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Surgical approach to cutaneous melanoma in a cream colored horse

Abordagem cirúrgica de melanoma cutâneo em equino de pelagem cremelo

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Abstract: Melanoma is a malignant neoplasm, originating in melanocytes. In the equine species, this tumor classification has always shown some degree of impairment of the cutaneous lining, more common in gray-haired animals, with no frequency of predilection between sexes, but as a variant the factor of age and lifestyle, aggravating the degrees of malignancy, due to major dysfunctions in melanin metabolism. The most affected regions of the neoplastic course have always been present between the perineum and orbital regions of the eyes, as these regions are generally the ones to depigment first.The respective report aims to describe a case of diffuse cutaneous melanoma in a female horse, 6 years old, Quarter Horse (QM), cream coat. The animal had nodules of varying sizes throughout the cutaneous segment of the body, among which three were ulcerated and the others covered by skin.

Keywords: Farm. Equideoculture. Dermopathy. Melanocyte.

Resumo: O melanoma é uma neoplasia maligna, originada nos melanócitos. Na espécie equina, essa classificação tumoral sempre apresentou algum grau de comprometimento de revestimento cutâneo, mais comum em animais de pelagem tordilha, sem frequência de predileção entre sexo, mas como variante o fator da idade e estilo de vida, agravando os graus de malignidade, devido a maiores disfunções no metabolismo da melanina. As regiões de maior acometimento do curso neoplásico sempre estiveram presente entre regiões de períneo e orbitais dos olhos, pois tais regiões são as que vão despigmentando primeiro. O respectivo relato possui como objetivo descrever um quadro de melanoma cutâneo difuso em um equino fêmea, com 6 anos de idade, raça Quarto de milha (QM), pelagem cremelo. O animal apresentava nódulos de tamanhos variáveis em todo o seguimento cutâneo do corpo, dentre os quais três apresentavam-se ulcerados e os demais revestido por pele.

Palavras-chave: Fazenda. Equideocultura. Dermopatia. Melanócito.

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INTRODUCTION

In the equine medical clinic, skin lesions present a major problem, as they are responsible for losses in daily performance, impacting directly on the health of the animals as well as the aesthetic value. When we talk about production animals, this species is the most attended with dermatological complaints. (LLOYD et al., 2003; SCOTT AND MILLER JR, 2011).

Within the series of neoplasms in horses, melanoma represents about 15% of the total number of cases treated. This nodular disorder is consistently and firmly present, single or disseminated, which, depending on its chronicity, may present secretions and/or ulcerations. Due to solar radiation, the occurrence of melanomas in elderly and grayish animals is very common, with fair-haired horses such as crenellations and grays being more likely to develop this condition. (HANOUT et al., 2022; RADOSTITIS et al., 2002; SANTOS et al., 2020;).

Lesions usually start in the perineum and external genitalia, with a lower prevalence in the ear, eyelid, limbs and neck. Larger tumors usually occur in a malignant form, and may lead to the formation of metastases, with a predilection for regional lymph nodes, spleen, liver, lungs, blood vessels and heart. When they are smaller tumors, they do not need treatment, when they do not have clinical repercussions (PONTES et al., 2019).

It is necessary for a clinician who treats horses to have knowledge of the diseases that can lead to cutaneous symptoms, as well as the path that must be followed for diagnosis and treatment. The objective of this work is to report the case of an equine patient presenting with diffuse cutaneous nodules, submitted to cytological and histological examination for diagnosis.

CASE REPORT

An equine, female, Quarter Horse (QM), cream coat, 06 years old, weighing about 450 kg, was treated in the rural area of the municipality of Galante - PB. This animal was privately owned, it was raised in stalls from a foal, at the age of four it underwent a change of environment where it lived for two years in a municipality belonging to the semi-arid region. According to the handlers' report, around 4 days of life, 5 nodular-like structures began to appear located locally on the animal's skin. Over time, these nodular structures tend to develop a slow growth pattern with diffuse distribution (Image 1). The patient did not appear to have any discomfort from the nodules, some ulcerated and others remained encapsulated.

Until then, the animal had not been submitted to a veterinary evaluation, although it had undergone unsuccessful empirical treatments for warts, using Verrugal ®.

During the physical examination, the patient had normal colored ocular and oral mucous membranes, heart rate (HR) of 45 bpm, respiratory rate (RR) of 18 mpm, temperature 38.6 ºC, no deviation from normality was noticed during cardiac auscultation and pulmonary. Nodular structures of firm consistency were observed, with a well-defined rounded shape, some with an ulcerated central

region (Image 2), distributed in the cervical, pre-scapular, scapular, thoracic, abdominal and anterior limbs regions.

After the clinical examination and conversation with those responsible for the animal, it was decided to perform the cytological and histopathological examination to establish the nature of the nodules. To obtain the cytology samples, the fine needle aspiration method (FNAB) was used, where a 0.45 x 13 mm needle was used and polished slides for microscopy, the slides were stored in an appropriate container and sent to the laboratory where they were stained with rapid panopticon. The samples submitted to histopathology were obtained through total exeresis of the nodules (3), with an incision in an elliptical shape (Image 3). In order to mitigate the chances of contamination, it was decided to perform the technique with the animal in the standing position, using as an anesthetic protocol for sedation: detomidine 1% at a dose of 0.03 mg/kg intravenously. As a local block, 2% lidocaine (without vasoconstrictor) was used at a dose of 7 mg/kg, administered to the animal with 5 mL distributed over four block points. Trichotomy of the area around the nodule was performed followed by antisepsis with 2% chlorhexidine solution and 10% PVPI solution. Removal of the nodular structure was performed with a one centimeter margin on all sides (Image 4), followed by hemostasis of the incision point with the aid of hemostatic tweezers, and suturing using a simple interrupted pattern with absorbable thread (polyglycolic acid nº 1-0). In the postoperative period, the attendants were instructed to perform topical cleaning of the incised areas followed by the application of Aerocid®.

In the histopathological evaluation, macroscopically, the nodules presented firm consistency, smooth surface, presenting a grayish central scar, covered by skin, with a circular shape. When cut, a well-delimited circumscribed area of blackish color with discreet multifocal whitish areas was noted (Image 5). Histopathology showed proliferation of non-encapsulated neoplastic melanocytes from the superficial, infiltrative dermis. The cytoplasm of the cells is rounded, moderate to sparse, some cells contain brownish melanin granules inside. The nucleus is round, stippled chromatin, evident nucleolus (1-3), binucleation. The pleomorphism is moderate, characterized by anisocytosis and anisokaryosis. Mitosis figures were not observed in the fields (Image 6).

Image 1 Main nodular structures observed in the animal (source: personal files 2023).

Image 2 Nodule presenting an ulcerated central region (source: personal archives 2023).

Image 3 Exeresis of the nodules in an elliptical shape (source: personal archives 2023).

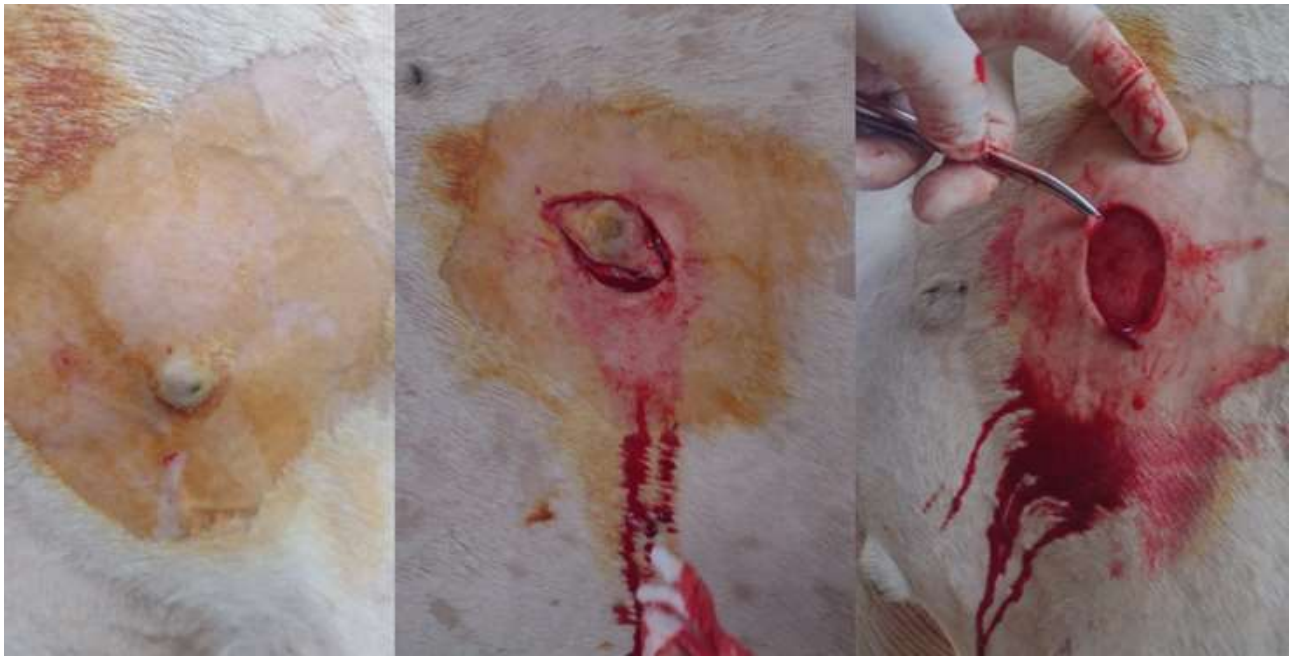


Image 4 Fragment removed from the breastplate measuring about 4.5 cm (source: personal archives 2023).

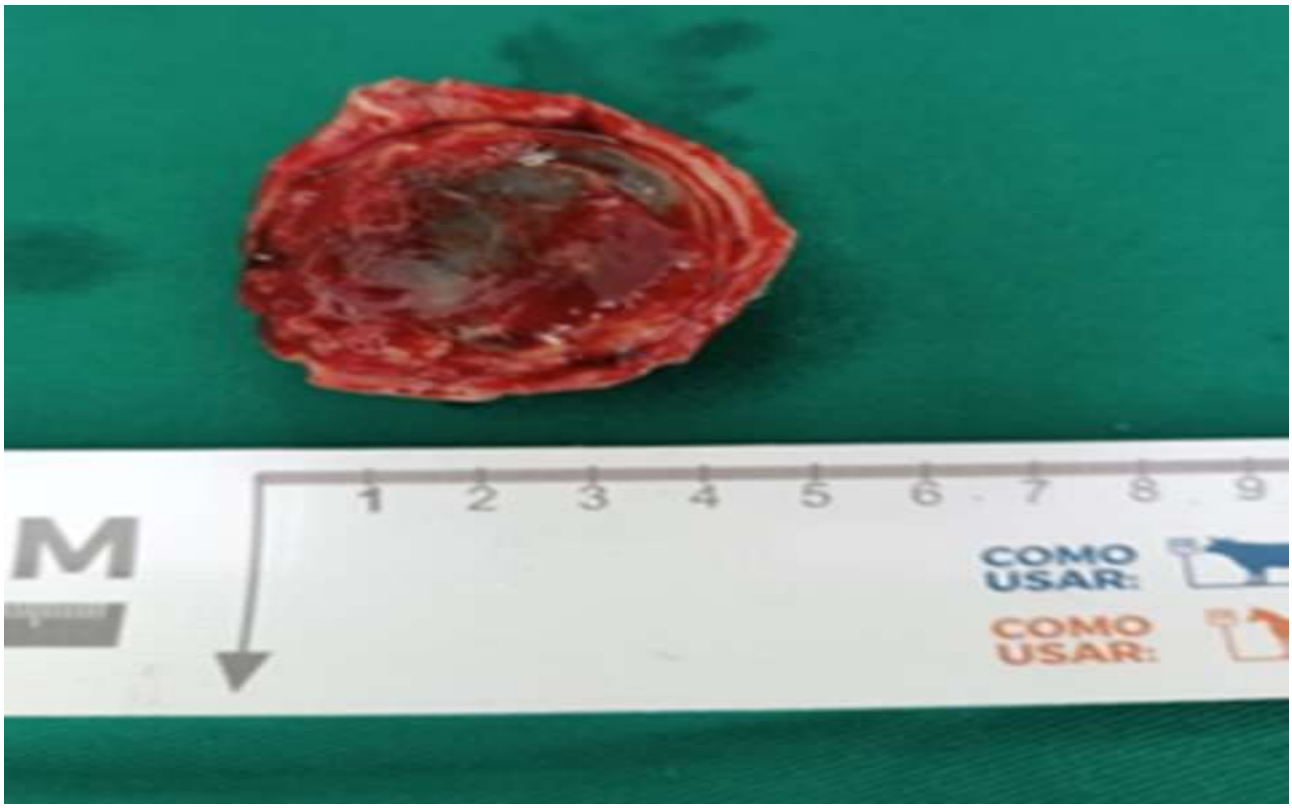


Image 5 A: Nodular structures showing a blackened color. B: nodular structure showing discreet whitish multifocal areas (source: personal archives 2023).

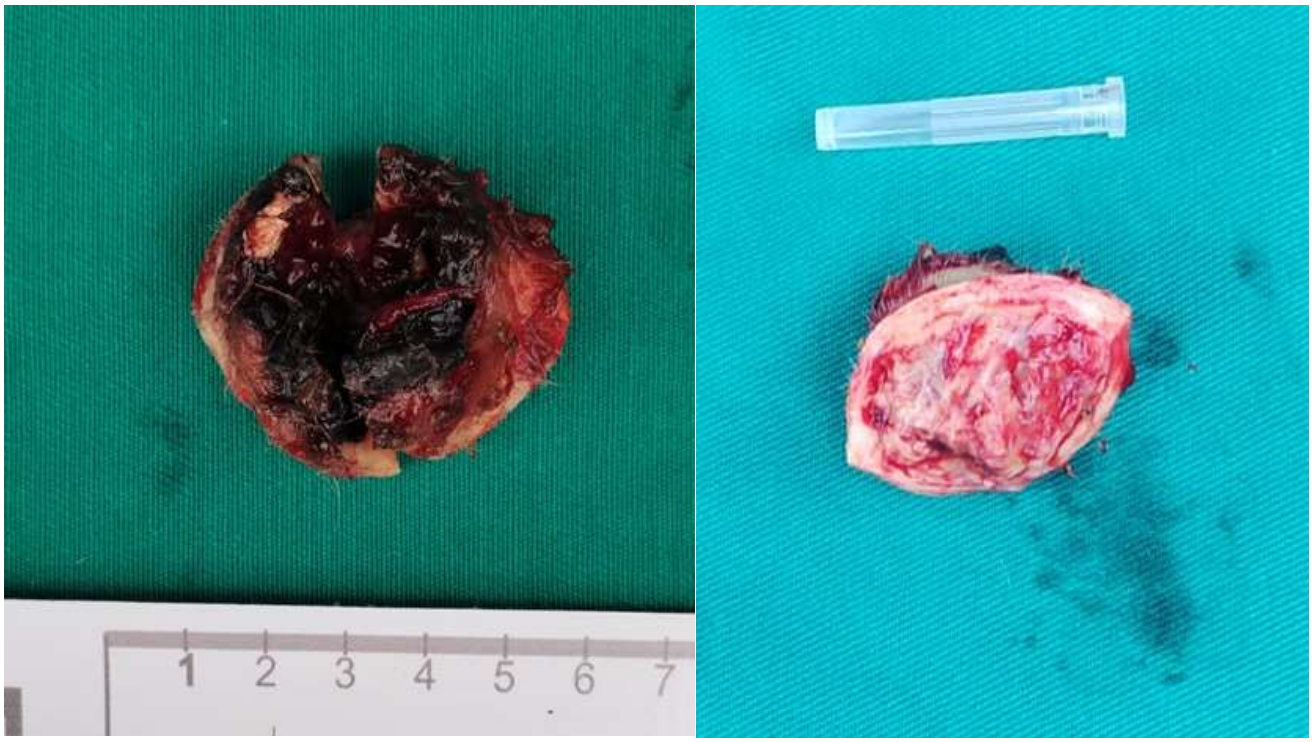
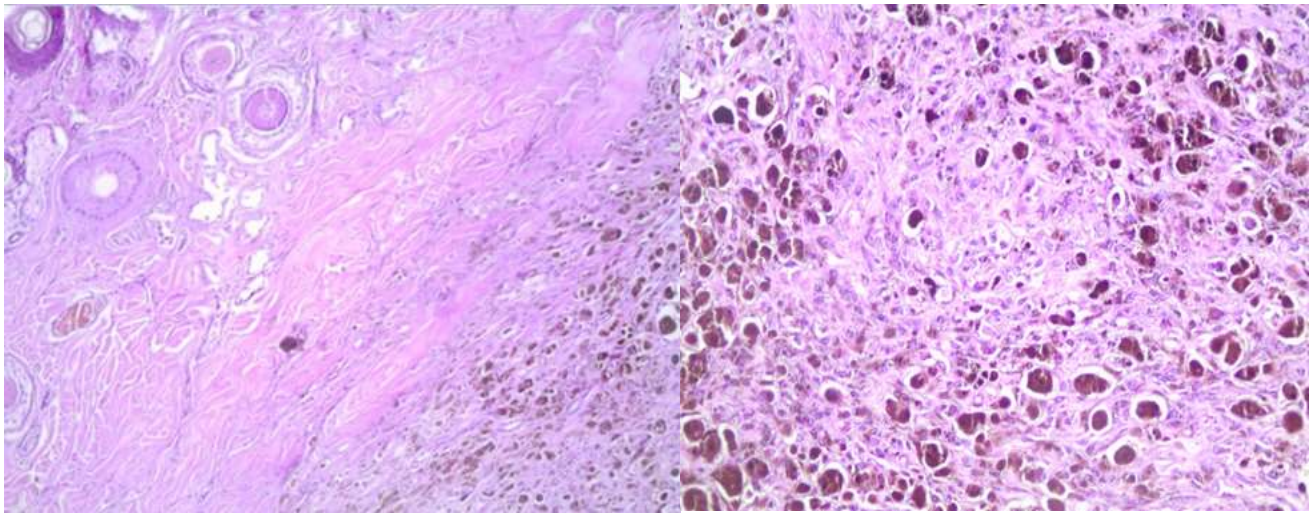


Image 6 Image of the slide obtained through Histopathology. A: image showing histological section with vessels, endothelial cells, intact connective tissue (upper left) and in the lower right margin tissue with hyperpigmentation and characteristic of degeneration characterized by vacuoles compatible with melanoma. B: Histological section of tissue showing areas of hyperpigmentation and vacuoles (source: Personal Archives 2023).



RESULT

Based on the clinical history of the patient, and on the appearance of the diffuse distribution of the lesions, at first, it was thought to be a case of cutaneous lymphoma, since such a presentation is compatible with that described by Leal (2021). Although, when collecting the material for histopathology or the macroscopic appearance of the structures, the case was guided towards a malanoma, since the appearance of the structures was compatible with the description by Rissi et al., (2008) for melanoma.

The association of epidemiological data with the clinical history of the animal was fundamental for the elucidation of the case, since authors such as Pessoa et al., (2014); Pontes et al.,, (2019) and Lima (2021) report the occurrence of melanoma in animals with light fur and more advanced age, factors that can be explained by a dysfunction in melanin metabolism.

The possibility of removing the fragments for histopathological examination made it possible to close the clinical picture, since such an examination presents a good tool for the diagnosis of different diseases (LIMA 2021). With the surgical resection of the nodular structures, the therapeutic intervention has already been performed, since in the treatment of melanoma cases, surgical removal with a wide margin is the recommended method (PONTES et al., 2019; LINDOSO et al., 2017).

CONCLUSION

The case we reported had the intention of collaborating with the behavior of fellow veterinarians in the face of conditions with dermatological involvement in horses, expanding the horizons for neoplastic diseases such as melanoma.

BIBLIOGRAPHIC REFERENCES

HANOUT, Mostafa et al. Cauda equina syndrome as the initial presentation of uveal melanoma metastasis. **European Journal of Ophthalmology,** v. 32, n. 1, p. NP1-NP4, 2022.

SOUSA JUNIOR, Paulo Irineu. **Melanoma metastático em um caprino**. 2022. Trabalho de Conclusão de Curso.

LEAL, Luzia Leon Coelho. Linfoma cutâneo em equino: aspectos clínicos, diagnósticos e terapêuticos. 2021.

LIMA, Alex Teixeira de. Ressecção cirúrgica de melanoma em equino da raça Quarto de Milha-relato de caso. 2021.

LINDOSO, J. V. dos S. *et al*. Melanoma metastático em cão: Relato de caso. **Pubvet**, v. 11, 2017, p. 313-423.

LLOYD, David et al. Practical equine dermatology. **Oxford: Blackwell Science,** 2003.

PESSOA, André Flávio A. et al. Doenças de pele em equídeos no semiárido brasileiro. **Pesquisa Veterinária Brasileira**, v. 34, p. 743-748, 2014.

PONTES, Karla Mayara et al. Remoção cirúrgica de melanoma de terceira pálpebra em equino. **Ciência Animal**, v. 29, n. 2, p. 110-117, 2019.

RADOSTITS, O.M.; GAY, C.C.; HINCHCLIFF, K.W.; CONSTABLE, P.D. Clínica Veterinária: um tratado de doenças dos bovinos, ovinos, suínos, caprinos e equinos. 9ª ed. **Guanabara Koogan,** Rio de Janeiro. 2002. 1737p.

RISSI, Daniel Ricardo et al. Melanoma maligno anaplásico em um eqüino. **Ciência Rural**, v. 38, p. 2072-2075, 2008.

SANTOS, Mateus Cardoso et al. Complicações reprodutivas de melanoma em fêmea equina tordilha da raça Mangalarga Marchador. **Ciência Animal**, v. 30, n. 4, p. 375-378, 2020.

SCOTT D.W. & Miller Jr W.H. 2011. Equinedermatology. W.B. **Saunders**, St Louis. 536p.