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## “Scratches/Abrasions without Bleeding” Cause Rabies: A 7 Years Rabies Death Review from Medical College Shimla, Himachal Pradesh, India

Sir,

Rabies annually causes 20,000 deaths in India and this figure has not changed for the last decade. This review was done retrospectively to analyze the reasons for deaths due to rabies, registered at Indira Gandhi Medical College Shimla since 2009. We investigated 19 deaths due to rabies in the past 7-year period. Of these, five were caused by “scratches/abrasions without any bleeding” and no postexposure prophylaxis (PEP) was sought. All injuries were caused either by unvaccinated pups below 3 months of age or by stray unvaccinated dogs. Four deaths were of patients who received proper wound care along with minimum 3 doses of intramuscular rabies vaccination, but rabies immunoglobulins (RIG) were not given or were not available. In eight cases, no PEP was sought as the patients were either not aware of its need or the PEP facility was far away or the PEP cost was not affordable or deceased believed that pups below 3 months of age do not carry a risk of rabies. In one case, the patient was bitten by a cat 2 years back. Majority patients belonged to rural and remote areas. Five of the deaths in our study were because of not seeking prophylaxis as abrasions/scratches without bleeding were not thought to carry a risk of rabies. In the Philippines, a rabies death review of 1839 patients demonstrates that all deaths were due to dog related injuries including bites and scratches.<sup>[1]</sup> In Iran<sup>[2]</sup> four people having scratches on their hands were infected with the saliva of rabid animals and died due to rabies, there was no history of bites. In our death review also, deaths caused by “scratches/abrasions without blood” amply demonstrate the ability of the rabies virus to enter nerves through dermis due to broken skin and its capacity to cause rabies. In our settings, the minimum incubation period was 22 days due to scratches on the face in front of Lt Tragus and maximum incubation period was 102 days due to a trivial scratch on right Forearm by a furious rabid dog. Rabies due to bat scratches<sup>[3]</sup> is known and hence can happen due to rabid dog/animal scratches as well. Pathogenesis studies by Kuzmin *et al.*<sup>[4]</sup> state that after delivery into a wound, rabies virus can infect several types of cells and replicate at inoculation site, as has been shown for skeletal muscle cells and fibroblasts. Human skin dermal layer is populated with fibroblasts that may allow the entry of the rabies virus and subsequent infection if left unattended<sup>[5]</sup> and needs further evaluation. Latest guidelines of the WHO (2014) prescribe that the type II wounds, that include minor scratches or abrasions without bleeding, need to be given only rabies

vaccine whereas additional local RIG infiltration may be required.<sup>[6]</sup> The confusion of scratches with blood or without blood need to be rectified in the type II classification of the WHO bite wounds and need to be replaced by “Bruises that don’t involve breach of the skin surface.” Breach of skin surface can easily be identified with spirit test, if there is burning sensation, breach of skin is likely. Many national guidelines, for example, USA,<sup>[7]</sup> Canada, and Switzerland do not make a difference between category II and III wounds and recommend rabies vaccination alongwith RIG administration on potential exposure to rabid animals irrespective of the type of wounds. More such rabies death reviews may throw light on this unusual phenomenon of deaths due to scratches/abrasions by rabid animals, especially on the head, neck, shoulder region, hands and arms, in rabies endemic countries like India.

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### Conflicts of interest

There are no conflicts of interest.

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## OBITUARY

We, at the headquarters of IAPSM and IJCM, deeply condole the sad demise of Dr. Minal S. Gadhvi, on 26th September 2017 at Ahmedabad following a long battle against Cancer. Having passed her MBBS from Smt NHL Medical College, Ahmedabad, she served as a Medical Officer at PHC before joining MD(PSM) at B.J. Medical College, Ahmedabad and later served as Assistant Professor for nearly seventeen years. She was a very helpful, kind hearted lady and was deeply associated with many social activities especially those involving cancer survivors. We extend our heartfelt condolences to the members of the bereaved family and pray to the Almighty for eternal peace of the departed soul.