

Observation of beak abnormalities in Indian Rock Pigeon at Udhagamandalam, The Nilgiris, India

Avian keratin disorder (AKD) is a disease primarily attributed to Poecivirus, and is emerging as a pervasive ailment affecting wild birds (Zylberberg et al. 2018). First identified in the late 1990s, the disorder exhibits a distinctive manifestation through beak outgrowth and has been spreading rapidly both geographically and in terms of host species affected (Zylberberg et al. 2016). An epizootic of beak deformities, referred to as “AKD” has been documented in Black-capped Chickadees *Poecile atricapillus* in Alaska during the past decade and afflicts an average of 6.5% of the adult population annually (Hemert & Handel 2010). These deformities result in decreased ability of bird’s feeding and preening capabilities, diet preferences, and higher susceptibility to various parasites and pathogens, ultimately leading to decreased fitness and survival (Handel et al. 2010; Wilkinson et al. 2016). Interestingly, this kind of case was documented in many parts of India, including



Observation of beak abnormality in the Indian Rock Pigeon *Columba livia* in Udhagamandalam, The Nilgiris. © S. Karthick.

recent documentation from the Udhagamandalam region (Shahir et al. 2023). Recently, a bird with such a defect has drawn the attention of researchers in the region.

On 26 December 2023, during our fieldwork, we observed a flock of Indian Rock Pigeon

Columba livia in the middle of Udhagamandalam town (11.2442 N & 76.4227 E). On keen observation, we observed that one pigeon had an abnormal beak among the flock, and the individual was sick and lethargic. According to Shahir, et al. (2023), the previously recorded individual

from the region was very healthy even though it had been affected by bill deformities. Thus, the researchers believe that this abnormality has not significantly affected the feeding abilities of this individual because the bird has survived and remained healthy to the age recorded. But, at the same time, the bird that we observed and recorded was unhealthy and sick, and its movement was restricted to one place. This behaviour could be due to the low fitness of birds with deformed beaks. Deformities in the structure of the beak may affect individual survival negatively through inefficient foraging or preening (Benkman & Lindholm 1991). A research study from Zylberberg et al. (2018) concluded a statistically significant relationship between Poecivirus infection and AKD and provided evidence that Poecivirus is indeed an avian virus, infecting and actively replicating in the beak tissue of birds.

The similarity in physical characteristics of the deformities and geographic distribution supports the hypothesis of common etiology (Handel et al. 2010; Hemert & Handel 2010). Although the causes of the defects are still unknown, examining these kinds of cases in various species provides insight into possible causes. Lack of knowledge about causative factors and subsequent physiological changes associated with beak deformities emphasizes the need for additional research into the pathology of AKD. The recurrent and constant documentation of this deformity in birds from the region will help raise awareness for abnormalities in this and other species of birds in the region. Finally, we strongly recommend to study that why this deficiency occurs in the Indian Rock Pigeon, especially in a particular region is something to monitor through long-term study.

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