The usefulness of dermoscopy in canine pattern alopecia: a descriptive study

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Background – Dermoscopic studies evaluating noninflammatory, nonpruritic progressive alopecia attributable to pattern alopecia are currently unavailable.

Hypothesis/objectives – To evaluate the dermoscopic features observed in healthy skin of short coated dogs and compare these findings with those observed in dogs affected by pattern alopecia diagnosed by clinical and dermatopathological examination.

Animals – Thirty male and female, healthy, breed matched, young adult, short coated dogs (controls) and 30 male and female, young adult, short coated dogs affected by pattern alopecia.

Methods – Dermoscopy was performed with a Fotofinder II videodermoscope equipped with software that allowed the measurement of structures visualized in magnified images (20×–40×–70×1). Skin biopsy samples were obtained from the thorax and evaluated dermoscopically for dermoscopic–histological correlation in affected dogs.

Results – Dermoscopic findings in canine pattern alopecia were hair shaft thinning, circle hairs and follicular keratin plugs; in the affected sun exposed areas there was a honeycomb-like pattern of pigmentation. Arborizing red lines reflecting vascularization were classified as a nonspecific finding because they were also common in healthy dogs. Dermoscopic features correlated with histology for selected hair follicle abnormalities.

Conclusions and clinical importance – Although canine pattern alopecia is a visually striking disease, this study supports the value of dermoscopy for clinical examination and also opens promising perspectives for the identification of diagnostic dermoscopic patterns that may be useful for other skin disorders.

Introduction

Skin surface microscopy has been reported to date back to 1663, when Johan Kolhaus first looked at nail fold vessels with a microscope. Nevertheless, it was only during the 20th Century that several diagnostic methods were developed utilizing surface microscopy. Currently, two techniques are used for in vivo diagnosis. The first is dermoscopy, originally used to observe and diagnose pigmented skin lesions such as melanocytic nevus and melanoma; the second is trichoscopy of the hair and scalp. Trichoscopy has been used to visualize normal hairs and assess their number per follicular unit, to distinguish whether hair follicle openings are normal, empty, fibrotic or containing biological material as hyperkeratotic plugs, and to study the appearance of perifollicular epidermis and cutaneous microvessels. Therefore, trichoscopy has proved relevant in the differentiation between cicatricial and noncicatricial alopecias. On the one hand, as a large group of disorders characterized by permanent destruction of hair follicles, cicatricial alopecia shows trichoscopic features such as loss of follicular ostia and presence of white patches corresponding to fibrous tracts that mark extinct hair follicles. On the other, in all noncicatricial alopecias, such as alopecia areata and androgenetic alopecia (male and female pattern alopecia), suggestive trichoscopic findings are represented by specific hair shaft and follicular opening abnormalities.

In spite of the widespread use in human medicine, to date only a few studies on the application of dermoscopy...
have been documented in veterinary medicine; specifically in feline dermatology.\textsuperscript{14–16} Moreover, except for an unpublished abstract regarding the dermoscopic features in 35 dogs with juvenile-onset demodicosis and 35 breed- and age-matched dogs,\textsuperscript{17} to the best of the authors’ knowledge there is no dermoscopic study of canine non-inflammatory alopecia. Therefore, the purpose of this study was two fold. The first aim was to evaluate dermoscopic features observed in short coated healthy dogs and compare these findings with those observed in short coated dogs affected by pattern alopecia diagnosed by clinical and dermatopathological examination. The second aim was to validate the use of dermoscopy using histopathology as a reference standard in order to generate dermoscopic criteria that would be useful for the diagnosis of pattern alopecia.

Material and methods

Study population

A population of 30 healthy, short coated dogs was matched with 30 short coated dogs referred for noninflammatory, nonpuritic progressive alopecia attributable to pattern alopecia. Details about both groups are presented in Table 1.

Dogs were owned by dog breeders or clients; informed owner consent was obtained prior to any procedure. Dogs were selected on the basis of the following criteria: (i) no other clinical abnormalities at the time of physical examination; (ii) except for pattern alopecia, no evidence of additional skin lesions on dermatological examination; (iii) for intact female dogs, not being pregnant or lactating; and (iv) normal complete blood count and routine serum biochemical analysis.

Dermoscopic examination

A videodermoscope (Fotofinder\textsuperscript{18} TeachScreen Systems software GmbH; Bad Birnbach, Germany) was used and six body sites including convex pinnae, periaural area, ventral neck, thorax, abdomen and caudal thighs were selected. Alcohol (Kodan\textsuperscript{19} spray, Schulke & Mayr; Vienna, Austria) was applied as an interface solution to better observe surface and subsurface microscopic features.

In order to take a dermoscopic overview image of the selected cutaneous region, images at 20-fold and 40-fold magnification were observed initially. Then, as previously reported\textsuperscript{11} images at 70-fold magnification, which allows a high quality enlargement of 9 mm\textsuperscript{2} of the skin area to the size of the computer screen, were used for statistical purposes. An area of 3.14 mm\textsuperscript{2} was calculated on the selected 70-fold images by means of the FotoFinder\textsuperscript{18} software; dogs with pattern alopecia and controls were compared for the following parameters: diameter and total number of hair tufts next to follicular ostia per examined area; total number of hairs per hair tuft plus the ratio between the number of secondary hairs/primary hair; and diameter of both primary and secondary hairs in each hair tuft. Hair follicle infundibula, perifollicular epidermis and vascular structures such as very small capillaries were also observed.

Dermoscopy versus histopathology

For dermoscopic–histopathological correlation, in 20 of the affected dogs a single skin biopsy taken from the thoracic skin area previously circled with a marker during dermoscopic examination was collected under local anaesthesia using a 4–6 mm skin biopsy punch. The biopsies were fixed in 10% neutral buffered formalin, trimmed, routinely processed and paraffin embedded. Transverse serial sections (4 μm thick) were obtained and stained with haematoxylin and eosin for histological examination. Histological images were observed under an Olympus BX51 photomicroscope equipped with an Olympus C-5060 Wide Zoom and DP software digital camera (Olympus; Tokyo, Japan) for computer-assisted image acquisition and analysis. The slides contained multiple transverse sections of the skin at different levels starting from the papillary and ending with the stratum corneum. For hair follicle number assessment, transverse skin sections were examined at the level of the mid/outer isthmus. The total number of follicular units per examined area and number of total hairs per follicular unit were counted.

Other parameters assessed included: infundibular hyperkeratosis evaluated in the superficial slides at the level of the infundibulum in cross-section; vascularization scored in the same slides used to examine infundibular hyperkeratosis; and pigment clumping evaluated in overall sections and scored according to severity of clumping in bulbs and hair shafts. Infundibular hyperkeratosis was graded as – (absent), + (mild), ++ (moderate) or +++ (severe); vascularization and pigment was graded as – (absent), + (weak), ++ (evident) or +++ (prominent).

Statistical analyses

In order to assess whether dogs with and without pattern alopecia were correctly matched for age and body weight, the Mann–Whitney U-test was used; for sex and hair colour, Fisher’s exact test and an r x c contingency table were used, respectively. For each of the three dog breeds investigated, dogs with pattern baldness and controls were compared for the measured parameters on the six selected body regions described above.

The analysis was performed using the Mann–Whitney test followed by Bonferroni correction. Furthermore, the same hair parameters were compared between regions within each dog breed for those with and without pattern alopecia, using the Friedman test followed by Dunn’s multiple comparison test. To assess whether dermoscopic examination yielded similar results to histology, the Spearman’s rank correlation coefficient was calculated between the total number of hair tufts next to follicular ostia per examined area based on the former method and the total number of follicular units per examined area counted with the latter. The same test was also used to verify whether the total number of hairs per hair tuft at dermoscopy correlated with the total number of hairs per follicular unit identified at histology. Significance was considered with $P < 0.05$. In addition, Cohen’s kappa coefficient was used to assess whether there was agreement between the two methods in the analysis of infundibular hyperkeratosis, vascularization and pigment. $κ$ values <0 indicated no agreement, 0–0.20 slight, 0.21–0.40 fair, 0.41–0.60 moderate, 0.61–0.80 substantial and 0.81–1 as almost perfect agreement. Software package was used for analysis (GraphPad Prism v.5.0; GraphPad Software; La Jolla, CA, USA).

Results

Group matching

Population characteristics did not differ statistically in any of the three breeds between dogs with pattern alopecia and controls, suggesting appropriate matching.
**Dermoscopic features**

In control dogs, hair shafts were grouped into follicular units consisting of thick hairs emerging independently from their follicular ostia and considered as primary hairs, and surrounded by a variable number of thinner hairs all protruding through a common external orifice and considered as secondary hairs (Figure 1a). Other observed features included: hair follicle openings that were not empty, fibrotic or filled with material such as keratotic plugs; no scaling on perifollicular and interfollicular skin surface; and thin arborizing red lines corresponding to vessels between follicular units. All of these findings are illustrated in Figure 1b. In dogs with dilute hair colour, pinpoint black spots were also observed on the interfollicular skin surface.

In dogs affected by pattern alopecia, the most common dermoscopic finding included primary and secondary hair shafts that were shorter and thinner than those of controls (Figure 1c–d). Other findings were: scattered circle hairs, plugging of the follicular infundibulum with yellow brown material and on periaural and caudal thigh regions, a honeycomb-like pigmented network. Scattered circle hairs, plugging of the follicular infundibulum with yellow brown material; on periaural and caudal thigh regions, a honeycomb-like pigmented network. As in control dogs, dogs with dilute hair colour showed interfollicular pinpoint black spots or, in some cases, larger black spots around hair follicle openings. Thin arborizing vessels regularly distributed between follicular units were also detected as in controls. These findings are illustrated in Figure 2 (a–f).

**Dermoscopic parameters**

Results are reported in Table S1.

**Dachshunds**

Comparing dachshunds with pattern alopecia and control dogs, the following significant differences were documented: (i) the median diameter of hair tufts next to follicular ostia was smaller in those with pattern alopecia than control dogs in the convex pinnae (0.05 mm versus 0.08 mm; \( P < 0.001 \)), ventral neck (0.07 mm versus 0.08 mm; \( P < 0.01 \)), chest (0.06 mm versus 0.08 mm; \( P < 0.05 \)) and abdominal region (0.06 mm versus 0.08 mm; \( P < 0.01 \)); and (ii) the median diameter of primary hairs was smaller in those with pattern alopecia in the ventral neck (0.03 mm versus 0.04 mm; \( P < 0.05 \)) and chest (0.03 mm versus 0.04 mm; \( P < 0.01 \)). In dachshunds with pattern alopecia, the periaural region had a higher median ratio of secondary hairs/primary hair [7 (range: 4–14)] than the abdominal region [5 (2–8); \( P < 0.001 \)]. In control dogs, the periaural region had a smaller median diameter of hair tufts located next to follicular ostia [0.07 mm (0.04–0.08)] than the ventral neck [0.08 mm (0.07–0.11); \( P < 0.01 \)], the chest [0.08 mm (0.06–0.11); \( P < 0.01 \)] or abdominal region [0.08 mm (0.06–0.11); \( P < 0.05 \)], whereas the periaural region had a smaller median diameter of primary hairs [0.03 mm

![Figure 1](https://via.placeholder.com/150)

Figure 1. Representative hair features in control dogs and dogs affected by pattern alopecia. Control dogs: (a) primary thick hairs surrounded by thinner secondary hairs (20×); (b) normal hair follicle openings from which emerge thick primary hairs surrounded by thinner secondary hairs; between follicular units, presence of thin arborizing red lines corresponding to vessels and indicated (black arrow) (70×). Affected dogs: (c) diffuse hair thinning (20×); (d) both primary and secondary hairs thinner and shorter than in controls. Arborizing red lines are evident between follicular units (black arrow) (70×).
Italian greyhounds
Between Italian greyhounds with pattern alopecia and control dogs, the median diameter of hair tufts next to follicular ostia was smaller in those with pattern alopecia [0.05 mm (0.04–0.07)] than control dogs [0.07 mm (0.07–0.08); P < 0.01] in the ventral neck. No other differences were documented for the hair tuft parameters in any region.

Miniature pinschers
Between miniature pinschers with pattern alopecia and control dogs, the following significant differences were documented: (i) the median diameter of hair tufts next to follicular ostia was smaller in those with pattern alopecia than control dogs in the convex pinnae [0.05 mm (0.04–0.07)] versus [0.07 mm (0.07–0.08); P < 0.01], ventral neck [0.01 mm versus 0.02 mm; P < 0.001], and caudal thigh [0.05 mm versus 0.07 mm; P < 0.01]; and (ii) the median diameter of secondary hairs was smaller in those with pattern alopecia than control dogs in the convex pinnae [0.01 mm versus 0.02 mm; P < 0.01], ventral neck [0.01 mm versus 0.02 mm; P < 0.001] and chest region [0.01 mm versus 0.02 mm; P < 0.01].

In control dogs the convex pinnae had a higher median ratio [9 (8–11)] than either the chest [5 (5–6); P < 0.05] or caudal thigh [5 (4–6); P < 0.01].

Histological findings
In transverse histological sections taken from the thoracic region, hair follicles were characterized by a moderate to severe decrease in size without distortion or irregularity of their contour or reduction of the overall number of adnexal units. Infundibular hyperkeratosis and melanin clumping were also variably observed, whereas in some areas, vessels appeared more prominent but not increased in number.

Dermoscopy versus histopathology
Dermoscopic and histological findings are reported in Table S2. A very strong positive correlation was observed.
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Figure 3. Correlation of the number of hair tufts located next to follicular ostia based on dermoscopy (x-axis) with number of follicular units counted with histology (y-axis). The regression line is shown.

for the total number of hair tufts next to follicular ostia based on dermoscopy and the total number of follicular units per examined area counted with histological examination (\( \rho = 0.898; 95\% \text{ CI} = 0.750–0.961; P < 0.001 \)).

Also, the total count of hairs per hair tuft at dermoscopy correlated with the total number of hairs per follicular unit identified with histological examination (\( \rho = 0.688; 95\% \text{ CI} = 0.683–0.948; P < 0.001 \)) (Figure 3). A fair agreement was observed between dermoscopic and histopathological findings for the analysis of follicular hyperkeratosis (\( \kappa = 0.333; 95\% \text{ CI} = 0.013–0.679 \)) with 12 of 20 (60%) agreements, vascularization (\( \kappa = 0.200; 95\% \text{ CI} = 0.120–0.520 \)) with nine of 20 (45%) agreements and pigment (\( \kappa = 0.294; 95\% \text{ CI} = 0.032–0.556 \)) with 11 of 20 (55%) agreements.

Discussion

In this study dermoscopic findings in dogs affected by pattern alopecia have been characterized for the first time, highlighting the value of dermoscopy as an adjunctive technique for cutaneous clinical examination.

Canine pattern alopecia is a relatively common but poorly studied skin disorder somehow similar to, but also clearly different from, human androgenetic alopecia. Fine hairs referred to as miniaturized hairs represent the hallmark clinical presentation of the disorder in people. However, to the best of the authors’ knowledge, in vivo measurement of hair shaft thickness based on dermoscopy has not been performed before in dogs. In this study, the first hair parameter measured dermoscopically was the median hair tuft thickness diameter next to follicular ostia, which was shown to be smaller in all affected dogs compared with controls. This result is not surprising if we consider that the relative thinning of hairs is the most striking feature of the disease. Of note, however, differences between breeds and within the same breed were detected, dependent on other hair parameters accounted for. For example, in affected dachshunds the median ratio between the number of secondary hairs:primary hairs was shown to be higher in diseased animals than in controls in all the skin regions evaluated. The periaural region demonstrated the largest number of secondary hairs. Moreover, within the group of dachshund dog controls, the periaural region was demonstrated as having the smallest median diameter of primary hairs, indicating that thinning of hairs in this region may be considered as a normal feature in this breed. In Italian greyhounds, the ventral neck region was described as affected mainly by thinning hairs, and this finding indicates the relevance of this region in distinguishing affected from healthy dogs. In miniature pinschers, secondary hairs were smaller in affected dogs than in control dogs, mostly in the convex pinnae, ventral neck and chest areas, whereas in control dogs the median number of secondary hairs:primary hairs ratio was higher in the convex pinnae. All of these results taken together reveal that hair shaft thinning in canine pattern alopecia is a process that does not simultaneously affect all hairs of all regions, and that great variability exists between and within affected dog breeds. This variability may be the result of artificial selection pressure for extremely fine hair coats sought by breeders who often attempt to manipulate the appearance of a dog, thereby predisposing it to this presumptively genetic alopecia.

In order to provide both qualitative and quantitative diagnostic follicular information, transverse sections of skin biopsy specimens were used in this study, as in human studies. Some key information such as follicular counts was easily assessed and histological findings were shown to positively correlate with dermoscopic calculations of hair parameters. However, accurate determination of growth stages of the hair cycle was not possible on transverse sections due to the absence of the entire length of the hair follicle including site, shape and depth of the hair inferior portion and, specifically, of the bulb. Therefore, longitudinal sections may continue to provide the best morphological and spatial information to assess specific growth stages of the hair cycle in dogs.

In order to detect other dermoscopic features that could differentiate diseased dogs from controls, hair follicle openings, perifollicular and interfollicular skin surface, and vascular structures were examined dermoscopically and evaluated in conjunction with histological findings. Follicular ostia filled with light yellowish or brownish material were observed mostly in the ventral regions of dogs affected by pattern alopecia; histologically, this was related to a variable amount of keratin filling the follicular infundibulum. In humans, this dermoscopic finding, termed ‘yellow dot’, represents sebum mixed with variable amounts of keratin secreted by normal, active sebaceous glands through the miniaturized hair follicle. Therefore, the result of this process is the accumulation of yellow material in the follicular infundibula. In spite of a fair agreement between dermoscopy and histopathology that might have been influenced by preparation of the biopsy site, our hypothesis is that a similar mechanism may occur in canine pattern alopecia.

Moreover, in some affected dogs, hairs with typical circular or spiraliform arrangement were observed...
dermoscopically, but no histopathological change was identified in relation to this dermoscopic feature. In humans, circle hairs are seen on the abdomen, buttocks, trunk and upper legs, as coiled hairs without any signs of follicular abnormality. Their pathogenesis is still unclear; some authors believe they correspond to remnants of the mammal undercoat, and others postulate that they are hairs with a smaller diameter making it difficult for the hairs to perforate the stratum corneum, resulting in coiling underneath the skin surface. Based on this, our dermoscopic finding could provide an explanation, but further studies are necessary to better understand the pathogenesis of these hairs with this typical arrangement.

Agreement between dermoscopy and histopathology was demonstrated for pigment, mostly in dogs with dilute hair colour, probably as a result of abnormal melanin deposition in and around hair follicles. Pin-point and large black spots corresponding to melanin clumping were dermoscopically observed on the inter-follicular skin surface and this finding may open new insights into the application of dermoscopy for other skin disorders.

Finally, a honeycomb-like hyperpigmentation pattern, characterized by hyperchromic rings on the skin surface and resulting from solar exposure in thinning or completely balding areas, as demonstrated in humans, often coexisted as an additional feature in the periaural and caudal thigh regions. However, these regions were not selected for histological correlation and this finding requires further studies in order to be better elucidated.

Cutaneous microvessels that arborize into thin red branches in a nonhomogeneous fashion were considered nonspecific dermoscopic findings because they are also common in normal skin. Given that dermoscopy enables horizontal inspection of the skin, vessels that run parallel to the skin surface are visualized as lines, whereas those that run perpendicular are generally viewed as dots, or even loops. However, they are best evaluated when the pressure exerted by the dermoscope against the skin is low. High outside pressure may indeed reduce blood flow in cutaneous capillaries. In this study, the lack of dermoscopic visualization of cutaneous blood vessels in some selected areas and the fair agreement demonstrated with histopathology may have resulted from excessive pressure applied to the skin with the dermoscopy instrument. Translucent ultrasound gel that allows gentler application of the lens against the skin in order to better visualize blood vessels could be used in future studies.

In summary, the results of this study suggest that although pattern alopecia is a visually striking disease, dermoscopy provides additional information beyond that obtained by evaluating the lesions through a dermatological examination. Besides hair thinning, new dermoscopic features have been identified offering the clinician a novel way in which to uncover clinical aspects of hair disorders. In the future, dermoscopy may be of benefit in further studies to differentiate various hair disease states.

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References

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Supporting Information

Additional Supporting Information may be found in the online version of this article.

Table S1. Results of dermoscopic hair parameters in both affected and control dogs.

Table S2. Dermoscopichistological correlation of quantitativeand qualitativeparameters.

Resumen
Contexte – Les études dermoscopiques portant sur l’alopecie progressive non prurigineuse non inflammatoire attribuable à une alopecie en patron sont actuellement indisponibles.
Hypotheses/Objectifs – Évaluer les critères dermoscopiques de la peau saine des chiens à poils courts et de comparer ces données à celles observées chez les chiens atteints d’alopecie en patron diagnostiquée par examen clinique ou dermatopathologique.
Sujets – Trente chiens mâles et femelles, sains, croisés, jeunes adultes, à pelage court (contrôles) et 30 chiens mâles et femelles, jeunes adultes, à pelage court atteints d’alopecie en patron.
 Méthodes – La dermoscopie a été réalisée par un vidéodermoscope Fotofinder II équipé d’un logiciel permettant la mesure des structures visualisées en image grossie (20 x -409 x -709 x). Des biopsies cutanées ont été réalisées au niveau du thorax et évaluées par dermoscopie pour corrélations dermatopathologique chez les chiens atteints.
Conclusions et importance clinique – Bien que l’alopecie en patron soit une maladie visuellement singulière, cette étude rapporte l’intérêt de la dermoscopie pour l’examen clinique et aussi ouvre de perspectives prometteuses pour l’identification et le diagnostic des patrons dermoscopiques qui pourraient être utiles pour d’autres atteintes cutanées.

Resumen
Introducción – estudios dermoscópicos evaluando la alopecia no inflamatoria, no pruriginosa progresiva conocida como alopecia en patrón definido no están disponibles actualmente.
Hipótesis/objetivos – Evaluar las características dermoscópicas observadas en la piel sana de perros de pelo corto y comparar estos resultados con los observados en los perros afectados por alopecia de patrón definido diagnosticada tras examen clínico y dermatopatológico.
Animales – Treinta perros machos y hembras, sanos, emparejados por raza, adultos jóvenes de pelo corto (control) y 30 perros machos y hembras, jóvenes adultos de pelo corto afectados por la alopecia.
Métodos – la dermoscopia se realizó con un videodermoscopio Fotofinder II equipado con un software que permite la medición de estructuras visualizadas en imágenes ampliadas (20 x -409 x -709 x). Muestras de biopsia de la piel se obtuvieron de tórax y se mediante dermoscopia para poder realizar una correlación dermoscopia-histología en los perros afectados.
Resultados – los hallazgos dermatoscópicos en la alopecia de patrón definido en perros fueron disminución del grosor del cabello, pelos circulares y tapones de queratina folliculares; en las áreas afectadas expuestas al sol había un patrón en forma de panel de la pigmentación. Líneas ramificadas rojas que reflejaban la vascularización se clasificaron como un hallazgo inespecífico, ya que también eran comunes en perros sanos. Las características dermatoscópicas se correlacionaron con la histología en las anormalidades del pelo seleccionadas.
Conclusiones e importancia clínica – Aunque la alopecia de patrón definido canina es una enfermedad visualmente impactante, este estudio apoya el valor de la dermoscopia para el examen clínico y también abre perspectivas prometedoras para la identificación de patrones dermoscópicos de diagnóstico que pueden ser útiles para otros trastornos de la piel.

Zusammenfassung
Hintergrund – Zurzeit gibt es keine dermoskopischen Untersuchungen, die nichtentzündliche, nichtjuckende progressive Alopecie analysierten, welche einer Pattern Alopecie zugeschrieben werden konnte.
Hypothese/Ziele – Eine Evaluierung der dermoskopischen Merkmale, die in gesunder Haut von Hunden mit einem kurzen Haarkleid beobachtet werden können und ein Vergleich dieser Befunde mit jenen, die bei Hunden, die mittels klinischer und dermatopathologischer Untersuchung mit einer Pattern Alopecie diagnostiziert worden waren.

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Tiere – Dreißig männliche und weibliche, gesunde, den Rassen angepasste, erwachsene, kurzhaarige Junghunde (Kontrollen) und 30 männliche und weibliche, kurzhaarige Junghunde, die eine Pattern Alopezie aufwiesen.


Schlussfolgerungen und klinische Bedeutung – Obwohl die Pattern Alopezie des Hundes eine visuell markante Erkrankung darstellt, stützt diese Studie den Wert der Dermoskopie als Teil der klinischen Untersuchung und eröffnet eine vielversprechende Perspektive zur Identifizierung der diagnostischen dermoskopischen Merkmale, die auch für andere Hauterkrankungen hilfreich sein könnten.
709x). Biópsias de pele foram obtidas da região do tórax e avaliadas dermatoscopicamente para correlação de dermatoscópica e histopatológica em cães afetados.

**Resultados** – Achados dermatoscópicos na alopecia padrão canina foram adelgaçamento das hastes pilosas, pelos circulares e tampões de queratina. Nas áreas expostas à radiação solar, nos animais afetados, havia um padrão de pigmentação similar a colmeias de abelhas. Linhas vermelhas ramificadas indicando vascularização foram classificadas como um achado não específico porque também foram comuns nos cães hígidos. Características dermatoscópicas correlacionaram com determinadas alterações do foliculo piloso.

**Conclusões e importância clínica** – Apesar da alopecia padrão canina ser uma doença visualmente singular, este estudo reitera o valor da dermatoscopia para o exame clínico além de abrir promissoras perspectivas para a identificação de padrões dermatoscópicos que podem ser úteis para outras dermatopatias.