

# Liposarcoma with perineal hernia in dog\*

## Lipossarcoma associado à hérnia perineal em um cão

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### Abstract

Liposarcoma is an uncommon malignant tumor originated in the lipoblasts that usually does not produce metastases, but is locally invasive. The final diagnosis is made by histopathology and wide surgical excision is the treatment. A four years old male Pinscher, weighing 2.8 kg, which was previously submitted to seven therapeutic procedures for hepatoid adenoma, was brought to us. On clinical examination a large, soft consistency and painless tumor on lumbodorsal area, besides perineal hernia, was observed. The CT scan revealed an image of an extensive paravertebral intramuscular tumor, embracing retroperitoneal, pelvic canal and ad-anal region. After surgical resection, the material was sent for histopathological examination which confirmed it was a liposarcoma. Thus, chemotherapy protocol with doxorubicin was established. 12 months after the last application of chemotherapy, the patient shows no signs of tumor recurrence nor metastases.

*Keywords:* dog, CT, chemotherapy, anoplastia.

### Resumo

O lipossarcoma é um tumor maligno incomum, originário dos lipoblastos que geralmente não produz metástases; entretanto, é localmente invasivo. O diagnóstico definitivo é obtido por exame histopatológico e o tratamento consiste na excisão cirúrgica ampla. Foi atendido um cão, da raça Pinscher, macho, com quatro anos de idade, pesando 2,8kg, que fora submetido anteriormente a sete procedimentos terapêuticos para adenoma hepatoide. Ao exame clínico o paciente apresentava uma grande tumoração na região dorsolombar, de consistência amolecida e indolor, além de hérnia perineal. O exame de tomografia computadorizada revelou imagem de uma massa intramuscular paravertebral extensa, invadindo retroperitônio, canal pélvico e região ad-anal. Após ressecção cirúrgica, o material foi encaminhado para análise histopatológica, que confirmou tratar-se de um lipossarcoma; dessa forma, foi instituído protocolo quimioterápico com doxorubicina. Decorridos 12 meses da última aplicação do quimioterápico, o paciente não apresenta sinais de recidiva da neoplasia maligna, nem tampouco metástases.

*Palavras-chave:* cão, tomografia computadorizada, quimioterapia, lipossarcoma bem diferenciado.

### Introduction

Liposarcoma is an uncommon malignant tumor originated in the lipoblasts in older dogs. Its etiology is unknown, however, it is known that it can appear spontaneously and are not derived from one of their homologous benign, meaning that it doesn't come from a malignant transformation of lipomas (Masserdotti et al., 2006). There is no breed or gender predisposition for this kind of cancer that appears most commonly in the subcutaneous region of the ventral and extremities, although it can also occur primarily in the bones and abdominal cavity (Liptak e Forrest, 2007). The liposarcoma can be differentiated from lipoma based on morphological and cytological characteristics appearance in which liposarcomas consistency is firm with poorly defined edge (Baez et al., 2004).

In animals, this kind of tumor is classified as well-differentiated, myxoid or pleomorphic. Pleomorphic liposarcoma are the most aggressive and prone to cause metastasis, however, although locally invasive, they have low metastatic potential, and when it occurs, usually affects the lungs, liver, spleen and bones (Chang e Liao, 2008).

The diagnosis is made by histopathology and cytology examination (Masserdotti et al., 2006). They can be histologically classified as well-differentiated, myxoid, round cell (or poorly differentiated), pleomorphic, or undifferentiated (Liptak e Forrest, 2007). This Classification is very important in medicine and is closely linked to prognosis in humans, since the pleomorphic liposarcomas have high rates of metastasis. The myxoid are more likely to produce metastases in extra pulmonary structures

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and the well differentiated are not metastatic (Brennan et al., 2008). However, in a retrospective study in dogs, the histological subtype was not a prognostic factor, although metastasis have occurred most commonly in dogs with pleomorphic liposarcoma (Baez et al., 2004).

The treatment consists of wide surgical excision, rather than marginal and the efficacy of chemotherapy is still controversial (Chang e Liao, 2008).

The prognosis is usually favorable in cases where surgical management was done properly, the survival average after wide surgical excision is 1188 days. This survival average can drop to 183-649 days patients underwent incisional biopsy or marginal excision (Baez et al., 2004).

This article reports a liposarcoma in a dog that showed up in an unusual location, associated with perineal hernia that was treated by surgical excision, herniorrhaphy, reconstructive plastic surgery and chemotherapy.

### Case report

A four years old male Pinscher dog, weighing 2.8 kg, who had previously undergone through seven surgeries as an attempt to treat the tumor in the perineal region and lumbodorsal, who had a previous diagnosis of hepatoid adenoma was attended was brought to us. A lumbodorsal tumor and perineal hernia (Figure 1A, B) hard to reduce by palpation, were observed on clinical examination. Chest radiography and abdomen ultrasound showed no evidence of metastasis. The cytological examination was suggestive of infiltrative lipoma. Prior to surgery, a computed tomography examination revealed that the tumor was located in the subcutaneous tissue between the muscles, encroaching epaxial musculature of the thoracolumbar region, continuing near the pelvic cavity, moving the caudal segment of the descending colon and rectum to the right side and projecting to the perineal hernia as hernial content. The report recorded the presence of expansive formation with attenuation of adipose tissue suggesting origin in the left lumbar paraspinal muscle tissue between L3 and the sacrum, with great separation of the muscle tissue with no capture. The mass has a 10.0 x 7.6 x 6.7cm area suggesting expansion into the retroperitoneal pelvic canal and adanal region with significant compression of the rectum to the right (Figure 1C, D). The images were consistent with lipoma inter / intramuscular, with the distinction from well-differentiated liposarcoma by muscle changes not being possible.

The patient was referred for resection of the tumor mass and histopathology. After induction of anesthesia with propofol in 9mg.kg<sup>-1</sup>, epidural anesthesia in the lumbosacral region with lidocaine associated with a vasoconstrictor, at a dose of 7mg.kg<sup>-1</sup> and anesthesia maintained with isoflurane vaporized in 100% oxygen, the dog was positioned in ventral recumbency with the hind limbs on a higher plane (Figure 2A). The incision started at the level of the L1 vertebra and extended to the lateral tail down the right perineal region. The yellowish fat tumor was removed with muscle tissue from the lumbosacral region and perineal region (Figure 2B, C). The herniorrhaphy was performed with Sultan suture, using 2-0 monofilament nylon thread, with the excess skin removed to perform the anoplastia with simple stitches using 3-0 monofilament nylon thread (Figure 2D, E).

As postoperative treatment, cryotherapy for 20 minutes with ice wrapped in a wet compress, twice daily in the first 48 hours, use of lidocaine gel on the area around the wound, sanitizing with saline 0.9 % and then applying topical chlorhexidine gluconate three times a day, plus the use of Elizabethan collar was recommended. One milliliter of mineral oil added to a pasty diet, in order to facilitate the evacuation was prescribed. Meloxicam (0.1 mg.kg<sup>-1</sup>, SC, SID) and tramadol (2mg.kg<sup>-1</sup>, SC, TID) for four days, in addition to ceftiofur (2.2 mg.kg<sup>-1</sup>, SC, SID) for 10 days were also prescribed.

The patient was evaluated daily for pain, swelling or bruising in the area, suture dehiscence or any dyschezia. With seven days of postoperative two stitches opened up and at the tenth days another two, so healing occurred on this spot by secondary intention without difficulty. The regular food was given two weeks after surgery and the remaining stitches were removed after 20 days (Figure 2F).

Histopathology examination confirmed it was a malignant mesenchymal neoplasm suggestive of well-differentiated liposarcoma (Figure 2G). Facing this histopathological diagnosis and without the presence of metastatic focus, a mesenchymal tumors chemotherapy with doxorubicin (1 mg.kg<sup>-1</sup>) intravenously every 21 days for all four sessions was established. Twelve months from the end of chemotherapy, the patient has no signs of tumor recurrence.



**Figure 1:** Four years old male pinscher weighing 2.8kg. **A.** Evidence of perineal hernia in right posterolateral view. **B.** left posterolateral perianal region. **C and D.** CT scan showing an expansive formation with adipose tissue attenuation suggesting origin in the left lumbar paraspinal muscle tissue, between L3 and the sacrum, with great separation of the muscle tissue with no capture. A 10 x 7.6 x 6.7cm area mass suggesting expansion into the retroperitoneal pelvic canal and ad - anal region with significant compression of the rectum to the right.



**Figure 2:** Liposarcoma in a dog. **A.** Positioning in the prone position, with hind limbs on a higher plane. **B.** Macroscopic presentation of malignancy after skin incision. **C.** Wound appearance after removal of the neoplasm. **D.** After subcutaneous tissue suture. **E.** At the end of the intervention. **F.** Presentation after the stitches removal, 20 days after surgery. **G.** Microscopic appearance, which shows mesenchymal cells proliferation with intense degree of cellular pleomorphism. Rounded or elongated nuclei with evident nucleoli, irregular cytoplasm sometimes vacuolated. The tumor is interspersed with areas of well-differentiated adipose tissue. HE, 40x.

## Results and discussion

Tumors of Adipose Tissue may be benign (lipoma, infiltrative lipoma and angioliipoma) or malignant (liposarcoma, that can be classified as well-differentiated, pleomorphic or myxoid) (Hendrick et al., 1998). In this case, the liposarcoma was classified as well-differentiated

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Liposarcoma is rare in dogs and is usually a solitary mass that tend to be highly infiltrative, firm and somewhat circumscribed (Peterson, 2008). These features were observed in our case.

It's etiology is still not clear, although the presence of foreign bodies (McCarthy et al., 1996) such as *microchip* (Vascellari et al., 2004) and recurrent trauma (Dubin e Chang, 2006) have been described as initiator causes of neoplasia. The present report does not involve any of the factors, however, it showed reoccurrences after all the previous seven surgeries and being always bigger than the previous.

The diagnosis can be achieved with cytological or histological examination, however, in some cases, the cytological diagnosis can be difficult due to morphological changes found in different areas of the same tumor, similar to what is often found on other kinds of sarcomas (Masserodotti et al., 2006). Thus, the histopathologic exam will set the final diagnosis, however, small fragments of biopsies can be a challenge for the pathologist, it is preferable to exam large fragments including the relationship between tumor and adjacent tissue (Quinton et al., 2013). In this case, a wide excision of the tumor was made, providing enough tissue for histopathological examination.

The CT scan has the sensitivity and specificity to assess the location and infiltration of tumor masses, being a good option to evaluate the involvement of deep tissues and thus helping to set the treatment planning of tumors (Ogawa et al., 2008). For this dog the CT scan was crucial in the accurate identification of affected tissue and allowed to draw the best surgical strategy in order to remove the tumor and promote repair of the secondary perineal hernia.

Although postoperative complications are common and expected in procedures performed in the anal and perineal region (Chang e Liao, 2008), it was very mild in this case. The use of antineoplastic chemotherapy are treatment adjuvant for malignant mesenchymal neoplasm, as an additional component of multimodal cancer treatment, since, according to Doster et al., (1986), even with wide surgical excision, the chances of recurrence of liposarcoma are great.

## Conclusion

Wide excision of the tumor with safety margins is curative for this type of tumor and, although in most cases does not produce metastatic liposarcoma, it is locally invasive. Thus, a prior surgical program with the aid of diagnostic imaging is necessary to a complete removal of the neoplasm.

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