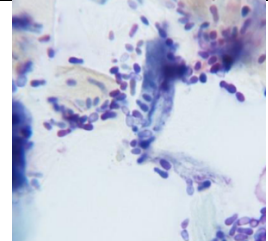
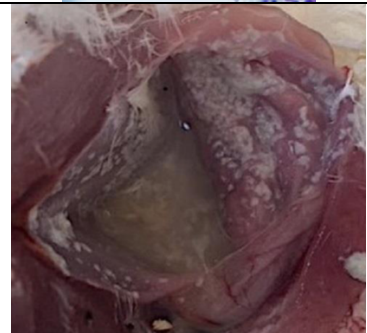














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Organism	Primary Species Affected	Transmission/Morph	Clinical Implication	Picture
<i>Malassezia pachydermatis</i>	Canine	Oval budding yeast with a single bud attached by a broad base	Otitis externa and dermatitis	
<i>Candida sp.</i>	Avian, children	Oval budding yeast Pseudohyphae  Endogenous source	Parasitic yeast, inhabits mucous membranes of most mammals and birds  Usually immunocompromised host  Whitish to yellow/gray plaques Marks ulceration with varying degree of inflammation  <b>Can cause considerable mortality in young birds</b>	 Turkey crop with Candidiasis
<i>Batrachochytrium dendrobatidis</i>  <i>Chytridiomycosis</i>	Amphibians	Non-hyphal zoosporic fungus	Affects the skin  Animal is unable to breath, hydrate, and osmoregulate	
<i>Pseudogymnoascus destructans</i>	Bats	“white nose syndrome”	White powdery blooms seen on the muzzles of many affected bats	


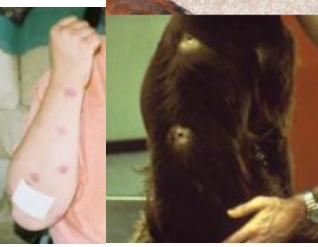
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<i>Ophidiomyces ophiodiicola</i>	Snakes	Snake fungal disease	Fungal dermatitis	
<i>Nannizziopsis</i>	Lizard	“Yellow fungus disease”		
<i>Lobomycosis</i>	Humans and dolphins	Lacazia loboi Yeast-like cells		
<i>Pythium</i>	Varies		Pyogranulomatous disease	
<i>Lagenidium</i>	Canine and feline		Clinically the same as phthiosis	
<i>Aphanomyces</i>	Fish and crustaceans		Ulcerative disease	
<i>Saprolegnia</i>	Fish and amphibians		Systemic disease	
Pythiosis				



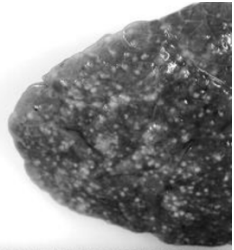

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<p>Phaeohyphomycosis</p> <p><i>Veronaea,</i> <i>Alternaria,</i> <i>Cladosporium,</i> <i>Cladophialophora,</i> <i>Curvularia,</i> <i>Exserohilum,</i> <i>Exophiala,</i> <i>Fonsecaea, and</i> <i>Phialophora</i></p>	<p>Canine, feline, other domestic animals</p>	<p>Dark-pigmented fungi</p> <p>Hyphae are present</p>	<p>CNS involvement is common</p>	 <p>Systemic phaeohyphomycosis</p> 
<p><i>Cryptococcus neoformans</i></p>	<p>Cats! All animals can be affected</p>	<p>Ulcerative lesions affecting the mucous membranes of the upper resp. tract</p> <p>Reservoirs: Surface dust and dirt, amoeba, dried pigeon droppings</p>	<p>CNS-Meninges Eye-Chorioretinitis</p>	
<p><i>Coccidioides immitis</i></p> <p><i>Coccidioides posadasii</i></p>	<p>Central Valley</p> <p>Texas, NM, AZ, South America</p> <p>Canine and Equine</p>	<p>Inhabits soil in specific geographical locations</p> <p>Inhalation of arthroconidia</p> <p>Has been bioweaponized</p>	<p>Disseminated diseases is common</p> <p>Pulmonary lesions and osteomyelitis</p> <p>Lassitude, anorexia, loss of condition, respiratory signs, fever, arthritis, lamentess</p>	

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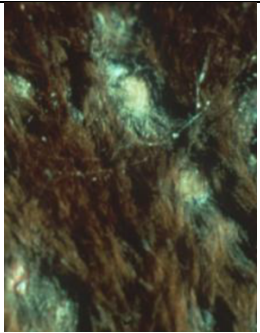
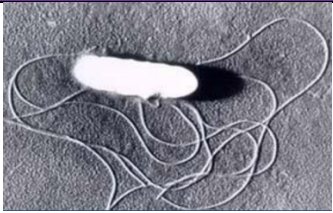
<p><i>Histoplasma capsulatum</i> var. <i>capsulatum</i></p>	<p>Mammals most commonly found in dogs</p> <p>Found worldwide</p>	<p>Dimorphic fungus Mold @ 25°C Fungus @ 37°C</p> <p>Birds are passive carriers, bats go intestinal infection Favors intestinal environment</p> <p>Inflammatory exudates include macrophage elements colonized by yeast cells</p>	<p>Transmission via inhalation of microconidias or hyphal fragments</p> <p>Early events resemble tuberculosis, thoracic LN are enlarged and lungs may contain grayish-white nodules Disseminated disease: LN and parenchymatous organs are enlarged</p> <p>Most common form is disseminated diseases; lethargy, anorexia, weight loss, diarrhea, dehydration, anemia, hepatomegaly, splenomegaly</p>	
<p><i>Blastomyces dermatitidis</i></p>	<p>Humans and dogs Rarely horses and cats</p>	<p>Dimorphic fungus Mold @ 25°C Fungus @ 37°C</p>	<p>Causes blastomycosis</p> <p>Skin lesions and respiratory distress, fever, depression, anorexia, weight loss, locomotor disturbances</p> <p>Young male dogs of sporting breeds are particularly prone due to frequent exposure in the environment</p>	

<p><i>Aspergillus</i> spp. *<i>fumigatus</i> most common in humans and animals</p>	<p>Ruminants</p> <p>Avian</p>	<p>Present in soil, vegetation, feed</p> <p>Opportunistic pathogenic patterns depending on impaired, overwhelmed, or bypassed host defenses</p> <p>Can be an epidemic, heavy exposure or severe stress</p>	<p>Abortions that occur late in pregnancy due to hematogenous seeding of placentomes</p> <p>Hemorrhagic placentitis Mastitis and abscesses under the udder</p> <p>Respiratory tract infection Mortality ~50%</p>	 
<p><i>Mycobacterium tuberculosis</i></p> <p><i>Mycobacterium bovis</i></p> <p><b>REPORTABLE DISEASE</b></p>	<p>Humans Primates</p> <p>Cattle/Wild mammals</p>	<p>Transmission via respiratory and alimentary routes</p> <p>*Unpasteurized milk</p> <p>Transplacental, transovarian, and intrauterine routes are possible</p> <p>Primary complex &gt; lesions @ local LN</p> <p>Can have anthroponosis (person to animal)</p>	<p>Progressive emaciation Erratic appetite Irregular low-grade fever Enlarged lymph nodes Cough Diarrhea Consequence of released cytokines</p> <p>Hematogenous dissemination to vertebrae could result in <b>hunchback</b></p> <p>Disseminate to liver and spleen in birds</p>	 
<p><i>Mycobacterium avium</i> subsp. <i>paratuberculosis</i></p>	<p>Bovine</p> <p>Swine and rabbits</p>	<p>Intestinal tract, feces, colostrum, milk, semen</p>	<p>Causes a chronic, irreversible wasting disease of ruminants called <b>Johne's disease</b></p>	

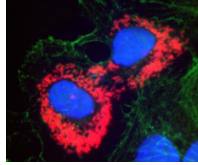


REPORTABLE DISEASE		Ingestion or contact with contaminated fecal materials, in utero infection and ingestion of contaminated colostrum or milk are also possible routes	Weight loss, diarrhea, normal appetite and temperature  Permanent transverse corrugation of the intestinal mucosa  Draining LN enlarged and filled with mycobacteria	
Atypical mycobacteriosis	Mammals, fish, frogs, turtles, snakes	Non-tuberculous Mycobacterium sp.  Some “faster-growing” Mycobacterium	Chronic wasting condition  Low to moderate level of mortality  “Swimming pool granuloma / fish handler’s disease”	
<i>Nocardia asteroides</i> <i>Nocardia placentitis</i>	Humans and animals  Horses and swine	Aerobic, gram positive  Spread in soil and water  Inhalation, trauma and ingestion  Most infections occur in <b>immunosuppressed</b> and massively exposed individuals  Lab dx: Smears Morphologically indistinguishable from Actinomyces	Generalized suppurative and pyogranulomatous process  <b>Lymph node involvement</b>  Hematogenous dissemination, osteomyelitis and widespread abscess formation  Mastitis, Bovine Farcy, pneumonia, abortion and lymphadenitis  Horses and swine: abortion, pneumonia, lymphadenitis	  Bovine Farcy 

		<p>Alternates between the coccobacillary (resting phase) and the actively growing filamentous forms</p> <p>Obligate aerobes, grows on Sabouraud's and blood agar</p>	<p>Dogs and cats: debilitating, febrile, dissemination to liver, kidneys, bones, joints and CNS</p> <p>SQ and pulmonary forms in humans and primates</p>	<p>Mandibular Osteomyelitis</p> 
<p><i>Actinomyces bovis</i></p> <p><i>Actinomyces viscosus</i></p>	<p>Bovine</p> <p>Canine/feline</p> <p>Swine</p>	<p>Found on oral mucous membranes, tooth surfaces, mm of the urogenital tract and secondarily in GIT</p> <p>Can be transmitted via bite</p> <p>Dogs: Associated with licking foreign objects near vertebra causing actinomycotic discospondylitis</p> <p>Dx: aspirate and examine for "sulfur granules"</p> <p>Capnophilic and anaerobes or facultative anaerobes</p>	<p>Evoke pyogranulomatous reactions</p> <p>Osteomyelitis initiates, replacement with porous bone, dislodgement of teeth, inability to chew and mandibular fractures</p> <p>"Lumpy jaw"</p> <p>Lesion expands but has little tendency for vascular dissemination *different than Nocardiosis</p> <p>Swine: mastitis, pneumonia, abortion</p>	

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<p><i>Dermatophilus congolensis</i></p>	<p>Bovine Canine, Feline Equine Ovine Lizards</p>	<p>Spread vis direct and indirect contact</p> <p>Flying, non-flying, biting and non-biting arthropods</p> <p>Dx: stained smears, gram+ filamentous organism that resembles fungal hyphae</p> <p>No growth in Saboraud dextrose agar</p>	<p>Dermatophilosis or streptothricosis in cattle</p> <ul style="list-style-type: none"> <li>– Rain scald, rain rot or grease heal in horses</li> <li>– Strawberry footrot and lumpy wool in sheep</li> </ul> <p>Exudative epidermitis in livestock</p> <p>Acute cases are often self-limiting</p> <p>Tx: parenterally administer antimicrobial tx</p>	 <p>Exudative dermatitis with crust</p>
<p><i>Facultative-Intracellular Bacteria</i></p>				
<p><i>Listeria</i></p> <p><i>L. monocytogenes</i> <i>L. invanovii</i></p>	<p><b>Ruminants</b></p> <p>Birds and other animals can also be affected</p>	<p>Gram + Non-acid fast</p>	<p>Worldwide distribution, natural habitat is likely decomposing plant matter</p> <p>Causes septicemia, encephalitis, and abortions</p>	



		granulomatous inflammation, intracellular survival, apoptosis and necrosis of phagocytes and infection of other cells		
<i>Brucella</i> <i>B. melitensis</i> <i>B. abortus</i> <i>B. suis</i>  <b>REPORTABLE</b>	Humans Cattle	<p>Small non-motile, gram -, coccobacilli</p> <p>Prominent peptidoglycan layer, survives freezing and thawing, can survive 4 months in milk, urine, water and damp soil</p> <p><i>Brucella</i> penetrates intact mucosal surfaces &gt; macrophage uptake &gt; intracellular survival &gt; following entry into regional lymph nodes &gt; hematogenous dissemination and localization in the reticulo-endothelial system and repro tract &gt; abortions due to interference with fetal circulation, endotoxin, and fetal stress</p>	<p>Obligate pathogen, requires animal host for maintenance</p> <p>Reticuloendothelial system and genital tract (abortion and epididymitis and orchitis)</p> <p>Expression of type 4 secretion system</p> <p>Humans: undulant fever Reticulo-endothelial system Mild lymphadenopathy, splenomegaly, hepatomegaly Fever, chills, night sweats, fatigue, muscle and joint pain, backaches, depression, insomnia, arthritis, osteomyelitis, endocarditis</p>	  <p>Orchitis</p>  <p>Stillborn fetus with necrotic placenta</p>