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INTRA-ABDOMINAL LIPOMA IN DOG (CASE REPORT)

LIPOMA INTRA-ABDOMINAL EM CÃO (RELATO DE CASO)

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ABSTRATO

O lipoma é uma neoplasia mesenquimal benigna de adipócitos com grande frequência nas formas subcutânea ou dérmica e com maior ocorrência ligada à espécie canina. Caracterizada por apresentar uma única massa arredondada, bem circunscrita, de crescimento lento. Quando descrita intratorácica e intra-abdominal, há sinais clínicos associados à compressão de órgãos nas cavidades; o tratamento mais adequado é a excisão cirúrgica, sem a necessidade de quimioterapia pós-operatória. E apesar de apresentar baixa morbidade, o bem-estar animal pode ser comprometido devido ao grande crescimento e ocorrência de úlceras, com quadros de dor e desconforto associados. Durante atendimento no Hospital Universitário Veterinário da Universidade Estadual de Londrina, foi atendida uma cadela beagle de 11 anos, apresentando uma massa abdominal com aumento progressivo há dois anos. Ao exame físico, o animal estava ofegante, mas com os demais parâmetros dentro da normalidade. O exame radiográfico revelou a presença de uma estrutura que deslocou os órgãos intra-abdominais cranialmente, aparentando ser tecido adiposo e com algumas áreas mais radiopacas. Os exames laboratoriais, bioquímicos e de sangue realizados no pré-operatório estavam dentro dos valores de referência da espécie. A confirmação do diagnóstico baseou-se nos exames físico, laboratorial e radiográfico, e após os resultados foi realizada uma celiotomia exploratória para posterior biópsia excisional e avaliação histopatológica. O tratamento cirúrgico foi realizado com remoção da área afetada. Foi prescrito tratamento pós-cirúrgico com cefalexina, cloridrato de tramadol, meloxicam e cloridrato de ranitidina. Também foi aconselhado o uso do colar elizabetano em tempo integral e a limpeza da ferida operatória com solução fisiológica e wertiolato. O tratamento foi eficaz e o animal teve excelente recuperação, sem sinais de recidiva.

Palavras-chave: Beagle, Cirurgia, Neoplasia, Tumores Cavitários.

ABSTRACT

Lipoma is a benign mesenchymal neoplasm of adipocytes, with great frequency in subcutaneous or dermal forms and with greater occurrence linked to the canine species.

Characterized by presenting a single, rounded, well-circumscribed mass of slow growth, when described intrathoracic and intra-abdominal, there are clinical signs associated with the compression of organs in the cavities; the most appropriate treatment is surgical excision, without the need for postoperative chemotherapy. And despite having low morbidity, animal welfare may be compromised due to high growth and occurrences of ulcers, with pictures of associated pain and discomfort. During treatment at the Veterinary University Hospital of the State University of Londrina, an 11-year-old female beagle dog was treated, presenting a mass in the abdominal region with progressive abdominal volume increase for two years. On physical examination, the animal was panting, but with the other parameters within normal limits. Radiographic examination revealed the presence of a structure that displaced intra-abdominal organs cranially, appeared to be adipose tissue and had some more radiopaque areas. Laboratory, biochemical and blood tests performed preoperatively were within normal reference values. The confirmation of the diagnosis was based on physical, laboratory and radiographic examinations, and after the results, an exploratory celiotomy was performed for subsequent excisional biopsy and histopathological evaluation. Surgical treatment was performed with removal of the affected area. Post-surgical treatment with Cephalexin, Tramadol Hydrochloride, Meloxicam and Ranitidine Hydrochloride was prescribed. The use of the Elizabethan collar was also advised full time and the cleaning of the surgical wound with physiological solution and Merthiolate. The treatment was effective and the animal had excellent recovery, with no signs of recurrence.

Keywords: Beagle, Surgery, Neoplasm, Cavitary Tumors.

INTRODUCTION

Lipoma is a benign neoplasm of soft tissues composed of adipose tissue, that affects about 16% of dogs (JARK et al., 2016; GOLDSCHMIDT and SHOFER 1992). It is often found in subcutaneous tissue and can be described as a superficial soft tumor, well-circumscribed, of slow and progessive growth, that mainly affects older dogs, wich are usually asymptomatic (INTRODUTION TO SMALL ANIMAL ONCOLOGY) (JARK et al., 2016; LAMAGNA et al., 2012). In some cases, an infiltrative lipoma has been reported, and it is able to invade surrounding tissues, like fascia, nerves, muscles and bones (INTRODUÇÃO A SMALL ANIMAL ONCOLOGY, JARK et al, 2016, MCCHESNEY, et al, 1980; BERGMAN, et al. 1994; KRAMEK, et al., 1985; FRAZIER, et al., 1993).

Intermuscular, intrathoracic and intra-abdominal lipomas can also be found, as well as in medular channel, thoracic limbs, axillary region, vulva and vagina, but not so often as in the subcutaneous region (JARK et al, 2016; CASE et al., 2012; VIVAS et al., 2011; SILVA et al., 2017; MILES and CLARKE, 2001).

Exacerbated growth of intra-abdominal and intrathoracic lipomas, for example, can cause clinical signs associated to organ compression and lesions in surrounding tissues (JARK et al, 2016, MCLAUGLIN and KUZMA, 1991; MAYHEW and BROCKMAN, 2002; MILES and CLARKE, 2001). In these cases, early diagnosis is difficulted due to lack of syptoms, and when they start to occur, the tumor already has a huge size (JARK et al, 2016, MAYHEW and BROCKMAN, 2002; BECK et al., 2012).

Lipoma can be diagnosed by aspiration cytology or biopsy associated with histopathological analysis (LAMAGNA et al., 2012). The last one reveals that tumor cells are similar to those found in normal adipose tissue, except for the size of adipocites (GROSS, 2009; HYE-JIN et al. 2017).

It is important to remark that lipoma differs from another kinds of malignant neoplasm in terms of aspect, prognosis and treatment (JARK et al, 2016). Liposarcoma, for instance, is a malignant neoplasm also originated from adipocites, but its diagnosis methods are different as well as its characteristics (low metastatic) and organs that can be affected (liver, lung, spleen and bones) (JARK et al, 2016; DOSTER et al., 1986). In addition, it is a not well-circumscribed mass, hard and higly adherent to surrounding tissues when compared to lipoma (JARK et al, 2016).

On abdominal radiography, lipoma can be seen as a fat mass set in the middle portion of abdominal cavity and able to displace surrounding structures (MAYHEW and BROCKMAN, 2002). Ultrasound examination shows that this mass is homogeneous, septated and poorly vascularized (MAYHEW and BROCKMAN, 2002; HAMMOND and REGAN, 2008; LAMAGNA et al, 2012). Computerized tomography is recommended in cases of huge tumor masses, due to the difficulty of locating its origin (HAMMOND and REGAN, 2008; HYE-JIN et al. 2017).

Surgical excision is recommended when lipoma is compromising the adequate function of an organ or is presenting clinical signs. Although surgical treatment is successful, tumor relapse is also reported in some cases (JARK et al, 2016; GOLDSCHMIDT and HENDRICK, 2002; LAMAGNA et al., 2012; MAYHEW and BROCKMAN, 2002). Possible postoperative complications include delayed surgical wound healing and nerve damage, as well as seroma buildup (LAMAGNA et al., 2012).

The aim of this case report is to describe surgical treatment of lipoma in a dog, from diagnosis to postoperative follow-up and possible complications.

CASE HISTORY

An 11-years-old, female Beagle dog, weighing 21,5 Kg, spayed, was attended at the Veterinary University Hospital of the State University of Londrina, presenting abdominal distension, with history of progressive abdominal volume increase for two years (Figure 1). The owner reported normofagia, normuria, normodipsy and normoquesia.

On physical examination, the animal was panting, hidrated, with body temperature reaching 38.8°C, heart rate at 100 beats per minute (bpm), capillary refill time of 1 second, pinkish oral and ocular mucous membranes and normal arterial pulse. In addition to those signs, huge abdominal volume increase was observed, as well as a grade II heart murmur and severe periodontal disease. Another abnormalities were absent.

Figure 1 – Female Beagle dog during outpatient appointment, presenting huge abdominal volume increase. **Source:** Veterinary University Hospital of the State University of Londrina - Paraná.

Differential diagnosis included radiographic examination, which revealed a mass displacing cranially surrounding organs, with characteristics of adipose tissue and presenting some areas of calcification (radiopaque areas). By these signs, lipoma was the most likely diagnosis for the abdominal distension observed. (Figure 2).

Figure 2 – Latero lateral radiograph of dog's abdominal cavity. **Source:** Veterinary University Hospital of the State University of Londrina - Paraná.

Laboratory, biochemical and blood tests performed preoperatively were within normal reference values (Table 1).

Table 1 – Results of laboratory tests performed at Veterinary Hospital (HV/UEL). ***Source:*** Veterinary University Hospital of the State University of Londrina - Paraná.

Tests	Pacient	Reference Range*	Unit of Measurement
BLOOD COUNT			
RED BLOOD CELLS	7.04	5.5-8.5	mm^3
HAEMOGLOBIN	15.5	12-18	g/dl
HAEMATOCRIT	44.3	37-55	%
MCV	62.9	60-77	F.L.
MCH	22.0	19.5-24.5	P.G.
MCHC	35.0	32-36	%
RDW	13.2	≤13	%
ANISOCYTOSIS	(+)		
LEUKOGRAM			
WHITE BLOOD CELLS	9.000	6.000-17.000	mm^3
SEGMENTED NEUTROPHILS	74	60-70	%
EOSINOPHILS	3	2-10	%
LYMPHOCYTES	23	12-30	%
PLATELETS	885.000	200.000 - 500.000	Mm

BIOCHEMICAL			
UREA	33	15 - 40	mg/dL
CREATININE	0.8	0.7 - 1.5	mg/dL
ALT	108	15 - 110	UI/L
ALP	61	20 130	UI/L
TP	6.6	5.4 - 7.1	g/dL
ALBUMIN	2.9	2.6 - 3.5	g/dL
GLUCOSE	112	66 - 120	mg/dL

Source: Veterinary University Hospital of the State University of Londrina - Paraná. *__Reference__: KANEKO, K.K.; HARVEY, J.W.; BRUSS,M.L. Clinical biochemistry of domestic animals. 6.ed. San Diego, Academic Press, 2008, p.916.

After laboratory and radiographic examinations, celiotomy was performed for better understanding of the characteristics of the neoplasm and setting its definite diagnosis.

The dog was undergone to surgery. The anesthetic protocol consisted of pre-anaesthesia with intramuscular administration of Metodomidine (0.3 mg/kg). Anaesthesia was induced intravenously with Propofol (4 mg/kg) and Midazolam (0.3 mg/kg). Isoflurane (60 mL) was administered by inhalation for the maintenance of anaesthesia. A solution of Fentanyl (7.5 mL in 500 mL of physiological saline solution) was administered during surgery at a dose rate of 3 mL/kg/hour.

Prior to celiotomy, the animal was placed in dorsal decubitus following completion of the anesthetic protocol and extensive trichotomy of abdomen, as well as previous local assepsis using alcohol and a chlorhexidine 2% alcoholic solution.

The pre-retro-umbilical incision in the skin was carried out using surgical scalpel blade No. 24. Subcutaneous divulsion was performed with Metzembaum scissors, untill linea alba was reached. In order to access abdominal cavity, a incision in linea alba was carried out (with the same type of scalpel), and enlarged with Mayo scissors. When cavity was accessed, it was possible to observe the neoformation filling a huge part of abdominal cavity (Figure 3). Portions of neoformation adhered to the bladder surface were divulsed manually. Nylon® 3-0 thread was used to ligate blood vessels. After surgery, a large vacancy in abdominal cavity was left (Figure 4).

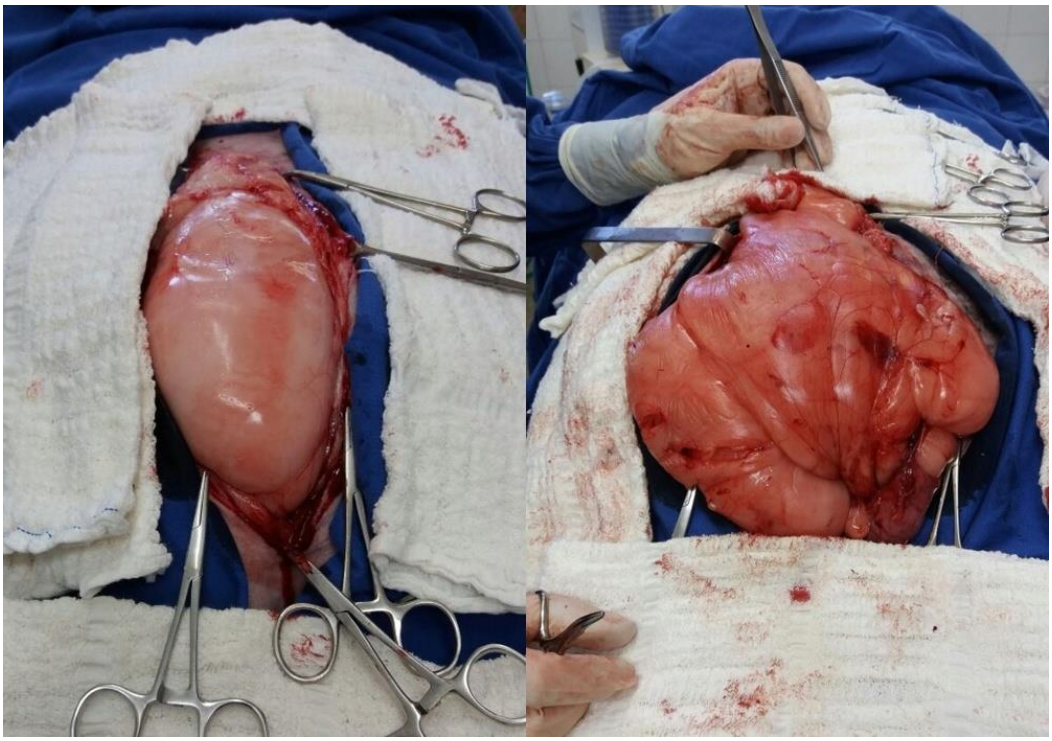

Figure 3 – During surgery, after celiotomy. It is possible to observe that neoplasm occupies a huge part of the abdominal cavity. ***Source:*** Veterinary University Hospital of the State University of Londrina - Paraná.

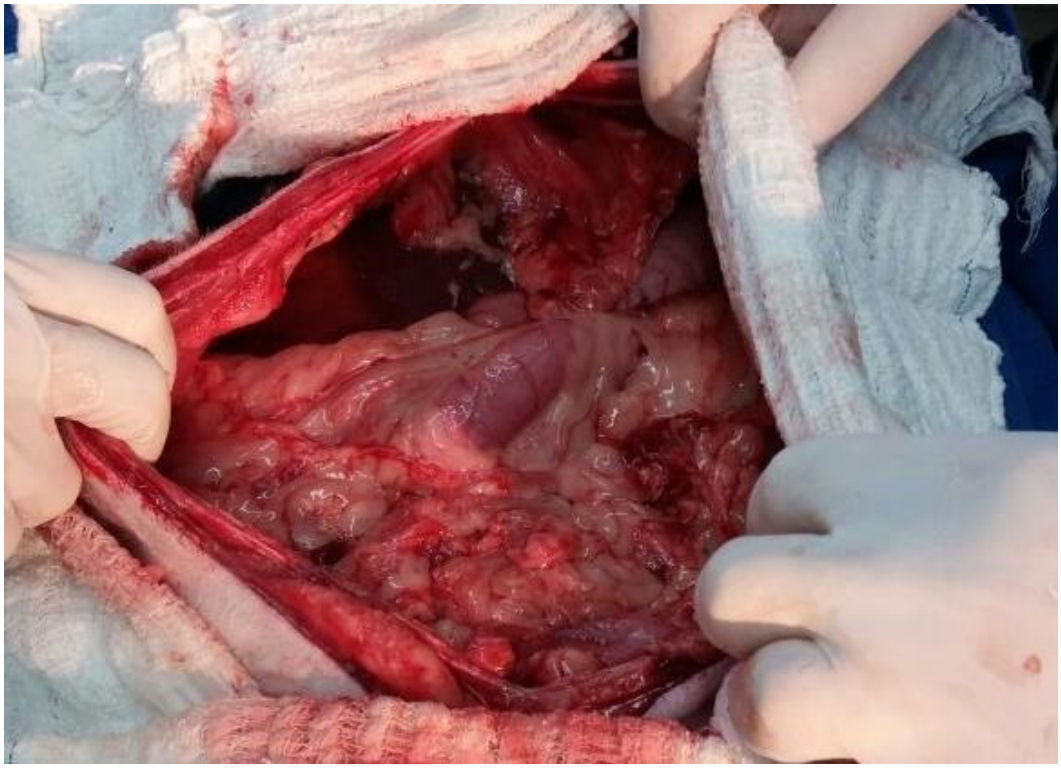

Figure 4 – Vacancy left in abdominal cavity after neoplasm surgical excision. ***Source:*** Veterinary University Hospital of the State University of Londrina - Paraná.

Prior to celiorraphy, a splash block with bupivacaine (1mg/kg) was carried out into abdominal cavity. Subcutaneous was closed by using Cushing suture pattern with Vicryl® 2-0. For abdominal musculature, X suture pattern was used, with Nylon® 2-0, and finally, skin was closed by using horizontal mattress suture pattern with Nylon® 3-0. The anesthetic protocol and surgical excision were successful, with no complications during surgery.

Excised neoplasm weighed 5.5 kg, with an average diameter of 30 cm and fulfilled a large part of abdominal cavity. After surgical removal, it was sent to laboratory analysis in order to set its diagnosis.

Pacient stayed in the hospital for 24 hours after surgery. Post-operative analgesia included intravenous administration of Tramadol (3mg/kg/TID) and Dipyirone (25 mg/kg/TID), associated with Meloxicam (0.1 mg/kg/SID), also intravenously. Home post-operative care recommended for the patient was using Elizabethan collar as well as cleansing surgery wound with physiological saline solution and Merthiolate®, twice a day, until new care instructions were given. Drugs prescribed were Cephalexin (30 mg/kg/BID, 21 days), Tramadol Hydrochloride (3 mg/kg/TID, 5 days), Meloxicam (0.1 mg/kg/SID, 3 days) and Ranitidine Hydrochloride (2 mg/kg/BID, 21 days) - all of them taken orally. The patient returned to the hospital after 10 days for post-operative evaluations and stitches removal.

DISCUSSION

Lipomas are neoplasms commonly found in older and obese dogs. They are usually located at the subcutaneous region and assymptomatic (LIPTAK and FORREST, 2013; JARK et al, 2016; LAMAGNA et al., 2012; BACON, 2011). In this present case, the treated dog presented a lipoma located at an atypical site of the abdominal cavity; however, cases like this has already been reported before in literature (HYE-JIN et al., 2017; MAYHEW and BROCKMAN, 2002; FERNANDES FILHO *et al*,.2014; HAMMOND and REGAN, 2008; BECK *et al.*, 2012). Despite of occupying a large portion of abdominal cavity and growing continuously, no secondary signs were reported (JARK et al, 2016, MCLAUGLIN and KUZMA, 1991; MAYHEW and BROCKMAN, 2002).

In this case, the animal presented a mass of progressive growth and huge size, with no secondary signs associated with its growth. This results from the fact that lipoma

early diagnosis in cavities is difficult to be performed (JARK et al, 2016, MAYHEW and BROCKMAN, 2002, BECK et al., 2012).

Although ultrasound examination is a usual diagnosis method for intra-abdominal neoplasms (MAYHEW and BROCKMAN, 2002; BECK et al., 2012; MATTOON and NYLAND, 2005), radiographic examination was preferred in this study due to the exacerbated size of the mass, once its origin, as well as surrounding structures, couldn't be clearly seen. Similar situation was reported by HAMMOND and REGAN (2008) e HYE-JIN, K. et al. (2017). In addition to it, radiography was useful to elucidate possible causes for abdominal distension.

Presumptive diagnosis was carried out by physical examination and abdominal radiography, while exploratory celiotomy was needed for better understanding the aspect of neoformation, as well as helping to set a definite diagnosis by byopsy (excisional or incisional) followed by histopathological analysis. Due to progressive growth and possible complications associated to organs compression, lipoma surgical treatment is often recommended (JARK et al, 2016; GOLDSCHMIDT and HENDRICK, 2002; LAMAGNA et al., 2012). In this case, the dog was undergone to surgery even not presenting signs associated with organ compression in the abdominal cavity (JARK et al, 2016, MCLAUGLIN and KUZMA, 1991; MAYHEW and BROCKMAN, 2002).

After exploratory celiotomy, morfological characteristics of the neoplasm were clearly revealed: a well-circumscribed fat mass, that not invade adjacent tissues. These features allow us to infer that it is most likely to be a lipoma, instead of a liposarcoma, which is a malignant tumor of not well-circumscribed edges and able to invade surrounding structures (JARK et al, 2016). The diagnosis was finally established by histopathological analysis, which allowed to distinguish what type of neoformation it was (LAMAGNA et al., 2012, MAYHEW and BROCKMAN, 2002; HYE-JIN et al., 2017).

In this present study, surgical excision was easily performed and successfully executed. There weren't complications associated with transoperative course, despite the tumor size. Relapse wasn't reported. Conversely, in MAYHEW and BROCKMAN (2002)'s study, relapse was observed from 2 years of surgery. Surgical treatment was enough for healing the patient and adjuvant treatment wasn't needed.

CONCLUSION

Abdominal lipoma treatment was successful. Its diagnosis was performed by radiographic examination and confirmed by histopathological analysis after surgery. Surgical excision was easily performed and adjuvant treatment wasn't needed. Postoperative complications were absent.

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