

<b>THE GASTRIC DILATATION AND TORSION IN DOGS, DIAGNOSIS AND TREATMENT</b>			<b>Healthcare</b>
		<b>Keywords:</b> Gastric dilatation, gastric volvulus, dog, abdominal distension.	
<b>Elta Hasa</b>	Veterinary Hospital, Kombinat, Tirana, Albania.		
<b>Erinda Lika</b>	Agricultural University of Tirana, Faculty of Veterinary Medicine. Department of Clinical Subjects, Tirana, Albania.		
<b>Paskal Gjino</b>	Agricultural University of Tirana, Faculty of Veterinary Medicine. Department of Clinical Subjects, Tirana, Albania.		
<b>Abstract</b>			
<p>Enlargement of the stomach associated with rotation on its mesenteric axis is referred to gastric dilatation-volvulus. Generally gastric dilatation volvulus is an acute condition. The gastric enlargement is thought to be associated with a functional or mechanical gastric outflow obstruction. The initiating cause is unknown: however the stomach dilates, normal physiologic means of removing air are hindered because the esophageal and pyloric portals are obstructed. This study was performed in Petlife Hospital, Kombinat, Tiranë during the period 2013-2014. During this period we have examined 30 cases of dogs with gastric signs like abdominal distention, vomiting, salivation anorexia etc. 20 of them are diagnosed with gastric dilatation and in 8 cases was observed also volvulus. 18 of these dogs were large , deep chested breeds. The light cases of stomach obstruction have been treated by medical way and the problematic life-threatening in the surgical way. The most successful treatment of the GD and GDV pathologies in dogs is the surgical treatment combined with medical treatment.</p>			

### Introduction

Dilatation and twisting of the stomach is generally acute pathology. Stomach enlargement is thought to be accompanied by blockage of the way the stomach because of the exits food. The initial joke is unclear: the stomach enlarges because the airway is blocked due to pilory and esophageal obstruction. Thus the stomach enlarges because the gas and fluid accumulate inside the lumen. Gases are formed due to aerophagy as well as due to bacterial fermentation or by carbohydrates. The GDV (gastric dilatation) cause is unknown but it is thought that the motility of the dog after eating meals or drinking large amounts of water contribute to the development of this pathology [Glickman LT, Glickman NW, Schellenberg DB]. According to some studies it is not thought that the cause of this pathology is related to food composition. Other contributing factors are thought to be anatomical predisposition, ileus, trauma, gastric peristalsis adjustments, vomiting and stress. Some authors [Buber T, SARagusty J, Ranen E et al.], Suggest performing gastropexy to prevent GD after performing splenectomy due to lack of gastrosplenic ligament. Generally in GDV the stomach rotates clockwise. The rotation can be made in the angle of 90 to 360 degrees but is usually 220 to 270 degrees. The duodenum and pylorus move to the left of the median line and shift between the esophagus and stomach. The spleen is usually moved to the right of the ventral side of the abdomen. Pressure of the caudal and portal vein by enlarged and swollen stomachs leads to reduced venous flow and cardiac output return. Obstructive shock and insufficient tissue perfusion affect many organs including the kidneys, heart, pancreas, stomach and small intestines.

## Material and Methods

This study was performed at the Pet life Hospital Veterinary Hospital, Kombinat, Tirana during the period 2013-2014. During this period 30 cases of dogs with gastric enlargement were examined such as abdominal flatulence, vomiting, salivation, anorexia. 20 of them were diagnosed with GD gastric enlargement and in 8 cases twitching was found. 18 dogs diagnosed with GDV were of large breeds with deep chests. The most common breeds were German Shepherd, Labrador Retriever, Collie, Samoyed, Alaskan Malamute, Boxer and Berger.

<i>Dogs breed</i>	<i>The frequency (No of dogs)</i>
German Shepherd	13
Labrador Retriever	4
Collie	2
Samoyed	3
Alaskan Malamute	1
Boxer	5
Berger	2

**Tab.No.1. The frequency of dogs with GD and GDV according to breeds**

In most of the cases diagnosed, the dogs manifested pain, arched back, and most of them were found by the owners, hypersalivated and in lying position. The diagnosis was based on anamnesis, clinical examinations, and radiography at various latero-lateral and ventrodorsally positions. Radiography differentiated GD gastric dilatation from GDV gastric volvulus associated with gastric dilatation. In these cases was applied lateral positioning on the right side as well as the dorsoventral position.



**Fig.No. 1. One case of gastric dilatation, GD**

In cases where gastric blockage was observed and the diagnosis was suspicious

gastroscopy technique was used which helped to make an accurate diagnosis. In cases of gastric twisting, the gastroscope tube did not pass through the stomach into the stomach. In most cases, the gastric probe is a very important adjunct to gastric resection during surgical intervention. In some cases the diagnosis was also accompanied by forms of general intravascular coagulation and thrombocytopenia.

## Results and Discussions

Simple cases of obstructions have been treated medically while severe and life-threatening forms of animal have been treated surgically. Some acute cases of GD have been treated medically by fluid therapy with 7% hypertonic saline solution, with anti-shock drugs such as steroids and lidocaine, antibiotics, bicarbonate supplements and heparin against general intravascular DIC coagulation. We had 7 cases treated medically and 3 of them showed gastric dilatation relapses, and one case of gastric enlargement was accompanied by GDV twisting. Surgical treatment is performed once the general condition of the animal has stabilized. In some cases of acute gastric enlargement, gastrocentesis has also been performed to stabilize the respiratory tract.



**Fig. No. 2. Gastrocentesis of one case of gastric dilatation in one dog of Berger breed**

Stomach twisting affects the bloodstream in the stomach by blocking it and causing gastric necrosis. Normally, when the abdominal cavity is opened, the pylorus appears to be located on the right side and the large omentum coming from the large gastric bump and covering the intestine. The short gastric arteries derive from the spleen arteries and supply the blood to the large forearm. Rupture of the short gastric arteries in dogs with GDV gastric ulceration and enlargement is a very common process in the case of a GDV and can lead to hemorrhage and stroke followed by gastric parathyroid necrosis. [Beck, JJ; Staatz, AJ; Pelsue, DH; Kudnig, ST; MacPhail, CM; Seim HB; and Monnet, E.]. The dogs that underwent surgical intervention were initially positioned in a ventrodorsally position and the operative field was prepared to perform abdominal cavity opening at the median line level Linea alba (paraumbilical laparotomy)

The aims of the surgical intervention consisted of:

1. Gastric and pneumonia check for parts that have suffered a stroke and were necrotized for removal.

2. The gastric emptying and its normal repositioning.
3. Fixing the stomach with the abdominal wall (Gastropexy) so that the pathology does not reappear.

5 cases of GD were treated medically including acute gastric function to perform the procedure. 7 cases of GDV were treated only surgically and only one case of GDV was medically treated. 10 dogs with GD and GDV were treated medically and surgically which initially consisted of stabilizing the general condition with fluid therapy and therapeutic measures against general intravascular shock and coagulation as well as immediate gastrocentesis 16 cases with GD and GDV were surgically treated.

	<b>Surgical treatment</b>	<b>Medical treatment</b>	<b>Surgical and medical treatment</b>
<b>GD</b>	9	5	6
<b>GDV</b>	7	1	7
<b>All</b>	16	7	13

**Tab.No.2. The treatment of the cases with GDV and GD**

	<b>Surgical treatment</b>		<b>Medical treatment</b>		<b>Medical and surgical treatment</b>	
	<b>Successful</b>	<b>Unsuccessful</b>	<b>Successful</b>	<b>Unsuccessful</b>	<b>Successful</b>	<b>Unsuccessful</b>
<b>GD</b>	9	-	1	4	6	-
<b>GDV</b>	5	2	-	2	7	-
<b>All</b>	14	2	1	6	13	-

**Tab.No.3. The results of medical and surgical treatment of the dogs with GD and GDV**

As explained in Table No.3 the most successful treatment of GD and GDV in dogs is surgical treatment combined with drug treatment. All dogs treated surgically have been treated with antibiotics intramuscularly and generally broad-spectrum endovenous. All cases that were surgically treated also had gastropexy to prevent the recurrence of the pathology. Postoperative treatment consisted of fluid therapy, antibiotic, analgesic, antivomitiv and continuous ECG

### **Conclusions**

1. Acute GDV constitutes a life-threatening pathology of the animal.
2. Partial and chronic GDV can occur in dogs and are usually of progressive forms and are not life threatening. They can be accompanied by vomiting, anorexia and weight loss. These dogs may have chronic or intermittent signs that normally appear between episodes.
3. The best diagnostic method to differentiate GD gastric enlargement from GDV gastric enlargement and twisting is endoscopy. ∞

4. GD and GDV are the most frequent in large breed dogs and in dogs with deep breasts.
5. The most successful surgical treatment of gastric enlargement and gastric enlargement associated with twisting is surgical treatment combined with medical treatment.

## References

1. Baltzer, W.I., McMichael, M.A., Ruaux, C.G., et al: Measurement of urinary 11-hydrothromboxaneB2 excretions in dogs with gastric dilatation volvulus. *Am J Vet Res* 67:78, 2006.
2. Beck, J.J., Staatz, A.J., Pelsue, D.H., Kudnig, S.T., MacPhail, C.M., Seim, H.B., and Monnet, E. Risk factors associated with short-term outcome and development of perioperative complications in dogs undergoing surgery because of gastric dilatation-volvulus: 166 cases (1992-2003). *Journal of the American Veterinary Medical Association*, 2006; 229(12): 1934-1939.
3. Buber, T., Saragusty, J., Ranen, E., et al. Evaluation of lidocaine treatment and risk of death associated with gastric dilatation and volvulus in dogs: *J Am Vet Med Assoc* 230:1334, 2007.
4. Ellison, G.W. Gastric dilatation volvulus: An update. Presented at the Western Veterinary Conference, Las Vegas NV, 2004.
5. Fosum, T.W. "Syndrome Dilatacion Torsion de Estomago", *Articulo de revision. Rev. AVEPA* 23(3): 139-144, 2003.
6. Glickman, L.T., Glickman, N.W., Schellenberg, D.B., et al. Non-dietary risk factors for gastric dilatation-volvulus in large and giant breed dogs. *J Am Vet Med Assoc* 2000; 217(10):1492-1499
7. Grooters, A. M., Sherding, R. G., and Johnson, S. E. (1994) Endoscopy case of the month: Chronic vomiting and weight loss in a dog. *Vety Medicine* 89: 3, 196-199.
8. Leicondre, P., Chevalier, M. (1995): "Les gastritis chroniques chez le chien. Aspects endoscopiques et histologiques et classification des gastritis chroniques du chien". *Prt.Méd.Chir.AnimComp.*, 30: 131-139
9. Magne, M. L., Twedt, D. C. (1999): "Diseases of the stomach". In Tams, T.R. (ed.): *Handbook of small animal gastroenterology*. Ed. W.B. Saunders Company, Philadelphia: 217-244.
10. Martz, M. E: *dilatacion-volvuloGastrica en Morgan, R.V. Bright, R.M,Swartout: clinica de pequenos animals*. Elsevier, Seccion. Sistema Digestivo. Cuartaedicion 2004, pp 343-353.
11. Misdorp, W.: *Veterinary Cancer Epidemiology*. *Vet. Q*, 18, 1, 32-36, Mar 1996
12. Monnett, E. Gastric dilatation volvulus. Presented at the Western Veterinary Conference, Las Vegas NV, 2002.
13. Theyse, L.F.H., van de Brom W.E, van Sluijs, F.J. Small size food particles and age as risk factors for gastric dilatation volvulus in Great Danes. *Vet Rec* 1998; 48-50.
14. Willard, M.D. (1995): "Diseases of the stomach". In Ettinger, S.J. & Feldman, E.C. (eds.): *Textbook of veterinary internal medicine. Diseases of the dog and cat*. Ed. W.B. Saunders Company (4<sup>a</sup> ed.), Philadelphia: 1143-1168.