

Monkey Bite Exposure Treatment Protocol

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INTRODUCTION

This article reviews immediate first aid measures following a monkey bite, which include rapid, thorough washing of wounds with soap and water, and medical interventions to ensure that our Special Operations Forces (SOF) remain healthy and fit to fight. Monkeys are a common sight in many of the regions to which our SOF deploy to. (*Editor's Note: Areas of northern Africa to eastern Asia would include primarily "Old World" monkeys such as the macaques that are the primary zoonotic reservoir of herpes B virus. In South and Central America, monkeys common in these areas constitute "New World" monkeys that would not naturally harbor the herpes B virus. This would be an important distinction that would dictate appropriate treatment in the field.*)

Monkeys are often quite comfortable around humans and this can lead to some very dangerous disease threats. One recent monkey bite exposure could have ended badly, but the Task Force Surgeon was armed with the protocol you are about to read, and took immediate action.

A servicemember was walking in a low-light area after dark and collided with a tree (It seems that talking on a cell phone is not only dangerous while driving!) A very startled monkey residing in the tree landed on the servicemember's neck and gave him some shallow bites to his neck in the ensuing scuffle.

RISKS OF MONKEY BITES

Monkeys carry many diseases that infect humans. Exposure to monkey violence (bites and scratches) puts one at risk for rabies, which is nearly 100% fatal, the only survivors being those who have received vaccination before the onset of symptoms, and herpes B virus.¹ (*Editor's Note: There has been one non-immunized individual who survived clinical rabies through herculean efforts including long-term hospitalization.*) Herpes B is a very dangerous infection that is quite prevalent in Macaque monkeys.² (*Editor's Note: Tuberculosis is another potential zoonotic disease that is a major concern with close contact with NHPs. Although less likely from a one-time incident than exposure to rabies or herpesviruses, any contact with saliva from monkeys could potentially expose a person.*) Macaques live in many different habitats across the globe, making them the most widely distributed genus of non-human primates. (*Editor's Note: Macaque monkeys may become infected with herpes B, but the infections is uniformly fatal and therefore, these species would not be considered reservoirs for subsequent infection of humans.*)

There are reports of fatal cases in humans of myelitis and hemorrhagic encephalitis from herpes B

following bites, scratches, or eye inoculation of saliva from monkeys.³ Several vendors and tour groups will tell servicemembers that monkeys on the tour shows have been vaccinated for rabies and other viruses, but upon further investigation, there is no documentation or evidence to support these claims. (*Editor's Note: There are no commercially licensed rabies vaccines approved for use in monkeys (at least in the U.S.) so any vaccination claim would likely be invalid.*)

IMMEDIATE FIRST AID, WHICH INCLUDES SELF-AID

Meticulous wound care is important. Thoroughly wash the wound with povidone iodine or chlorhexidine followed by irrigation with sterile saline, or bottled drinking water if sterile saline is unavailable as soon as possible. (*Editor's Note: The latest guidance from the CDC working group for herpes B management [Clinical Infectious Diseases 2002;35:1191-203]⁴ indicates that the initial treatment would be to scrub the wound for at least 15 minutes. As the author also acknowledges that eye inoculation is a possible route of exposure, liberal flushing of the eye as described in the reference above, would also be indicated.*)

POST-EXPOSURE PROTOCOL

Be very vigilant when differentiating between animal scratches and a bite. There may be small punctures that are difficult to appreciate. When in doubt, treat any lesion as a bite since a bite victim **DOES** need post-exposure prophylaxis for rabies. A scratch victim does not need rabies post-exposure prophylaxis – unless monkey saliva has entered the wound. (*Editor's Note: In any area where rabies is endemic, a scratch from an animal that can not be confirmed rabies-free through histology should be treated as a rabies exposure. It is impossible to determine if a scratch has or has not been contaminated with saliva, and very minor wounds can result in a fatal case of rabies. The risk to the servicemember is too great to not treat these wounds aggressively. Likewise, any mucous membrane exposure (eye, mouth, or nose) should be treated as a potential rabies exposure for the same reasons.*)

WOUND MANAGEMENT

1. Closely inspect the wound and debride, or remove any devitalized tissue. Monkey bites tend to be puncture bites so recommend against any closure of the wound with sutures.
2. Let the wound heal by secondary intention.
3. If the bite has deep punctures, recommend prophylactic antibiotics:

- a. Amoxicillin 875/125mg PO twice daily for five days.
 - b. For penicillin allergic patients, use doxycycline 100mg PO twice daily **with** clindamycin 450mg PO three times daily.
4. Ensure the bite victim is up-to-date with his tetanus vaccine.

RABIES PROPHYLAXIS⁵

1. If not previously immunized for rabies, give the following post-exposure prophylaxis:
 - a. Rabies Immune Globulin (RIG) 20IU/kg; infiltrate around the wound as much of the full dose as feasible and give any remaining amount intramuscularly (IM).
 - b. Administer rabies vaccine; 1.0ml IM in the deltoid (not on the same side as the RIG) on days 0, 3, 7, 14 and 28.
2. If the servicemember completed the rabies pre-exposure immunization series, then post-exposure treatment consists of giving two IM doses (1.0ml each) of rabies vaccine into the deltoid muscle. The first is given as soon as possible after exposure, and the second is given three days later.

HERPES B (CERCOPITHECINE HERPES) PROPHYLAXIS^{4,6}

Treatment to prevent herpes B infection requires valcyclovir (Valtrex) 1gm PO every eight hours for fourteen days. Alternatively, acyclovir 800mg PO five times a day for fourteen days can be given if val-

cyclovir is not available. (*Editor's Note: Common recommendation and procedures approved by our Infectious Disease Department at WRAMC for laboratory exposure to herpes B emphasizes copious flooding of the wound site for at least 15 minutes with water while scrubbing with povidone iodine or other antimicrobial solution. This procedure should be emphasized for all bites/scratches or mechanical wounds potentially contaminated with monkey body fluids. It is potentially effective against any microbial contamination of a wound and is the first line of defense in protecting the servicemember.*)

If the bite victim develops any neurological symptoms in the next few days to five weeks after the bite, he should be referred to a higher level of care for further treatment.

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REFERENCES

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3. Sanford Guide, op. cit., p. 143.
4. *Clinical Infectious Diseases* 2002;35:1191–203.
5. Human Rabies Prevention U.S., 1999 Recommendations of the Advisory Committee on Immunization Practices.
6. Sanford Guide, op. cit., p. 143



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