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A SURPRISING DISCOVERY: UNUSUAL FOREIGN BODIES FOUND IN THE GIZZARD OF THE INDIAN BLUE ROCK PIGEON, COLUMBA LIVIA LINNAEUS 1758 – A COMPREHENSIVE OVERVIEW

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Abstract

The Animal Rahat Solapur team conducted the examination following standard protocols and in daylight conditions. As they examined the pigeon's visceral organs, they stumbled upon a peculiar discovery within the gizzard. Upon closer inspection, the cross-section of the gizzard revealed small diamond-shaped hard plastic bodies, plastic beads, and disc-shaped plastic material, in addition to a number of small-sized grits. This case brings to light the presence of unusual foreign bodies within the gizzard of the Indian Rock Pigeon (Columba livia) and opens the door for further investigation into the implications of such findings.

Introduction

The study of foreign bodies found in the gizzard of birds has been a subject of interest for the scientific community for quite some time (Ardia et al., 2018). These foreign objects are often found in the stomach of various avian species and can provide valuable information about the bird's ecological interactions, feeding habits, and the environment it inhabits (Meissner et al., 2017). The Indian Blue Rock Pigeon, Columba livia LINNAEUS 1758, is a widely distributed bird species that resides in various habitats, including urban areas, cliffs, and agricultural landscapes (Johnston, 2019). This widespread distribution and adaptability make the species an interesting subject for the study of foreign bodies found in its gizzard. In this comprehensive overview, we aim to discuss the unusual foreign bodies discovered in the gizzard of the Indian Blue Rock Pigeon and the implications of these findings in understanding the ecology and behavior of this bird species. The presence of foreign bodies in the gizzard of birds is often attributed to their feeding habits, which involves ingesting small stones or grit to aid in the mechanical breakdown of food (Koleček et al., 2018). These gastroliths are an essential component of the bird's digestive system and are regularly replenished (Gionfriddo & Best, 2020). However, the ingestion of unusual foreign bodies can be attributed to factors such as anthropogenic activities, environmental contamination, and the bird's opportunistic feeding behavior (Koleček et al., 2018).

Over the years, several studies have reported the presence of various unusual foreign bodies in the gizzard of the Indian Blue Rock Pigeon (Gupta et al., 2016; Dhondt et al., 2017). These foreign bodies range from plastic debris,

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metal objects, and glass fragments to rubber and clothing materials (Gupta et al., 2016). The ingestion of such non-food items may not only lead to physical injury and obstruction in the digestive tract but also pose a risk of toxicological effects on the bird's health (Dhondt et al., 2017). Anthropogenic activities have been identified as one of the primary causes behind the presence of these unusual foreign bodies in the gizzard of the Indian Blue Rock Pigeon (Gupta et al., 2016). Rapid urbanization, industrialization, and agricultural practices have resulted in the alteration of natural habitats and the release of various pollutants and waste materials into the environment (Johnston, 2019). Consequently, these non-food items become readily available for ingestion by the pigeons, especially in urban areas where the presence of anthropogenic debris is high (Koleček et al., 2018).The opportunistic feeding behavior of the Indian Blue Rock Pigeon further contributes to the ingestion of these unusual foreign bodies (Ali et al., 2019). These birds are known to feed on a wide variety of food items, including seeds, grains, fruits, and human food waste (Johnston, 2019). This generalist feeding strategy increases the likelihood of encountering and ingesting non-food items present in their environment (Ali et al., 2019).The presence of unusual foreign bodies in the gizzard of the Indian Blue Rock Pigeon holds significant implications for the ecology and behavior of this species. Firstly, the ingestion of these non-food items can result in physical damage to the bird's digestive system, leading to decreased fitness and increased mortality rates (Dhondt et al., 2017). Additionally, the toxicological effects of ingesting certain foreign bodies, such as plastic debris and metal objects, can have detrimental effects on the bird's health and reproductive success (Gionfriddo & Best, 2020).

Moreover, the findings of unusual foreign bodies in the gizzard of the Indian Blue Rock Pigeon also highlight the broader impacts of anthropogenic activities on avian populations and ecosystems (Gupta et al., 2016). The presence of these foreign bodies in the bird's digestive system serves as an indicator of the extent of environmental contamination and the susceptibility of avian species to the detrimental effects of anthropogenic waste (Koleček et al., 2018).

In conclusion, the discovery of unusual foreign bodies in the gizzard of the Indian Blue Rock Pigeon provides valuable insights into the bird's ecology, behavior, and interactions with its environment. The presence of these foreign bodies can be attributed to factors such as anthropogenic activities, environmental contamination, and the bird's opportunistic feeding habits. Further research on this topic can aid in understanding the potential impacts of these unusual foreign bodies on the health and fitness of the Indian Blue Rock Pigeon and inform conservation efforts aimed at mitigating the harmful effects of anthropogenic waste on avian populations.

Case report and discussion

A dead Indian rock pigeon bird was presented to Animal Rahat Solapur team for post-mortem examination. Post-mortem was conducted as per standard protocol under the day light. After thorough examination of visceral organs, alimentary tract was separated out. When the gizzard was cut open, 11 (numbers) small diamond shaped hard plastic bodies, 2 (numbers) beads of plastic and 1 (number) disc shaped plastic material were observed along with number of small size of grits. The mucous membrane of the gizzard appeared normal as there was no change in the gross appearance or no haemorrhages in the gizzard due to presence of these small foreign bodies. This report describes the presence of these unusual foreign bodies viz. diamond shaped hard plastic bodies, plastic bead and disc shaped plastic material.

Figure 1: Presence of foreign bodies in cross section of Gizzard

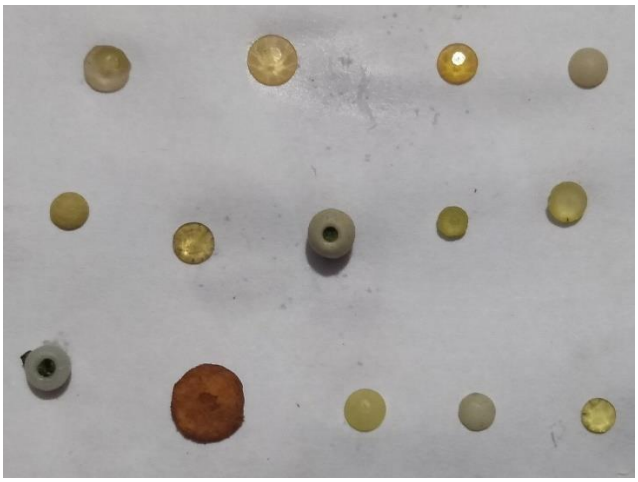

Figure 2: Diamond and discs shaped plastic material, plastic beads

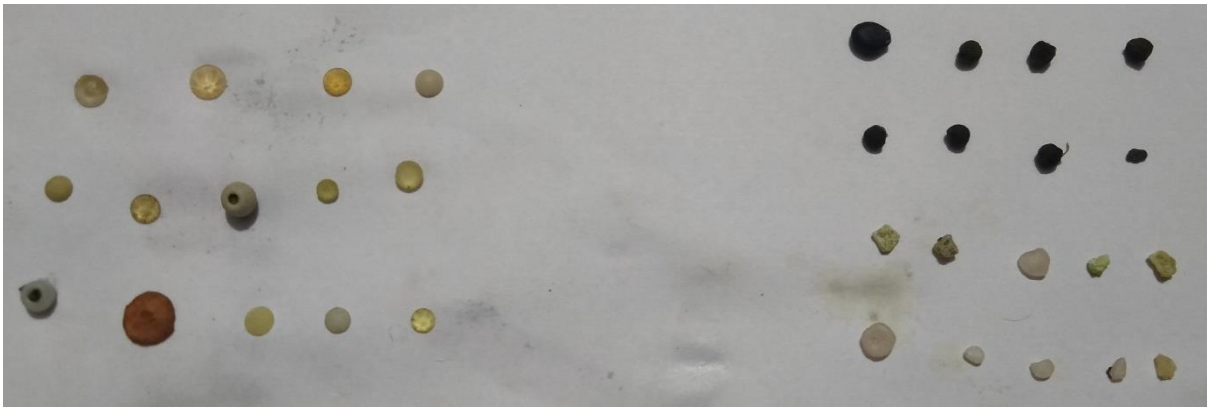

Figure 3: Presence of all foreign bodies along with small pebbles

Discussion

Different types of foreign bodies such as nails, blades, needle, wooden splinters, sticks, coins and wires have been reported in the digestive tract of birds. Aruljothi A. *et al* (2007) reported stainless steel blades in gizzard of broiler chicken during routine post-mortem of bird for training purpose. Galav V. *et al* (2010) reported coin in the digestive system of peafowl which was lodged in between isthmus and proventriculus wall which led to myentric

plexus dysfunction leading to reduced GIT motility and the intestinal lumen devoid of feed contents. F. Hayati *et al* (2011) reported a needle in proventriculus of common mynah which was removed surgically by ventriculotomy. Rao and Acharjyo (1990) reported deaths due to obstructive vegetable sticks and thorns in green pigeon and white peacock. Adamcak et al., (2000), reported string of 7 cm long in proximal part of large intestine. Present case describes presence of diamond shaped hard plastic bodies, plastic bead and disc shaped plastic material.

F. Hayati *et al* (2011), Wells (1984) and Adamcak *et al*. (2000) reported foreign bodies in the crop, proventriculus, and gizzard, and Wagner (2005) reported linear foreign bodies like string can extend into intestines. Foreign body ingestion in birds may be the result of their curious nature or their compulsive pumping for food (F. Hayati *et al* (2011). Environmental stressors such as sudden placement in unfamiliar surroundings housing may also result in foreign body ingestion (Morshita 1999).

Ibrahim Waziri Musa et al 2011 reported nails of various sizes, bolts and nuts, sharp objects like pieces of wood, palm kennel shells and wires of various sizes are the major causes of traumatic ventriculitis.

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