

A previously healthy 3-year-old girl is brought to the emergency department due to difficulty swallowing. She has had fever, chills, malaise, muscle aches, and sore throat for a week. Today, she is refusing to drink fluids and spits out any liquids that are given to her. The patient sustained a small wound on her forearm during a camping trip in Delaware 2 months ago. Her parents assumed it was a bite from an animal or insect and believe it happened while the family was asleep in their cabin. The wound was cleaned and dressed when it was discovered and has since healed completely. The patient takes no medications, has no allergies, and is up to date on standard vaccinations. There is no history of foreign travel. Vital signs are normal. Examination shows an agitated, disoriented girl with copious drool and facial grimacing. The neck has full range of motion. Which of the following disease reservoirs is the most likely source of this patient's symptoms?

- ☐ A. Bat
- ☐ B. Dog
- ☐ C. Raccoon
- ☐ D. Rat
- ☐ E. Spider
- ☐ F. Tick

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- ☒ A. Bat [61%]
☐ B. Dog [2%]
☐ C. Raccoon [28%]
☐ D. Rat [1%]
☐ E. Spider [1%]
☐ F. Tick [6%]

Proceed to Next Item

Explanation:

User Id: [REDACTED]

Human rabies		
Pathogenesis	Transmission of rabies virus by bite from infected mammal	
Reservoir	<ul style="list-style-type: none">United States: Bats (most common), raccoons, skunks, foxesDeveloping world: Dogs	
Clinical features	Encephalitic	<ul style="list-style-type: none">HydrophobiaAerophobiaPharyngeal spasm, spastic paralysisAgitation

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Human rabies		
Pathogenesis	Transmission of rabies virus by bite from infected mammal	
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Clinical features	Encephalitic	<ul style="list-style-type: none">• Hydrophobia• Aerophobia• Pharyngeal spasm, spastic paralysis• Agitation
	Paralytic	<ul style="list-style-type: none">• Ascending flaccid paralysis
Postexposure prophylaxis	Rabies immune globulin & rabies vaccine immediately after exposure to high-risk wild animal	
Prognosis	Coma, respiratory failure & death within weeks	

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Rabies is a fatal, **neurotropic**, viral disease transmitted to humans by exposure to saliva from an infected animal through a bite. **Hydrophobia** and **aerophobia** are pathognomonic features of encephalitic rabies; the feeling of water or air triggers involuntary pharyngeal muscle spasms. Many patients are disoriented and agitated, with fluctuating mental status. The incubation period is 1-3 months, and almost all patients die within weeks of developing symptoms.

The majority of rabies transmissions in the United States are caused by **bat** bites. Other high-risk reservoirs of rabies in the United States include raccoons (**Choice C**), foxes, and skunks. In contrast to the bites of these other animals, bat bites are small and relatively painless; they often go **unnoticed** initially and may occur during sleep. Therefore, all patients with direct exposure to bats require rabies prophylaxis unless they were aware of the bat at all times and are certain they were not bitten.

Known bites from bats or other high-risk animals require thorough wound cleansing with soap and water and urgent **postexposure prophylaxis**, which includes both **rabies**

Prognosis

Coma, respiratory failure & death within weeks

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Known bites from bats or other high-risk animals require thorough wound cleansing with soap and water and urgent **postexposure prophylaxis**, which includes both **rabies immune globulin** and **rabies vaccine**. Prophylaxis can prevent progression to life-threatening encephalitic or paralytic rabies disease.

(**Choice B**) Due to widespread control programs and rabies immunization, dogs are an extremely rare source of rabies in the United States.

(**Choice D**) Small rodents such as squirrels, chipmunks, and rats are uncommon reservoirs of rabies and are considered low-risk exposures.

(**Choices E and F**) Spiders and ticks are not reservoirs of rabies, which is found only in mammals.

Educational objective:

In the United States, bats are the most common source of rabies transmission. Bat bites can be painless and may go unnoticed. Therefore, direct bat exposure warrants postexposure prophylaxis for rabies unless patients are certain that they were never bitten or scratched.

References:

1. [Human rabies – Wyoming and Utah, 2015.](#)