











## Communication

[Comunicação]

### Dermatological record of non-human primates: a semiological approach

Page 1 a 6

[Registro dermatológico de primatas não humanos: uma abordagem semiológica]

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The clinical routine involves using semiological techniques that gather information during anamnesis and physical examination. These techniques require reasoning skills and present challenges (Feitosa, 2014). When it comes to caring for wild animals, these techniques can be applied, but their application may differ from domestic animals (Werther, 2014).

According to Hubbard's (2001) observations, non-human primates (NHPs) frequently experience skin diseases that bear similarities in appearance and infection types to those that occur in humans. It's also important to note that many zoonoses, such as monkeypox and cutaneous leishmaniasis, can cause skin changes in primates (Pereira *et al.*, 2022), which makes it crucial to standardize the assessment of dermatological conditions in these animals.

Veterinary dermatologists generally lack clinical experience in dermatological diseases of NHPs. The published literature does not provide a well-organized description of dermatopathies, and there is a scarcity of information on primary dermatological diseases in free-living or captive NHPs (Bernstein and Didier, 2009, Werther, 2014). Although there have been some studies on variation in skin color, hair, attached and pigmenting glands in NHPs, such studies are still scarce due to the lack of techniques and little

knowledge about the characteristics of their skin (Cramer *et al.*, 2013; Snyder, 2020).

According to Feitosa (2014), a nosological or clinical diagnosis is made by recognizing a disease based on data obtained from anamnesis, physical examination, and/or complementary tests. This highlights the importance of maintaining a well-documented clinical record. The clinical record serves several purposes, including promoting public health, supporting legal action, tracking epidemiological trends, and facilitating investigations (Vergara and Massa, 2013).

This study aims to emphasize the significance of clinical records in veterinary dermatology, propose improvements to existing records for small animals, extend the knowledge to non-human primates, establish a standard in the semiotechnique of NHPs, and develop a form for anamnesis and dermatological diagnosis. The primary objective is to assist veterinarians who work with NHPs.

During a dermatological study conducted on non-human primates at the Centro Nacional de Primatas - National Primate Center (CENP) in Ananindeua, Pará, Brazil, the need to develop a semiological form to guide clinical care was observed. Two initial models containing relevant information were created and adjusted

throughout the project's development. The dermatological clinical record was created using Microsoft Word, while the schematic representation design was created on an iPad Mini, 5th generation, with an Apple Pencil 1st generation in the Procreate application, version 5.3.5 to create the illustrations.

In this study, a clinical record was prepared for NHPs that includes identification information about the animal, such as origin, species, age, and sex. The record also includes details about the animal's main complaint, brief history, signs and symptoms, and specific dermatological examinations that are necessary. To make it easy to note common clinical signs in the routine of these animals, a table was created with fields to mark "yes" or "no" depending on the presence or absence of those signs. Additionally, a description of any identified pathology was added to the table.

To better document anatomical regions of skin lesions, a schematic illustration was created and included in the record. This illustration is used to mark the location of the dermatological examinations and any main skin lesions identified during the physical examination. Skin lesions can be classified according to distribution, configuration, topography, depth, and morphology, and these changes are more easily identified in a schematic illustration in the clinical record.

At the end of the clinical form, we provided a description of the main dermatological exams available. There is also space for filling in the results, presumptive and conclusive diagnosis, prescribed treatments and a topic on compulsory notification. This is important to address zoonotic diseases that animals can present. Additionally, a new topic on grooming was added with fields for normal, absent, over grooming, under grooming and allogrooming. The record (Fig. 1-4) was tested by filling it out for 12 animals during dermatological examinations. It proved to be easy to apply in practice and assisted in the clinical evaluation of the animals.

Veterinary dermatology often poses several challenges for clinicians. To ensure a successful clinical consultation, it is crucial to meticulously analyze each step of the process. This helps to

identify critical points and assists veterinarians in reaching accurate diagnoses. Incomplete or incorrect anamnesis, superficial or hasty physical examinations, and rushed or incorrect assessments of clinical findings can lead to diagnostic errors (Madureira and Brum, 2017).

For a long time, the term "Clinical Record" was used to refer to all clinical documentation. However, considering the ethical, legal, and clinical aspects, the term is now inappropriate due to the vast amount of information that should be included in the patient's medical records. Hence, the most appropriate concept is Medical Records, which includes all documentation related to the patient's care process, including clinical records (Angeletti e Abramowicz, 2001). In this scenario, the clinical record becomes one of the components of the medical record. The medical record is the document that compiles the patient's entire clinical history and must include all medical procedures performed and relevant documents. Despite its significance, there are still several flaws in filling out and preparing medical records, and studies on this topic in Veterinary Medicine remain scarce (Santeramo *et al.*, 2021).

Medical records are incredibly important, in fact, the Regional Medicine Councils in Brazil have made it mandatory for all healthcare facilities to have a Medical Records Review Committee (Brasil, 2002). Santeramo *et al.* (2021) have suggested that there should be legislation to establish similar review committees in veterinary medicine. They have also proposed the creation of a unified electronic medical-veterinary record, similar to the ones used in the Unified Health System, as mandated by the Federal Council of Medicine, CFM Resolution nº 1.638/2002 (Brasil, 2002).

It is important to note that the examination process for domestic and wild mammals differs significantly. The complexity is related to factors such as the diversity of species, their behaviors, and attitudes towards the physical examination (Santana *et al.*, 2020). It is crucial to identify the animal's species, as some diseases are more common in certain types of species (Catão-Dias, 2001). Even within the same species, age, race, sex, and color identification are essential to help the clinician compile data towards a definitive diagnosis (Pal and Patil, 2006).

**Dermatological record...**

**DERMATOLOGICAL RECORD**

Date: \_\_\_/\_\_\_/\_\_\_

ANIMAL IDENTIFICATION: \_\_\_\_\_ TATTOO: \_\_\_\_\_

AGE/AGE GROUP: \_\_\_\_\_ WEIGHT: \_\_\_\_\_ SEX: \_\_\_\_\_

COLORING: \_\_\_\_\_

PROCEDURE: \_\_\_\_\_

VETERINARIAN: \_\_\_\_\_ IDENTIFICATION: \_\_\_\_\_

**ANAMNESIS**

\*What is the chief complaint? \_\_\_\_\_

\*Check-up / screening \_\_\_\_\_

\*When did it start? \_\_\_\_\_

\*How did it evolve? \_\_\_\_\_

\*Previous treatments: \_\_\_\_\_

SIGNS AND SYMPTOMS	YES	NO	OBSERVATIONS
Itching (intensity/period/location)			
Contacts			
Odor			
Pelage			
Easy epilation			
Type of injury			
Lesion location			
Seasonality			
Medicines			
Period/ Dosage			
Response			

DERMATOLOGICAL PHYSICAL EXAMINATION

-Distant examination (fur/skin). Overall impression: \_\_\_\_\_

-Ectoparasites ( ) yes ( ) no Which one? When: \_\_\_\_\_

SKIN - Elasticity Normal / + / - / ? Thickness Normal / + / - / ?

GROOMING: Normal / Absent / over grooming / under grooming / allogrooming

**1**

HAIR - shiny / matte - dry / oily / unchanged

PIGMENTANT GLANDS: \_\_\_\_\_

FOOD: \_\_\_\_\_

COMPLEMENTARY EXAMS

Note: Describe the sector/laboratory and professionals responsible for carrying out the exams

Blank lines to fill in if other exams are performed

EXAME	INFORMAÇÕES
Skin scraping	( ) Negative ( ) Positive Result: _____
Acetate tape impression	( ) Negative ( ) Positive Result: _____
Tooth-comb	( ) Negative ( ) Positive Result: _____
Wood lamp	( ) Negative ( ) Positive Result: _____
Cytology	( ) Negative ( ) Positive Result: _____
Fungal culture	( ) Negative ( ) Positive Result: _____
Antifungigram	
Bacterial culture	( ) Negative ( ) Positive Result: _____
Antibiogram	
Dermoscopy	
Biopsy / Histopathological	Result: _____
Trichogram	Phase: _____
	Hair: _____
	Results: _____
Other exams	

PRESUMPTIVE DIAGNOSIS: \_\_\_\_\_

CONCLUSIVE DIAGNOSIS: \_\_\_\_\_

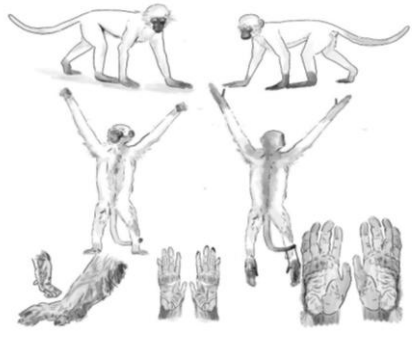
COMPULSORY NOTIFICATION DISEASE: ( ) Yes ( ) No

PREScribed TREATMENTS:

Medicine	Dose and route of administration	Frequency and duration	Results

**2**

**AFFECTED AREAS / EVALUATED (macroscopic appearance)**



Alopecia (AL)	Cellulite (CE)	Collarete (COL)	Comedo (CO)
Crust (CR)	Edema (ED)	Erythema (ER)	Abrasion (AB)
Hyperpigmentation (HY)	Lichenification (LI)	Otopathy (OT)	Papule (PA)
Pruritus (PR)	Pustule (PU)	Seborrhea (SE)	Trauma (TR)

Others: \_\_\_\_\_

\_\_\_\_\_

**3**

Veterinarian signature

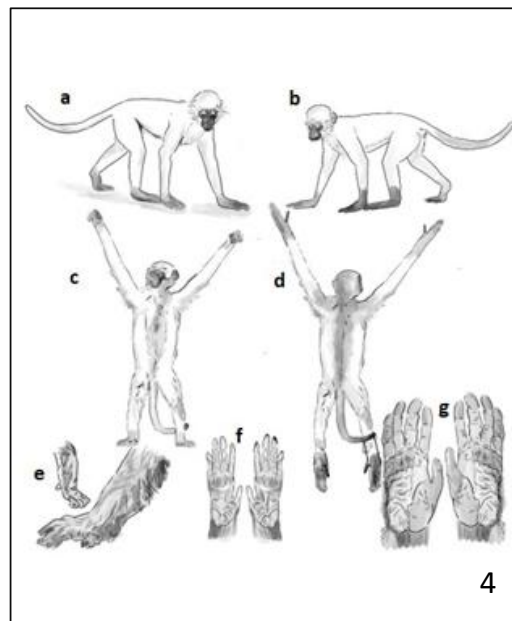


Figure 1-4. Dermatological record which includes an illustration of the animal in all anatomical positions. The illustration can be found in figure 3 and appears highlighted in figure 4 (a) Right side. (b) Left side. (c) Ventral. (d) Dorsal. (e) Thoracic and pelvic (distal) limbs. (f) Right and left palm print. (g) Right and left plantar impressions.

It is crucial for clinicians to have knowledge about the drugs previously administered to the patient and to understand their progress throughout the treatment process (Alpi *et al.*, 2020). This understanding is not only essential to evaluate the effectiveness of the treatment, but also to identify any potential drug interactions or hypersensitivity reactions. Analyzing the occurrence of cases during different seasons can play a significant role in determining the underlying cause of hypersensitivities. For instance, cases of allergic dermatitis related to ectoparasites tend to worsen during the summer, coinciding with the peak of nutritional and water stress. This highlights the importance of considering seasonal factors in the clinical approach (Shilereyo *et al.*, 2022).

Assessing the environment, management, and habits can provide valuable information, such as tables that are closely linked to the products used to clean the facilities, which can cause contact dermatitis. Any changes in the power supply must also be indicated on the record. Dryness and wrinkling of the skin are the first and most important indicators of dehydration. Healthy skin is elastic when pinched with the fingers, quickly returning to its normal position when released (on average, 2 seconds) (Feitosa, 2014). This information has also been included in the form created in this study.

The record includes an evaluation of skin thickness, as several dermatopathies present with changes in skin thickness. In NHPs, *Mycobacterium leprae* causes the lepromatous form of leprosy and affects dermal thickness. Similarly, lesions that occur on the cooler parts of the body (ears, face, distal extremities, tail, scrotum, etc.) cause thickened and often ulcerated skin with dermal and subcutaneous histiocytic inflammation (Baskin, 1993). There are skin diseases directly related to the color of the coat of domestic animals. Examples include color mutant disease in dogs with bluish fur, squamous cell carcinoma in white felines, photosensitization in light or white cattle, and the higher incidence of melanoma in gray-colored horses (Feitosa, 2014). Although there is still no study with primates in this regard, this topic has been added to the record.

Grooming is one of the most studied affiliative behaviors among primates. It is used to strengthen social bonds, calm conflicts, maintain hygiene, and even as "bargaining currency". Most Catarrhini primates spend considerable time grooming, although there are species in which grooming is virtually absent, such as *Presbytis siamensis*, *Semnopithecus johnii* and most Platyrrhini. Therefore, it is important to include this topic in the dermatological record (Sobral, 2021). Alopecia resulting from a variety of etiologies is a common dermatological problem, and the most common cause of focal alopecia is associated with behavioral stress, excessive grooming, or overgrooming, which can be self-inflicted or caused by other primates within a social group (allogrooming) (Roberts *et al.*, 1995).

Clinical records are undeniably valuable for assessing the evolution of a patient's condition during treatment and even for legal defense in case of any legal challenge. However, some professionals fail to fill them out correctly, which can create difficulties in accurately assessing the patient's progress. These records help clinical veterinarians establish an examination sequence and ensure that it is carried out systematically on all animals, regardless of their illness, to avoid missing any relevant data. They are also crucial for carrying out retrospective studies and epidemiological analysis.

Completing the form correctly and as comprehensively as possible is of utmost importance. It has been found to be particularly helpful in non-human primate dermatology projects at the National Primate Center and can serve as an example for future studies and clinical dermatological evaluations of animals.

This topic requires further research to emphasize its importance, and to establish solid foundations for possible standardization of clinical records in different systems, areas, and for different animal species.

Keywords: dermatology, dermatopathies, clinical record

## RESUMO

O estudo da semiologia de primatas não humanos (PNHs) se torna complexo, tendo em vista a grande diversidade de espécies existentes e a escassez de literatura. Com o objetivo de salientar a importância da ficha clínica semiológica na dermatologia veterinária, sugeriu-se um aperfeiçoamento das fichas existentes, em que se transpôs os conhecimentos para PNHs, e estabeleceu-se um padrão na semiotécnica de PNHs. Foi elaborada uma ficha para anamnese e diagnóstico dermatológico, visando auxiliar médicos veterinários. A ficha foi adaptada contendo campos acerca das particularidades anatômicas e fisiológicas dos animais. Foi criada no Microsoft® Word, e o design da representação esquemática foi criado em um iPad® míni, 5ª geração, com uma apple® pencil 1ª geração, no aplicativo Procreate®, versão 5.3.5, para a realização das ilustrações. As fichas clínicas possuem valor incontestável, se preenchidas de forma correta, e auxiliam o clínico no estabelecimento de uma sequência sistemática do exame em todos os animais, sendo extremamente importantes na realização de estudos retrospectivos e análises epidemiológicas. O preenchimento correto e da forma mais completa possível da ficha criada neste estudo auxiliou os projetos desenvolvidos em dermatologia de primatas não humanos no Centro Nacional de Primatas (Ananindeua – Pará, Brasil) e servirá como exemplo para os próximos estudos e avaliações dermatológicas clínicas dos animais.

*Palavras-chave:* dermatologia, dermatopatias, ficha clínica

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