



Challenges in Accessing Comprehensive Rabies Post-Exposure Prophylaxis: A Case Study Following a Street Dog Attack and Subsequent Kitten Bite

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DOI: <https://doi.org/10.55248/gengpi.4.923.92444>

ABSTRACT:

This publication presents a poignant case study that highlights the critical importance of accessible and prompt post-exposure prophylaxis (PEP) for rabies. The incident involves a distressing street dog attack on a vulnerable 2-month-old kitten, which subsequently bit a family member, setting off a chain of events that underscore the challenges in obtaining rabies vaccine and antibodies. This case study unveils the intricate nature of securing comprehensive PEP for rabies, underscoring the need for well-functioning healthcare systems and increased public awareness. The incident showcases the gaps in timely intervention due to fragmented healthcare infrastructure, emphasizing the necessity for mechanisms like extended clinic hours and dedicated hotlines. It emphasizes the significance of both rabies vaccines and immune globulins in PEP and calls for their consistent availability to ensure effective treatment.

Keywords: Rabies, post-exposure prophylaxis, vaccines, antibodies, animal bite, healthcare accessibility.

Background

To stop the potentially deadly course of rabies, a serious zoonotic disease caused by the rabies virus, prompt and focused intervention is required. The bite of an infected animal, usually a dog, is how rabies is spread. Around the world, rabies transmitted by dogs is thought to kill 59,000 people every year [1].

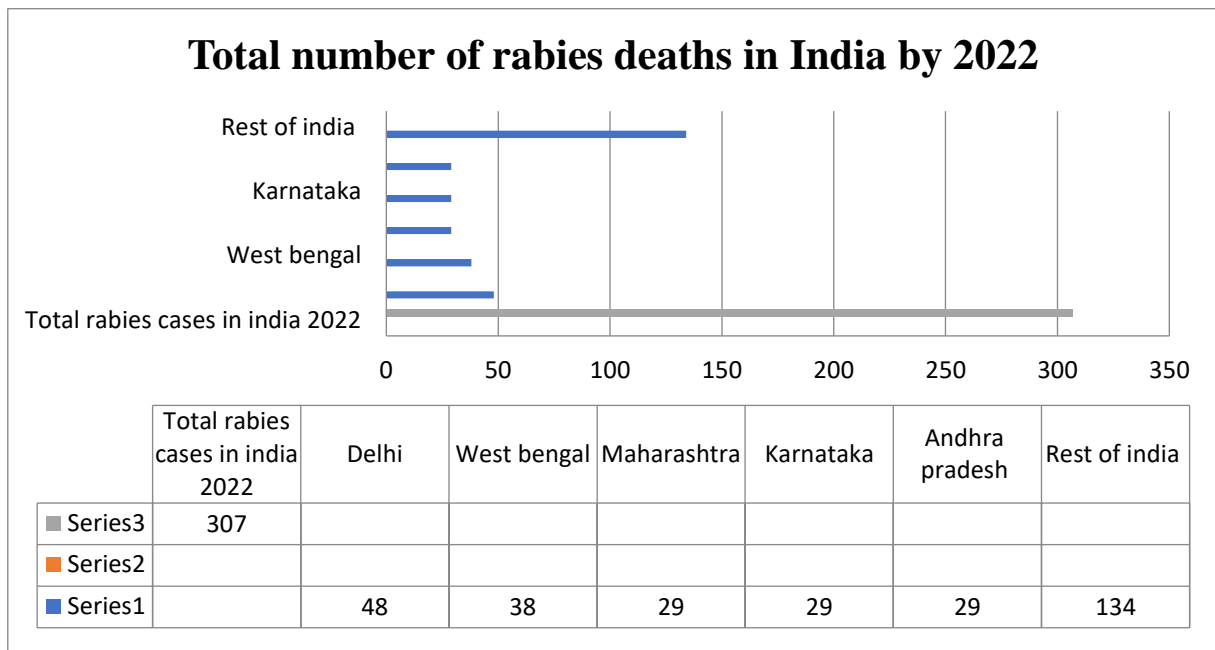


Fig. 1: Graphical representation of dog-bite cases over the India in 2022, as reported TOI

In 2022, 307 persons died due to rabies in India. (Fig.1) Delhi reported the maximum cases -- 48 -- followed by West Bengal (38) and 29 deaths each in Maharashtra, Karnataka and Andhra Pradesh [2].

India is responsible for 36% of rabies-related deaths worldwide, according to the WHO. Additionally, India is responsible for 65% of the rabies-related fatalities in South East Asia. Between 2012 and 2022, 6644 clinically suspected cases and fatalities of rabies in humans were recorded by the National Rabies Control Program. The unexpected increase in rabies infections in India is a serious public health issue. Deaths from rabies among both vaccinated and unvaccinated people, particularly in Kerala, have raised a lot of public worry [3]. Street dog mismanagement has been criticized for interfering with birth control and vaccination procedures when the COVID-19 lockdown was in effect [4]. After the epidemic, canine hostility has been seen to rise in India (Fig. 1), perhaps as a result of food shortages, pet abandonment, and a decline in human-dog connection. [4, 5]. It has been hypothesized that the vaccination wouldn't have enough time to work if damaged areas of the body were close to the brain or rich in nerve tissue. Therefore, RIG must be administered as soon as feasible for passive immunity because the vaccination alone cannot protect against rabies in category III exposure [6]. Post-exposure prophylaxis (PEP), vital after possible virus exposure, faces challenges in timely and comprehensive delivery, particularly in regions with healthcare disparities and limited awareness. Bridging the gap between potential risks from animal bites and effective PEP delivery is crucial in public health.

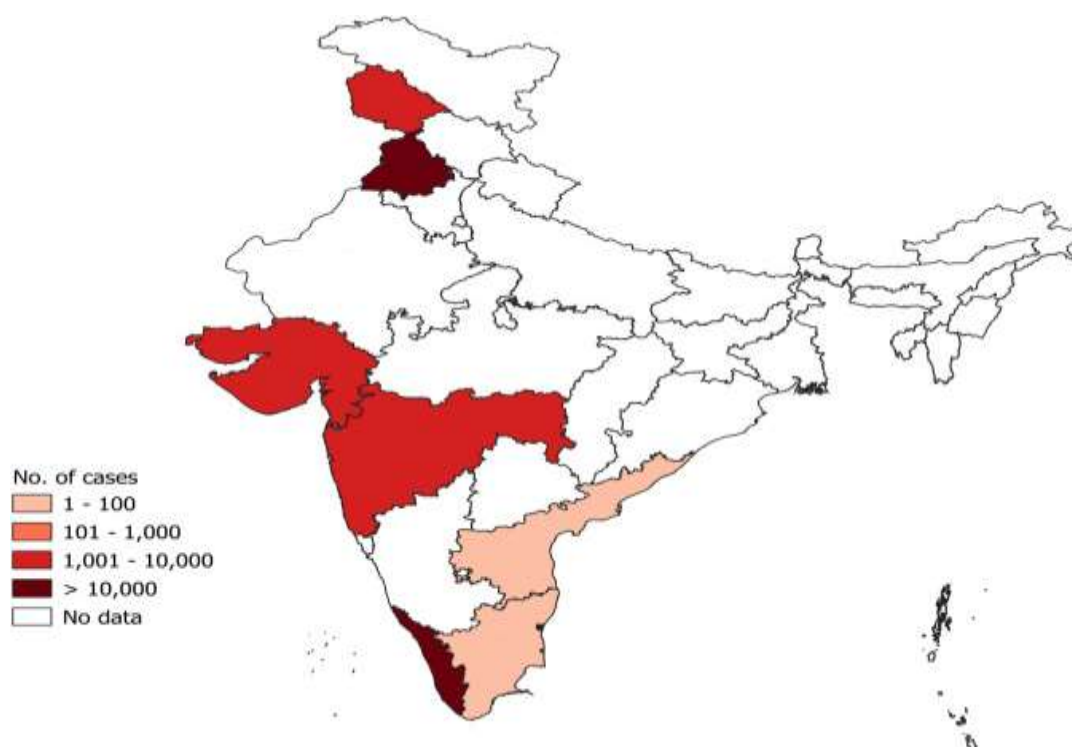


Fig. 2: Choropleth map showing dog-bite cases in the states and Union Territories of India between January–October 2022.

Incident Description:

The incident of this study is a heart-wrenching encounter that centers on a vulnerable 2-month-old kitten. This defenseless creature fell victim to a brutal and unexpected street dog attack, leaving it severely injured and in dire need of immediate medical attention. Tragically, the gravity of the situation escalated when the wounded kitten, in a state of distress and fear, bit a family member. This single act transformed the situation into an urgent crisis, triggering an immediate requirement for comprehensive rabies post-exposure prophylaxis (PEP). The subsequent journey embarked upon by the affected family to secure the necessary medical interventions serves as a poignant narrative that highlights the hurdles and complexities intertwined with accessing timely and complete PEP. This journey unraveled a series of challenges, ranging from navigating healthcare systems to ensure timely treatment to grappling with the intricacies of procuring both the rabies vaccine and the essential immune globulins. Through this incident, the study reveals the multifaceted nature of obtaining proper medical care in the aftermath of animal bites, underscoring the critical need for not only accessible but also comprehensive PEP. The distressing sequence of events experienced by the kitten and the family provides a stark illustration of the gaps that exist in current healthcare systems, emphasizing the imperative to bridge these gaps and ensure that every individual facing such situations has a smooth path to potentially life-saving interventions.

1. Corrective and Preventive Action (CAPA):

1.1 Timely Intervention: Rapid access to PEP is pivotal to prevent rabies transmission. However, fragmented healthcare systems and inadequate infrastructure can lead to delays in treatment. Implementing mechanisms for swift care provision, such as extended clinic hours or dedicated hotlines, can mitigate this challenge.

1.2 Comprehensive Treatment: The incident accentuates the importance of administering both rabies vaccines and immune globulins for effective PEP. Despite being a virologist, the caregiver's struggle to provide complete treatment exemplifies the lack of awareness about the necessity of immune globulins. Ensuring both components are readily available is imperative.

1.3 Public Awareness: The incident reveals a gap in public understanding about rabies and the urgency of seeking immediate care after animal bites. Robust awareness campaigns can educate individuals about rabies transmission, prevention, and the significance of prompt medical attention.

2. Discussion:

2.1 Strengthening Healthcare Infrastructure: Collaborative efforts between veterinary and human healthcare sectors are essential to ensure seamless PEP delivery. Integrating these sectors can facilitate swift coordination and provide patients with comprehensive care.

2.2. Policy Advocacy: Healthcare professionals can advocate for policies that mandate the consistent availability of both rabies vaccines and immune globulins in healthcare facilities. This would prevent situations where individuals are forced to seek treatment across multiple centers.

2.3 Regional Accessibility: Addressing disparities in healthcare accessibility necessitates establishing efficient distribution networks for rabies treatments. This is particularly crucial for remote or underserved areas where access to medical facilities is limited.

Conclusion:

The case study vividly illustrates the challenges faced in obtaining timely and comprehensive rabies PEP after a street dog attack. Beyond the tragic incident, it underscores the broader need for robust healthcare infrastructure, proactive policy advocacy, and extensive public awareness campaigns. Effective rabies management requires collaboration among sectors, education, and a commitment to ensuring that life-saving interventions are universally accessible. This study emphasizes the imperative to bridge the gap between potential treatment and its actual availability to prevent needless loss of life due to a preventable disease.

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