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CM Bhadesiya
Assistant Professor, Postgraduate
Institute of Veterinary Education
& Research (PGIVER), Kamdhenu
University, Rajpur (Nava),
Himmatnagar, Gujarat, India

GR Chaudhary
Assistant Professor, Postgraduate
Institute of Veterinary Education
& Research (PGIVER)
Kamdhenu University, Rajpur
(Nava), Himmatnagar,
Gujarat, India

TP Patel
Assistant Professor, Postgraduate
Institute of Veterinary Education
& Research (PGIVER)
Kamdhenu University, Rajpur
(Nava), Himmatnagar,
Gujarat, India

MJ Anikar
M.V.Sc. Scholar, Postgraduate
Institute of Veterinary Education
& Research (PGIVER) Kamdhenu
University, Rajpur (Nava),
Himmatnagar, Gujarat, India

VA Patel
M.V.Sc. Scholar, Postgraduate
Institute of Veterinary Education
& Research (PGIVER) Kamdhenu
University, Rajpur (Nava),
Himmatnagar, Gujarat, India

PJ Gajjar
M.V.Sc. Scholar, Postgraduate
Institute of Veterinary Education
& Research (PGIVER) Kamdhenu
University, Rajpur (Nava),
Himmatnagar, Gujarat, India

Corresponding Author:
CM Bhadesiya
Assistant Professor, Postgraduate
Institute of Veterinary Education
& Research (PGIVER), Kamdhenu
University, Rajpur (Nava),
Himmatnagar, Gujarat, India

***Raillietina* spp. infestation in a red-vented bulbul (*Pycnonotus cafer*; Linnaeus, 1766) died due to collision with a ceiling fan: Postmortem observations**

CM Bhadesiya, GR Chaudhary, TP Patel, MJ Anikar, VA Patel and PJ Gajjar

Abstract

Domestic and domiciliated birds encounter life-threatening situations because of their propinquity to human activities and household hazards. One such household hazard is collision with ceiling fans which can lead to severe traumatic injuries or internal damage mostly resulting in death. A Red-vented Bulbul (*Pycnonotus cafer*; Linnaeus, 1766) was found in critical state at Veterinary Hospital, PGIVER, Rajpur, Himmatnagar. History and circumstantial evidences suggested sudden and direct collision of the bird with a rotating ceiling fan. The bird collapsed before any medical care could be provided. Later, the carcass of the bird was subjected to a detailed post-mortem examination (PME) which revealed severe internal hemorrhage in abdominal cavity and parasitic infestation by *Raillietina* spp. The present paper highlights detailed observations of the PME and first record of *Raillietina* spp. infestation in a Red-vented Bulbul of the region.

Keywords: Ceiling fan, internal hemorrhage, post-mortem, *Raillietina* spp., red-vented bulbul

Introduction

The Red-vented Bulbul (*Pycnonotus cafer*; Linnaeus, 1766), a passerine bird, is commonly found in India. The International Union for Conservation of Nature (IUCN) has included this bird under the 'Least Concern' category because of current population trend and various other reasons^[1]. Red-vented Bulbuls are easily identified because of presence of a short crest on dark black colored head, white colored rump and red colored vent. Some of the bodily features can vary depending on regions. They are commonly found in dry scrubs, open forest areas, urban forests, urban gardens and green areas nearby human localities. They feed on leaves, flower petals, nectar, insects and fruits^[2]. They are believed to damage fruits, outcompete some native species of birds and are considered as pests in some regions of the world^[3,4]. The nation-wide presence of Red-vented Bulbuls in India indicates that there is a possibility of presence of disease and disorders which are yet to be recognized in the species. Their presence in areas nearby human localities makes them vulnerable to develop morbid conditions. Undoubtedly, the exact prevalence of such health ailments in Red-vented Bulbul is not known in India and scientific literature does not exist on veterinary healthcare services or managerial aspects at length. Under such circumstances, documentation of each and every case becomes crucial to generate large database for future investigations. Therefore, efforts have been made in the present paper to report postmortem observations in a Red-vented Bulbul which had died due to collision with a ceiling fan. The paper is also the first record of parasitic infestation by *Raillietina* spp. in the Red-vented Bulbul of the region.

History

A Red-vented Bulbul was observed to have direct collision with a ceiling fan in motion at Veterinary Hospital, PGIVER, Rajpur (Nava), Himmatnagar. Neither injuries nor hemorrhage could be seen at the place of collision. The bird died before proper veterinary medicines could be provided. Later, the carcass was subjected to detailed post-mortem examination (PME).

Post-mortem Examination (PME)

The carcass of the Red-vented Bulbul was placed in supine position on a small white cardboard sheet [Figure-1a]. External examination did not reveal any open wounds or injuries. No major blood loss was observed externally.

Gentle palpation of limbs and wings did not reveal signs of fracture. Feathers were removed from chest and abdomen regions which showed signs suggestive of hemorrhage inside the abdomen [Figure-1b]. The bird did not show any structural abnormality in head region (including beak, eyes, face, tongue, skull etc.). Neck region did not show any signs of injury or fracture. On opening the carcass, no gross pathological changes could be seen on tongue, trachea and pectoral muscles [Figure-2a]. Organs of the thoracic cavity were not affected by the impact. Heart was clean and devoid of any structural abnormalities [Figure-2b]. Presence of fresh and unclotted blood was evident in abdominal cavity which indicated severe internal hemorrhage [Figure-3].



Fig 1: [1a] Placement of carcass for PME; [1b] Lesion (arrow) indicative of internal hemorrhage in abdominal cavity



Fig 2: [2a] Normal tongue and trachea; [2b] Heart without any gross pathological changes



Fig 3: Presence of fresh blood in abdominal cavity (arrows) indicated severe internal hemorrhage

Visceral organs were carefully removed from the abdominal cavity. The anterior portion of the gastrointestinal tract was normal up to gizzard. However, local to generalized enteritis [Figure-4a] and liver rupture were evident. A tapeworm was recovered from the intestine. The intestinal material was also collected directly on microscopic slides to detect and identify the egg of tapeworm. *Raillietina* spp. of cestode was confirmed on the basis of gross morphology of tapeworm [Figure-4b] and microscopic appearance of egg [Figure-4c]. Abnormal discharge or presence of blood was not noticed at vent. The carcass along with worm and samples were cremated at a suitable place with standard disposal protocol.

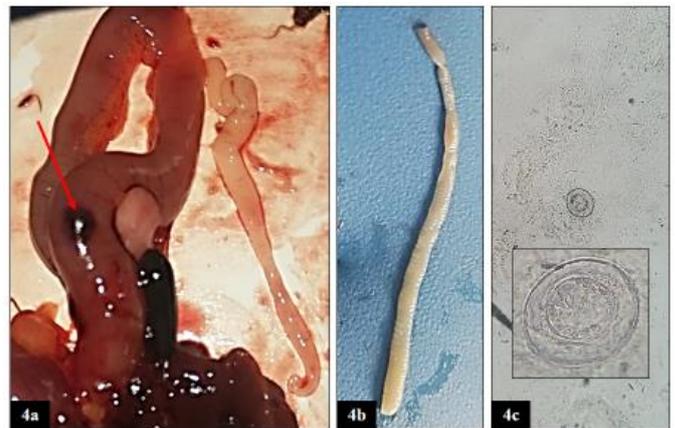


Fig 4: [4a] Enteritis (Red arrow); [4b] Tapeworm recovered from intestine, [4c] Egg of *Raillietina* spp. under microscope

Discussion

Household hazards associated with commonly used household items/materials such as ceiling fans, recently painted areas, commonly used chemicals (e.g., phenyl containing products), toilet lids, bathtubs, doors, windows, beds, couches, some food items, plastic/metal utensils, strings, ropes, medicines used for human consumption (e.g., sleeping pills, pain killers, antihistaminic tablets etc.), cage, cage furnishings, open containers of water, loud noises, other pets, poisonous plants, toxic fumes etc. can lead to accidental deleterious health conditions in pet birds or free-living birds entering inside house premises. There is no available published report on death of a Red-vented Bulbul due to collision with a rotating ceiling fan to the best of authors' knowledge.

A basic understanding of anatomical features of birds is equally important before conducting PME. The systemic anatomy of the Red-vented Bulbul is not extensively studied. Hence, it is difficult for veterinarians to differentiate between normal and abnormal structural appearance of internal organs in Red-vented Bulbuls. Under such circumstances, veterinarians have to correlate the gross pathological lesions with available standard literature on pathological changes caused by different etiological factors (e.g., rupture, tumor/growth, cyst, abscess, inflammation, suppuration, necrosis, gangrene, wounds, fracture etc.).

Most of the internal organs in the present case were observed without any structural damage. Liver rupture, presence of fresh blood in abdominal cavity and marked enteritis were only conspicuous gross pathological findings. Therefore, the probable cause of death of this Red-vented Bulbul could be adjudged as hypovolemic shock (due to severe internal hemorrhage) and liver failure (due to liver rupture) after the collision. These findings indicate how serious and fatal a collision with ceiling fan can be. Hence, one should always

monitor presence of pet/domestic or domiciliated birds in and around house premises as well as commonly used household items to ensure prevention of such unnatural cases of mortality.

In the present case, local to generalized areas of enteritis were also observed. Enteritis could have developed due to presence of tapeworm in intestinal lumen for a long period of time. This could have led to development of digestive upset in the Red-vented Bulbul forcing it to forage and roam in areas to easily access food (e.g., entering in a house/room through a window).

The tapeworm recovered during the PME was identified as *Raillietina* spp.. Presence of *Raillietina* spp. is reported in many species of birds which are domesticated or domiciliated (e.g., emu, pigeons, chicken, crows etc.)^[5-14]. This parasite is a common tapeworm of birds; however, there are no previous reports on its occurrence in the Red-vented Bulbul of the region. This tapeworm, like other internal parasites, uses the host's body for survival, growth and reproduction. Presence of adult form of tapeworm generally indicates chronic presence of parasite inside the digestive tract causing severe enteritis. Based on these observations, it is suggested that native species of birds should be subjected to extensive parasitic screening. Such investigations can provide details on existing worm-load in free-living populations of Red-vented Bultuls and possibilities of infecting other birds of economic importance with the same parasite. Such investigations can also help to prevent digestive upsets by timely deworming of birds using specific parasitocidal drugs. The observations made in the case also emphasize a need to develop guidelines for prevention of morbidity and mortality associated with household hazards.

Conclusion

Hypovolemic shock (due to severe internal hemorrhage) and liver failure (due to rupture) were adjudged as the probable cause of death after direct and sudden collision of the Red-vented Bulbul with a rotating ceiling fan. This paper is the first documentation of *Raillietina* spp. infestation in a Red-vented Bulbul of the region. Detailed investigations should be conducted on existing diseases of the species and documentation of individual cases should be encouraged to generate a strong database for veterinarians and zoologists.

Conflict of Interest

Authors declare no conflict of interest with regards to funding.

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