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Fibrosarcoma in a young dog treated with injectable viscum album therapy: A case report

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Abstract. Fibrosarcoma is a malignant tumor characterized by a high recurrence rate and resistance to conventional treatments in dogs. This case report presents a case of fibrosarcoma located in the esophagus, diagnosed in a young dog, potentially linked to a chronic inflammatory response triggered by a parasitic infestation. The patient was treated with injectable homeopathic *Viscum album* as monotherapy, given the constraints imposed by the tumor's location and the priority of preserving the dog's quality of life. After six months of treatment, the dog exhibited a clinical progression unlike the typically expected for this condition, with no evidence of tumor growth. *Viscum album* extracts, recognized for their immunomodulatory and cytotoxic properties, likely contributed to the observed positive clinical response by promoting cellular apoptosis and enhancing the patient's immune function. This case underscores the potential role of integrative therapies in managing sarcomas in dogs, suggesting that *Viscum album* may offer a promising alternative for controlling refractory tumors. Additionally, the absence of significant adverse effects highlights the safety and feasibility of this therapy, particularly in young animals. Nonetheless, further research is required to elucidate the mechanisms of action of *Viscum album* and its broader applications in veterinary oncology.

Keywords: Integrative therapy, parasitic infestation, veterinary oncology, young dog

Fibrossarcoma em cão jovem tratado com terapia injetável de Viscum album: Relato de caso

Resumo. O fibrossarcoma é um tumor maligno caracterizado por uma alta taxa de recorrência e resistência aos tratamentos convencionais em cães. Este relato de caso apresenta um fibrossarcoma em esôfago, em um cão jovem, potencialmente ligado a uma resposta inflamatória crônica desencadeada por uma infestação parasitária. O paciente foi tratado com *Viscum album* homeopático injetável como monoterapia, dadas as restrições impostas pela localização do tumor e a prioridade de preservar a qualidade de vida do paciente. Após seis meses de tratamento, o cão não apresentou progressão clínica tipicamente esperada para esta condição, sem evidência de crescimento tumoral. Os extratos de *Viscum album*, reconhecidos por suas propriedades imunomoduladoras e citotóxicas, provavelmente contribuíram para a resposta clínica positiva observada ao promover a apoptose celular e melhorar a função imunológica do paciente. Este caso ressalta o papel potencial das terapias integrativas no tratamento de sarcomas em cães, sugerindo que o *Viscum album* pode oferecer uma alternativa promissora para o controle de tumores refratários. Além disso, a ausência de efeitos adversos significativos destaca a segurança e a viabilidade desta terapia, particularmente, em animais jovens. No entanto, mais pesquisas são necessárias para elucidar os mecanismos de ação do *Viscum album* e suas aplicações mais amplas em oncologia veterinária.

Palavras-chave: Terapia integrativa, infestação parasitária, oncologia veterinária, cão jovem

Fibrosarcoma en perro joven tratado con terapia de inyección de *Viscum album*: Reporte de un caso

Resumen: El fibrosarcoma es un tumor maligno que se caracteriza por una alta tasa de recurrencia y resistencia a los tratamientos convencionales en perros. Este informe de caso presenta un fibrosarcoma situado en el esófago, diagnosticado en un perro joven, potencialmente relacionado con una respuesta inflamatoria crónica desencadenada por una infestación parasitaria. El paciente fue tratado con *Viscum album* homeopático inyectable como monoterapia, dadas las limitaciones impuestas por la ubicación del tumor y la prioridad de preservar la calidad de vida del paciente. Después de seis meses de tratamiento, el perro no mostró ninguna progresión clínica esperada típicamente para esta condición, sin evidencia de crecimiento del tumor. Los extractos de *Viscum album*, reconocidos por sus propiedades inmunomoduladores y citotóxicas, probablemente contribuyeron a la respuesta clínica positiva observada al promover la apoptosis celular y mejorar la función inmunológica del paciente. Este caso subraya el papel potencial de las terapias integrativas en el manejo de los sarcomas en perros, lo que sugiere que *Viscum album* puede ofrecer una alternativa prometedora para controlar los tumores refractarios. Además, la ausencia de efectos adversos significativos resalta la seguridad y viabilidad de esta terapia, particularmente en animales jóvenes. Sin embargo, se requieren más investigaciones para dilucidar los mecanismos de acción de *Viscum album* y sus aplicaciones más amplias en oncología veterinaria.

Palabras clave: Terapia integrativa, infestación parasitaria, oncología veterinaria, perro joven

Introduction

Fibrosarcoma is a malignant neoplasm of mesenchymal origin, characterized by the uncontrolled proliferation of fibroblasts ([Gardner et al., 2015](#); [Martano et al., 2018](#)). Although this condition is more commonly observed in middle-aged or elderly dogs, reports of cases in young animals suggest alternative etiological factors, including genetic predisposition, chronic inflammation, and potentially parasitic infestations ([Gardner et al., 2015](#); [Martano et al., 2018](#); [Moore & Ogilvie, 2001](#); [Vail et al., 2019](#); [Withrow et al., 2020](#))

Persistent inflammatory stimuli, such as those caused by parasitic infestations, can alter the tissue microenvironment, promoting carcinogenesis and favoring the development of neoplasms in predisposed individuals ([Schwartz, 2017](#)).

The management of fibrosarcoma in dogs remains challenging due to its local aggressiveness, high recurrence rates, and poor response to conventional chemotherapy ([Avallone & Helmutt, 2012](#)). While surgical excision is often the preferred therapeutic approach, its effectiveness is limited in cases where tumors are located in hard-to-access regions or when preserving the functional capacity and quality of life of young animals is a priority ([Schermerhorn & Foster, 2016](#)). In such cases, complementary therapies have been explored, and *Viscum album* has shown promise due to its immunomodulatory and antitumor properties ([Stein & Kummer, 2012](#)).

Studies indicate that extracts from *Viscum album* possess therapeutic potential against various cancer types, with applications in integrative medicine to reduce tumor growth and enhance immune responses in patients ([Lucena Júnior et al., 2021](#); [Stein & Kummer, 2012](#); [Valle et al., 2024](#); [Valle & Carvalho, 2022](#)). In experimental models, bio-compounds found in *Viscum album*, such as lectins and viscotoxins, have been linked to apoptosis induction and cytotoxic activity against tumor cells ([Stein & Kummer, 2012](#)). In this context, the present case report describes the treatment of a young dog diagnosed with fibrosarcoma located in the esophagus, potentially induced by parasitic infestation, using the *Viscum album* therapy. Therefore, this study aims to discuss the observed clinical response and the potential application of this therapy in managing sarcomas in dogs.

Case report

A 2-year-old neutered mixed-breed female dog, weighing 8 kg, was presented to NaturalPet in Brasília, Brazil, in March 2024, with a confirmed diagnosis of esophageal fibrosarcoma. According to the owner, the animal began exhibiting a persistent cough in early February 2024, which later progressed to vomiting. Emergency veterinary care was sought, and the dog was initially treated with oral omeprazole (2 mg/kg) and prednisone (1 mg/kg), administered every 12 hours for three days. However, the symptoms returned after the treatment period. An endoscopy was performed (Figure 1), and material was collected from the stomach, duodenum, and esophagus for histopathological analysis. The esophageal endoscopy revealed granulomas in the middle and distal thoracic portions, characterized by nodular formations compatible with *Spirocerca lupi* infestation. Days later, the animal expelled *Spirocerca lupi* specimens and was treated with fenbendazole at 50 mg/kg for 10 days. Twenty days after the procedure, histopathological results confirmed a diagnosis of soft tissue sarcoma. Immunohistochemistry was subsequently performed using a differential panel for soft tissue sarcoma. The following markers were assessed: Actin, CD31, Desmin, Iba1, Melan A, MYOD-1, and Vimentin. Results showed negative immunostaining for Actin, CD31, Desmin, Iba1, Melan A, and MYOD-1. Positive immunostaining for Vimentin in neoplastic cells confirmed the diagnosis of fibrosarcoma. The patient presented at the clinic with this history and had not yet initiated treatment. The owners opted against conventional chemotherapy. Upon presentation, a complete physical examination was performed. The dog exhibited good general condition, with the following parameters: heart rate (HR) = 82 bpm, respiratory rate (RR) = 60 breaths/min, blood glucose = 72 mg/dL, and normal body condition. The animal was cooperative during handling and exhibited no signs of abdominal discomfort or pain. According to the owner, no vomiting episodes or diarrhea had occurred since completing the deworming protocol with fenbendazole. Appetite, water intake, urination, and defecation were reported to be normal. The dog was fed a commercial dog food diet. Blood samples were collected for a complete blood count and biochemical analysis of ALT, ALP, urea, and creatinine. The following oral medications were prescribed: Vitamin C 500mg, 1 tablet, once daily (SID); Vitamin D3 1000UI/drop, 6 drops, SID; *Apis* 30CH; *Mercurius solubilis* 30CH; *Histaminum* 30CH, 30 mL, 10% alcohol, three drops, twice daily (BID) for 30 days. For injectable treatment, *Viscum album* D3 was administered subcutaneously at one ampoule SID, three times a week for 60 days.

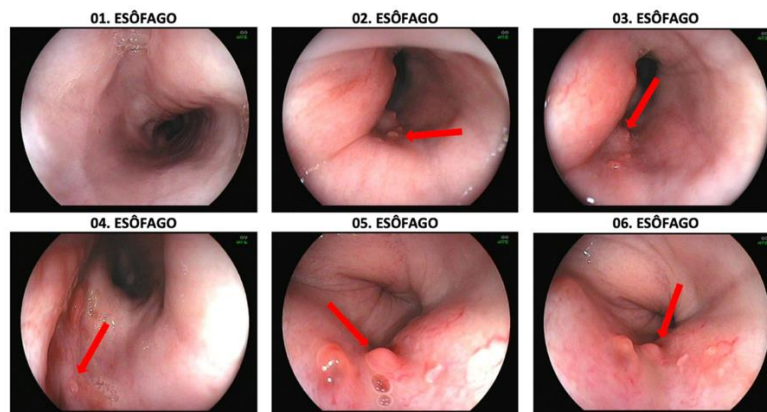


Figure 1. Endoscopic image of esophageal segments during the first examination in February 2024. Red arrows indicate nodular lesions along the esophageal mucosa.

Results

Laboratory measurements were: red blood cells 7,310,000/ μ L, hemoglobin 17.4 g/dL, hematocrit 50.1%, leukocytes 7,700 uL, eosinophils 462 uL, segmented neutrophils 5,544 uL, lymphocytes 1,694 uL, platelets 229,000 μ L, total plasma protein 6.4 g/dL.

After 30 days of treatment, the patient returned to the clinic without any reported discomfort, including abdominal pain, coughing, vomiting, or choking. Upon physical examination, the dog was in excellent health condition for her age and species. The therapeutic plan was maintained for an additional 90 days, with a follow-up evaluation scheduled at the end of this period.

In July 2024, the patient ([Figure 2](#)) returned to the clinic for routine examinations, and a follow-up endoscopy was performed to assess the progression of fibrosarcoma. During the interval between the initial consultation and the follow-up evaluation in July, the clinic maintained regular contact with the owners via phone and messaging to monitor for potential clinical signs. However, the patient remained in good health throughout the observation period.

The follow-up endoscopy performed in July 2024 revealed a significant reduction in lesion size ([Figure 3](#)), with nodular formations measuring only 1–2 mm, primarily located at the cardiac base of the esophagus. These nodules were sessile, without ulcerations, bleeding, or changes in mucosal coloration, indicating a notable improvement compared to the initial findings. Tissue samples from the nodules were collected and sent for histopathological analysis at the same laboratory that processed the initial biopsy. Additional mucosal samples from the stomach and duodenum were also obtained for evaluation.

Histopathological analysis of the esophageal and duodenal samples collected during the second endoscopy revealed no significant histological changes or evidence of malignancy, suggesting that the residual nodules lacked the characteristics of fibrosarcoma or other aggressive neoplasms. Examination of the stomach, however, showed mild mucosal atrophy and fibrosis, which were associated with *Helicobacter* sp. These findings indicate that the observed lesions were likely attributable to the *Helicobacter* infection rather than a recurrence or progression of the fibrosarcoma.

In January 2025, the patient returned to the clinic for routine examinations. Physical and laboratory evaluations confirmed that the dog remained in excellent clinical condition, showing no apparent clinical signs.



Figure 2. Photograph of the patient after the second endoscopy in July 2024.

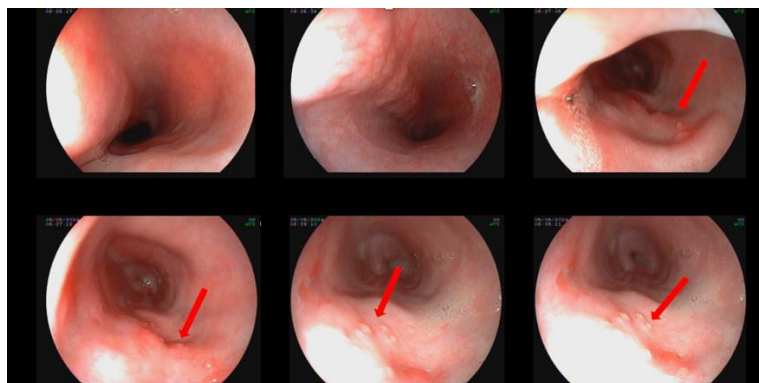


Figure 3. Endoscopic image from July 2024. Red arrows indicate nodular lesions in the esophageal mucosa.

Discussion

The positive response observed in this case of fibrosarcoma in a young dog treated with injectable homeopathic *Viscum album* highlights the potential of this therapy in managing neoplasms in dogs, particularly in situations where conventional treatments are limited. Fibrosarcoma's in dogs are aggressive tumors characterized by high recurrence rates and significant invasiveness, though they are typically non-metastatic. These tumors are often resistant to chemotherapy and radiotherapy, which restricts therapeutic options and poses substantial challenges in clinical management ([Ogilvie & Moore, 1995](#); [Vail et al., 2019](#)). Although surgical excision remains the primary method for controlling this

neoplasm, its effectiveness is frequently constrained by the infiltrative behavior of the tumor ([Looney, 2010](#); [Schermerhorn & Foster, 2016](#))

Therapy with *Viscum album* is widely utilized in integrative medicine due to its immunomodulatory and antitumor properties. Mistletoe extracts contain bioactive compounds, including lectins and viscotoxins, which have demonstrated, in preclinical studies, the ability to induce apoptosis in tumor cells and stimulate the host immune response ([Lucena Júnior et al., 2021](#); [Stein & Kummer, 2012](#); [Valle et al., 2024](#); [Valle & Carvalho, 2022](#)). Such mechanisms are particularly relevant in mesenchymal tumors, where the tumor's immune environment plays a critical role in disease progression ([Stein & Kummer, 2012](#)).

The clinical response observed in this case was particularly notable. Throughout the *Viscum album* therapy, the dog exhibited no signs of disease progression. Symptoms such as coughing, vomiting, and choking, present at diagnosis, resolved completely within the first 30 days of treatment. The absence of adverse effects further underscores the safety of this therapy, which is crucial for preserving the quality of life in young patients. Additionally, long-term monitoring up to January 2025 showed sustained disease stabilization, with no signs of recurrence or progression nearly a year after the initial diagnosis.

In the present case, the absence of detectable tumor growth following six months of *Viscum album* therapy and the histopathological findings of negative neoplastic cells suggest that this treatment not only inhibited tumor growth but also enhanced the dog's immune system's ability to regulate cell proliferation. These findings align with existing studies reporting the positive effects of *Viscum*, including reductions in tumor volume and increased survival rates in cancer patients ([Schwartz, 2017](#)). The rapid and sustained response observed in this case supports previous reports of *Viscum album* efficacy in canine fibrosarcoma, including a 24-month survival case in a dog with the same diagnosis ([Valle & Carvalho, 2022](#); [Valle & Carvalho, 2021](#)). Additionally, the current findings echo the clinical improvement observed in a feline fibrosarcoma patient treated with *Viscum album*, which also demonstrated excellent outcomes ([Biegel et al., 2011](#)).

An important consideration is the absence of severe side effects with the use of *Viscum album*, which contrasts sharply with the adverse effects commonly associated with chemotherapy and radiotherapy. Previous studies indicate that *Viscum album* is well tolerated in animals, making it particularly suitable for young patients where preserving quality of life is paramount ([Stein & Kummer, 2012](#)). The clinical experience detailed in this case report illustrates that *Viscum album*, whether employed as monotherapy or in conjunction with complementary treatments, offers a viable approach for effective neoplasm control without compromising the patient's well-being.

Conclusion

This case report contributes to the growing literature on integrative therapies in veterinary oncology, suggesting that *Viscum album* represents a promising therapeutic option for treating fibrosarcoma's and potentially other tumors in dogs. In this case, the therapy appeared to stabilize the disease, prevent tumor progression, and promote lesion reduction, as evidenced by histopathological findings showing no malignancy and a significant reduction in lesion size. Furthermore, the complete resolution of clinical symptoms and the dog's excellent condition nearly a year after diagnosis demonstrate a stable and sustained therapeutic response. Additionally, the absence of adverse effects throughout treatment highlights the safety and feasibility of this approach, particularly for young animals where preserving quality of life is paramount. However, additional studies are needed to further validate these findings and elucidate the mechanisms underlying the antitumor effects of *Viscum album*. Future research should explore standardized protocols to enhance treatment outcomes and broaden the applications of this promising therapy in veterinary oncology.

References

- Avallone, G., & Helmutt, G. (2012). Fibrosarcoma in young dogs: Etiology, treatment and prognosis. *Journal of Comparative Pathology*, 146(4), 450–458.

- Biegel, U., Ruess-Melzer, K., & Klocke, P. (2011). Orally administered *Viscum album* Quercus dilutions in the therapy of feline fibrosarcoma in cats. *Phytomedicine*, 18. <https://doi.org/10.1016/j.phymed.2011.09.057>
- Gardner, H., Fidel, J., Haldorson, G., Dernell, W., & Wheeler, B. (2015). Canine oral fibrosarcomas: A retrospective analysis of 65 cases (1998–2010). *Veterinary and Comparative Oncology*, 13(1), 40–47. <https://doi.org/10.1111/vco.12017>.
- Looney, A. (2010). Oncology pain in veterinary patients. In *Topics in Companion Animal Medicine* (Vol. 25, Issue 1). <https://doi.org/10.1053/j.tcam.2009.10.008>.
- Lucena Júnior, L. C., Lopes, E. B., Santos, C. M., Valois, A. A. C., Menezes, N. J., Santana, S. S., & Lima, I. S. S. (2021). Tratamento integrativo homeopático e farmacopuntura com *Viscum album* em carcinoma mamário canino: Relato de caso. *PUBVET*, 15(6), 1–9. <https://doi.org/10.31533/pubvet.v15n06a835.1-9>.
- Martano, M., Iussich, S., Morello, E., & Buracco, P. (2018). Canine oral fibrosarcoma: Changes in prognosis over the last 30 years? *The Veterinary Journal*, 241, 1–7. <https://doi.org/10.1016/j.tvjl.2018.09.005>.
- Moore, A. S., & Ogilvie, G. K. (2001). Feline oncology: a comprehensive guide to compassionate care. *Trenton: Veterinary Learning Systems*, 191–219.
- Ogilvie, G. K., & Moore, A. S. (1995). Managing the veterinary cancer patient: A practice manual. *Managing the Veterinary Cancer Patient: A Practice Manual*.
- Schermerhorn, T., & Foster, D. (2016). Management of canine sarcomas. *Veterinary Surgery*, 45(2), 203–212.
- Schwartz, M. (2017). The role of parasitic infections. *Cancer Immunology Research*, 5(3), 292–300.
- Stein, G. M., & Kummer, M. (2012). Therapeutic use of *Viscum album* in veterinary oncology: Mechanisms and clinical application. *Veterinary Journal of Oncology*, 3(2), 77–83.
- Vail, D. M., Thamm, D. H., & Liptak, J. M. (2019). *Withrow and MacEwen's Small Animal Clinical Oncology-E-Book*. Elsevier Health Sciences.
- Valle, A. C. V., & Carvalho, A. C. (2022). Integrative oncology using the viscum album therapy improves quality of life in a dog diagnosed with oral fibrosarcoma - Case report. *Brazilian Journal of Development*, 8(3), 17732–17754. <https://doi.org/10.34117/bjdv8n3-149>.
- Valle, A. C. V., Valle, M. L. P. V., & Carvalho, A. C. (2024). Terapia *Viscum album* injetável no tratamento e sobrevida de paciente diagnosticado com carcinoma hepatóide. *PUBVET*, 18(3). <https://doi.org/10.31533/pubvet.v18n03e1560>.
- Valle, A. C. V., & Carvalho, A. C. (2021). Homeopathic *Viscum album* on the Treatment of Scamous Cell Carcinoma Lesion in a Dog (*Canis familiaris*) - Case Report. *Integrative Journal of Veterinary Biosciences*, 5, 1–3. <https://doi.org/10.31038/ijvb.2021523>.
- Withrow, S. J., Page, R., & Vail, D. M. (2020). *Small animal clinical oncology*. Elsevier Health Sciences. <https://doi.org/10.1201/9781315381855>.

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