

Case Report**Diagnosis and management of megaesophagus in dog: A case report**

Aparna Datta^{1*}, Mizanur Rahman¹, Mohammad Bayazid Bostami¹, Mir Md. Afzal Hossain¹, Abdul Mannan¹, Priunka Bhowmik² and Sushyam Biswas³

¹Teaching and Training Pet Hospital and Research Center, Chattogram Veterinary and Animal Sciences University, Chattogram, Bangladesh

²Department of Animal Science and Nutrition, Chattogram Veterinary and Animal Sciences University, Chattogram, Bangladesh

³Department of Medicine and Surgery, Chattogram Veterinary and Animal Sciences University, Chattogram, Bangladesh

ARTICLE INFO**ABSTRACT****Article history:**

Received: 11/09/2020

Accepted: 30/12/2020

Keywords:

Diagnosis, Management, Megaesophagus, Dog

***Corresponding author:**

Cell: +8801766006690

Email:

aparnadvm12@gmail.com

A 6 years old German shepherd male dog was presented to Teaching and Training Pet Hospital and Research Center (TTPHRC), Purbachal, Dhaka with a chief complaint of coughing and vomiting at every midnight for last 1 month. A contrast thoracic radiographic examination on esophagus was performed using barium sulfate suspension which revealed severe dilatation of esophagus. The dog was managed with only upright feeding position, for 20-30 min every post meals to avoid accumulation of food and response to these management was good. The dog's clinical signs were completely resolved within one month and follow-up radiographs were taken after one month of the initial consultation. In follow up examination, there was no evidence of the diverticulum of the esophagus. Only upright feeding position could be effective without any therapeutic management in acquired idiopathic megaesophagus and long-term management of idiopathic megaesophagus. Further controlled studies are needed to show a benefit of upright feeding position in dogs with idiopathic megaesophagus.

To cite this paper: A. Datta, M. Rahman, M. B. Bostami, M. M. A. Hossain, A. Mannan, P. Bhowmik and S. Biswas, 2020. *Diagnosis and management of megaesophagus in dog: A case report. Bangladesh Journal of Veterinary and Animal Sciences*, 8(2): 126-129.

1. INTRODUCTION

Megaesophagus is a generalized esophageal dilation resulting from aperistaltic esophagus, secondary to a neuromuscular disorder (Charles, 2015) characterized by reduced or absent of esophageal motility that results in a diffuse dilation of the esophagus (Washabau, 2013). It results in anorexia, halitosis, regurgitation, vomiting and aspiration pneumonia (Hopper et al., 2001; Charles, 2015). Depending on the etiology, megaesophagus is classified into primary megaesophagus, which is idiopathic, or secondary megaesophagus, which occurs in combination with other diseases including myasthenia gravis, hypoadrenocorticism, dysautonomia, polyradiculoneuritis, hypo-

thyroidism, polymyopathies and esophageal cancer (Amell et al. 2013; Johnson et al. 2007; Wray and Sparkes 2006). In maximum cases the prognosis is poor particularly when secondary aspiration pneumonia is present (Ettinger and Feldman, 2005). Megaesophagus can occur in both dogs and cats, but it is usually common in dogs. The genetically predisposed breeds are Great Danes, Irish setters, Newfoundland's, German Shepherds, Sharpei, and Labrador retrievers are (Etienne, 2014). Congenital Megaeso-phagus mainly occurs in young dogs inherited or secondary due to developmental abnormalities in oesophageal innervations or due to improper nerve development in the oesophagus (Bexfield et al., 2006). Acquired Megaesophagus mainly occurs in adult dogs due

to nerve damage. The most common sign of megaesophagus is regurgitation of food and water (Manning et al., 2016). Other clinical signs include weight loss, excessive salivation and gagging. If the neuromuscular disease is present, affected animal may be weak and wobbly, may have difficulty in swallowing and breathing and also may have coughing spells. Due to the aspiration of the regurgitated material in many patients developing aspiration pneumonia and it is a common complication of megaesophagus (Tams, 2003). The most reported method of diagnosis of esophageal diverticulum is the association of the complete history with the proper contrast thoracic radiographic examination, in which the esophageal dilation will be seen. The objective of this study is to diagnosis and the management of esophageal diverticula resulting from partial megaesophagus in a dog and monitoring the outcome of treatment.

2. MATERIALS AND METHODS

Case description

A 6 years old 28 kg German Shepherd male dog was presented to Teaching and Training Pet Hospital and Research Center (TTPHRC), Purbachal, Dhaka with a chief complaint of coughing and vomiting at every midnight for last 1 month. The patient was found quiet but alert and responsive. On clinical examination rectal temperature, heart rate and respiratory rate were found within normal limits.

Radiographic examination

After anamnesis and clinical examination, the suspicion was of megaesophagus, which was confirmed by lateral and ventrodorsal thoracic radiographs. A contrast thoracic radiographic examination on esophagus was performed using barium sulfate suspension which was administered about 120 ml by introducing a syringe into the side of the dog's mouth and then giving small amounts over 15 minutes for the dog to swallow before giving more. Routine radiographs lateral and ventro-dorsal view were taken immediately after completion and subsequent at 15-60 minutes intervals to confirm the diagnosis of megaesophagus.

Biochemical analysis

Blood Urea Nitrogen (BUN), creatinine, alanine aminotransferase (ALT), aspartate amino-

transferase (AST), alkaline phosphatase (ALP), glucose, bilirubin, total protein, albumin, globulin for biochemical and for serology Canine Parvo virus (CPV) were performed as complementary tests to roll out any relation with vital organ function (Liver, Kidney).

Treatment

The dog was managed with only upright feeding, for 20-30 min every post meals to avoid accumulation of food, response to these management was good. The information about clinical status, vomiting frequency of the animal was monitored by telephone contact, where information was always obtained that the patient was stable and feeding normally. One month after the initial consultation, the guardian returned with the patient to inform that the episodes of vomiting had ceased and that the dog was feeding normally. To reveal the presence of esophageal diverticulum the animal was referred to the radiographic examination. In this new examination, there was no evidence of the diverticulum of the esophagus.

3. RESULTS AND DISCUSSION

Megaesophagus is a functional disorder in which there is reduced peristalsis movement and diffuse dilation of the esophagus (Manning et al., 2016). Treatment is generally restricted to supportive care unless esophageal dysfunction resolves or a primary cause can be corrected. In the present study, the dog had acquired megaesophagus with idiopathic causes. In these case, when the radiograph was taken, the animal already presented the cranial diverticulum to the total megaesophagus (Figure 2, 3 and 4) and together with the history of postprandial vomiting since the 30 days of life at night.



Figure 1: First day visit of the patient at TTPHRC



Figure 2: Esophageal Diverticulum at plain radiographic examination (Lateral view)



Figure 3: Contrast radiographic examination using barium sulfate suspension (Right lateral view)

The biochemical tests were within normal range and there was no relation of vomiting with liver and kidney diseases (Table 1) and the serology for CPV was negative. The treatment protocol for idiopathic megaesophagus was supportive which includes providing food and water from elevated containers to allow the aid of gravity for swallowing. The instructions of conservative treatment reducing the chances of content impaction, sepsis and/or disruption of the diverticulum (Oliveira et al. 2004). Chae et al. (2019) study reported that, the dog had acquired megaesophagus after inappropriately overdose administration of vincristine, but in our study we did not observed like this cause.

Megaesophagus is known as a disease with poor prognosis, especially in cases with complicating with aspiration pneumonia (Manning et al., 2016) not supported our study because the prognosis of our study was good and there had no complication due to aspiration pneumonia. Recently, it has been reported that the placement of esophageal drainage tube resulted in successful management of regurgitation and aspiration pneumonia in the 4 dogs with idiopathic megaesophagus (McBrearty et al., 2011) which is conflict with our study because only conventional treatments including upright



Figure 4: Contrast radiographic examination using barium sulfate suspension (Left lateral view)



Figure 5: No esophageal diverticulum was noticed after one month on radiographic examination

feeding reduce the frequency of vomiting within one month. Quintavalla et al. (2017) study, they reported that the dogs with sildenafil 1 mg/kg, BID, for two weeks in combination with upright feeding position and this combination treatment increased weight gain and reduced regurgitation episodes but in our study no therapeutic management was required only upright feeding position reduce the frequency of vomiting. Although the dog was capable of eating with normal feeding position after four weeks without vomiting, and there was no dilatation in the esophagus after radiographic examination.

4. CONCLUSIONS

It can be concluded from our study that only upright feeding position was effective without any therapeutic management in acquired idiopathic megaesophagus to decrease the frequency vomiting and long-term management of idiopathic megaesophagus was achieved. Further controlled studies are needed to show a benefit of upright feeding position in dogs with idiopathic megaesophagus and ongoing vomiting.

Table 1: Analysis report of biochemical parameters

Parameters	Results	Reference value
Total protein (TP)	8.0 g/dl	5.2-8.8 g/dl
Albumin	2.8 g/dl	2.5-3.9 g/dl
Globulin	5.2 g/dl	2.3-5.3 g/dl
Bilirubin	0.2 mg/dl	0.1-0.4 mg/dl
Glucose	90 mg/dl	50-10 mg/dl
Alanine aminotransferase (ALT)	72.0 u/l	10-100 u/l
Aspartate aminotransferase (AST)	39.7 u/l	10-100 u/l
Alkaline phosphatase (ALP)	37.2 u/l	10-50 u/l
Serum creatinine	0.8 mg/dl	0.6-1.5 mg/dl
Blood urea nitrogen (BUN)	28.29 mg/dl	14-36 mg/dl

ACKNOWLEDGEMENTS

- Director, Teaching and Training Pet Hospital and Research Center (TTPHRC).
- Authority and supporting staffs, Teaching and Training Pet Hospital and Research Center (TTPHRC).
- Owner of the dog

REFERNCES

- Arnell, K., Hill, S., Hart, J. and Richter, K.. 2013. Persistent regurgitation in four dogs with caudal esophageal neoplasia. *Journal of the American Animal Hospital Association*, 49(1): 58-63.
- Bexfield, N. H., Watson, P. J. and Herrtage, M. E. 2006. Esophageal dysmotility in young dogs. *Journal of Veterinary Internal Medicine*, 20(6): 1314-1318.
- Chae, M. J., Kim, T. W., Park, H. M. and Kang, M. H., 2018. Acquired Megaesophagus Associated with Accidental Overdose of Vincristine in a Dog. *Pakistan Veterinary Journal*, 39(2): 320-322.
- Charles, H. V. 2015. In: small animal critical care medicine (Silverstein D and Hopper K, eds), 2nd ed., W.B. Saunders, Philadelphia, USA, 442-447 pp.
- de Oliveira, E. C., Gaiga, L. H., Colomé, L. M., Stedile, R., da Silva Mello, F. P., de Mesquita Martins, J. and Freire, C. D. 2004. Persistência do arcoaórticodireitoem um cão-Relato de caso. *Revista da FZVA*, 11(1):174-180
- Ettinger, S. J. and Feldman, E. C. 2005. Textbook of Veterinary internal medicine. Diseases of dogs and cats, 6th ed. WB Saunders Company:1298-1307.
- Hopper, K., Beck, C. and Slocombe, R. F. 2001. Megaesophagus in adult dogs secondary to Australian tiger snake envenomation. *Australian Veterinary Journal*, 79(10): 672-675.
- Johnson, B. M., Mears, E. A. and DeNovo, R. C. 2009. *Kirk's Current Veterinary Therapy. Canine megaesophagus*, 14th ed., Saunders Elsevier, St Louis, 486-492 pp.
- Manning, K., Birkenheuer, A. J., Briley, J., Montgomery, S. A., Harris, J., Vanone, S. L. and Gookin, J. L. 2016. Intermittent At-Home Suctioning of Esophageal Content for Prevention of Recurrent Aspiration Pneumonia in 4 Dogs with Megaesophagus. *Journal of Veterinary Internal Medicine*, 30(5): 1715-1719.
- McBrearty, A. R., Ramsey, I. K., Courcier, E. A., Mellor, D. J. and Bell, R. 2011. Clinical factors associated wideath before discharge and overall survival time in dogs with generalized megaesophagus. *Journal of the American Veterinary Medical Association*, 238(12): 1622-1628.
- Niessen, S. J. M., Eastwood, J., Smyth, J. B. A. and Cherubini, G. B. 2007. Five cases of canine dysautonomia in England (2004 to 2006). *Journal of Small Animal Practice*, 48(6): 346-352.
- Quintavalla, F., Menozzi, A., Pozzoli, C., Poli, E., Donati, P., Wyler, D. K., Serventi, P. and Bertini, S. 2017. Sildenafil improves clinical signs and radiographic features in dogs with congenital idiopathic megaesophagus: a randomised controlled trial. *Veterinary Record*:404.
- Washabau, R. J. 2003. Gastrointestinal motility disorders and gastrointestinal prokinetic therapy. *The Veterinary Clinics of North America. Small Animal Practice*, 33(5): 1007.
- Wray, J. D. and Sparkes, A. H. 2006. Use of radiographic measurements in distinguishing myasthenia gravis from other causes of canine megaesophagus. *Journal of Small Animal Practice*, 47(5): 256-263.