </li> <li>Pneumolysin                     <ul style="list-style-type: none"> <li>Membrane damaging toxin</li> </ul> </li> </ul> </li> </ul>		<p><b>Streptococcus pneumoniae-Laboratory Diagnosis</b></p> <ul style="list-style-type: none"> <li>Specimen             <ul style="list-style-type: none"> <li>Sputum</li> <li>CSF</li> <li>Swabs</li> <li>Pus</li> <li>Blood culture</li> <li>Aspirate</li> </ul> </li> <li>Microscopy             <ul style="list-style-type: none"> <li>Gram stained smear</li> <li>Gram-positive diplococci + pus cells</li> </ul> </li> <li>culture             <ul style="list-style-type: none"> <li>Blood agar , chocolate agar + 10% CO2</li> </ul> </li> <li>Identification             <ul style="list-style-type: none"> <li>Alpha haemolytic colonies</li> <li>Optochin sensitive</li> <li>Bile soluble</li> </ul> </li> </ul>	<p>treatment may be outpatient or inpatient</p>	<p><b>Streptococcus pneumoniae-Clinical Feature</b></p> <ul style="list-style-type: none"> <li>Lobar pneumonia             <ul style="list-style-type: none"> <li>Sudden onset</li> <li>Fever</li> <li>rigor</li> <li>Cough , rusty sputum</li> <li>Pleural pain</li> <li>Signs of lobar consolidation</li> <li>Polymorphonuclear leucocytosis</li> <li>Empyema , pericarditis</li> </ul> </li> </ul>
hemophilus influenza	<p>1. Infect upper respiratory tract</p> <p>2. Most strains of H. influenzae are opportunistic pathogens</p> <p>3. Small pleomorphic gram-negative coccobacilli or short bacilli</p> <p>4. Generally aerobic but can grow also in anaerobic conditions (facultative anaerobe)</p> <p>5. Non-motile, Non-spore forming.</p> <p>6. It is fastidious ( see notes in this table )</p>	<p><b>Prophylaxis</b></p> <ul style="list-style-type: none"> <li>Hib diseases can be prevented by administration of Hib conjugate vaccine (capsular polysaccharide conjugated to carrier protein) which may be one of the following:             <ul style="list-style-type: none"> <li>HbD: the conjugated protein is non-toxic Diphteria toxin.</li> <li>PRP-OMP: the conjugated protein is outer membrane protein of Neisseria meningitidis.</li> <li>PRP-T: the conjugated protein is tetanus toxoid.</li> </ul> </li> <li>The vaccine is given at 2,4,6 months and at 12-15 month.</li> </ul> <p>ما عرفت وين احطه عشان هيك هو هان</p>	<p><b>Antigenic structure and virulence factors</b></p> <ol style="list-style-type: none"> <li>The <i>Haemophilus influenzae</i> is divided into             <ol style="list-style-type: none"> <li>Typable (encapsulated): isolates have capsular polysaccharides</li> <li>Nontypable (NTHi) (nonencapsulated): isolates lacking capsular polysaccharides and can cause noninvasive diseases.</li> </ol> <p><b>Haemophilus that have capsule [Typable]:</b></p> <ol style="list-style-type: none"> <li>Are divided into six serotypes, designated a to f based on the capsular polysaccharide antigen called <b>polysialitol phosphate (PPS)</b></li> <li>These capsular surface polysaccharides are strongly associated with virulence, particularly <i>H. influenzae</i> type b (Hib ).</li> </ol> </li> <li>Lipopolysaccharide endotoxin</li> <li>Pili</li> <li>IgA protease</li> <li>Somatic outer membrane proteins</li> </ol>	<p><b>Pathogenesis of Invasive disease</b></p> <p>The pathway of Hib reaching reach stream and causing systemic infections</p> 	<p><b>Laboratory Diagnosis</b></p> <ul style="list-style-type: none"> <li>Specimen: CSF, blood, sputum and pus.</li> <li>Smear: Gram stained, immunofluorescence and capsule swelling reaction.</li> <li>Culture: Nutrient or Chocolate blood agar with factors x and V</li> <li>Capsular polysaccharide antigen detection by latex agglutination in CSF</li> <li>PCR.</li> </ul>	<p><b>Culture and growth requirements</b></p> <ul style="list-style-type: none"> <li>Requires growth factors X (hemin) and V (NAD) for growth (fastidious)</li> <li>Factor X: Is a heat stable factor present in blood. It is required for the synthesis of iron containing enzymes cytochrome oxidase, peroxidase and catalase.</li> <li>V-Factor: Is a thermolabile nicotinamide adenine dinucleotide (NAD) required in oxidation-reduction processes in the growing bacterial cell.             <ul style="list-style-type: none"> <li>These factors are present inside the erythrocytes. Heating blood till it acquires chocolate color lyses the erythrocytes thus releasing these factors.</li> <li>They grow on <b>chocolate blood agar (?????)</b> with streaks of <b>Staph aureus</b> which causes RBCs haemolysis and NAD production (satelliten)</li> </ul> </li> </ul>	<p><b>Diseases caused by H.influenzae</b></p>  <p>Transmission—inhalation, respiratory droplets, shared tools and opportunistic.</p>
histoplasma capsulatum	<p>1. occur due to primary pathogenic fungi</p> <p>2. Causing acute pneumonia or chronic cavity lesions in the lungs as TB.</p> <p>3. This fungus is dimorphic</p> <p>4. Unlike its name, Histoplasma capsulatum is not encapsulated</p>	<p>- Infection acquired by Inhalation of fungal spores (conidia).</p> <p>- Infected persons rarely transmit the disease to others.</p>	<p>Virulence factor: Ability to survive within the macrophage probably by <b>modulating the pH within the phagolysosome</b> is the key virulence factor of Histoplasma capsulatum.</p>	<p><b>Mode of infection &amp; life cycle</b></p> 	<p><b>Laboratory diagnosis</b></p> <p><b>Direct</b></p> <ul style="list-style-type: none"> <li>Microscopic Examination: of sputum, biopsy specimens, bone marrow aspirates, urine or blood films after staining with Periodic Acid Schiff (PAS) or Calcofluor white or Giemsa stains</li> <li>Chest X ray &amp; CT scan.</li> <li>Culture of specimens on Sabouraud's agar at 25 (up to 3 weeks)</li> </ul> <p><b>Indirect</b></p> <ul style="list-style-type: none"> <li>Skin test: using fungal antigen (histoplasmin).</li> <li>Serological tests: to detect Abs, or fungal antigen.</li> <li>PCR.</li> </ul>		<p><b>Clinical pictures</b></p> <ol style="list-style-type: none"> <li>Most of infected people are asymptomatic (95%).</li> <li>5% may have acute pneumonia with flu-like symptoms (ex. fever, chills, headache, cough, chest pain, fatigue, body aches, mouth sores) &amp; red skin bumps called erythema nodosum, most often on the lower limbs.</li> <li>Sometimes the infection progress to become chronic.</li> <li>In immunocompromised patients, the infection disseminates to different organs via reticuloendothelial cells to the liver, spleen &amp; L. nodes their enlargement and to CNS headache &amp; neck stiffness due to high fever.</li> </ol>
aspirigellous	<p><b>Pulmonary mycosis due to opportunistic fungi</b></p> <p><b>1-Aspergilliosis</b></p> <ul style="list-style-type: none"> <li>A fungus infection caused by <i>Aspergillus</i> spp.</li> <li>Wide spread as saprophytic moulds.</li> <li>Filamentous fungus with septate hyphae and <i>Aspergillus</i> head (conidia or spores).</li> <li>Airborne found in soil, water, contaminate starchy food, on decaying organic vegetation, on pillow or bedding, and air conditions.</li> </ul> <p><b>Causes: 3 important medical species</b></p> <ol style="list-style-type: none"> <li><i>A. fumigatus</i> → causing pulmonary aspergilliosis.</li> <li><i>A. flavus</i> → causes sinus and cutaneous infections..</li> <li><i>A. niger</i> → causing invasive infections and otitis.</li> </ol> 	<p>Portal of entry: nasal passage &amp; respiratory tract (inhalation of spores).</p>			<p><b>Laboratory diagnosis</b></p> <p><b>Culture:</b></p> <ul style="list-style-type: none"> <li>On sabouraud's agar.</li> <li><i>Aspergillus</i> spp. can be identify by the pigmentation of their growth in the culture as follows:             <ul style="list-style-type: none"> <li><i>A. fumigatus</i>: gives white filaments with green spores.</li> <li><i>A. flavus</i> : gives white filaments with yellowish green spores.</li> <li><i>A. niger</i> : gives white filaments with black spores.</li> </ul> </li> </ul>	<p>the pulmonary symptoms caused by <b>Aspirigillus fumigatus</b></p>	<p><b>Pulmonary aspergilliosis</b></p> <ul style="list-style-type: none"> <li>It is a disease affecting the lung caused by <i>A. fumigatus</i> fungus.</li> <li>Portal of entry: nasal passage &amp; respiratory tract (inhalation of spores).</li> <li>The disease may occur in 3 forms:             <ol style="list-style-type: none"> <li>Allergic pulmonary aspergilliosis.</li> <li>Aspergilloma or fungal ball.</li> <li>Invasive aspergilliosis.</li> </ol> </li> <li>Occurs due to hypersensitivity reaction to <i>A. fumigatus</i> infection of the major air ways.</li> <li>CIP: recurrent attack of wheeze, cough &amp; expectoration.</li> <li>Aspergilloma or fungal ball             <ul style="list-style-type: none"> <li>Fungal colonization of <i>A. fumigatus</i> in a pre-existing lung cavity (TB) or dilated bronchus without tissue invasion.</li> <li>CIP: usually asymptomatic may be haemoptysis occurs.</li> </ul> </li> <li>Invasive aspergilliosis             <ul style="list-style-type: none"> <li>Affect mainly immunocompromised patients.</li> <li>Causing acute pneumonia &amp; haemoptysis with or without dissemination.</li> </ul> </li> </ul>