








Clinical Reports

Feline sarcoid: case report

Sarcóide Felino: relato de caso

Karla Priscila Garrido Bezerra¹ , Olívia Maria Moreira Borges² , Jefferson da Silva Ferreira¹ , Antônio Flávio Medeiros Dantas^{1,3} , Almir Pereira de Souza^{1,3} 

¹ Postgraduate Program in Science and Animal Health, Federal University of Campina Grande (UFCG), Health and Rural Technology Center (CSTR) Patos, PB, Brazil.

² Professor, Nova Esperança Faculty, João Pessoa, PB, Brazil.

³ Veterinary Medicine Academic Unit – UFCG, CSTR, Patos, PB, Brazil.

ARTICLE INFO

Article history

Received 17 October 2019

Accepted 10 June 2020

Keywords:

Papillomavirus
Fibropapilloma
Benign neoplasia
Cytology
Histopathology

ABSTRACT

It was aimed to describe the clinical and histopathological characteristics of a case of sarcoid tumor in an adult, mixed-breed female cat, with a history of a small increase of volume on the ear. At physical examination, no alteration was found with the exception of the presence of a rounded dermal nodule of 3.0 x 1.5 x 0.5 cm, ulcerated, well-circumscribed, pedunculated, pinkish, solid-elastic, mobile and painless, located on the skin of the border of the auricular pavilion. In the cytological examination of the nodule, the involvement of a benign mesenchymal neoplasia was found. Furthermore, alterations in the hematological examinations were not observed, nor in the imaging tests, and the serological analyses for infection by the leukemia and immunodeficiency were negative. The surgical excision of the nodule was performed, and then the nodule was submitted to histopathologic examination. Microscopically, was verified superficial and deep dermis distended by a non-encapsulated nodule, covered by intact skin, constituted by fibroblasts disposed in random beams predominantly spaced, at times, interspersed by collagen fibers; epidermis with focally extensive acanthosis, projecting papillae in the direction of the superficial dermis. Furthermore, was observed accentuated orthokeratotic hyperkeratosis and, in occasional vessels, the presence of a discreet lymphoplasmocitary infiltrate and an area of focal hemorrhage, compatible with feline sarcoid. 11 months after the conchectomy, relapses have not been observed. This report points to the need of including this neoplasm in the differential diagnosis of cutaneous neoformations in cats with the aforementioned characteristics.

RESUMO

Objetivou-se descrever as características clínicas e histopatológicas de um caso de sarcoide em uma gata, adulta, sem raça definida, com histórico de pequeno aumento de volume na orelha. Ao exame físico, não constatou-se nenhuma alteração à exceção da presença de um nódulo dérmico arredondado de 3,0 x 1,5 x 0,5 cm, ulcerado, de circunferência circunscrita, pedunculado, rosado, firme-elástico, móvel e indolor, localizado na pele da borda do pavilhão auricular. Ao exame citológico do nódulo, constatou-se o envolvimento de uma neoplasia mesenquimal benigna. Ademais, não foram observadas alterações nos exames hematológicos, nem de imagem e as análises sorológicas para infecção pelo vírus da leucemia e imunodeficiência foram negativas. Procedeu-se com a excisão cirúrgica do nódulo, o qual foi submetido a exame histopatológico. Microscopicamente, verificou-se derme superficial e profunda distendida por nódulo não encapsulado, revestido por pele íntegra, constituído por fibroblastos dispostos em feixes aleatórios predominantemente espaçados e, por vezes, entremeados por fibras colágenas; epiderme com acantose focalmente extensa, projetando papilas em direção à derme superficial. Ademais, observou-se hiperqueratose ortoqueratótica acentuada e, em ocasionais vasos, presença de discreto infiltrado linfoplasmocitário e área focal de hemorragia, compatível com sarcoide felino. Decorridos 11 meses após a conchectomia, não constatou-se recidivas. Este relato alerta a necessidade de incluir esta neoplasia nos diagnósticos diferenciais de neoformações cutâneas em gatos com as características supracitadas.

Palavras-chave:

Papilomavírus
Fibropapiloma
Neoplasia benigna
Citologia
Histopatologia

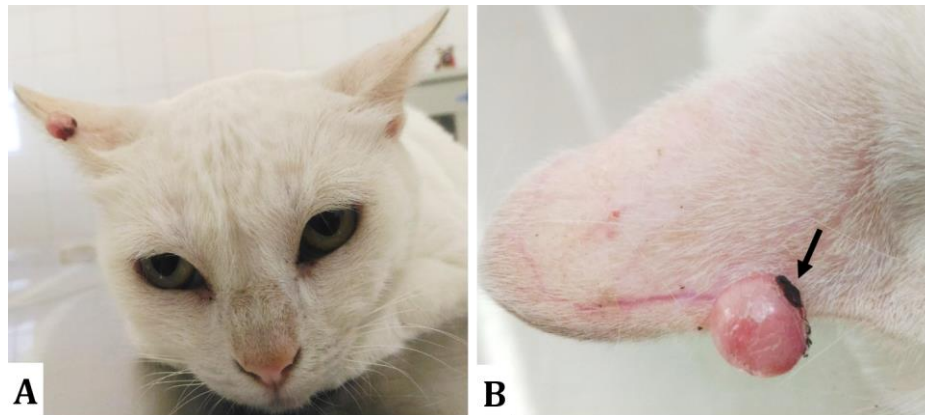
* Corresponding author: priscilagarridomv@gmail.com

INTRODUCTION

Sarcoid is the term, which describes the benign fibroblastic proliferation, generated, mainly, by the bovine papilloma type 1 and 2 (PVB1 and PVB2) (GROSS et al., 2009; HANNA; DUNN, 2003; SCHULMAN; KRAFFT; JANCZEWSHI, 2001). In felines, the involvement of the aforementioned virus in the emergence of the sarcoid is sustained based on the sequencing of a small fragment of the papillomavirus (PV) DNA, entitled feline sarcoid-associated PV (FeSarPV) (GREENWOOD; CAMPBELL; MOVASSEGI, 2019), which had all the genome sequenced and classified as PVB-14, a delta-PV (MUNDAY et al., 2015b). This affection seems to differ, pathogenically, from the feline papillomas, which are attributed to the specific feline papillomaviruses (SUNDBERG et al., 2000).

It is believed that the direct contact with cattle and horses, infected by the papillomavirus (PV), is the main risk factor involved in the development of the sarcoid in felines (SCHULMAN; KRAFFT; JANCZEWSHI, 2001; TEIFKE et al., 2003), considering that this neoplasia is reported, mainly, in cats which reside in the rural area (GROSS et al., 2009; KIEFER et al., 2017; MUNDAY et al., 2015b).

Figure 1. Clinical aspect of the sarcoid in a cat. A) Tumor in the right auricular pavilion in an adult, female, crossbred cat. B) Rounded dermal tumor, located on the border of the right auricular pavilion. Arrow indicating the location of the ulceration.



During the cytological examination of the nodule, collected by the capillary method (25x7mm needle), was observed the involvement of a benign mesenchymal neoplasm (Figure 2).

Furthermore, no alterations were observed in the hematological tests (hemogram, alanine aminotransferase, alkaline phosphatase, urea, creatinine, glucose, gamma glutamyl transferase, albumin and globulin), nor in the imaging tests (thoracic radiography and abdominal ultrasonography) and the serological analyses for the infection by the feline leukemia virus and feline immunodeficiency virus (Alere FIV Ac/FeLV Ag Test Kit®) were negative. The surgical excision of the nodule was performed (Figure 3A and 3B) – with safety

In horses, the sarcoid is the most referenced skin tumor (TEIFKE et al., 2003). In felines, the mentioned neoplasia, with histopathological characteristics similar to the ones of the horses, is rarely diagnosed and described in literature (GUMBRELL et al., 1998; TEIFKE et al., 2003). In view of the above, it was aimed to report a case of sarcoid in a cat, highlighting its macroscopic and histopathological characteristics.

DESCRIPTION OF THE CASE

A four-year-old, crossbred, shorthaired cat, with a history of a small volume increase on the right ear, with an evolution of three months was attended at the University Veterinary Hospital Prof. Dr. Ivon Macêdo Tabosa of Federal University of Campina Grande. According to the owner, the animal lived and had access to surrounding areas inhabited by cattle and horses.

At physical examination, no alteration was found with the exception of the presence of a rounded dermal nodule of 3.0 x 1.5 x 0.5 cm, focally ulcerated, well-circumscribed, pedunculated, pink, solid-elastic, mobile and painless, located on the skin of the border of the auricular pavilion of the right ear (Figure 1A and 1B).

margin – and then it was submitted to histopathological examination.

Microscopically, was verified superficial and deep dermis distended by a non-encapsulated nodule, covered by intact skin, constituted by fibroblasts disposed in random beams predominantly spaced and, at times, interspersed by collagen fibers; epidermis with focally extensive acanthosis, projecting papillae in the direction of the superficial dermis. Furthermore, was observed accentuated orthokeratotic hyperkeratosis and, in occasional vessels, the presence of discreet lymphoplasmocitary infiltrate and an area of focal hemorrhage (Figure 4A and 4B), compatible with feline

sarcoid. 11 months after the conchectomy, relapses have not been observed.

Figure 2. Cytological aspect of the sarcoid in an adult, crossbred, female cat. Hypercellular sample, immerse in amorphous and eosinophilic lamina base, containing mesenchymal cells with slightly oval nuclei, coarse and loose chromatin, no very evident and rarely multiple nucleoli, and moderately basophilic cytoplasm, forming, at times, caudate processes (tip of the black thread).

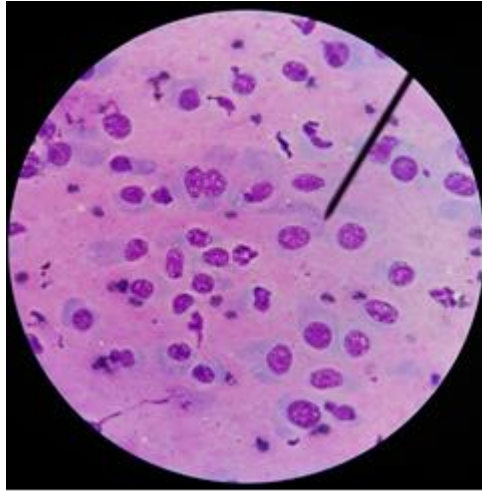


Figure 3. Macroscopic aspect of the Sarcoid in an adult, crossbred, female cat. A) Fragment of the surgical excision of the tumor, with safety margin. B) Cut surface exhibiting a whitish, firm, compact, well defined nodule.

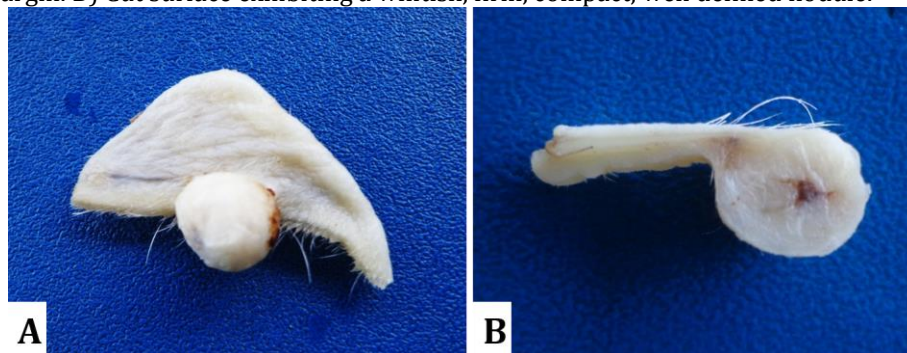
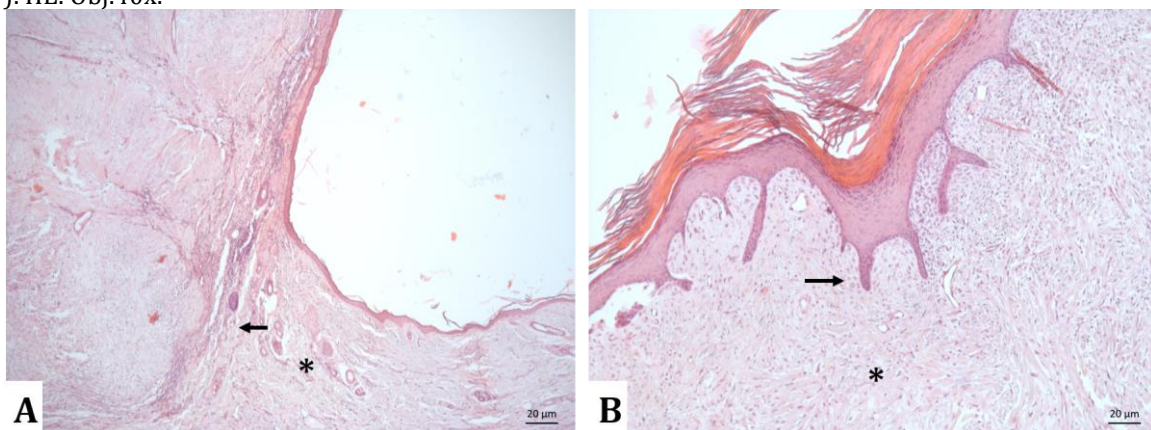


Figure 4. Photomicrographs of the sarcoid in a cat. A) Histopathological section of the transition area between the sarcoid ("arrow") and the normal skin ("asterisk"). HE. Obj.4x. B) Histopathological section showing hyperkeratotic epidermis, with papillary epidermal projections ("arrow"). Dermis presenting a significant quantity of reactive fibroblasts ("asterisk"). HE. Obj.40x.



DISCUSSION

The macroscopic description of the tumor of this case corroborates with the characterizations from other studies of sarcoid in cats (GREENWOOD; CAMPBELL;

MOVASSEGHI, 2019; HANNA; DUNN, 2003; KIEFER et al., 2017; MACEDO et al., 2012; TEIFKE et al., 2003).

The tumor proliferation involves, predominately, the lips, nostrils, ears, digits and tail. Although the infection

route is not elucidated, the aforementioned locations suggest possible associations to traumas prevent from the aggressions between cats – which would facilitate the penetration of the virus in the dermis (SCHULMAN; KRAFFT; JANCZEWSKI, 2001) – or the contamination of wounds, as referenced in cases of equine sarcoid (ANJOS et al., 2010; TEIFKE et al., 2003).

Some authors propose that the main risk factor implied in the development of the sarcoid in cats is the direct contact with cattle and horses infected by the BPV (GREENWOOD; CAMPBELL; MOVASSEGHI, 2019; MUNDAY et al., 2015b; SCHULMAN; KRAFFT; JANCZEWSKI, 2001; TEIFKE et al., 2003). Indeed, the cat of the present report lived and had access to surrounding areas inhabited by cattle and horses, being, supposedly, susceptible to the infection by the BPV. Although it was not carried out in this study, it would be fundamental the confirmation of the involvement of this virus through the identification of its DNA by means of the Polymerase Chain Reaction (PCR), as carried out in studies of sarcoid in cats and lions in other countries (GREENWOOD; CAMPBELL; MOVASSEGHI, 2019; KIEFER et al., 2017; MUNDAY et al., 2015b; ORBELL; YOUNG; MUNDAY, 2011).

In this report, the histopathological examination enabled to reach the diagnosis of sarcoid in a cat, portraying microscopic characteristics similar to those described in other reports in the mentioned species and in horses (GOODRICH et al., 1998; MACEDO et al., 2012; TEIFKE et al., 2003). Furthermore, the mentioned examination made it possible to differentiate the sarcoid from other affections in felines which, also, can be induced by the Papillomavirus, in particular the bowenoid *in situ* carcinoma, characterized by irregular epidermal hyperplasia with hyperchromatic nuclei of the basal layer in addition to cells with retracted nuclei, irregular nucleolus, surrounded by a clear halo (koilocytes) (Lange et al., 2019) and the papilloma, characterized by typical epidermal proliferation, without evidence of dysplasias and, rarely, can be detected intranuclear eosinophilic viral inclusions (Munday et al., 2015a). In the present case, the tissue alterations were dimorphic, in other words, involving the dermis with fibroblast proliferation in the midst of abundant collagen fibers and epidermal hyperplasia towards the dermis, without the formation of digitiform patterns, seen in the papillomas, neither the evidence of malignity, as described in the carcinomas.

Metastatic processes were not identified and the surgical excision of the nodule was efficient for the treatment of the reported cat, without relapses over the course of 11 months after the procedure, as stated by other authors (HANNA; DUNN, 2003; KIEFER et al., 2017; MACEDO et al., 2012; TEIFKE et al., 2003). However, despite the feline sarcoid being described as non-metastatic, cases of relapses after the surgical excision of this neoplasia in cats have been reported (BRANDES; LENDEL; TEIFKE, 2014; GREENWOOD; CAMPBELL; MOVASSEGHI, 2019; KIEFER et al., 2017; MUNDAY et al., 2015b).

CONCLUSIONS

Despite its rare occurrence, the sarcoid must be included in the differential diagnosis of cutaneous neoplasias, in cats, which present the same clinical and pathological characteristics, and despite its benign nature, the surgical excision should be considered.

REFERENCES

- ANJOS, B. L. et al. Sarcóide equino associado ao papilomavírus bovino BR-UEL-4. *Ciência Rural*, v.40, n.6, p.1456-1459, 2010.
- BRANDES, K.; LENDEL, C.; TEIFKE, J. P. A case of a gingival feline sarcoid in a young cat. *Journal of Comparative Pathology*, v.150, n.1, p.104, 2014.
- GOODRICH, L. et al. Equine sarcoids. *Veterinary Clinics of North America: Equine Practice*, v.14, n.3, p.607-623, 1998.
- GREENWOOD, S.; CAMPBELL, O.; MOVASSEGHI, A. R. Oral sarcoid in a cat. *Canadian Veterinary Journal*, v.60, n.5, p.485-489, 2019.
- GUMBRELL, R. C. et al. Dermal fibropapillomas in cats. *Veterinary Record*, v.142, n.14, p.142-376, 1998.
- HANNA, P. E.; DUNN, D. Cutaneous fibropapilloma in a cat (feline sarcoid). *Canadian Veterinary Journal*, v. 44, n.7, p.601-602, 2003.
- KIEFER, C. et al. Feline sarcoid in a 1-year-old domestic short-haired cat caused by bovine papillomavirus type 14 in Switzerland. *Schweizer Archiv für Tierheilkunde*, v.159, n.9, p.487-491, 2017.
- LANGE, C. E. et al. Sequence and classification of FdPV2, a papillomavirus isolated from feline Bowenoid *in situ* carcinomas. *Veterinary Microbiology*, v.137, n. (1-2), p.60-65, 2009.
- MACEDO, T. M. et al. Fibropapiloma cutâneo (sarcóide) felino: relato de caso. *Medvop Dermatol - Revista de Educação Continuada em Dermatologia e Alergologia Veterinária*, v. 2, n. 3, p.106-109, 2012.
- MUNDAY, J. S. et al. Oral papillomas associated with *Felis catus* papillomavirus type 1 in two domestic cats. *Veterinary Pathology*, v.52, n.6, p.1187-1190, 2015a.
- MUNDAY, J. S. et al. Genomic characterisation of the feline sarcoid-associated papillomavirus and proposed classification as *Bos taurus* papillomavirus type 14. *Veterinary Microbiology*, v.177, n. (3-4), p. 289-295, 2015b.
- ORBELL, G. M. B.; YOUNG, S.; MUNDAY, J. S. Cutaneous sarcoids in captive African lions associated with feline sarcoid-associated papillomavirus infection. *Veterinary Pathology*, v.48, n.6, p.1176-1179, 2011.
- SCHULMAN, F. Y.; KRAFFT, A. E.; JANCZEWSKI, T. Feline Cutaneous Fibropapillomas: Clinicopathologic Findings and Association with Papillomavirus Infection. *Veterinary Pathology*, v.38, n.3, p.291-296, 2001.
- SUNDBERG, J.P. et al. Feline papillomas and papillomaviruses. *Veterinary Pathology*, v.37, n.1, p.1-10, 2000.
- TEIFKE, J. P. et al. Detection of papillomavirus-DNA in mesenchymal tumour cells and not in the hyperplastic epithelium of feline sarcoids. *Veterinary Dermatology*, v.14, n.1, p.47-56, 2003.
- GROSS, T. L.; IHRKE, P. J.; WALDER, E. J.; AFFOLTER, V. K. Tumores Fibrosos. In: _____. (Eds.). *Doenças de pele do cão e do gato: Diagnóstico clínico e histopatológico*. 2ª ed. São Paulo: Roca, 2009. p.714-716.