Archives of Veterinary Medicine, Vol. 19, No. 1, 90-106, 2026
UDC 636.8: 616.31:[614.9
DOI: https://doi.org/10.46784/e-avm.v18i2.483

Original research article

CLINICAL AND EPIDEMIOLOGICAL INVESTIGATION OF FELINE CHRONIC GINGIVOSTOMATITIS AND PERIODONTAL DISEASE IN BLIDA, NORTH OF ALGERIA

Asma Dahmani*, Safia Zenia[2]

[1]Institute of Veterinary Sciences, University Blida 1, B.P. 270, Soumaa Road, 09000, Blida, Algeria
[2]Laboratory Research "Animal Health and Production" Superior National Veterinary School - B.P. 165, Issad Abbas, El Alia, Algiers, Algeria

Received: 20.06.2025. Accepted: 24.11.2025.

© 2026 Dahmani and Zenia. This article is distributed under the terms of the Creative Commons Attribution 4.0 International License (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are properly credited.

Abstract

Oral diseases are frequent issues in cats. The objectives of this study were to determine the prevalence, clinical signs, and risk factors associated with these conditions. Out of the 470 cats presented to a private veterinary clinic in the Blida region of northern Algeria, 76 (16.17%) were diagnosed with oral pathologies and included in the study. For each animal, potential risk data were obtained from medical record and cat owner interviews. The most frequent oral condition was gingivitis (60.52%), followed by feline chronic gingivostomatitis (44.73%), periodontitis (31.57%), eosinophilic granuloma complex (6.57%), jaw fracture (3.94%), mouth obstruction by chicken bone with, hypodentia (2.63%), prognatism and tooth caries with 1.31% for each clinical finding. The most common clinical signs of oral conditions were halitosis (85.52%), followed by pain (73.68%), anorexia (72.36%), tartar buildup (68.42%), dehydration (53.49%), ulceration (47.36%), palatoglossitis (40.78%), fever (34.21%), bleeding and dental mobility with 32.89% observed in each group. The breed, vaccination status, diet, home dental care, living environment and owner's awareness of oral diseases were found to be significantly associated with periodontal disease and feline chronic gingivostomatitis. Indeed, European breeds, unvaccinated cats, those fed a mixed diet, cats that did not receive home dental care, cats with outdoor access, and those

*Corresponding author: asmavet42@yahoo.fr

whose owners lacked knowledge about oral diseases were the most susceptible to these two conditions. The present study revealed a non-negligible prevalence of oral conditions, particularly periodontal disease and stomatitis. Appropriate recommendations need to be introduced to control these diseases.

Key words: mouth diseases, cats, symptoms, clinical trials, risk factors, Algeria

INTRODUCTION

Oral health is a fundamental yet often overlooked aspect of overall feline health. The oral cavity of cats can be affected by a number of diseases, ranging from tartar and plaque buildup to more serious problems such as gingivitis, periodontal disease, tooth resorption, tumors, and chronic gingivitis and periodontitis (Chaubey et al., 2021). These conditions are not only painful but can also lead to systemic complications affecting the heart, kidneys, and liver through the entry of oral bacteria into the bloodstream (Niemiec, 2012). These oral diseases are among the most common health problems diagnosed in domestic cats, yet they are often not recognized by owners or even veterinarians. A survey in Finland reported that dental and oral diseases were the most prevalent disease category in cats (prevalence 28%), and dental calculus and gingivitis were the most prevalent clinical signs noted (Vapalahti et al., 2016). Additionally, periodontal disease was the most prevalent diagnosis-level disorder in cats based on UK clinic data, accounting for 13.9% of all feline diagnoses (O'Neill et al., 2014). These inflammatory oral diseases in cats are complex and multifactorial conditions consisting primarily of local or widespread inflammation in the oral cavity (Kornya et al., 2014). Viral diseases such as feline leukemia virus (FeLV), feline immunodeficiency virus (FIV), calicivirus can show the signs of oral inflammation. Nutritional disorders also contribute to oral diseases. There is evidence that breed and therefore genetics play some role in periodontal disease development in cats (O'Neill et al. 2023). In Algeria, cats are often brought to the clinic only when they exhibit advanced symptoms. Routine oral exams are rare, veterinary dental care is often not prioritized, and information on the prevalence and nature of feline oral diseases is still limited. Insufficient knowledge about these conditions in Algeria cats motivated this study. Therefore, a survey was conducted in order to determine the prevalence, clinical signs, and risk factors of oral conditions in cats in a veterinary office in Blida.

MATERIAL AND METHODS

A total of 470 cats of different breeds, ages, and sex from a private veterinary clinic located in the region of Blida were examined from July 1st to August 30th, 2024. Only patients displaying clinical signs of oral diseases (oral pain, halitosis, anorexia, tartar…) and cats whose owners consented to their participation in the

study and completed the questionnaire face-to-face were included. Demographic data and risk factors were collected through face-to-face questionnaires with the cats' owners. The following data were acquired: the animal's age, breed, sex, lifestyle, dental hygiene, vaccinations, hunting behavior, type of diet and the owner's knowledge of oral diseases. The types of food included dry, wet and mixed food. The lifestyles included indoor housing or outdoor housing. Additionally, the owners provided information on the duration and persistence of symptoms, as well as potential stressors.

The cat vaccination protocol includes the feline leukemia virus vaccine, and a combined vaccine against feline panleukopenia and feline viral rhinotracheitis (herpesvirus and calicivirus): The first vaccination, around 8 weeks of age, 2 to 3 injections spaced approximately 3 weeks apart are required to ensure adequate immunization. Rabies vaccination is administered from 3 months of age. Annual boosters are required.

Detailed clinical examination of each patient was carried out. Visual inspection was applied while respiration, pulse rates and rectal temperature were carefully recorded. Oral and dental clinical examination was performed on cats admitted to the clinic. Evaluation of the animal's oral health in a conscious state was performed as a visual intraoral examination in sternal recumbency using a headlight. An examination of the teeth, gingiva, and oral cavity was conducted as thoroughly as the animal permitted. Attention was paid to whether any gingivitis, stomatitis, plaque, calculus, persisting deciduous teeth, missing or mobile permanent teeth, dental defects, or malocclusions were found. For aggressive animals, sedation was performed using 2% Xylazine (Vetopharm pro, Algeria) of 0.1 to 0.2 mL/kg (2 to 4 mg/kg) intramuscular/subcutaneous. If a problem was suspected, a detailed dental examination was performed using specialized dental instruments, including William's periodontal probe to evaluate gingival and periodontal health, and a dental explorer to assess the hard surfaces of the teeth. Mouth mirrors were used to check the posterior teeth and surfaces.

Data analysis was performed using Microsoft Excel 2010 and Statistical Data for Social Science (SPSS) 26 © IBM Copyright, IBM Corporation and its licensors 1989.2019 IBM, USA. Univariate analysis was performed to assess each independent variable for its unadjusted association with disease. The chi-square test of homogeneity and in dependence as well as the test of Mac-Nemar were performed. The statistical significance level used for this study was $p < 0.05$.

RESULTS

From 470 cats inspected in veterinary office, 76 patients were diagnosed with oral affections with a prevalence of 16.17%.

Of the 76 diagnosed cases, the results (Table 1) showed that most of the cats in this study were suffering from gingivitis (Figure 1A, Figure 1D), followed by

FCGS (Figure 1C), periodontitis (Figure 1D, Figure 2A), eosinophilic granuloma complex, while very low frequencies were observed for jaw fractures (Figure 1B) and mouth obstruction by chicken bones, as well as for hypodontia, prognathism, and tooth caries (Figure 2B). A highly significant difference (< 0.0001) was recorded between the different conditions.

Table 1: Number and frequencies of oral conditions recorded in examined cats

Clinical finding	No. of cats affected	% of cats affected
Gingivitis	46	60.52
FCGS	34	44.73
Periodontitis	24	31.57
Eosinophilic granuloma complex	5	6.57
Jaw fracture	3	3.94
Mouth obstuction by chicken bone	2	2.63
Hypodentia	1	1.31
Prognathism	1	1.31
Tooth caries	1	1.31

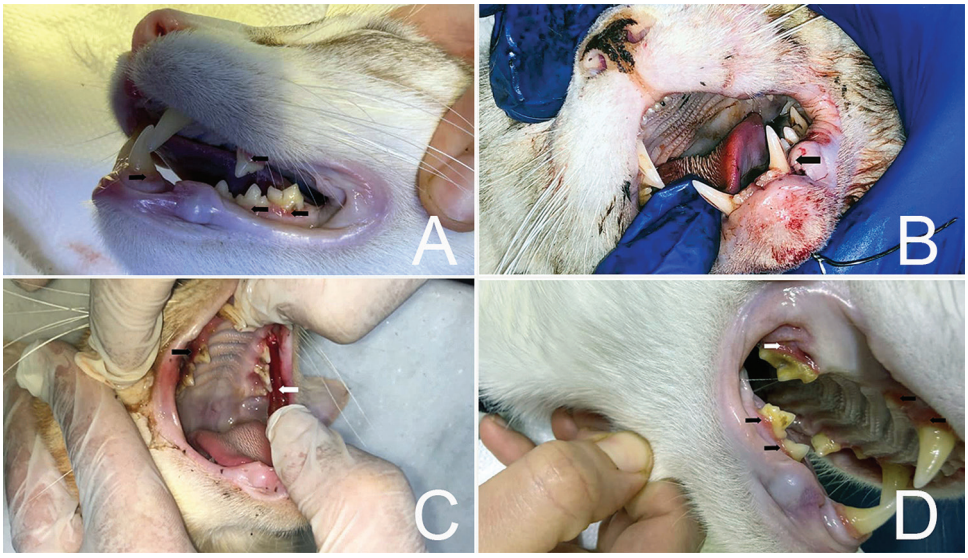

Figure 1. A: Gingivitis (black arrow), B: Fracture of the left lower jaw (black arrow), C: Ulcero-proliferative lesions of FCGS with maxillary gingivitis (black arrow) and alveolar mucositis (white arrow), D: Gingivitis (black arrow) and periodontitis in the upper right premolar (white arrow).

Figure 2. A : Severe periodontitis with oral abscess (black arrow) : severe attachment loss, exposure of furcation and tooth root, B : Tooth caries in the upper right premolar (black arrow).

For each cat, we documented either a single pathology or a combination of two to three pathologies. Highly significant difference was recorded between the three cases ($p < 0.0001$). Periodontal disease was the most common pathology and was found alone in 36 cats (47.36%) or associated with other pathologies especially FCGS in 32 cases (42.10%). With the exception of two cases, FCGS was always associated with periodontal disease in 32 cases (42.10%) (Table 2).

In all cats diagnosed with oral conditions, the most common clinical signs are showed in Table 3. The chi-square test was highly significant (< 0.0001) between the different clinical signs recorded.

Among the 70 cats diagnosed with periodontal disease, 50 (71.42%) had tartar, whereas 20 (28.57%) did not. Conversely, of the 52 cats that showed the presence of tartar, 50 (96.15%) were diagnosed with periodontal disease, while only 2 (3.84%) were not. The Mac-Nemar test was highly significant ($p = 0.00012$) (Table 4).

Table 2: Distribution of clinical cases among the 76 cats examined

	Clinical findings	N° of cats	%
Presence of one pathology	Periodontal disease	36	47.36
	Jaw fracture	1	1.31
	Mouth obstuction by chicken bone	1	1.31
	Prognathism	1	1.31
	Hypodentia	1	1.31
Total		**40**	**52.63**
Presence of two concurrent pathologies	Periodontal disease + FCGS	27	35.52
	FCGS + Eosinophilic granuloma complex	2	2.63
	Periodontal disease + Jaw fracture	1	1.31
	Periodontal disease + Mouth obstuction by chicken bone	1	1.31
Total		**31**	**40.78**
Presence of three concurrent pathologies	Periodontal disease + FCGS + Eosinophilic granuloma complex	3	3.94
	Periodontal disease + FCGS + Jaw fracture	1	1.31
	Periodontal disease + FCGS + Tooth caries	1	1.31
Total		**5**	**6.57**
Total number of cats with oral conditions		***76***	***100***

Periodontal disease (gingivitis alone or periodontitis alone or gingivitis + periodontitis)

Table 3: Proportion of clinical symptoms recorded in cats

Clinical signs	N	%
Halitosis	65	85.52
Pain	56	73.68
Anorexia	55	72.36
Tartar (calculus)	52	68.42
Dehydration	41	53.49
Ulcerations	36	47.36
Palatoglossitis	31	40.78
Fever	26	34.21
Dental mobility	25	32.89
Bleeding	25	32.89
Glossite	15	19.37
Ptyalism	5	6.57

Table 4: Association between tartar and periodontal disease

		Periodontal disease		Total
		Presence	Absence	
Tartar	**Presence**	50	2	**52**
	Absence	20	4	4
Total		**70**	6	76

Associations of risk factors with the prevalence of periodontal diseases and FCGS

The association of demographic data and risk factors with periodontal disease and FCGS are shown in Table 5. Chi-square analysis revealed significant associations between these conditions and breed, vaccination status, diet, home dental care, living environment, and owners' awareness of oral pathologies. Cats aged 1 year and older were the most affected by periodontal disease. Regarding FCGS, the highest prevalence was observed in cats under 1 year of age. No significant difference ($p > 0.05$) was found between age groups for the two pathologies. For both pathologies, females were slightly more affected than males. No significant difference ($p > 0.05$) was recorded for sex of cats for each pathology. Regarding breed, the European breed had a higher risk of periodontal disease and FCGS. The chi-square test was highly significant ($p < 0.0001$). Unvaccinated cats were more susceptible to both conditions than cats that received vaccination. The difference was significant for periodontal disease ($p < 0.0168$) and highly significant for FCGS ($p < 0.00001$). Cats fed a mixed diet had higher prevalence than those fed only a dry or wet diet. The chi-square test was highly significant ($p < 0.0001$) for each pathology. The prevalence of both pathologies was too high for cats that did not receive home dental care with a highly significant difference ($p < 0.0001$) for each condition. Cats allowed outdoors had a higher likelihood of developing these diseases compared to strictly indoor cats. The statistical difference was very significant for the two diseases. Cats that hunt seem to have a higher risk of developing periodontal disease and FCGS than cats that do not hunt, but with no significant statistical difference for both pathologies. Owners generally had limited knowledge about oral diseases and were not well-informed about oral pathologies. The statistical difference was highly significant for periodontal disease ($p < 0.00001$) and very significant for FCGS ($p = 0.006$).

Table 5: Analyses of cats affected with periodontal disease and stomatitis according to risk factors.

Group	Periodontal disease			FCGS		
	N	%	P-value	N	%	P-value
Age						
< 1 year	27	38.57	0.558	21	61.76	0.17
≥ 1 year	43	61.42		13	38.23	
Sex						
Male	32	45.71	0.473	14	41.17	0.303
Female	38	54.28		20	58.82	
Breed						
Angora	1	1.42	<0.0001	1	2.94	<0.0001
Persian	6	8.57		0	0	
Siamese	8	11.42		1	2.94	
European	55	78.57		32	94.11	
Vaccination						
Yes	25	35.71	<0.0168	2	5.88	<0.00001
No	45	64.28		32	94.11	
Diet						
Dry	10	14.28	<0.00001	6	17.64	<0.00001
Wet	6	8.57		6	17.64	
Mixed	54	77.14		22	64.70	
Home dental care						
Yes	2	2.58	<0.00001	0	0	<0.00001
No	68	97.14		34	100	
Living environment						
Indoor	23	32.85	0.0041	7	20.58	0.0006
Outdoor	47	67.14		27	79.41	
Hunting						
Yes	42	60	0.094	22	64.7	0.086
No	28	40		12	35.29	
Owner's knowledge about oral pathologies						
Yes	18	25.71	<0.00001	9	26.47	0.006
No	52	74.28		25	73.52	

DISCUSSION

The prevalence of oral disorders in cats in this study was almost similar to 15.1% reported by O´Neill et al. (2014), but lower than the 21.2% and 84% reported by O'Neill et al. (2023) and Aula (2018), respectively. The variation in results could be due to differences in the populations studied (feral versus domestic cats) and the diagnostic methods employed (clinical versus radiographic) (Verhaert and Van Wetter, 2004), diet, life style, popular breeds of cats in each country and duration of sample collection.

In the present study, the periodontal disease (92.10%) was the most frequent diagnosis (60.52 % for gingivitis, 31.57% for periodontitis). Similarly, studies from different countries reported that the main oral disease observed in felines is periodontal disease (Perry and Tutt, 2015) with a reported prevalence ranging from 13.4 % to 92.75%. Indeed, our results are similar to 91.7% (gingivitis 73.2% periodontitis 18.5%) found by Verhaert and Wetter (2004) and 92.7% found by Elseddawy et al. (2023). Da Silva et al. (2019) reported lower prevalences (65.11%: gingivitis 13.95%, periodontitis 51.16%), followed by Kornya et al. (2014) at 31.8% (gingivitis 20.7%, periodontitis 11.1%), Whyte et al. (2022) at 30.9%, O'Neill et al. (2023) at 15.2%, and O'Neill et al. (2014) at 13.4%. This difference in prevalence between studies may be due to the criteria and method applied for diagnosis and the cohort demographics (O'Neill et al., 2023). According to Long (2020), an important proportion of cats with periodontal disease still goes undiagnosed. The underdiagnosis of oral diseases may be due to factors such as problematic patient temperament, which can prevent a conscious clinical examination, and the fact that clinical signs of oral disease are often nonspecific to the oral cavity (Gorrel, 2013). The second most common oral disease recorded in our study was FCGS (44.73 %) which was close to the result of Da Silva et al. (2019) who noted a prevalence of 34.88% and Öztürk Gürgen et al. (2022) who recorded 45.76%. However, it was higher than the 12% reported by Verhaert and Van Wetter (2004), 5.5% recorded by Girard et al (2009) and 0.7% noted by Healey et al. (2007). These studies were conducted on cats with no contact with the external environment or on cats whose interactions with other cats could be controlled. However, as the cats in the present study were exposed to the external environment, contact with other cats could not be controlled. This represents a significant distinction compared to other studies. Eosinophilic granuloma complex was identified as the pathology of oral cavity in 6.57 % of the cats included in the present study. Our results were lower than 11.1% found by Falcão et al. (2020), but higher than 1.63% noted by Scott et al. (2012). Bone fracture, congenital and developmental problems (hypodentia and prognatism with 1.31% for each disease), tooth caries were not seen frequently in our study. The same findings were recorded by Verhaert and Van Wetter (2004) who reported low rates of malocclusion (4.9 %) and supernumerary tooth (1.2%), by Aula (2018) who noted a rate of 1% of retained deciduous teeth and Elseddawy

et al. (2023) who found a prevalence of 0.40% of missing teeth, 1.61% of persistent deciduous teeth and 0.8% of tooth caries. No cases of bone fracture were reported in the aforementioned studies.

Different studies observed nearly identical clinical symptoms. Wiggs and Lobprise, (1997) noted that the most common clinical signs of periodontitis are halitosis, ptyalism, dysphagia, pain on chewing and bleeding gingiva. For FCGS, clinical signs include severe oral pain with reduced food prehension ability, ptyalism, mandibular lymphadenopathy, dysphagia, anorexia, « unkempt appearance » (Wiggs and Lobprise, 1997; Niemiec, 2012), halitosis, loss of appetite, depression, weight loss (Dai et al., 2024) and (in severe cases) even dehydration.

According to Chaubey et al. (2021), the calculus was the main cause for the development of gingivitis. However, many other factors also predispose the disease progress: tooth crowding and morphology, low saliva flow and systemic illnesses such as renal dysfunction and diabetes mellitus (Albuguergue, 2012). Additionally, we found that among cats with tartar, 96.15% had periodontal disease, while the remaining cats without periodontal disease may have had a stronger immune system. Periodontal disease results from an imbalance between the host and the microbes.

For periodontal disease, we found that cats aged 1 or older were the most affected. Age was the most significant predictor of periodontal disease (O'Neill et al., 2023) and seems to be the main factor because older cats are more susceptible to the developing oral pathologies (Villegas-Ferre et al., 2024). In addition, Williams et al., (2024) noted that significant proportion of young cats can develop gingival inflammation. This infammation at a young age may be due to a syndrome called juvenile periodontal disease, which is the infammation of the gingiva occurring shortly after the permanent dental eruption (Villegas-Ferre et al., 2024). Regarding FCGS, the youngest cats—those under 1 year of age—were the most affected. This could be explained by the fact that these young animals were not vaccinated and exposed to the outside environment. FCGS is most frequently observed in adult cats (Healey et al., 2007; Öztürk Gürgen et al., 2022), whereas Nakanishi et al. (2019) reported that cats can also be affected at an early age. On the other hand, some studies showed that there was no significant difference in the age distribution of cats with and without FCGS (Healey et al., 2007; Dai et al., 2024). For both pathologies, females were slightly more affected than males, although the difference was not statistically significant, which aligns with the findings of Verhaert and Van Wetter (2004) and Girard et al. (2009) who reported that the sex does not appear to be associated with the risk of periodontal disease in cats. Also, our results are in agreement with many studies that showed no significat correlation between FCGS and sex (Healey et al., 2007; Öztürk Gürgen et al., 2022; Dai et al., 2024). However, Villegas-Ferre et al. (2024) reported that sex appears to be associated with a predisposition to gingivitis, with males being more susceptible, although the underlying reason remains unclear. Martijn (2009) noted that the male sex was

significantly associated with stomatitis. A higher prevalence of stomatitis was also identified in males than in females in a study conducted by Kim et al. (2023), but the difference was not statistically significant.

The European breed had a significantly higher risk of periodontal disease and FCGS than other breeds. O'Neill et al. (2023) noted that breed and therefore genetics play some role in periodontal disease development in cats. It was also shown that some breeds (Himalayan, Siamese, Persian, Balinese, Oriental, Seychellois, Abyssinians, Ocicats and Somalis) are more likely to have dental diseases than other breeds or mixed breed cats (Verhaert and Van Wetter 2004; Nakanishi et al., 2019). On the other hand, Healey et al. (2007) and Dai et al. (2024) found that there is no significants correlation between the breed of cats and stomatitis. The variability in the results is probably due to the popularity of particular cat breeds at different times. This variability probably shows that in the areas where pedigree cats are more common, they become affected. We recorded that cats that did not receive vaccination were more susceptible to periodontal disease and stomatitis. Several viruses of worldwide distribution have been associated with FCGS: Calicivirus (FCV) (Healey et al., 2007), Felin Herpesvirus (FHV) (Lommer and Verstraete, 2003), and Feline Leukemia Virus (FeLV), and with periodontal disease (FeLV, Feline Immunodeficiency Virus (FIV), FCV) (Wiggs and Lobprise 1997; Kornya et al. 2014). Da Silva et al. (2019) concluded that even when associations are found, other factors must also be considered in the development of oral cavity lesions in cats**.** Most cats affected in our study were unvaccinated against these viruses, leading us to conclude that there is consistent evidence linking FCV and/or some of these viruses to the disease, suggesting a potential etiologic role. Additionally, the infected cats in our study exhibited free-roaming behavior, which is a known risk factor for FeLV, FIV, FHV and FCV infection (Whyte et al., 2017). This condition causes permanent exposure of cats to viruses shed by chronic carriers, by promoting high rates of viral evolution and by facilitating cyclic reinfection of susceptible animals. Numerous studies showed an influence of diet on periodontal health. Williams et al. (2024) have reported that the odds of gingivitis in cats were higher in cats fed a wet only or mixed wet/dry diet compared to dry only. It is suggested that dry foods offer protection from gingivitis compared to wet diets, potentially due to the mechanical cleaning of dental surfaces and the reduced rate of dental plaque and calculus accumulation**.** This helps to prevent plaque accumulation and gingival inflammation (Williams et al., 2024). Dry diets have, however, been associated with an increased risk of obesity (Rowe et al., 2015). Therefore, gingivitis should not be the only factor guiding dietary choices made by cat owners (Williams et al., 2024). Tooth brushing is usually considered to be the most effective way to remove dental plaque and prevent or reduce calculus formation. Lertpimonchai et al. (2017) found that average and poor oral hygiene (OH) significantly increased the risk of periodontitis by two- and five-fold, respectively, compared to good OH. In contrast, regular tooth brushing and visits to the dentist could reduce periodontitis

by 34% and 32% respectively. The accumulation of dental plaque and tartar, associated with poor oral hygiene, is one of the risk factors in the development of periodontal disease (Lertpimonchai et al., 2017). According to Verstraete et al. (1996), a natural lifestyle, including feral cats or house cats with outdoor access and hunting behavior, does not prevent periodontal disease. Additionally, Verhaert and Van Wetter (2004) found that hunting behavior does not appear to influence periodontal status . Recent studies showed that the prevalence of FCGS was higher in multicat than single-cat households, and that each additional cat in the household increased the odds of FCGS by more than 70% (Peralta and Carney, 2019). Kim et al. (2023) noted that the high prevalence of FCGS in the feral cats may have an infectious mechanism. Free-roaming behavior is a known risk factor for FeLV, FIV, FHV and FCV infection, but non-infectious mechanisms related to multi-cat environments like stress could also play a role in the etiopathogenesis (Peralta and Carney, 2019). On the other hand, Verhaert and Van Wetter (2004) found that different lifestyles (living inside, allowed to go outside) do not seem to affect periodontal status and the outdoor access was not significantly associated with periodontal disease (Soltero-Rivera et al., 2023). Additionally, contrary to our findings, some authors reported that cats whose owners indicated they hunt were associated with a lower prevalence of periodontal disease (Verstraete et al., 1996 ; Williams et al., 2024). It is plausible that some owners may be unaware of hunting activity in their cats, or that the level of hunting activity is not directly linked to the actual consumption of captured prey (Williams et al., 2024). Further studies are required to investigate the association between hunting behaviour and oral health in cats. This finding is consistent with previous literature, which indicates that many pet owners underestimate the importance of routine dental checkups, resulting in inadequate home care and missed early signs of disease (Oskarsson et al. 2021). Owners who receive proper education from veterinarians about oral care are more likely to adhere to preventive measures, including tooth brushing, dental diets, and regular clinical check-ups (Girard et al., 2009).

CONCLUSION

These findings suggest that oral illness in cats, such as gingivitis, periodontal disease, and FCGS are not only common but also have severe implications if not treated. These illnesses progress subtly, making continuous monitoring and early detection essential. The survey also highlighted that most cat owners have limited knowledge about the importance of dental care. This offers practical recommendations for improving the management of oral diseases and highlights the urgent need for enhanced education and advocacy by veterinarians, animal welfare organizations, and society at large. Some limitations, particularly the small number of animals studied, may affect the generalizability of our findings. Further

studies are needed to determine the true prevalence of oral diseases in cats across different regions of Algeria.

Author's contribution

A.D. was responsible for the study's concept and design, data collection, manuscript drafting, data analysis, result interpretation, and final manuscript preparation. S.Z. carried out the statistical analysis, critically revised the manuscript, and approved the final version. All authors reviewed and approved the final manuscript for publication.

Funding

The authors received no funding for this case report.

Ethical statement

This study was based exclusively on observations recorded during routine oral examinations of cats conducted in a private veterinary clinic. All procedures were performed solely for diagnostic and therapeutic purposes and did not involve any additional interventions beyond standard veterinary care. Animal welfare was fully respected throughout the study. Written informed consent for participation and publication of the results was obtained from all owners. In line with applicable regulations, ethical committee approval was not required for this type of non-experimental clinical study.

Competing interests

The authors declare that there is no conflict of interest.

Authors' ORCiD IDs:

Dahmani Asma: https://orcid.org/0000-0003-1632-8310
Zenia Safia: https://orcid.org/0000-0002-2319-1001

REFERENCES

Albuguergue, C., Morinha, F., Requicha, J., Martins, T., Dias, I., Guedes-Pinto, H., Bastos, E., Viegas, C. 2012. Canine periodontitis: The dog as an important model for periodontal studies. Veterinary Journal, 191, 3, 299-305. https://doi.org/10.1016/j.tvjl.2011.08.017

Aula, A.M. 2018. Prevalence of indicators of dental diseases in dogs and cats: risk factors for oral pathology and correlation of owner perception with clinical examination findings. Thesis, Institute of Veterinary Medicine and Animal Sciences, Estonian University of Life Sciences Kretuzwaldi.

Chaubey, M., Prabu, D., Suganya, P., Bharathwaj, V.V., Sindhu, R., Dhamoodhar, D., Shreelakshmi, S., Rajmohan, M., Prashanthy, M.R. 2021. Comparative analysis of oral health status between breeds of dogs (Canine) and cats (Feline) In Chennai City, Tamilnadu, India- A Cross-Sectional Study on Veterinary Dentistry. National Volatiles & Essentials Oils, 8, 5, 4340- 4346.

Da Silva, A.P., Flores, M., Mazaro, R., Da Luz, F., Silva, M., Fighera, R.A. 2019. Oral lesions and retroviruses in shelter cats. Pesquisa Veterinaria Brasileira, 39, 7, 516-522. https://doi.org/10.1590/1678-5150-pvb-5892

Dai, P., Yang, M., Du J., Wang, K., Chen, R., Feng, X., Chen, C., Zhang, X. 2024. Epidemiological investigation of feline chronic gingivostomatitis and its relationship with oral microbiota in Xi'an, China. Frontiers in Veterinary Science, 11, 1418101. https://doi.org/10.3389/fvets.2024.1418101

Elseddawy, F.D., Behery, A.E., Hendy, E.A., Ezzeldein, S.A. 2023. Dental disorders in dogs and cats : A retrospective study. T*he Iraqi Journal of Veterinary Medicine,* 37, 1, 245-251. https://doi.org/10.33899/ijvs.2022.133750.2289

Falcão, F., Faísca, P., Viegas, I., de Oliveira, J.T., Requicha, J.F. 2020. Feline oral cavity lesions diagnosed by histopathology : a 6-year retrospective study in Portugal. Journal of Feline Medicine and Surgery, 22, 10, 977-983. https://doi.org/10.1177/1098612X19900033

Girard, N., Servet, E., Biourge, V., Hennet, P. 2009. Periodontal health status in a colony of 109 cats. Journal of Veterinary Dentistry, 26, 3, 147-155. https://doi.org/10.1177/089875640902600301

Gorrel, C. 2013. Oral disease – often overlooked. Journal of Small Animal Practice. 54, 1, 1-2. https://doi.org/10.1111/jsap.12010.x

Healey, K.A.E., Dawson, S., Burrow, R., Cripps, P., Gaskell, C.J., Hart, C.A., Pinchbeck, G.L., Radford, A.D., Gaskell, R.M. 2007. Prevalence of feline chronic gingivo-stomatitis in first opinion veterinary practice. Journal of Feline Medicine and Surgery, 9, 5, 373-381. https://doi.org/10.1016/j.jfms.2007.03.003

Kim, D.H., Kwak, H.H., Woo, H.M. 2023. Prevalence of feline chronic gingivostomatitis in feral cats and its risk factors. Journal of Feline Medicine and Surgery, 25, 1. https://doi.org/10.1177/1098612X221131453

Kornya, M.R., Little, S.E., Scherk, M.A., Sears, W.C., Bienzle, D. 2014. Association between oral health status and retrovirus test results in cats. Journal of the American Veterinary Medical Association, 245, 8, 916-922. https://doi.org/10.2460/javma.245.8.916

Lertpimonchai, A., Rattanasiri, S., Arj-Ong Vallibhakara, S., Attia, J., Thakkinstian, M. 2017. The association between oral hygiene and periodontitis: a systematic review and meta-analysis. The *International* Dental Journal, 67, 6, 332-343. https://doi.org/10.1111/idj.12317

Lommer, M.J., Verstraete, F.J. 2003. Concurrent oral shedding of feline calicivirus and feline herpesvirus 1 in cats with chronic gingivostomatitis. Oral Microbiol Immunol, 18, 2, 131-134. https://doi.org/10.1034/j.1399-302x.2003.00033.x

Long, E. 2020. How to perform a conscious oral examination on a cat and what to look for. Veterinary Nurse, 11, 1, 36-41. https://doi.org/10.12968/vetn.2020.11.1

Martijn, P.C.M. 2009. Prevalence of feline calicivirus in cats with chronic gingivitis stomatitis and potential risk factors. Thesis, Utrecht University, Netherlands.

Nakanishi, H., Furuya, M., Soma, T., Hayashiuchi, Y., Yoshiuchi, R., Matsubayashi, M., Tani, H., Sasai, K. 2019. Prevalence of microorganisms associated with feline gingivostomatitis. Journal of Feline Medicine and Surgery, 21, 2, 103-108. https://doi.org/10.1177/1098612X18761274

Niemiec, B.A. 2012. Unusual forms of periodontal disease. In *Veterinary Periodontology*, Ed. B.A. Niemiec, Ames, IA: Wiley-Blackwell, 91-104.

O´Neill, D.G., Church, D.B., McGreevy, P.D., Thompson, P.C., Brodbelt, D.C. 2014. Prevalence of disorders 271 recorded in cats attending primary-care veterinary practices in England. Veterinary Journal, 202, 2, 286-291. https://doi.org.10.1016/j.tvjl.2014.08.004

O'Neill, D.G.O., Blenkarn, A., Brodbelt, D.C., Church, D.B., Freeman, A. 2023. Periodontal disease in cats under primary veterinary care in the UK: frequency and risk factors. Journal of Feline Medicine and Surgery, 25, 3. https://doi.org.10.1177/1098612X231158154

Oskarsson, K., Puurtinen, A.L., Penell, J.C. 2021. Dental problems and prophylactic care in cats knowledge and perceptions among Swedish cat owners and communication by veterinary care staff. Animals. 11, 9, 2571. https://doi.org/10.3390/ani110925

Öztürk Gürgen, H., Keçici, P.D., Yüzbaşioğlu Öztürk, G., Gürel, A. 2022. Retrospective study of feline oral cavity neoplasms and non-neoplastic lesions, between 2010 and 2020. Acta Veterinaria Eurasia, 48, 1, 12-17. https://doi.org/10.5152/actavet.2021.21018

Peralta, S., Carney, P.C. 2019. Feline chronic gingivostomatitis is more prevalent in shared households and its risk correlates with the number of cohabiting cats. Journal of Feline Medicine Surgery, 21, 12, 1165-1171. https://doi.org/10.1177/1098612X18823584

Perry, R., Tutt, C. 2015. Periodontal disease in cats. Back to basics –with an eye on the future. The Journal of Feline Medicine and Surgery, 17, 1, 45 -65. https://doi.org/10.1177/1098612X14560099

Rowe, E., Browne, W., Casey, R., Gruffydd-Jones, T., Murray, J. 2015. Risk factors identified for owner-reported feline obesity at around one year of age: dry diet and indoor lifestyle. Preventive Veterinary Medicine, 121, 3-4, 273-281. https://doi.org/10.1016/j.prevetmed.2015.07.011

Scott, D.W., William, H., Miller, J.R. 2012. Idiopathic Eosinophilic Granuloma in cats : A retrospective study of 55 cases (1988-2003). The Japanese Journal of Veterinary Dermatology, 18, 1, 13-18. https://doi.org/10.2736/jjvd.18.13

Soltero-Rivera, M., Vapniarsky, N.L., Rivas, I. Arzi, B. 2023. Clinical, radiographic and histopathologic features of early-onset gingivitis and periodontitis in cats (1997–2022). The Journal of *Feline* Medicine and *Surgery,* 25, 1, 1-10. https://doi.org.10.1177/1098612X221148577

Vapalahti, K., Virtala, A.M., Joensuu, T.A., Tiira, K., Tähtinen, J., Lohi, H. 2016. Health and Behavioral survey of over 8000 Finnish cats. Frontiers of Veterinary Science, 3, 70. https://doi.org.10.3389 /fvets.2016,00070

Verhaert, L., Van Wetter, C. 2004. Survey of oral diseases in cats in flanders. Vlaams Diergeneeskundig Tijdschrift, 73, 331-341.

Verstraete, F.J., van Aarde, R.J., Nieuwoudt, B.A., Mauer, E., Kass, P.H. 1996. The dental pathology of feral cats on Marion Island, part II: Periodontitis, external odontoclastic resorption lesions and mandibular thickening. Journal of Comparative Pathology, 115, 3, 283-297. https://doi.org/10.1016/s0021-9975(96)80085-5

Villegas-Ferre, A.G., Martinez-Aguilar, V., Valencia-Arjona, S., Gutie´Rrez-Blanco, E., Jime´Nez-Coello, M., Segura-Correa, J.´C., Ortega-Pacheco, A. 2024. Prevalence and progression of gingivitis in domestic cats in subtropical Mexico. Veterinary Medicine International, 6611814. https://doi.org/10.1155/2024/6611814

Whyte, A., Gracia, A., Bonastre, C., Tejedor, M.T., Whyte, J., Monteagudo, L.V., Simón, C. 2017. Oral disease and microbiota in free-roaming cats. *Topics in Companion Animal Medicine,* 32, 3, 91-95. https://doi.org/10.1053/j.tcam.2017.07.003

Whyte, A., San Roman –Llorens, F., Whyte, J., Monteagudo, L.V., Tejedor, M.T. 2022. Prevalence of common oral conditions in dogs and cats attending a veterinary teaching hospital in Spain. Revue Vétérinaire Clinique, 57, 1, 17-24. https://doi.org.10.1016/j.anicom.2021.12.003

Wiggs, R.B., Lobprise, H.B. 1997. Veterinary Dentistry Principles and Practice, 2nd edition, Lipincott-Raven Co., Philadelphia.

Williams, L., Roberts, C., Harley, R., Gruffydd, T., Jones, J., Murray, J.K. 2024. Prevalence and risk factors for gingivitis in a cohort of UK companion cats aged up to 6 years. Journal of Small Animal Practice, 65, 8, 605-614. https://doi.org.10.1111/jsap.13737

KLINIČKO I EPIDEMIOLOŠKO ISTRAŽIVANJE HRONIČNOG GINGIVOSTOMATITISA I PARODONTALNE BOLESTI KOD MAČAKA U BLIDI, SEVERNI ALŽIR

Asma Dahmani [1]*, Safia Zenia[2]

[1]Institut za veterinarske nauke, Univerzitet Blida 1, B.P. 270, Soumaa Road, 09000, Blida, Alžir
[2]Laboratorijsko istraživanje "Zdravlje i proizvodnja životinja" Viša državna veterinarska škola - B.P. 165, Issad Abbas, El Alia, Algiers, Alžir

Kratak sadržaj

Oralne bolesti su široko rasprostranjene kod mačaka. Cilj ovog rada je da se utvrde učestalost, klinički znaci kao i faktori rizika za ta oboljenja. Od ukupno 470 mačaka koje su bile pregledane u privatnoj veterinarskoj klinici u oblasti Blida, na severu Alžira, kod 76 jedinki (16,17%) dijagnostikovane su oralne bolesti i one su uključene u studiju. Za svaku životinju podaci o potencijalnim faktorima rizika pribavljeni su iz medicinske dokumentacije i razgovora sa vlasnicima mačaka. Najčešće oralno oboljenje bilo je gingivitis (60,52%), zatim hronični gingivostomatitis (44,73%), parodontitis (31,57%), kompleks eozinofilnog granuloma (6,57%), fraktura vilice (3,94%), opstrukcija usne duplje pilećom kosti sa hipodencijom (2,63%), kao i progenija i karijes zuba, svaki sa po 1,31% kliničkih nalaza. Najučestaliji simptomi oralnih oboljenja bili su halitoza (85,52%), zatim bol (73,68%), anoreksija (72,36%), nakupljanje zubnog kamenca (68,42%), dehidratacija (53,49%), ulceracije (47,36%), palatoglositis (40,78%), febrilnost (34,21%), kao i krvarenje i mobilnost zuba, sa učestalošću od 32,89% u svakoj grupi. Utvrđeno je da su rasa, vakcinalni status, ishrana, nega zuba kod kuće, životno okruženje i stepen informisanosti vlasnika o oralnim bolestima značajno povezani sa parodontalnom bolešću i felinim hroničnim gingivostomatitisom. Evropske rase, nevakcinisane mačke, mačke koje su hranjene mešovitom ishranom, mačke bez adekvatne kućne dentalne nege, jedinke koje imaju kontakta sa spoljašnjom sredinom, kao i mačke čiji vlasnici nisu upoznati sa oralnim bolestima, bile su najpodložnije ovim oboljenjima. Ova studija pokazala je značajnu prevalenciju oralnih oboljenja, naročito parodontalne bolesti i stomatitisa, kao i to da je neophodno uvesti odgovarajuće preporuke za kontrolu ovih bolesti.

Ključne reči: bolesti usne duplje, mačke, klinička ispitivanja, faktori rizika, Alžir