

Balantidiasis in Gastric Lymph Node of Barbary Sheep (*Ammotragus lervia*)

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Introduction

Balantidiasis is an infectious disease worldwide which is produced by a protozoan *Balantidium coli*. This single-celled organism is characterized by their large size ranging from 50 µm to more than 500 µm [1] which indicated by the presence of cilia on its cell surface. The parasite occurs in the lumen of cecum and colon of swine, humans and nonhuman primates as commensal, but can turn opportunist and invade injury tissues by other diseases [2]. It is difficult to diagnose the disease clinically since they are asymptomatic [3]; and can be complicated with other disease or parasitism. Here we report the incidental findings of Balantidiasis in the lymphatic ducts of gastric lymph node of Barbary sheep (*Ammotragus lervia*).

Materials and Methods

Two-and-a-half year old female Barbary sheep (*Ammotragus lervia*) were found dead in the Zoo of Gwangju Metro City on July 30, 2003. Prior to death, the animal was weak and lethargy without any sign of diarrhea. Upon presentation, the carcass was emaciated. Post-mortem was done on the same day of the carcass submission. Fecal sample was aseptically collected from the small intestine and colon for parasitological examination.

Results

The most prominent gross lesions were severe serous atrophy of fat tissues of the coronary and left ventricle grooves. The coronary fat has been changed to a translucent material and swollen. The rumen was fully distended with food while the abomasum was corrugated with slight congestion. Parasitology results revealed heavy infestations of *Eimeria spp.* oocysts, *Trichuris sp.*, and *Strongyloides sp.* Incidentally, microscopic examinations showed the presence of *Balantidium coli* trophozoites in the gastric lymph node and submucosa of abomasum. No *Balantidium*

coli trophozoites or cysts found in the feces although heavy infestation of *Eimeria spp.* oocysts, *Trichuris sp.*, and *Strongyloides sp.* were noted. There were no inflammatory reactions noted at the site of *Balantidium* infestation.

Discussion

As an opportunist organism, *Balantidium coli* trophozoites will become invasive and penetrate the mucosal lining of damaged intestine and travel through other parts or the body. In this case, the absence of *Balantidium* cysts was probably due to incomplete encystation cycle. Under favorable condition, *Balantidium* will invade and penetrate the injured mucosal lining before localizing in certain lymphoid tissues [1]. As a second invader, *Balantidium* travel through via certain routes in the body. It is possible for the organism to perforate in the large intestine before migrating to small intestine, appendix, vagina, uterus and bladder and rarely on liver, and lungs [4]. *Balantidium* is also known to produce hyaluronidase which assists them to enlarge the lesions by attacking the ground substance between the cells. It is common to find the organism which nested within the tissues, or even in capillaries, lymph ducts and neighboring lymph nodes or tissue [5]. Under heavy parasitic infestations, the animals are weak and experiencing protein losses which lead to stress and lymphocytic dysfunction. The immunocompromised animals status could explain how *Balantidium* can be found in the gastric lymph duct and mucosa of the abomasum without any evidence of eosinophils or other inflammatory cells in the adjacent tissues. We suggest that the trophozoites were traveling to the abomasum and invaded the submucosa until they reached the gastric lymph ducts, although this hypothesis remains to be proven since this is the incidental findings and the first reported case of *Balantidium* in Barbary sheep (*Ammotragus lervia*).

References

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