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ED OUTLINE: DOG, CAT, HUMAN BITES AND RABIES

**I. Etiology/Pathophysiology**

- A. Dog Bites: blunt and broad teeth, cause sheering and crushing, results in significant soft tissue damage.
- B. Cat Bites: puncture wounds, inoculate pathogens into small joints, deep spaces, or tendons; wounds may develop a hidden infection.
- C. Human Bites: laceration, puncture, crush, soft tissue injury, amputation; clenched fists bites and occlusive bites; high risk for *Staphylococcus aureus* infection
- D. Rabies: transmitted through saliva of an infected animal through a bite or a scratch (*Lyssavirus/RABV*). Infects muscle cells and replicates at a low rate, enters PNS by motor endplates at neuromuscular junctions. *RABV* travels through PNS to CNS by neurons and continues to replicate. *RABV* reaches the brainstem/brain and clinical symptoms manifest (always fatal when symptoms appear, death occurring in 2 weeks of symptom onset). *RABV* causes disease in the brain which results in muscle paralysis, leading to a coma, followed by death.
  - 1. Prodromal symptoms of Rabies: fever, chills, malaise, fatigue, insomnia, anorexia, headache, anxiety, irritability, pain, paresthesia, pruritus

2. Encephalitic Rabies 80% of cases: episodes of hyperexcitability separated by lucid periods (agitation, confusion, hallucinations, aggressive behavior lasting 1-5 minutes), hypersalivation, sweating, possible seizures, hydrophobia (difficulty swallowing, contractions of the diaphragm and accessory muscles, retching, vomiting, convulsions), aerophobia (occurrence of spasms when air is fanned).
3. Paralytic Rabies 20% of cases: muscles weakness from bitten extremity to quadriparesis and bilateral facial weakness, urinary incontinence, weak respiratory muscles, often misdiagnosed with Guillain-Barre syndrome.

## **II. On-Scene Treatment**

- A. Initial treatment for bites: cleaning, splint wounds over joints, apply pressure to stop bleeding, cover wound.
- B. Report animal/human bites to police/animal control.
- C. Healthy animals/vaccinated (schedule depends on states, usually every 1 or 3 years starting at 16 weeks old) animals are observed at a vet's office for 10 days, if rabies symptoms occur the animal is killed, and brain is examined for rabies. Stray/wild animals that bite should be euthanized and have their brains examined for rabies.

## **III. ED Treatment**

- A. Irrigation, debridement, Tetanus prophylaxis, analgesics, topical and systemic prophylactic antibiotics (Amoxicillin/Clavulanate 875/125 mg BID, Clindamycin varying dose depending on type of bite), X-ray of bite location.
- B. Lacerations may be sutured. Plastic surgery may be consulted for disfigurement.

- C. Rabies post-exposure vaccination (RIG and HDVC) given on days 0, 3, 7, 14 for active immunity.
- D. Consider Rabies if: animal attack was unprovoked, wild, or not immunized.

**IV. Role of ED nurse**

- A. Wound care (cleaning, dressing changes, administer analgesics and prophylactic antibiotics such as Amoxicillin or Clindamycin), administer Rabies prophylaxis 4 doses.
- B. Assess the situation: provide emotional support, manage bleeding, obtain a detailed account of the accident, possible wound cultures for infection, report animal bites to authorities.
- C. Record description of the wound.

**V. Discharge/Prevention Instructions**

- A. Rabies vaccine is encouraged for all people who travel globally.
- B. Rabies vaccines are effective for cats and dogs.
- C. Discharge teaching about wound care: signs of infection, keeping the wound clean and dry, dressing change instructions, when to get sutures removed, continue administering antibiotics if ordered.
- D. Discharge teaching on rabies postexposure immunization: when to get the next shot (days 0, 3, 7, 14).
- E. Discharge teaching: rabies, signs of rabies.
- F. Avoid animals/wild animals and animals with symptoms of rabies: acting aggressive, biting at imaginary things, overly salivating, tamer than usual, has trouble moving.

## References

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