**A Case Report on Megaesophagus in Dog due to**

 **Myasthenia Gravis**



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 **A Case Report on Megaesophagus in Dog due to**

 **Myasthenia Gravis**



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 **List of abbreviations**

|  |  |
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| **Abbreviation** | **Elaboration** |
| AChE | Acetylcholinesterase |
| AChRs | Acetylcholine Receptors |
| CVASU | Chittagong Veterinary and Animal Sciences University |
| IME | Idiopathic Megaesophagus |
| G.P.A | Grade Point Average |
| ME | Megaesophagus |
| MG | Myasthenia Gravis |
| TTPHRC | Teaching and Training Pet Hospital and Research Center |

 **Abstract**

A 6-year-old male, 20kg German shepherd presented in Teaching and Training Pet Hospital and Research Center, Purbachal, Dhaka with a history of regurgitation and ptyalism and it developed a progressively reduced exercise tolerance. Results from a complete blood cell count, serum biochemical profile, and urinalysis did not indicate any metabolic abnormalities. Thoracic radiographs revealed a normal distal cervical and thoracic megaesophagus. Hematological examination, blood glucose, serum calcium, sodium and potassium were all within normal limits. An electrocardiograph was normal. Treated with Tablet. Pyrostig- 60mg orally every 12 hours for 2 weeks with antacids. Proceptin 20mg before food for two weeks for stomach acid damage to the esophagus when food is regurgitated from the stomach and advised with elevated feeding and cesapride was given upto three times daily. This case report suggests that patient with megaesophagus due to myasthenia gravis and animal recovered with that oral medication along with advised feeding and managemental practice.

**Keywords**:Megaesophagus, Myasthenia gravis, Exercise tolerance.

**Chapter 1:**

 **Introduction**

Megaesophagus (ME) is a disorder characterised by decreased or absent esophageal motility that results in a diffused dilation of the esophagus (Washabau,2003) which causes the accumulation of ingesta, dilation of esophageal lumen, food regurgitation and weight loss as the main clinical signs. Megaesophagus may be primary megaesophagus, which is idiopathic, or secondary megaesophagus, which occurs in conjunction with other diseases including myasthenia gravis, hypoadrenocorticism, dysautonomia, polyradiculoneuritis, hypothyroidism, polymyopathies and esophageal cancer (Wray J. D and Sparkes A. H,2006). Canine megaesophagus was idiopathic (IME) (76%), and the rest were secondary megaesophagus (24%), mainly involving myasthenia gravis (Manning K et al., 2006). Myasthenia gravis (MG) is a disorder of neuromuscular transmission in which autoantibodies against nicotinic acetylcholine receptors (AChRs) at the neuromuscular junction results in reduction of AChRs and muscle weakness (Lindstrom et al., 1987). The disease is characterised by muscle weakness and fatigue observed between the ages of one and eight years (Hopkins, 1992). German Shepherd and Labrador/Golden retriver breeds are the most commonly diagnosed with this disease (Lee et al., 2005). This case report suggests that patient with secondary megaesophagus with myasthenia gravis.

 **Chapter 2:**

 **Materials and methods**

1. **Diagnostic imaging:**

Thoracic radiography was done and a prominent dilated esophagus was found. (Figure.1). A barium contrast esophagram was done to confirm the dilation and mechanical obstruction. Barium accumulated within the distended esophagus. (Figure.2).

**2.Laboratory tests:**

A complete blood count (CBC), serum chemistry panel that includes creatin kinase activity, and urinalysis was performed. Hematological examination, blood glucose, serum calcium, sodium and potassium were all within normal limits.

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**Figure1: Radiographic image of dilated esophagus.**

 **Figure2: Radiographic image of dilated esophagus after Barium Sulphate ingestion.**

**Treatment** Clinical findings were evaluated and on the first day treated with injection Ringerlactate 300ml i/v.

After radiography, treated with Tablet. Pyrostig- 60mg orally every 12 hours for 2 weeks with antacids. Proceptin 20mg before food for two weeks for stomach acid damage to the esophagus when food is regurgitated from the stomach and advised with elevated feeding and cesapride (0.3 mg/kg) was given up to 3 times daily.Baily chair was advised for elevated feeding(Figure3). 

Figure 4: Radiographic image of Esophagus after treatment .

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 **Figure 3: Elevated feeding on Baily chair.**

**Chapter 3: Result and discussion**

The most common findings of megaesophagus are reported to be walking disorders following exercise. Such symptoms are also seen in peripheral neuropathy and polymyositis. Cholinesterase inhibitor drugs are the principal agents used in the management of canine megaesophagus (Hopkins, 1992). The myasthenia crisis and signs of the megaesophagus during treatment can quickly be cured by the use of corticosteroids cannot be recommended in all cases of MG (Cuddon, 1989). In this case dog owner maintained elevated feeding and the dog was treated with pyridostigmine and cesapride and recovered with no regurgitation. Owners can feed their pet in an elevated position on stairs or on raised platform.

Acetylcholinesterase (AChE) inhibitors have been the foundation of therapy for acquired MG and are often are the first line of therapy. The mechanism of action of AChE inhibitors is to inhibite hydrolysis of acetylcholine at the neuromuscular junction prolonging the action of acetylcholine (Gomez et al., 2010).

Pyridostigmine bromide is preffered in most clinical situations because of its longer duration of action and fewer side effects (Shelton, 2002).

Both pyridostigmine bromide and neostigmine bromide inhibite the hydrolysis of ACh by directly competing with ACh for attachment to AChE. Adverse effects occur because muscarinic receptors located on the exocrine glands increase gastric acid secretion, salivation and lacrimation. Bradycardia can be seen due to excessive vegal activity. Side effects seen in people are similar in dogs ( Punga, 2008).

 **Conclusion**

Megaesophagus is common in dogs and less common in cats. Regurgitation is the most common clinical sign of megaesophagus at presentation. Diagnosis of megaesophagus is made radiographically, and the primary cause should be evaluated with appropriate diagnostic testing. Idiopathic megaesophagus is a diagnosis of exclusion. Management of megaesophagus is supportive unless an underlying cause is identified. The prognosis for megaesophagus depends on the presence of aspiration pneumonia and the underlying condition

**Limitations**

Measurement of ACh receptor antibody titer was not done due to unavailibility of facility in TTPHRC and as the treatment was on only one dog.

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**Biography**

I am Azizunnaher Akhy, daughter of Md. Ayes Uddin and Rashida Begum. I passed Secondary School Certificate Examination in 2011 (G.P.A-5) followed by Higher Secondary Certificate Examination in 2013 (G.P.A-5). Now I am an intern veterinarian under the Faculty of Veterinary Medicine in Chittagong Veterinary and Animal Sciences University, Bangladesh. In the future, I would like to work as a veterinary practitioner and do research on clinical animal diseases in Bangladesh.