

**SPLenic TORSION IN 6 YEAR OLD GERMAN BOXER AS A CAUSE OF ATIPICAL ACUTE ABDOMEN - SPLENECTOMY CLINICAL CASE**

**Zlatko Dimeski\*<sup>1</sup>, Blagica Trajanoska<sup>1</sup>, Saso Stojanovski<sup>2</sup>**

<sup>1</sup>*Veterinary clinic "Makseraja" - 7500, Prilep- North Macedonia*

<sup>2</sup>*University "St. Kliment Ohridski", Faculty of Veterinary- 7000, Bitola- North Macedonia*

*\*Corresponding author: Zlatko Dimeski; E-mail: zlatko\_raja@yahoo.com*

**Abstract**

The spleen is a soft, spongy, dark red organ that dangles off the stomach, connected by a thin veil of tissue and blood vessels. This organ is a component of the immune system and in some ways is just a very fancy lymph node. Like lymph nodes, the spleen is responsible for clearing infectious organisms from the body and it also participates in recycling senescent blood cells.

In our clinical case a six year German Boxer was admitted to the hospital with symptoms of acute abdomen, lethargy, increased abdominal volume, discomfort, restlessness, and with a history of collapse three days prior to admission. Clinical examination revealed lethargy, pale mucous membranes, reduced capillary refill time, moderate dehydration, and hyperthermia. Abdominal palpation revealed increased abdominal volume in the epigastric and mesogastric areas. CBC and serum biochemistry profile revealed hypochromic normocytic anemia, leukocytosis with absolute neutrophilia and eosinopenia, mild hypoalbuminemia, and thrombocytopenia.

An exploratory laparotomy allowed direct observation of the spleen, which exhibited an increased volume, a blackened, cold, hyperemic appearance, and a complete torsion of the splenic vascular pedicle. Total splenectomy rather than undoing the pedicle twist was it was decided to do. Healing of the incisional wound was satisfactory, with formation of epithelial tissue throughout its extension. One month after the surgery the hematological parameters were within normal ranges. At the same time he was given a nutritious diet plan.

**Key words:** *German Boxer, spleen, laparotomy;*

**Introduction**

Splenic torsion does not have a clear etiology, there are reports that relate it to abnormalities congenital or traumatic rupture of ligaments gastro-splenic or splenocholic. It may occur aftergastric dilation, with or without torsion, and reposition in stomach, however, with the spleen remaining in an altered position. [1] Splenic torsion is defined like the rotation of the spleen in its vascular pedicle, in the absence of another concomitant illness. Your incidence is less than 1% in small animals [2]. Most of the time, it is related to the syndrome gastric valve dilation (SDVG), when it is classified each as a secondary splenic torsion. [2, 3, 4]

In our case is described diagnosis and treatment of acute abdomen in 6 year old German Boxer with symptoms of acute abdomen, lethargy, increased abdominal volume, discomfort, restlessness, and with a history of collapse three days prior to admission. Clinical examination revealed lethargy, pale mucous membranes, reduced capillary refill time, moderate dehydration, and hyperthermia. Abdominal palpation revealed increased abdominal volume in the epigastric and mesogastric areas. CBC and serum biochemistry profile revealed hypochromic normocytic anemia, leukocytosis with absolute neutrophilia and eosinopenia, mild hypoalbuminemia, and thrombocytopenia.

### Material and Methods

Complete blood count was performed in blood samples in EDTA tubes using an automatic blood analyzer calibrated specifically for canine blood. Revealed hypochromic normocytic anemia, leukocytosis due to absolute trophy and eosinopenia, mild hypoalbumineand thrombocytopenia (5). Faced with anemia and thrombocytopenia, the polymerase reaction was requested in chair (PCR) for babesiosis and canine ehrlichiosis. Ultra sound evaluation revealed marked splenomegaly. The results of the tests carried out the primary suspect is primary splenic torsion. We start with a fluid therapy with lactated ringer was instituted and antibiotic therapy with Amoxicilin (Biocilin L.A®) 1 ml per 10 kg body weight. Cardiac function assessment was performed and did not show the presence of arrhythmias. For sedation we use Xylazine (0.5 ml/20 kg body weight IM) and for anesthesia Ketamine (6 to 10 mg/kg IM). The surgical procedure started with the laparotomy in the pre-retro-umbilical ventral midline (Fig.1), followed by visual and manual exploration of the cavity abdominal and spleen exteriorization. After exteriorizingtion, the stomach was verified in size, color and normal position, a marked increase in splenic volumenic and complete torsion of the splenic vascular pedicle. It was also noted that the mesentery presented its elfreactive and the spleen with friable appearance. Splenoectomy we started with ligating all the hilar vessels clouse to the body of the spleen (Fig.2). Identify and dissect each hilar vessel clouse to the spleen. We used a curved mosquito forceps (Fig.3). Each vessel was ligated with double ligated using 3.0 monofilament absorbable suture and the vessel was transected between the two ligatures leaving a small vessel stump on the abdominal side to prevent suture slippage. Large vessels was triple ligated leaving a double ligature on the abodominal side. After removing the spleen, we inspect the splenic ligament to ensure that none of the transected vessels are bleeding. We do and Gastropexy because we removed large splenic mass and we have a splenic trosion too. After this maneuver, the cavity abdominal was washed with heated chloride solutionsterile 0.9% sodium. Continuous act was verified the impairment and viability of the stomach and the pancreas. The abdominal cavity was sutured first and the patient was monitored until complete stabilization of physiological parameters (Fig.4&5). The dog was given antibiotic Amoxicilin 10mg/kg IM every 12h, Ranitidine hydrochloride 2.2mg/kg IM every 6h, Tramadol hydrochloride 4mg/kg every 8h all these medicaments was givven 7 days after surgery orally with tablets. PCR results for babesiosis and ehrlichia was negative. The animal returned to the hospital 7 days after surgical procedure. The wound presented a healing process, with formation of epithelial tissue in all its extension and the patient in great condition general. After 30 days of surgery, a new return was performed and a new hematological evaluation was requested, revealing all values within normal limits for the species. The animal was discharged and nutritional recommendations were prescribed by the nutrition diet plan.

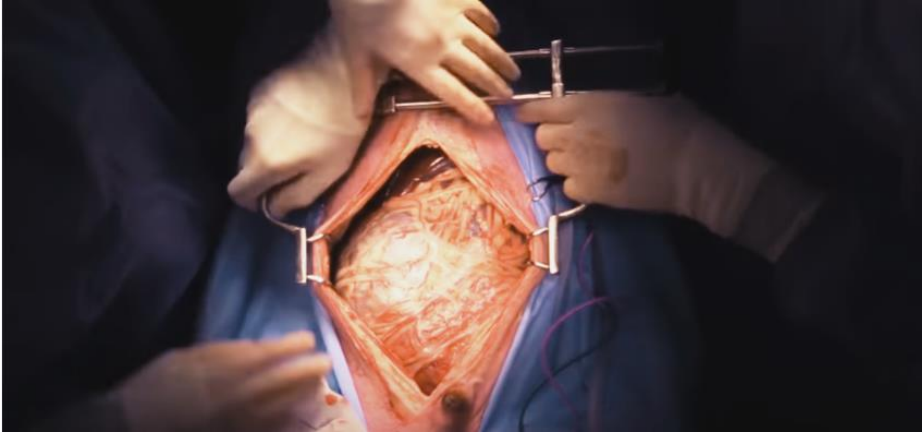


Fig.1 Laparotomy in the pre-retro-umbilical ventral midline



Fig.2 Ligating all the hilar vessels close to the body of the spleen

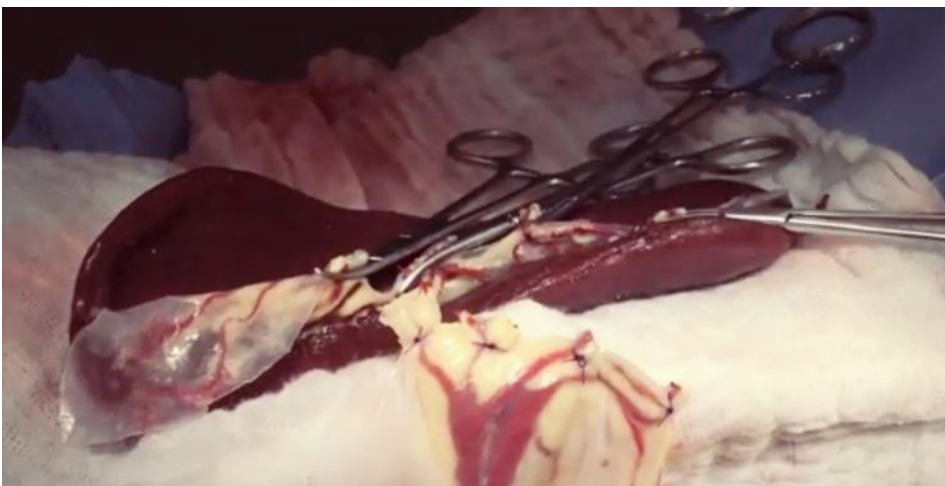


Fig.3 Using curved mosquito forceps for hemostasis and ligating with 3.0 monofilament absorbable suture.

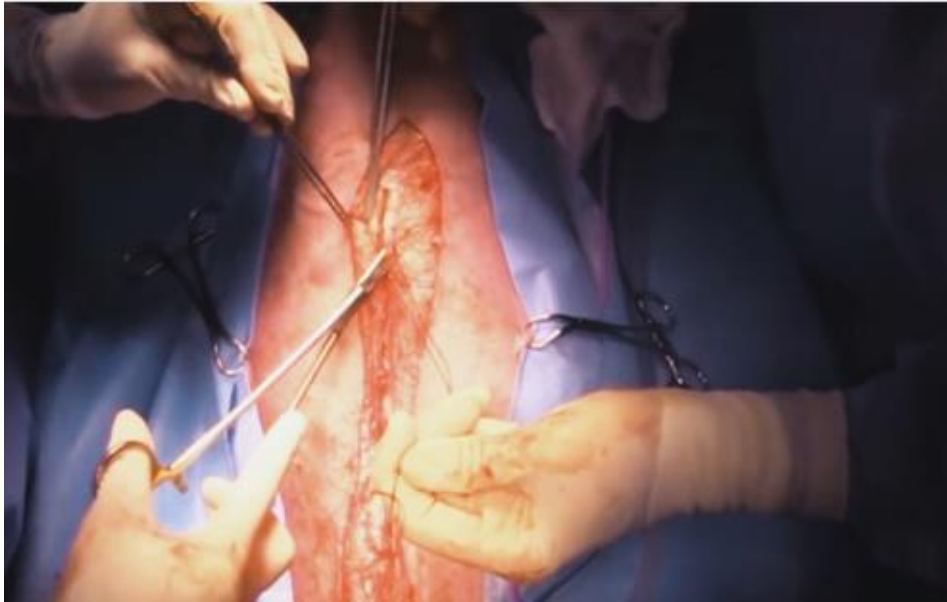


Fig.4 Suturing abdominal cavity



Fig.5 Suturing subcutaneous tissue and the skin

### Results and Discussion

The haematological and biochemical results after the first clinical examination are given in the Table 1 and 2.

*Table 1. Hematological finding in the 6 years German Boxer, on the day of receiving in the clinic*

<i>Parametar</i>	<i>Result</i>	<i>Ref.values</i>
WBC	22.99 10 <sup>9</sup> /l	6.0-17.0
Lymph.	7.71 10 <sup>9</sup> /l	1.0-4.80
MON	1.70 10 <sup>9</sup> /l	0.20-1.50
Gran.	8.59 10 <sup>9</sup> /l	4.0-12.6
Lymph.%	51.9 + %	3.0-12.0
Mon. %	4.4 + %	2.0-4.0
Gran. %	53.7 - %	62.0-87.0
RBC	4.01 10 <sup>12</sup> /l	5.50-8.50
HGB	94 g/l	120-180
HCT	30.49 %	37.0-55.0
MCV	69 fl	60-77
MCH	20.0 pg	19.5-24.5
MCHC	288 g/l	310-340
RDWc	15.5 %	/
PLT	180 10 <sup>9</sup> /l	200-500
MPV	7.4 fl	3.9-11.1
PCT	0.01 %	/

From the table 1 we conclude that the dog was severely affected. Anemia in this case was probably the result of sequestration of red blood cells to the rotated spleen. The inflammatory white blood cell possibly represented the inflammation associated with poorly perfused spleen parenchyma, peritonitis located secondary to torsion, thrombocytopenia is probably consequence of disseminated intravascular coagulation, which may be secondary to spleen torsion.

**Table 2. Hematological analysis of German Boxer, after one month of the surgery and the first hematological analysis**

<i>Parametar</i>	<i>Result</i>	<i>Ref.values</i>
WBC	10.82 10 <sup>9</sup> /l	6.0-17.0
Lymph.	3.80 10 <sup>9</sup> /l	1.0-4.80
MON	0.79 10 <sup>9</sup> /l	0.20-1.50
Gran.	4.7 10 <sup>9</sup> /l	4.0-12.6
Lymph.%	5.6 + %	3.0-12.0
Mon. %	2.3 + %	2.0-4.0
Gran. %	68.4 %	62.0-87.0
RBC	6.05 10 <sup>12</sup> /l	5.50-8.50
HGB	130 g/l	120-180
HCT	40.5 %	37.0-55.0
MCV	70 fl	60-77
MCH	23.5 pg	19.5-24.5
MCHC	320 g/l	310-340
RDWc	0.22 %	/
PLT	260 10 <sup>9</sup> /l	200-500
MPV	8.2 fl	3.9-11.1
PCT	0.22 %	/

From the table 2 we conclude that the dog is in better condition after surgery and the treatment also and with proper nutritional diet plan. The red blood count is in normal values, red blood cells are increased also and hematocrit, white blood cells are also in normal values.

### Conclusion

In our case report, we have concluded that the surgery with laparotomy allowed direct observation of the spleen, which exhibited an increased volume, a blackened, cold, hyperemic appearance, and a complete torsion of the splenic vascular pedicle. Total splenectomy rather than undoing the pedicle twist was it was decided to do. Healing of the incisional wound was satisfactory, with formation of epithelial tissue throughout its extension. One month after the surgery the hematological parameters were within normal ranges.

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