BRIEF NOTE

***Giardia* Infection in Budgerigars (*Melopsittacus undulatus*)**

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During their recent study on viral diseases of psittacine birds, the authors were requested to investigate a diarrhea in budgerigars from a commercial aviary in Aichi Prefecture. *Giardia* organisms were observed in the intestines of these birds. The first case of *Giardia* infection in household budgerigars was described by Leibovitz in 1962 [2]. Since then, giardiasis in budgerigars has been reported in the U.S.A. [3, 4] and the U.K. [1]. No papers, however, have been published on *Giardia* infection in budgerigars in Japan.

Budgerigars 3 to 6 months old were reared in a large number of cages in a house with a concrete floor. The number of birds in the house ranged from 4,000 to 6,000. The signs of diseased birds were ruffled feather, diarrhea, depression and death. The owner reported that from 30 to 50 birds had died every day for the past 2 months.

During a 3-month period from September to November, 133 birds affected with diarrhea were received by the author's laboratory. All of them were held in isolation units until death. They were examined within 12 hours after death. No gross pathologic lesions were found in them. Microscopic examination of wet smears

from the upper and lower intestinal tract revealed a large number of *Giardia* organisms (Fig. 1). The trophozoites of *Giardia* were actively mobile, bilaterally symmetrical and heart-shaped, with 4 pairs of flagella and 2 nuclei with their respective karyosomes. They ranged from approximately 9 to 15 μ m long (Fig. 2). The overall result obtained from the 133 dead budgerigars revealed an infection rate of 25.6% (Table 1). During a 3-month period from November to January, 226 live birds with depression and diarrhea were submitted to the laboratory for *Giardia* examination. In a survey, *Giardia* organisms were revealed in 132 live birds with a high infection rate (58.4%). Chances of demonstrating *Giardia* were frequent when the intestinal contents of freshly killed birds were examined.

Bacterial cultures from the liver, spleen, lung and intestine of the dead birds were negative. Viral isolation from the organs of these birds was carried out by using 11-day-old embryonating hen's eggs. Hemagglutinating agents were isolated from 6 budgerigars. All of them were characterized as influenza A virus and classified as Hav4 Navl. They were non-pathogenic for budgerigars. Giardiasis appeared to be the primary cause of diarrhea, debility and death.

Table 1. Distribution of *Giardia* organisms in budgerigars with signs of diarrhea over a period from September, 1979 to January, 1980

Date of examination	No. of budgerigars tested	No. of budgerigars with <i>Giardia</i> organisms	Positive rate (%)
Dead birds (Total)	133	34	25.6
Sept. 5—Sept. 14	45	12	26.6
Oct. 14—Oct. 23	38	10	26.3
Nov. 16—Nov. 21	50	12	24.0
Killed birds (Total)	226	132	58.4
Nov. 16	50	30	60.0
Dec. 20	22	11	50.0
Jan. 8	54	22	40.7
Jan. 23	100	69	69.0

The possible role of predisposing factors or other pathogens was not determined.

A group of 50 birds was given dimetridazole at a dose rate of 2 mg per ml in drinking water for 7 days. During the period, 10 birds died. No *Giardia* trophozoites were seen in the intestine of any dead or remaining bird at postmortem examination. It is generally said that giardiasis is not a rare disease of budgerigars, and that it can cause significant economic losses in commercial flocks. To the author's knowledge, this is the first report on an outbreak of

Giardia infection in budgerigars in Japan.

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References

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要 約

セキセイインコのジアルディア症 (短報): 平井克哉・沢 英之・山下照夫・島倉省吾 (岐阜大学農学部家畜微生物学教室), 橋本 晃 (岐阜大学農学部家畜病院)——セキセイインコ 4~6,000 羽を飼育する愛知県の某愛玩鳥業者において, 羽毛の逆立, 飲思・食欲の減退, 消瘦および下痢の症状を呈し死亡する疾病の発生が観察された。斃死あるいは殺処理されたセキセイインコの腸内容の新鮮生標本から, ジアルディア原虫が 25~58% の率で検出された。下痢を主徴とするこの疾病の主原因はジアルディア原虫と考えられた。原虫の治療には飲水からのジメトリダゾールが効果的であった。

Explanation of Figures

Fig. 1. A large number of *Giardia* organisms in wet smear from intestinal contents of a budgerigar. $\times 400$.

Fig. 2. Single typical feature of a *Giardia* trophozoite. Flagella are evident (arrow). $\times 1,600$.