Cobboldia elephantis (Cobbold, 1866) in a Free-Ranging Asian Elephant in Ram Nagar Forest Division, Uttarakhand, India

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Introduction

Cobboldia is a genus of parasitic flies in the family Oestridae named after Thomas Spencer Cobbold (1828-1886) who described the first species. Adult flies lay their eggs near the mouth or base of the tusk and parasitize elephants. Larvae hatch and develop in the mouth cavity and move to the stomach. Third stage larvae exit from the mouth and drop to the ground to pupate (Fowler & Mikota 2006).

The present paper communicates the occurrence of *Cobboldia elephantis* in an elephant in Ram Nagar Forest Division of Uttarakhand in northern India.

Methodology

Post mortem examination of a young male elephant carcass (Fig. 1) was conducted in Ram Nagar Forest division in the Haldwani region. The carcass was 3–5 days old and putrefied at the time of examination. On sectioning the stomach, larvae were observed, attached to the mucosa (Fig. 2). Larvae recovered from the gastric mucosa were placed in 70% alcohol and processed for species identification by routine parasitological methods (borax carmine permanent staining method; Soulsby 1982).

Figure 1. Decomposed elephant carcass.

Results and discussion

Examination of the larvae under the microscope at 10 x and 40 x magnification (Fig. 3) showed the characteristic morphological features of *C. elephantis* such as posterior spiracles with three longitudinal parallel slits in each spiracle, abdominal segments with a row of belt like triangular shaped spines and the anterior end with two oral hooks with cephalo-pharyngeal skeleton (Matsuo *et al*. 1998; Venu *et al*. 2015; Ananda *et al*. 2017).

While post mortem examination was routinely done for all elephant carcasses, including stomach mucosal examination, vital organs and all other body parts, this was the first record of *C. elephantis* in Uttarakhand. In this case, the cause of death of the elephant was not established. Ananda *et al*. (2017) found that elephants infected by *Cobboldia* displayed diarrhoea, anorexia and dehydration and that at post mortem examination the gastric mucosa was severely congested and hyperaemic with numerous larvae attached.

Manoharan *et al*. (2016) reported a high prevalence of *C. elephantis* (45%) in free ranging elephants in Tamil Nadu, Southern India and suggested routine deworming through the target bait method or communal deworming. However, whether intervention is warranted should be decided based on the study of prevalence and

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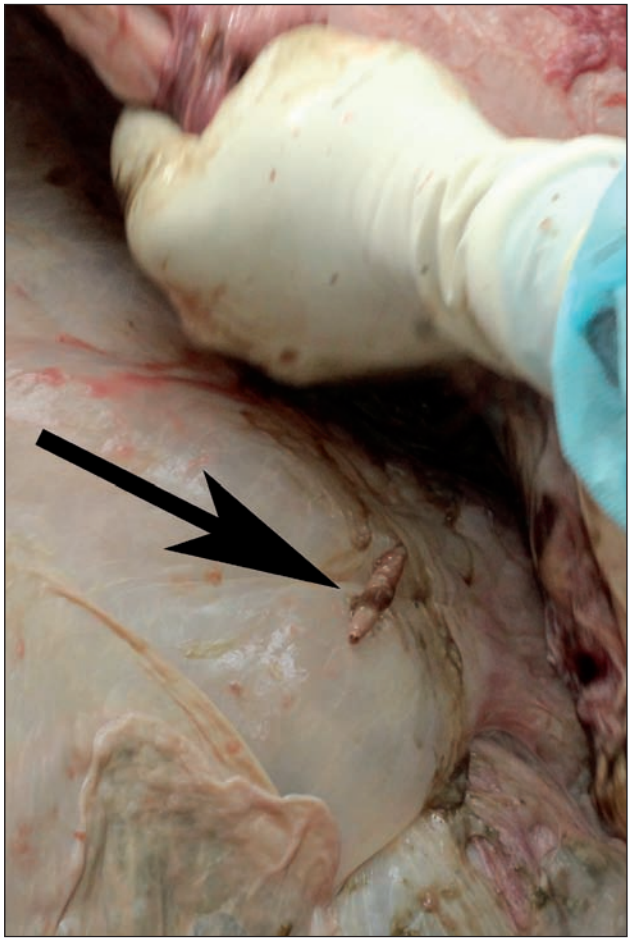

Figure 2. *C. elephantis* larvae in stomach.

impact. Any such attempts should be done with close monitoring and may not be practical with free-ranging elephants (Panda *et al*. 2005).

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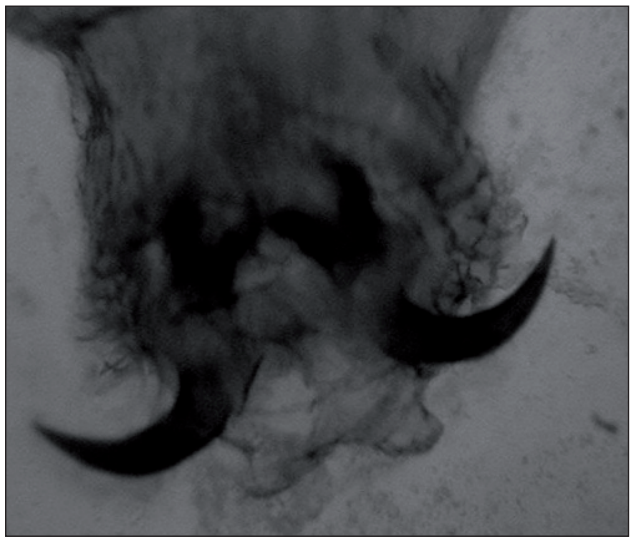

Figure 3. Anterior end of *C. elephantis* maggot showing the oral hooks.