

ANIMAL & HUMAN BITES

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MANAGEMENT OF BITES WILL DEPEND ON :

- What animal caused the bite?
 - Is it a domesticated animal or wild animal?
- What is the location and severity of the bite?
- When did the injury occur?
- Where did the injury occur?
 - Urban or rural setting?
- What is the vaccination status of the biting animal?
- When was your last tetanus shot?

WHAT IS THE FIRST THING TO DO IF I GET BITTEN?

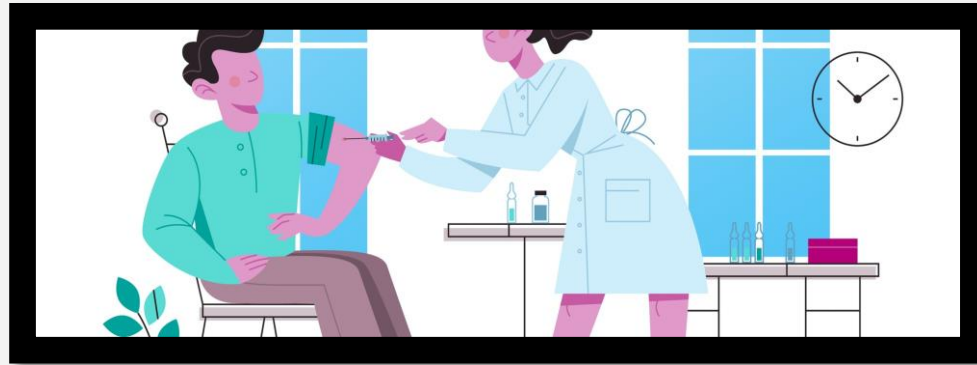


- Wash the wound with soap and water to prevent infection
- Control bleeding using direct pressure

RECOGNIZE THE SIGNS OF INFECTION:

- Pain that gets worse
- Redness or warmth
- Tenderness in area near the bite
- Loss of sensation around the bite
- Oozing pus from the wound
- Night sweats
- Fever or chills
- Swollen lymph nodes
- Difficulty breathing
- Muscle weakness/tremors





SO, HOW ARE BITES TREATED?

- Meticulous wound care (clean and disinfect)
- Depending on how big the wound is, you may need stitches.
- Might receive antibiotics, but they are not always needed.
- May receive post-exposure prophylaxis Hep B and HIV
- May receive a “booster shot” of tetanus vaccine.
- May receive rabies vaccine.
- Treatment will depend on case-by-case scenario

WHAT IS TETANUS? AKA. LOCKJAW



- Dangerous and serious infection causing muscle stiffness and spasms
- Due to an obligate anaerobe widely found in soil
- Microbiology: *Clostridium tetani*
- Incubation: Ranges from 3 ~ 21 days
- Symptoms: stiff jaw/neck muscle, tight/painful muscles, trouble breathing, irritability/restlessness, sweating, tachycardiac, fever, painful muscle spasms, and body into “bridge” position.
- Management: wound care, antimicrobial therapy, tetanus vaccine booster, medication for symptoms (pain, breathing problem, muscle spasm) and airway management/other supportive measures

WHAT IS RABIES?

- A life-threatening virus spread transmitted by the saliva of an infected animal
- Highest case fatality rate of any infectious disease
- Incubation period: 1-3 months on average, can range from several days to many years after exposure.
- Transmission:
 - Animal reservoirs
 - Bats, racoons, skunks, foxes, and dogs (in developing country)
 - Tissue/Organ transplant
- Prodromal symptoms: non-specific symptoms such as low-grade fever, chills, malaise, myalgias, weakness, fatigue, anorexia, sore throat, nausea, vomiting, and headache
- Clinical Symptoms: encephalitis, aerophobia, hydrophobia, pharyngeal spasms, autonomic instability, agitation, paralysis, coma, and death
- Management for Rabies Post Exposure Prophylaxis:
 - Immediate wound care
 - Rabies vaccine (HDCV) on day 0, 3, 7, 14 + Human Rabies Immune Globulin (HRIG)

WHEN SHOULD I WORRY ABOUT RABIES?

- You could be at risk for rabies if you were bitten by:
 - Dog, cat, or ferret that you know or think has rabies
 - Wild animal (raccoon, fox, skunk, woodchuck, coyote, or bat)
- If you are not sure, call your doctor for advice because bites are decided on case-by-case scenario.
- Do not worry about rabies if you were bitten by a lizard, fish, or other animal that does not have fur (besides human).



HUMAN BITES

- Considered serious injuries because of the virulence of the human oral flora
- Epidemiology: ~ 250, 000 human bites / year in the US
 - Up to 25% of the injuries become infected
 - Mostly occurs in children
- Microbiology:
 - Human oral flora (Eikenella, group A Streptococcus, Fusobacterium, Peptostreptococcus, Prevotella, and Porphyromonas spp)
 - Human skin flora (staphylococci and streptococci)
 - Viral pathogens (Hepatitis B, hepatitis C, HIV, and herpes simplex virus)
 - Rabies virus
- Management:
 - Wound care, antibiotic therapy, tetanus prophylaxis, HIV & HBV prophylaxis, debridement of infected tissue, and surgical consultation (depends on scenario).



DOG BITES

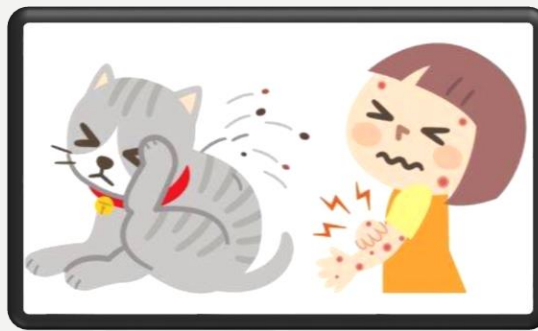
- Usually result in larger wounds from the crushing effect of blunt teeth and strong jaws
- In children, dog bite to the head may penetrate the skull
- Dog bites rarely cause death
- Epidemiology: 90% of animal bite wounds
 - Most often occurs in children younger than 10 years of age
- Microbiology:
 - Human skin flora (staphylococci and streptococci)
 - Oral animal flora (Pasteurella, capnocytophaga, Brucella canis, and anaerobes)
 - Rabies virus
- Management: Wound care, antibiotic therapy, tetanus prophylaxis, rabies prophylaxis, debridement of infected tissue, and surgical consultation (depends on the scenario).



CAT BITES

- Usually result in multiple small puncture wounds
- Cause wounds with sharp teeth or claws
- Tend to deeply penetrate soft tissues (higher risk of deep infection)
- Epidemiology: 10% of animal bite wounds
 - Mostly occurs in adult women
- Microbiology:
 - Human skin flora (staphylococci and streptococci)
 - Oral animal flora (Pasteurella, capnocytophaga, bartonella henselae, and anaerobes)
 - 75% of cat bite wounds have Pasteurella species
 - Bartonella henselae may be transmitted from infected cat
 - Rabies virus
- Management: Wound care, antibiotic therapy, tetanus prophylaxis, rabies prophylaxis, debridement of infected tissue, and surgical consultation (depends on the scenario).





WHAT IS CAT SCRATCH DISEASE?

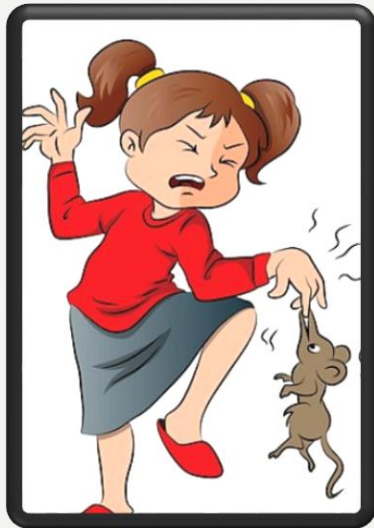
- Infection caused by a type of bacteria found in many cats.
- Microbiology: *Bartonella henselae* (most cases)
- Transmission: scratch/bite from an infected cat as well as exposure to cat fleas
- Symptoms: Skin redness and swelling (3-10 days after infection), swollen lymph nodes, fever, headache, fatigue, and loss of appetite.
 - In rare cases: confusion, vision problems, and liver disease.
- Management:
 - Antimicrobial therapy
 - Adjunctive therapies (ex: corticosteroids, lymph node aspiration) may be warranted

RODENT BITES

- Consist of small animals such as rats, squirrels, rabbits, and guinea pigs
- Epidemiology:
 - Rats are majority of the rodent bites which mostly occurs at night
 - ~20, 000 rat bites occur in the U.S.
 - Over 50% of reported cases occur in children
- Microbiology: Streptobacillus monoiliformis or Spirillum minus
- Treatment: Treated the same fashion as cat bites
 - Except rabies prophylaxis may not be required (very rare/uncommon in rodents)



WHAT IS RAT BITE FEVER?



- Rare disease
- Epidemiology: 10% risk of rat bite fever
- Microbiology: *Streptobacillus moniliformis* or *Spirillum minus*
- Symptoms: rash on extremities, polyarthritis, fever, myalgia, arthralgia, vomiting, headache, pharyngitis, swelling of lymph nodes, edema and ulceration.
- Management: Wound care and antibiotic therapy

IMMEDIATELY SEEK A HEALTH PROFESSIONAL WHEN:

- You were bitten by a wild animal (raccoon, skunk, woodchuck, fox, coyote, or bat)
- You were bitten by a cat or a person and it broke the skin.
- You were bitten by a dog or a person on the hand, foot, or head.
- You were bitten by any animal and you have diabetes, liver disease, cancer, HIV/AIDS, or take medication that impairs your ability to fight infection.
- You are bleeding and it won't stop even after applying pressure for 15 minutes.
- You think you might have a broken bone or another serious injury.
- You were bitten on a joint and you can't bend the joint as easily.
- It has been more than 5 years since your last tetanus shot or you don't remember when your last tetanus shot was.



HOW CAN I LEARN MORE?



- Ask your health care provider
- Call your local or state health department
- Contact the Centers for Disease Control and Prevention (CDC):
- Call 1-800-232-4636 (1-800-CDC-INFO)

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