

Role of veterinarians in vulture conservation

Before the 1990s, it was common to spot a flock of large birds feasting on carrion near villages, which is rare nowadays. These majestic birds with naked heads and weak claws, that we are missing are the vultures, which are the only known obligate scavengers of the Indian subcontinent¹. Keen eyesight, soaring flight and low pH levels in the stomach make these birds nature's most successful scavengers². The free scavenging services of vultures play important ecological, economic and cultural roles which cannot be replaced by other species².

Vultures have the lowest reproductive rate among birds and are further characterized by low productivity, delayed maturity and relatively high adult survivorship. These features coupled with obligate scavenging and community feeding habits lead to mass poisoning on exposure to contaminated carcasses. Further, due to higher position in the food chain, vultures are also vulnerable to bioaccumulation of toxins².

Beginning with the early 1990s, a period marked by a steady increase in the use of chemicals for pest control³, a parallel decline in vulture population was witnessed in Europe and North America^{4,5}. Similar decline was witnessed in other continents as well. However, the most dramatic vulture decline ever observed was an almost complete disappearance (>96% in some areas) in the Indian subcontinent, especially India⁶, Pakistan⁷ and Nepal⁸.

Among numerous causes, human persecution or poisoning, or both, has contributed significantly to the decline in vulture population². The rapid decline in the Indian subcontinent was triggered by veterinary use of diclofenac sodium⁹. Diclofenac was a preferred and widely used nonsteroidal, anti-inflammatory drug for analgesia in livestock. Diclofenac residues in carcasses of treated livestock, lead to terminal renal failure in vultures, and thus to a widespread and

rapid decline in their population⁹. Lethal effect of diclofenac on vultures was confirmed and reconfirmed by further studies¹⁰. This decline has serious consequences like concurrent increase in the population of other scavengers that may facilitate spread of disease. One example is that after rapid vulture decline, an unprecedented increase in the number of stray dogs has been witnessed in India, which will lead to increase in incidence of deadly diseases like rabies in the near future.

To alleviate the vulture crisis, the Governments of India, Pakistan and Nepal banned the manufacture and veterinary use of diclofenac in 2006. This, along with identification of meloxicam as a safe alternative¹¹, was effective in reducing the diclofenac-contaminated carcasses by more than half¹². Thus with the ban and captive breeding programmes, the vulture was saved from extinction and a small recovery was achieved¹². However, veterinary use of diclofenac is still rampant and sufficient enough to kill the remaining vultures¹². Though veterinary use of diclofenac is banned, ready availability of human preparations and lack of compliance from the retailers have failed to completely enforce the ban. The problem with failure of 100% compliance is higher cost of meloxicam and lack of awareness among farmers. Hence, to achieve a complete shift from diclofenac to meloxicam in veterinary patients, the price of meloxicam needs to be similar to diclofenac. Even after achieving this, the livestock farmers need to be educated to restrain from diclofenac use¹³.

Both these responsibilities can be undertaken by veterinarians working in the rural areas, as they have a close relationship with the farmers and understand the need to conserve the vultures. In summary, replacing diclofenac by meloxicam in livestock patients, educating paraveterinary staff and farmers on the harmful

effects of diclofenac and strictly enforcing the ban on use of diclofenac in livestock treatment, would all help in controlling decline of vulture population. These measures combined with conservation breeding programmes, would ensure reversal of the vulture population decline.

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