

Case Report: Therapy of Streptococcal Pneumonia in a Cat

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ABSTRACT

Pneumonia is a lung infection that can be caused by bacteria, including *Streptococcus* sp. Identification of the cause of pneumonia in cats is very necessary so that diagnosis and therapy will be more precise. This study reports on the diagnosis and therapy of streptococcal pneumonia on a cat. A 10-month-old intact male cat used in this case report was diagnosed with streptococcal pneumonia based on physical and laboratory examination. The cat showed dyspnoea, serous discharge from the nose, body temperature 40°C, and wheezing breath sounds on lung auscultation, with neutrophilia and lymphocytopenia. Microbiological examination of nasal samples could be identified *Streptococcus* sp. A cat treated with amoxicillin at a dose of 10 mg/kg body weight (BW) intramuscularly daily for 6 days, and diphenhydramine HCl at a dose of 2 mg/kg BW, dexamethasone 0.25 mg/kg BW intramuscularly 2 times a day, and B-complex 0.44 mL daily for 11 days. On the 4th day of treatment, the cat's appetite was good and there was no more discharge from his nose. On the 8th day, the cat had normal breath sounds, and on the 11th day, the cat was healthy with normal hematological parameters. Concluded the cat diagnosed streptococcal pneumonia, and the treatment of amoxicillin, diphenhydramine HCl, dexamethasone, and multivitamin have increased health status.

Keywords: Amoxicillin, Cat, Pneumonia, *Streptococcus*.

1. INTRODUCTION

Pneumonia is a lung abnormality that can occur in cats. Pneumonia is very detrimental for cats to breathe and can cause death left untreated [1]. Pneumonia is caused by microorganism such as bacteria, viruses, fungi, or parasites [1-2]. Pneumonia caused by bacteria can be acute or chronic, one of which is caused by *Streptococcus* sp. Outbreaks of *Streptococcus* infection have been reported in America with a mortality rate of 30% [2]. Pneumonia in cats is diagnosed based on clinical and laboratory examination. Clinically the cat shows difficulty in breathing and is sometimes accompanied by a discharge. This diagnosis is used as the basis for pneumonia therapy, so the examination of cats with pneumonia needs to be carried out in as detail as possible both clinically and laboratory.

Pulmonary disorders among cats are often presented in veterinary practices, but the cause has not been identified. Identification of the cause of pneumonia in cats is very necessary so that diagnosis and therapy will be more proper. This study reports on the diagnosis and therapy of streptococcal pneumonia on a cat. This case report would be useful for small animal veterinarians as a reference.

2. METHODOLOGY

A 10-month-old male cat, 4.4 kg body weight (BW) used in this case report, was diagnosed and treated based on physical and laboratory examination. Blood samples and nasal swabs of a cat were taken for hematological and causative microorganism examination [3-5]. Microbiological examination by culturing swab nasal

Table 1. Blood profile before and after treatment

Examination	Unit	1 st day pre-therapy	11 th day post-therapy	Standard [5]
Erythrocytes	10 ⁶ cell/ μ L	10.41	7.58	5.92-11.16
Leucocytes	10 ³ cell/ μ L	12.35	8.9	10.57-14.39
Neutrophil	10 ³ cell/ μ L	10.00	6.94	6.1-9.48
Lymphocytes	10 ³ cell/ μ L	1.482	1.6	2.41-3.99
Monocytes	10 ³ cell/ μ L	0	0.18	0-0.85
Eosinophil	10 ³ cell/ μ L	0.865	0.18	0-1.5

samples on a blood agar plate (BAP, Merck Millipore, Germany) and Sabouraud dextrose agar (SDA). This cat was treated with 10 mg/kg BW of amoxicillin (Amoxsan, Sanbe Farma, Indonesia) intramuscularly daily for 6 days, and 2 mg/kg BW of diphenhydramine HCl (Vetdryl, PT. Duta Kaiser Pharmacy, Indonesia), 0.25 mg/kg BW of dexamethasone intramuscularly 2 times a day, and B-complex 0.44 mL daily for 11 days [6-8]. The cat's health progress was evaluated by comparing before and after treatment.

3. RESULT AND DISCUSSION

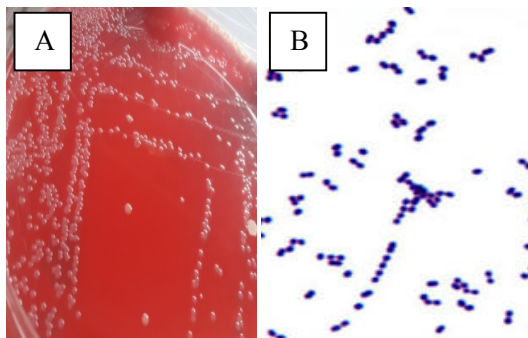


Figure 1. (A) Swab culture on blood agar plate and (B) result of Gram staining of swan nasal, and identified as *Streptococcus* sp.

Physical examination of the cat showed dyspnoea, serous discharge from the nostrils, body temperature of 40°C, and wheezing breath sounds on lung auscultation. The hematological examination revealed an increase in the percentage of neutrophils and lymphocytopenia (Table 1). The result was negative growth for fungal isolation on SDA. Bacterial culture on BAP showed growth of *Streptococcus* sp. (Figure 1) [3, 9-10]. The cat of this study was diagnosed with streptococcal pneumonia with a likely good response to treatment. According to Frymus et al. [11], the clinical symptoms of cats with pneumonia are discharge, dyspnea, and cough. Based on the results of laboratory examinations, pneumonia in this cat was caused by *Streptococcus* sp. Pneumonia in cats can be caused by bacteria, including *Streptococcus* sp., *Mycoplasma* sp., parainfluenza virus, and respiratory coronavirus [1]. The presence of

Streptococcus sp., in this case, is also marked by neutrophilia and lymphopenia (Table 1). The presence of bacterial infection can lead to inflammation that causes an increase in neutrophils [5]. Detailed examination of the presence of a left shift in leucogram will make a better diagnosis [12].

Table 2. Treatment development of a pneumonia cat

Day	Development of treatment
4 th	The cat's appetite was increase and there was no more discharge from his nose
8 th	A cat had normal breath sounds
11 th	A cat was good physically with normal hematological parameters

The results of the treatment showed that the cat in this case study became physically and laboratory healthy. On the 4th day, the cat's appetite was good and there was no more discharge from the nostrils. On the 8th day onwards, the cat had no abnormal breathing sounds, and on the 11th day post-treatment (Table 2), the cat was healthy with normal breathing, body temperature, and hematological parameters with a normal range of neutrophils and an increase of lymphocytes toward normal. The treatment of antibiotics for pneumonia, in this case, was amoxicillin, which has broad-spectrum antibiotics. Amoxicillin is one of the recommended antibiotics for the treatment of Gram-positive bacterial infections, including *Streptococcus* sp. [6]. Therapy in this cat can be successful because the cat is treated intensively hospitalized, so the drugs can work optimally.

The cat in this case study was diagnosed with *Streptococcal pneumonia* and treatment with amoxicillin, diphenhydramine HCl, dexamethasone, and multivitamins has improved health status.

AUTHORS' CONTRIBUTIONS

RNN: Examination, investigation and data collection, writing. SI: Research conceptualization, data analysis and interpretation, writing and original drafting. Y, AN, SR, HP: Supervision of physical examination and treatment of cat, review, and editing. HS, PNG: data analysis, writing and editing. All authors read and approved the final manuscript.

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