

TREATING PYOTHORAX IN CATS- A CASE REPORT



By

Syeda Munira Dilshad

Roll No: 15/16, Reg. No: 01431

Intern ID: 15

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Signature of the Author

Syeda Munira Dilshad

Roll: 15/16, Intern ID:15

Reg No: 01431,

Session:2014-15

.....
Signature of the Supervisor

Dr. Pankaj Chakraborty

Associate Professor

Dept. of Medicine and Surgery

Faculty of Veterinary Medicine

Chattogram Veterinary and Animal Sciences University

Khulshi, Chattogram, Bangladesh

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ABSTRACT

Pyothorax , or thoracic empyema, is a rare life threatening disease of cats. It is an infection of the pleural space, characterized by the accumulation of purulent exudate. Underlying treatment and cause vary between cases. In this case report, the management of a case of feline pyothorax is discussed. A five-month-old male local cat was presented at TTPHRC, CVASU with a history of dyspnea, coughing and frequent respiratory collapse. Diagnosis was based on clinical signs, thoracic radiography and thoracocentesis. Treatment was done by broad spectrum antibiotic (Amoxicillin) and diurectics(Furosemide). Complete resolution of clinical signs occurred by 25 days with this treatment. Clinical or radiographical abnormalities weren't detected upto 6 months of the treatment.

Keywords: Pyothorax, Treatment, Diuretics

CHAPTER 1: INTRODUCTION

Pyothorax, also known as thoracic empyema is defined as the presence of septic exudate in the pleural space (Ettinger and Feldman, 2010). Common clinical signs include inappetence or anorexia, lethargy, dyspnea, weight loss, pyrexia, hypersalivation and muffled heart sound (Demetriou et al., 2002). Sources of bacteria responsible for development of pyothorax are numerous and can include pneumonia, lung abscesses, thoracic bite wounds and aberrant migration of parasites or grass awns (Waddell et al 2002; Scott et al 2003). There has been recent thought that the underlying etiology may be secondary to an underlying pulmonary infection or aspiration of bacteria from the oropharynx (Anastasio, 2012; Stillion et al 2015). Diagnosis is usually based on clinical signs, thoracic radiography, thoracocentesis and cytology. The treatment of pyothorax can be broadly divided into two groups: medical and/or surgical management. Medical treatment usually includes broad spectrum antibiotic treatment and thoracic drainage through thoracostomy tubes. Surgical treatment is considered when medical treatment fails after 2-5 days. This case report describes a case of pyothorax in cat which was treated with medicinal therapy.

CHAPTER 2: METHODOLOGY

A 5-month-old 2.3 kg outdoor-indoor male local cat presented to the Teaching & Training Pet Hospital & Research Center, CVASU with a history of coughing, open mouth breathing and respiratory distress. Details history revealed that the cat coughed right after feed intake from its 1 month of age. Few respiratory collapses had occurred for last one month.

On clinical examination, the cat was found dull and depressed. It was mild dehydrated with a fair body condition. The peripheral lymph nodes were normal. On thoracic auscultation it revealed that lung sounds were decreased. Rectal temperature was 99°F. The remaining vital parameters were within normal range (Figure: 1).

The cat was admitted to the Radiology Unit for thoracic X-ray. It was physically restrained and positioned laterally for the lateral view of the body. Thoracic X-ray revealed that all parts of the lung as well as thoracic cavity was whitish (Figure: 2). Normally lung shows black color in X-ray finding due to presence of air in there. But whitish color of lung in X-ray indicates pus or blood accumulation in there.

For more confirmation, thoracocentesis was done between the 7th and 8th ribs. White colored pus was aspirated from lungs (Figure: 3).

As treatment, Amoxicillin injection was given intramuscularly bid for 7 days (Inj: Moxin 500mg, Opsonin Pharma Ltd, 10mg/kg B.W.) and Furosemide diuretics was given intramuscularly for 7 days (Inj. Lasix 2 ml, Sanofi Bangladesh Ltd, 1mg/kg B.W.).

After 5 days, the cat was presented to the hospital to check its response to the prescribed medicine. Coughing was present. Chest X-ray revealed that ventral part of the lungs was whitish (Figure: 4). Therefore, previous treatment was continued.

After 12 days, it was noticed that the condition of the cat was improving. Rectal temperature was 101° F. Coughing and respiratory distress decreased remarkably. In the X-Ray finding, reduced whitish area on lung was seen (Figure: 5).

After 25 days, condition of the cat was good. All the parameters were normal. No whitish area was seen in the lung over X-ray (Figure: 6).



Figure- 1



Figure - 2



Figure - 3



Figure - 4



Figure - 5



Figure - 6

Figure 1: 5-month-old cat during physical examination.

Figure 2: Drainage of pus during thoracocentesis.

Figure 3: 1st day X-ray view, whitish coloration of lungs.

Figure 4: 5th day X-ray view, reduced whitish area in the lungs.

Figure 5: 12th day X-ray, whitish part in the ventral parts of lungs.

Figure 6: At 25th day, X –ray shows no whitish area in lungs.

CHAPTER 3 : RESULT AND DISCUSSION

Pyothorax is an uncommon disease in dog and cat, but can probably be life threatening. It appears to occur more frequently in cat. (Demetriou et al, 2002; Rooney and Monnet, 2002; Barrs et al, 2005; Mac Phail, 2007; Boothe et al, 2010). Affected cats were predominantly young cats and from multiple households (Waddell et al., 2002). In this case report, the cat was infected by pyothorax at a very early age (1 month of age). In some studies, outdoor male dogs and cats were more frequently affected as young male animals have a greater likelihood to roam and fight, and therefore, obtain injuries more easily (Demetriou et al., 2002; Waddell et al., 2002; Malik et al., 2006; Boothe et al., 2010).

Potential causes of pyothorax include penetrating trauma or bite wounds, pneumonia, migration of parasites or grass awns, esophageal or tracheal perforation, migrating foreign bodies, parasites, neoplasia, hematogenous spread of extrathoracic or intrathoracic infections and iatrogenic cause (Demetriou et al., 2002; Waddell et al., 2002; Malik et al., 2006; Boothe et al., 2010). The most common route of infection is thought to be through penetrating bite wounds and abscesses that rupture towards the thoracic cavity, causing bacterial contamination and ultimately pyothorax. Data supporting this include a history of 14% to 40% of cases (Jonas, 1983; Waddell et al., 2002). Similar type of bacteria was isolated in pyothorax as in bite abscesses (Waddell et al., 2002).

In this report, medical treatment of pyothorax are discussed. The cat responded well to the medical treatment, so surgery was not required. The cat was given intravenous amoxicillin keeping in mind that, obligate anaerobic bacteria most frequently isolated from pyothorax in cats are often susceptible to penicillin derivatives (Walker et al., 2000; Demetriou et al, 2002; Barrs et al., 2005; Barrs and Beatty, 2009). Amoxicillin inhibits bacterial cell wall synthesis resulting in lysis of bacteria. Amoxicillin is active against gram positive bacteria like *Enterococcus faecalis*, *Staphylococcus* species, *Streptococcus* species, *Streptococcus pneumoniae* and gram negative bacteria like *Escherichia coli*, *Haemophilus influenzae*, *Proteus mirabilis*, *Neisseria gonorrhoeae* etc. It would have been better if the antibiotic was chosen after isolating the organism from the pus and testing cultural sensitivity. By doing so, the development of antibiotic resistance might have been minimized (Weese et al., 2015).

Furosemide diuretics was given for eliminating fluid form the lungs. Furosemide is a diuretics that works by blocking the absorption of sodium, chloride, and water from the filtered fluid in the kidney tubules, causing a profound increase in the output and thereby eliminating fluid from the body. In this case, furosemide played a vital role in withdrawing fluid from the lungs. As a result, the condition improved gradually.

LIMITATION

It would have been better if cytological examination was performed from the pleural fluid to explore the reactive cells like degenerated neutrophils, polymorphic inflammatory cells, pleomorphic ,intracellular and/or extracellular bacteria (Demetriou et al., 2002; Barrs et al., 2005; MacPhail, 2007; Ettinger and Feldman, 2010) Antibiotic sensitivity testing could also be done to avoid the chance of spreading antibiotic resistance.

CONCLUSION

In this case report, the case of pyothorax was medically managed. As it is an uncommon disease, there is a few data available, so underlying causes are yet be investigated. Treatment should consists of long term antibiotic therapy, fluid withdrawal by diuretics or thoracocentesis. In complicated case, surgery can be done for drawing out of fluid from the lungs. Further research regarding probable complication is indicated. Recurrence is a common problem in pyothorax, so prolongation of antibiotic therapy should be advised.

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BIOGRAPHY

I am Syeda Munira Dilshad, daughter of Syed Md. Salim and late Jotsna Begum. I passed Secondary School Certificate examination in 2012 (GPA 5.00) followed by Higher Secondary Certificate in 2014 (GPA 4.40). I got scholarship from MERCK ANIMAL HEALTH-AMERICAN VETERINARY MEDICAL FOUNDATION in 2016 .Now I am an intern veterinarian under the faculty of Veterinary Medicine in Chattogram Veterinary and Animal Sciences University, Bangladesh. In the future,I would like to work as a pet practitioner and do research on pet animal diseases in Bangladesh.