

## **Megaesophagus due to persistence of the Aortic Crash**

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### **Abstract**

Within cardiac pathologies a large percentage are of congenital origin in canines, genetics influences, idiopathic megaesophago of unknown, secondary or acquired cause, the megaesophagus presents an abnormal dilatation of the walls, localized or diffuse and other more causes. Megaesophagus presents in a Border Collie canine due to persistent aortic arch. The one-year-old patient had clinical signs compatible with megaesophagus pro-persistence of the aortic arch and died at the time of the physical examination. At the Animal Pathology Research Center, necropsy was carried out with which the Lesions secondary to the presence of the megaesophagus due to persistent aortic arch, and solid food content, an element that contributed to the death of the pet would be negligence with which the owner of the dog was acted on.

### **Megaesophagus, Persistent aortic arch**

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## 1. Introduction

Among the cardiac pathologies a large percentage are of congenital origin in canines, it is spoken of this disease in which genetics influences, the megaesophagus of unknown cause is called Idiopathic, it can be congenital and manifest in the puppies or affect the adults, the congenital is hereditary in the hard-haired fox terrier and miniature shnauzer, they have racial predisposition the Great Dane, German Shepherd, Labrador retrievers, Shar Pei Chinese Newfoulands and Irish Setter. In the congenital there would be an alteration in the vagal afferent innervation of the esophagus. (hereditary heart disease), environmental factors, Infectious, toxicological, nutritional, etc.

A secondary or acquired megaesophagus is also defined which is caused by many neuromuscular diseases, neuropathies and myopathies. The megaesophagus is characterized by an abnormal dilatation of the localized or diffuse permanent walls of the esophagus with decrease or absence of its function or motor peristalsis of the organ. Several clinical forms of the disease have been reported and described in dogs; an idiopathic congenital form with manifestation of clinical signs before or shortly after weaning; another idiopathic acquired of appearance in the adult age and a secondary form acquired product of a previous primary condition.

Primary causes include segmental extraluminal esophageal obstruction by compression of the esophagus between the abnormal vessels and the base of the heart. The megaesophagus is classified as a partial and total megaesophagus, according to the extent of dilatation in the esophagus. The causes of the partial megaesophagus respond to intrinsic stenosis (scarring) and extrinsic causes such as compressions due to neoplasms of neighboring organs and of vascular origin, for example persistence of the right aortic arch (PAAD).

The total megaesophagus is classified as idiopathic congenital, the etiology of which is paresis or paralysis of the esophagus, and the total megaesophagus acquired, in these cases are unknown. In the presence of this pathology the animal can not swallow in a normal way which is placing the dish on the floor, as the food remains in the esophagus or accumulates in the dilation formed in the esophagus, therefore the recipient should be placed your meal elevated at an angle between the dog's neck and the floor from 45 to 90°.

This is achieved by placing the plate on a chair or table depending on the size of the pet Persistence of the arch (aortic arch). The aorta usually comes from one of the left aortic arches, remaining together with the ductus arteriosus on the same side (left) of the trachea and esophagus. Malformations of the megaesophagus are frequently observed during weaning, which is when the solid or semisolid feeding starts, the dilation increases in size while the time passes, which can occupy a large part of the cranial thoracic cavity.

Physical examination shows malnutrition, delayed development, cachexia. The initial diagnosis based on observation of the physical state, age and size of the dog, should be supported by taking a simple chest plate and contrast, thus confirming the stenosis and thus eliminate the concomitance of congenital generalized esophageal hypomotility.

The esophagus is a tube that connects the throat with the stomach, when food reaches the esophagus by a neurological reflex, the contraction and sequential relaxation of the musculature takes place, leading the food to the stomach for digestion.

When the esophagus loses its muscle tone completely and dilates, it does not coordinate properly the movements that cause the food to progress towards the stomach, which is why the food tends to slide in the opposite direction to normal within the esophagus according to severity, and is regurgitated through the snout without having been digested, for not having reached the stomach.

Abnormalities of the vascular ring: - These are bands of tissue that compress directly into the esophagus. These bands are basically remains of the fetal blood vessels that normally disappear before birth. In this case, the treatment is surgical (this band is eliminated) obtaining an improvement.

The acquired causes are those that secondarily lead to a megaesophagus are: Myasthenia gravis: - It is considered the most common cause of megaesophagus in dogs.

In this case, the neuro-muscular union is destroyed by the immune system and the muscle signals are not sent by the nervous system to coordinate the esophageal muscle contractions, which is why it does not contract, which causes a secondary megaesophagus.

- Disseminated lupus erythematosus
- Degenerative neuropathies
- Idiopathic
- Esophageal stenosis etc.

## 2. The case presented is:

A male dog of the Border Collie race of one year of age is presented for consultation in whose clinical history presents regurgitation, dyspnea, anorexia, lethargy, posture of pain, pty, rejection of food depression and fatigue. It has a complete vaccination and deworming calendar, food is based on croquette, tap water, vitamin supplements, normal urination and excretion.

Upon the physical examination, he dies and is sent to the Animal Patology Research Center to perform the necropsy.

### 2.1 Macroscopic findings

External inspection: good body condition, ocular and oral mucosa with severe pallor, presence of discrete bacterial plaque in teeth.

- Lymph nodes: slightly enlarged, discrete multifocal petechiae.
- Spleen: moderate diffuse congestion, areas with moderate diffuse thickening of the capsule.
- Liver: severe congestion.
- Encephalon: discrete congestion.
- Lung: discrete congestion and diffuse moderate emphysema.
- bronchi: presence of croquette-based food in the light.
- Esophagus: severe dilatation, (megaesophagus), due to the persistence of the arch, from the cranial portion to the middle portion, the presence of abundant, lightly compressed, croquette-based food. Thickened mucosa with diffuse moderate congestion.

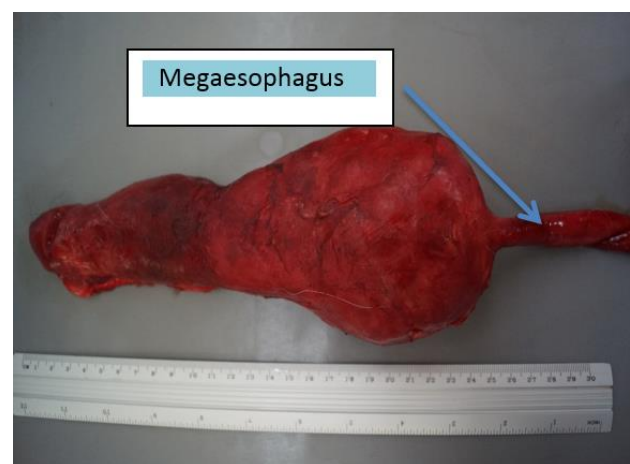
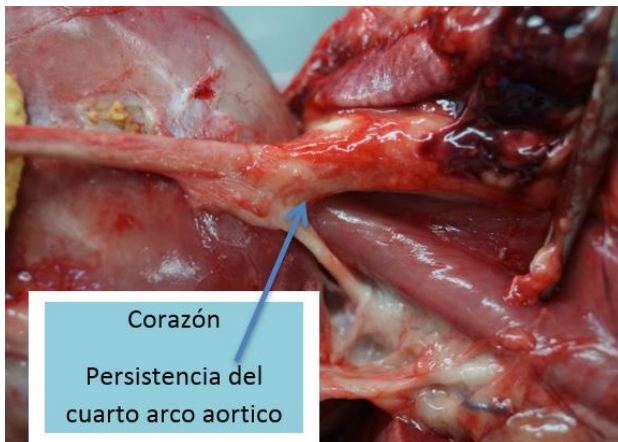


Figure 1

**Figure 2****Figure 3**

**Stomach:** Presence of croquette-based food, moderate diffuse congestion and moderate thickening of the walls.

**Intestine:** catarrhal yellowish content in first portion and greenish in colon, moderate thickening of the walls, moderate diffuse congestion in the mucosa, presence of cestode parasites in the middle part of the jejunum.

**Heart:** moderate congestion, moderate dilatation of the right ventricle. Persistent aortic arch with the consequent constriction of the esophagus.

**Kidneys:** discrete congestion in the marrow, whitish areas of radiated appearance in the cortex, detachment of the parenchyma when the capsule is removed.

### 3.-Discussion

The canine was treated with negligence on the part of the owner, these cases attended to early, are subjected to a surgical process and increases their life expectancy in 85 to 92% of the cases of pets that present it.

### 4.-Conclusions

The megaesophagus is not always fatal, everything depends on the time it is diagnosed and treated, in addition to taking adequate measures for feeding and handling the pet.

The persistence of the aortic arch has several origins among which are hereditary, by alteration of several genes (polygenic recessive). Veterinary medicine professionals should be alert before breeds predisposed to this disease, and as far as possible not to allow breeding among siblings, or parents and children mainly in breeding sites of these breeds the offspring will present problems after weaning. In this case I contribute the negligence of the owner, because his attention was very late, for which it was not possible to save him.

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