

Feline acne and results of treatment with mupirocin in an open clinical trial: 25 cases (1994–96)

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(Received 21 August 1996; accepted 22 November 1996)

Abstract Clinical and diagnostic parameters, and response to topical mupirocin in 25 cats with feline acne are described. The chin was the most common area affected, but the lower lip, upper lip and the commissure of the lips also frequently had lesions. The most common clinical sign was the presence of crusts, followed by comedones, erythema, alopecia, pruritus and nodules/fistulas. Deep skin scrapings for ectoparasites, cytological examination of superficial skin scrapings, and fungal cultures from the chin were performed on all cats. Dermatophytes were cultured from two cats and *Malassezia pachydermatis* was cultured ($n = 2$), seen on cytology smears ($n = 1$), or noted on histopathology ($n = 1$). Skin biopsies were obtained from three of the cats and most commonly showed dilatation of sebaceous gland ducts, neutrophilic or pyogranulomatous infiltration of the sebaceous glands, and pyogranulomatous inflammation of the dermis.

All cats were treated with topical 2% mupirocin ointment twice daily for 3 weeks as the sole treatment. Treatment response was excellent in 15 cats and good in nine cats. One cat had a contact reaction to the mupirocin, necessitating stopping treatment. The response to treatment of the six cats with dermatophyte or years involvement was good ($n = 3$) or excellent ($n = 3$).

Keywords: cats, feline acne, mupirocin.

INTRODUCTION

Feline acne is a well-recognized skin disease in the cat.^{1–3} Current theory on the aetiology and pathogenesis suggests a keratinization disorder that is commonly complicated by a secondary bacterial infection.^{1–3} Recommended treatment is topical anti-seborrhoeic shampoos in cats with mild disease and concurrent systemic antibiotics and/or corticosteroids in cats with severe disease.^{1,2}

Despite its relatively frequent occurrence in the cat,⁴ few original articles describing feline acne exist. The purpose of this study was twofold: (i) to collect and quantify clinical data from cats with feline acne, and (ii) to evaluate the efficacy of a topical antibiotic (mupirocin) in the treatment of feline acne.

METHODS

Study cats

Pet cats were examined at the authors' clinics, and were admitted to the study if they had a clinical

diagnosis of feline acne (comedones, crusts and/or nodules on the chin), and had not received any treatment for at least 1 month prior to examination. The number of cats examined at each clinic was as follows: Veterinary Teaching Hospital, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, 11; Unité de Dermatologie, Ecole Nationale Vétérinaire de Nantes, 9; Clinique Vétérinaire Saint Bernard, 3; Clinique Vétérinaire (La Seyne-sur-Mer), 1; Clinique Vétérinaire (Sainte Eulalie), 1.

Owners were asked questions from a standardized questionnaire to determine the age, breed and sex of the cat, past medical history, clinical signs, history of the lesions, previous treatment and its efficacy, environment of the cat, other pets in the household, and if other cats in the household also had feline acne.

Lesion evaluation

Each clinician evaluated the lesions as to type (crust, comedones, erythema, alopecia, pruritus, nodules/fistulas), location (chin, lips, other areas on face), and (subjectively) severity (mild, moderate, severe).

Diagnostic testing

Following a physical examination, all cats had the

Supported in part by Smithkline & Beecham, France.

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following tests performed on the chin area: deep skin scraping examined for ectoparasites, superficial scraping examined for cytology via staining with Diff-Quick[®] (Harleco, Gibbstown, NJ, USA), and fungal culture. Fungal culture was performed by using forceps to remove hair and crust from the affected area of the chin, and placing this material on Sabouroud's dextrose agar with chloramphenicol and cyclohexamide for the cats seen in France ($n = 14$) or on Sabouroud's dextrose agar with gentamicin, chlorotetracycline and cyclohexamide for the cats examined in the USA ($n = 11$). Fungal culture was repeated in the same manner post-treatment if the pretreatment culture was positive for dermatophytes or *Malassezia pachydermatis*. Three owners gave consent to biopsy the chin lesions.

Treatment and evaluation of treatment

The owners of all cats were instructed to apply 2% mupirocin ointment (BactoBan[®], SmithKline Beecham, Nanterre, France; Bactoderm[®], Pfizer Animal Health, Exton, PA, USA) to the cats' lesions twice daily for 3 weeks, after which they were to return for re-examination. The amount of medication to be applied was defined as enough to thinly cover the lesions. Massaging or expressing lesions was not performed. No other treatment was permitted. At the re-examination the same clinician who evaluated the cat before treatment evaluated the lesions again as to type, location and severity. The owner was questioned as to efficacy, problems with treatment, and adverse effects. Response was based on the clinician's assessment of improvement: objectively as to the percentage of lesions which had resolved, and subjectively as to the change in the severity of the lesions which remained. Response was graded as follows: excellent if there was 90–100% resolution of clinical signs, good if there was <90% but >50% resolution, and fair if there was <50% but some resolution was noted.

RESULTS

Twenty-five cats were admitted to the study. One cat developed a contact reaction to the mupirocin ointment within 48 h of application: erythema, pruritus and crusts all worsened and the treatment was discontinued. Of the 24 cats which completed the treatment, 23 were re-examined by the same clinician who had performed the pretreatment examination; one owner was unable to bring the cat in for re-examination but was interviewed via telephone.

The age of cats at initial examination ranged from 0.5 to 16 years (mean 5.4 years). The duration of lesions ranged from 5 days to 6 years (mean 9.3 months) with age of onset varying from 0.25 to 15 years (mean 4.2 years); eight cats were 1-year-old or less at onset. Breeds represented were domestic short-hair/European short-hair (16), Persian (four), Persian

cross-bred (two), Himalayan (one), Abyssinian (one) and Siamese (one). Thirteen cats were males (10 neutered) and 12 females (eight spayed).

Ten of the cats lived primarily indoors, nine of the cats lived primarily outdoors, and six cats spent an equal amount of time in both places. Fifteen cats were from multiple cat households; in four of these households, one other cat had feline acne. Two of these cats were subsequently examined and participated in the study.

Seven cats had received previous medications. Previous systemic medications were amoxicillin, clavulanic acid/amoxicillin in combination, clindamycin, dexamethasone, and prednisone. Previous topical medications were an alcohol-based astringent, benzoyl peroxide shampoo, povidone iodine, an aqueous detergent cleanser, hydrogen peroxide, and metronidazole gel. Two cats were treated with a benzoyl peroxide shampoo; all other treatments were given to one cat each. Only the clindamycin was reported by one owner as being effective.

Pretreatment lesion type, location and severity are summarized in Table 1. The most common clinical signs were crusts, comedones and erythema.

Pretreatment diagnostic testing gave the following results. Deep skin scrapings from all 25 cats were negative for ectoparasites. Cytology of superficial scrapings showed cocci ($n = 8$ cats), neutrophils ($n = 4$ cats) and rods ($n = 1$ cat). *Malassezia pachydermatis* was found in one cat on cytology but could not be isolated via fungal culture. Interestingly, *M. pachydermatis* could still be found via cytological examination in this cat post-treatment. This cat came from a household which had another cat with feline acne. Fungal cultures revealed *M. pachydermatis* ($n = 2$ cats, both with less than five colonies), *Trichophyton mentagrophytes* ($n = 1$ cat) and *Microsporum canis* ($n = 1$ cat). One cat with a positive *M. pachydermatis* culture lived in a household with two other healthy cats, and the other cat with a positive *M. pachydermatis* culture was the only pet in the household. Neither of the two cats with positive dermatophyte cultures was a Persian; both lived in a household with one other healthy cat. Post-treatment fungal cultures were negative in all four cats.

Histological findings of skin biopsies varied among the three cats biopsied. One cat showed dilatation of sebaceous gland ducts and neutrophilic infiltration of the sebaceous glands (Fig. 1). One cat showed diffuse pyogranulomatous inflammation of the dermis (Fig. 2); this same type of infiltrate was sometimes predominantly associated with the sebaceous glands. Also seen was an area of eosinophilic and granulomatous inflammation associated with collagen lysis. The third cat showed a perivascular infiltrate with many eosinophils and mast cells, a neutrophilic perifollicular and peri-adnexal (sebaceous glands) infiltrate, and numerous Periodic acid-Schiff stain-positive yeasts in the superficial stratum corneum, hair follicles and apocrine sweat glands resembling

Table 1. Pretreatment summary of skin lesions, location of lesions, and degree of severity

No. of cats w/specific lesions	Lesion anatomical location, number of cats affected, and severity																	
	Chin (<i>n</i> = 25)			Lower lip (<i>n</i> = 11)			Upper lip (<i>n</i> = 9)			Commisures (<i>n</i> = 9)			Face (<i>n</i> = 4)			Ears (<i>n</i> = 4)		
	Mi	Mo	S	Mi	Mo	S	Mi	Mo	S	Mi	Mo	S	Mi	Mo	S	Mo	Mi	S
Crusts (<i>n</i> = 23)	11	7	5	3	2	1	2	2	0	1	0	1	2	0	0	1	0	0
Comedones (<i>n</i> = 20)	9	8	2	6	0	1	2	1	0	1	0	1	1	0	0	0	0	0
Erythema (<i>n</i> = 19)	10	5	3	5	3	0	6	3	0	1	0	0	1	0	0	2	1	0
Alopecia (<i>n</i> = 12)	3	10	1	4	1	0	3	0	0	2	0	0	0	0	0	0	0	0
Pruritus (<i>n</i> = 10)	0	4	5	0	4	2	3	1	0	1	0	0	0	0	0	0	1	0
Nodules/fistulas (<i>n</i> = 6)	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Mi, mild; Mo, moderate; S, Severe.

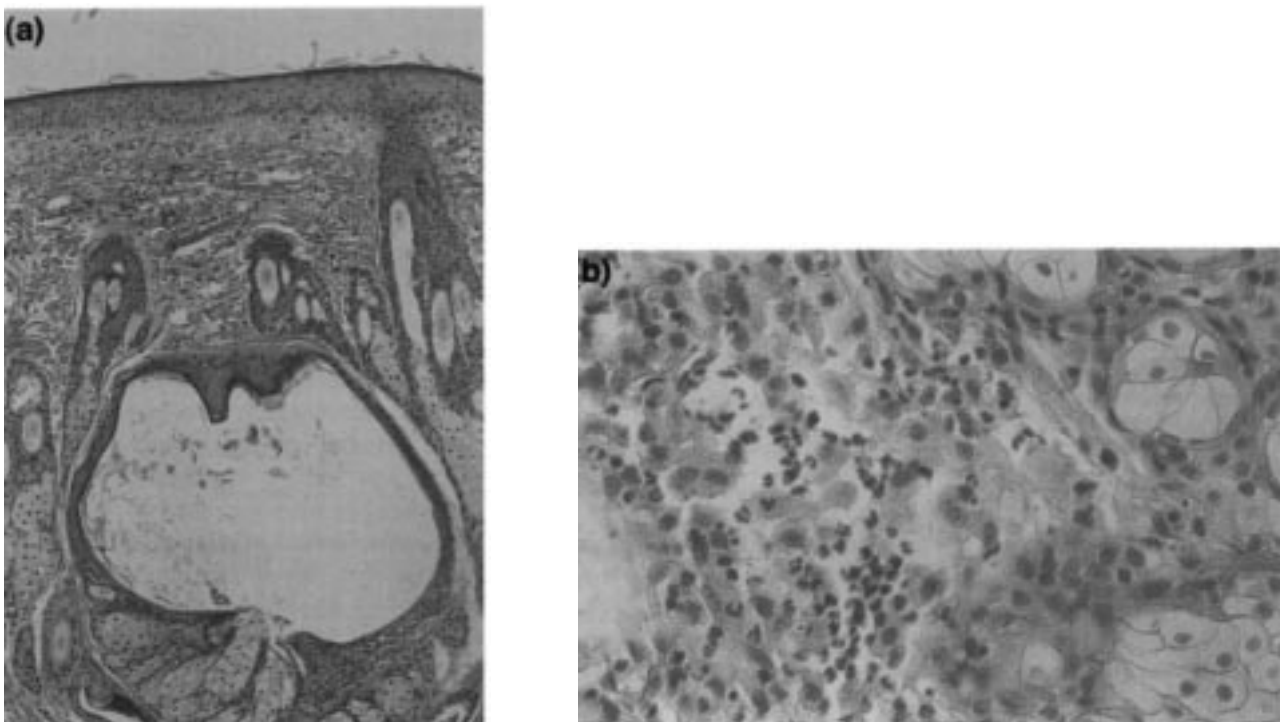


Figure 1. Photomicrographs of feline acne in a 14-year-old neutered male Persian cat. (a) Note dilatation of sebaceous gland duct (H&E $\times 100$). (b) Note neutrophilic infiltration of sebaceous gland (H&E $\times 400$).

M. pachydermatis (Fig. 3). Interestingly, *M. pachydermatis* was not seen on either cytology or culture of this cat's lesions. This cat was the only pet in its household.

Post-treatment lesion type, location and severity are summarized in Table 2. All severe scores of the chin, and all remaining lesions of the face, were from the cat with the contact reaction.

Treatment was graded excellent in 15 cats and good in nine cats (Figs 4 and 5). A contact reaction was noted in one cat. Two cats had a complete absence of lesions after 3 weeks of treatment. Four cats graded as having a good response were re-examined after an additional 3 weeks of treatment: three were then graded as having an excellent response (one of these was the cat with a fungal culture positive for

T. mentagrophytes), while one remained graded at a good response. The cat with a positive culture for *M. canis* had an excellent response. Of the four cats with yeast identified via cytology, culture, or histopathology, two had an excellent response (including the cat with *M. pachydermatis* identified on cytology post-treatment) and two a good response.

DISCUSSION

The incidence of feline acne in the literature varies from 'uncommon'¹ to 'common'.⁴ No breed or sex predilection has been noted.^{1,2,4} but the disease has been reported to begin often at less than a year of age;⁴ in contrast to human acne, feline acne is not

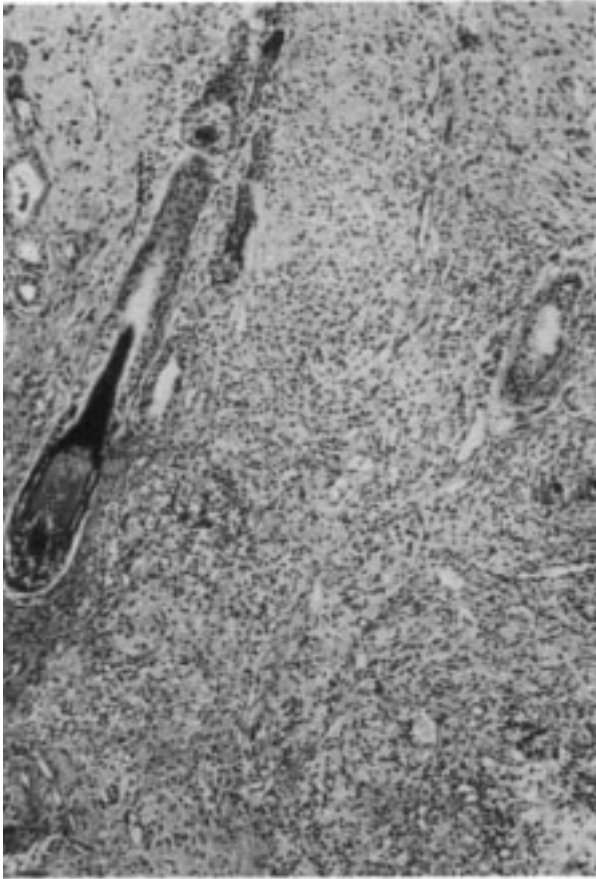


Figure 2. Photomicrograph of feline acne in an 8-year-old neutered male European short-hair cat. Note diffuse pyogranulomatous dermatitis (H&E $\times 100$).

confined to adolescence.¹ Current literature describes feline acne as a keratinization disorder, with secondary bacterial infections then occurring.¹⁻³ This is based on the histopathological finding early in the disease process of accumulations of keratin in the lower follicular infundibulum, and the subsequent clinical finding of follicular casts.³ While abnormal follicular keratinization has been implicated in human acne, the extrapolation as an aetiology to feline acne may not be valid.² On occasion, dermatophytosis,^{1,5} demodicosis,¹ *Malassezia pachydermatis*^{1,4,6} infection and eosinophilic granulomas¹⁻³ may mimic/cause/be related to the clinical signs of feline acne.

Initially, comedones and follicular casts are found, generally on the chin, but occasionally on the lips as well. Papules, pustules, nodules, fistulas, inflammation and regional lymphadenopathy may all be found if the disease progresses.^{1,3} Pruritus is reported as uncommon unless severe infection is present.^{1,4} Diagnosis is made most commonly upon clinical signs.^{1,4} Reported histological findings are variable, showing dilated hyperkeratotic hair follicles with or without follicular pustulosis in early lesions, with progression to furunculosis, pyogranulomatous inflammation and sebaceous adenitis.^{1,3,4} Bacteria isolated from feline acne have been staphylococci, β -haemolytic streptococci or *Pasteurella multocida*.¹

The incidence of feline acne in this report showed no sex predilection. The preponderance of domestic short-hair/European short-hair cats doubtless reflects the prevalence of these breeds in the authors' practices. The fact that Persian cats or Persian crosses account for 24% of the cats is interesting; because of the multicentre nature of the study, we were unable to investigate if this is a higher percentage than what would have been expected from the population of Persian cats in each of the participating clinics. The age at examination of the cats varied considerably, which is in accord with the fact that feline acne is not confined to young cats.¹⁻⁴ Only eight (32%) of our cats had a history of having this disease at 1 year of age or younger; this differs from reports stating that feline acne often begins at less than a year of age.⁴

Outbreaks of feline acne occurring in multiple cat households or catteries have been reported.³ Four of the households represented in this report had two cats with feline acne. While upper respiratory virus infections and stress have been hypothesized as causative factors in multiple cat household outbreaks of feline acne,³ these factors could not be identified in our cases. Only one of the multiple household cats had *Malassezia* or dermatophytes isolated from their disease; all of the multiple household cats had excellent responses to mupirocin treatment.

Of the clinical signs noted in the 25 cats, the high preponderance of crusts (probably indicating follicular casts) and comedones was in agreement with other reports.^{1,3} The number of cats showing erythema (76%) and pruritus (40%) was greater than was expected. Pruritus has been reported to be uncommon in feline acne, unless severe inflammation or pyoderma are present. We found that all cats with pruritus also showed erythema, but that the reverse was not true. Perhaps feline acne is more irritating to the cat than previously thought. While pruritus was seen in almost as many cats post-treatment ($n = 9$) as pretreatment ($n = 10$), the degree of pruritus lessened; only the cat with the contact reaction still showed severe pruritus.

Cytological findings in this study were similar to other published studies: feline acne is frequently complicated by secondary bacterial infection. Neutrophils and/or cocci were seen in 12 cats (48%). Fungal culture grew dermatophytes in two cats, and *Malassezia pachydermatis* in two cats. Histological examination of the skin biopsy specimens or cytological examination showed yeast consistent with *M. pachydermatis* in two other cats. Both *Malassezia pachydermatis* and dermatophytes have been isolated in previous cases of feline acne, although the role of these organisms as pathogens is not always clear.^{1,5,6}

Histopathological findings were also in general agreement with previous reports.^{1,4} It is interesting to note that even though only three cats were biopsied, the findings ranged from mild suppurative inflammation to severe pyogranulomas and sebaceous adenitis,

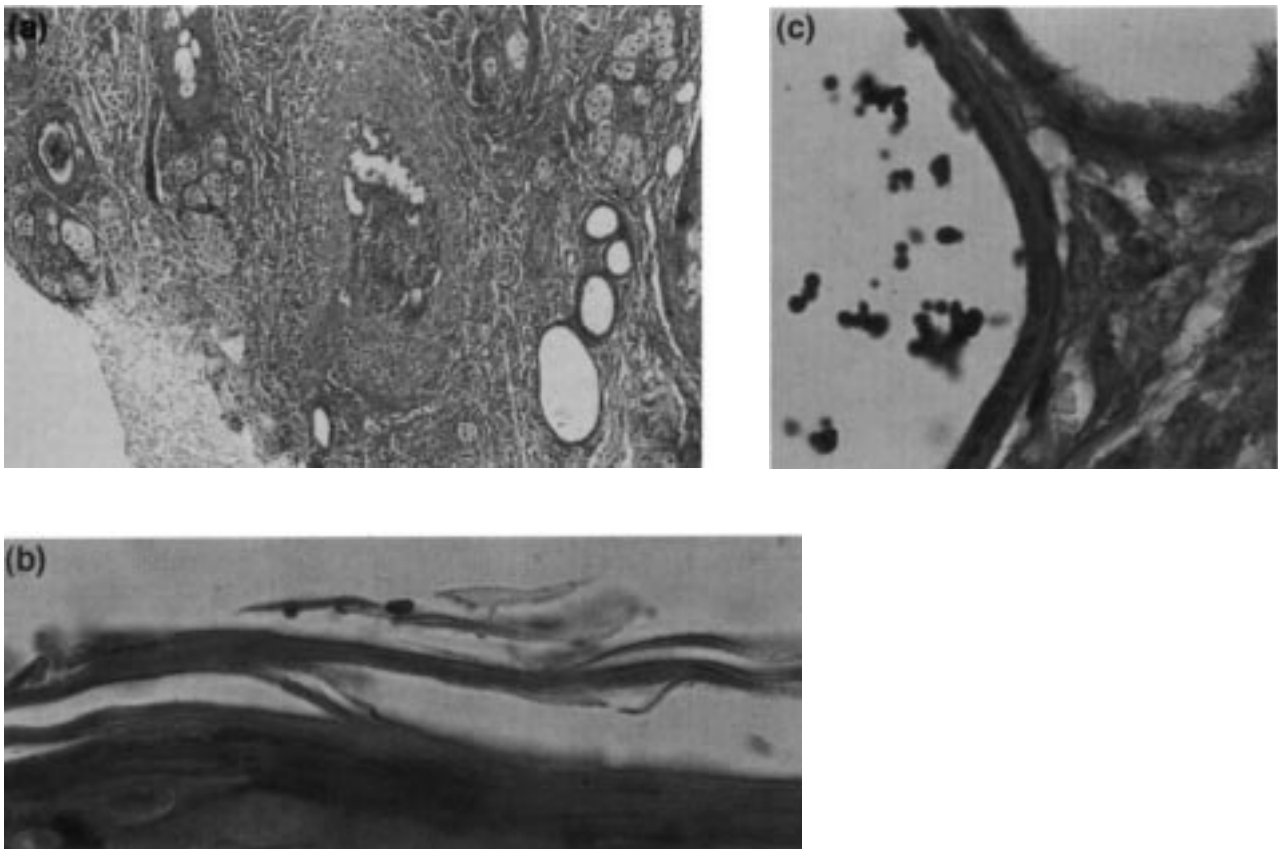


Figure 3. Photomicrograph of feline acne in a 10-year-old neutered male European short-hair cat. (a) Note neutrophilic folliculitis (H&E $\times 200$). (b) Note yeasts in the stratum corneum suggestive of *Malassezia pachydermatis* (PAS $\times 500$). (c) Note yeasts in the apocrine sweat gland suggestive of *Malassezia pachydermatis* (PAS $\times 500$).

Table 2. Post-treatment summary of skin lesions, location of lesions, and degree of severity

No. of cats w/specific lesions	Lesion anatomical location, number of cats affected, and severity																	
	Chin (<i>n</i> = 21)			Lower lip (<i>n</i> = 8)			Upper lip (<i>n</i> = 7)			Commisures (<i>n</i> = 3)			Face (<i>n</i> = 1)			Ears (<i>n</i> = 1)		
	Mi	Mo	S	Mi	Mo	S	Mi	Mo	S	Mi	Mo	S	Mi	Mo	S	Mo	Mi	S
Crusts (<i>n</i> = 12)	8	1	1	0	0	0	2	0	0	1	0	0	1	0	0	1	0	0
Comedones (<i>n</i> = 9)	8	1	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0
Erythema (<i>n</i> = 10)	8	2	1	3	1	0	5	1	0	1	0	0	1	0	0	1	0	0
Alopecia (<i>n</i> = 11)	4	3	1	7	0	0	2	0	0	0	0	0	0	0	0	0	0	0
Pruritus (<i>n</i> = 9)	3	2	1	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Nodules/fistulas (<i>n</i> = 2)	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Mi, mild; Mo, moderate; S, Severe.

as well as signs consistent with *M. pachydermatis* infection. A previous study was not able to find yeast in skin biopsies of healthy cats, and was able to find them on the surface of skin biopsies in only three of 338 cats with non-neoplastic dermatoses.⁷ This would suggest a role for the yeasts (whether secondary or primary) in the feline acne of the cat in which they were found on histology.

Suggested treatment for feline acne has usually been topical anti-seborrhoea/benzoyl peroxide shampoos in mild cases and systemic antibiotics and/or

corticosteroids in severe cases.¹⁻³ Other treatment modalities reported have included the retinoids, either topical (tretinoin) or systemic (isotretinoin),^{3,8} fatty acid supplementation³ and topical metronidazole (P. Breen, A. Jeromin. *Practice Tips*, No. 1. *Derm Dialogue* Winter 1993/1994; 7). The usage of mupirocin in the treatment of feline acne has been reported previously.^{9,10}

Mupirocin is an antibiotic approved for topical use in humans and dogs, but not in cats. Its mechanism of action is the inhibition of bacterial isoleucyl-

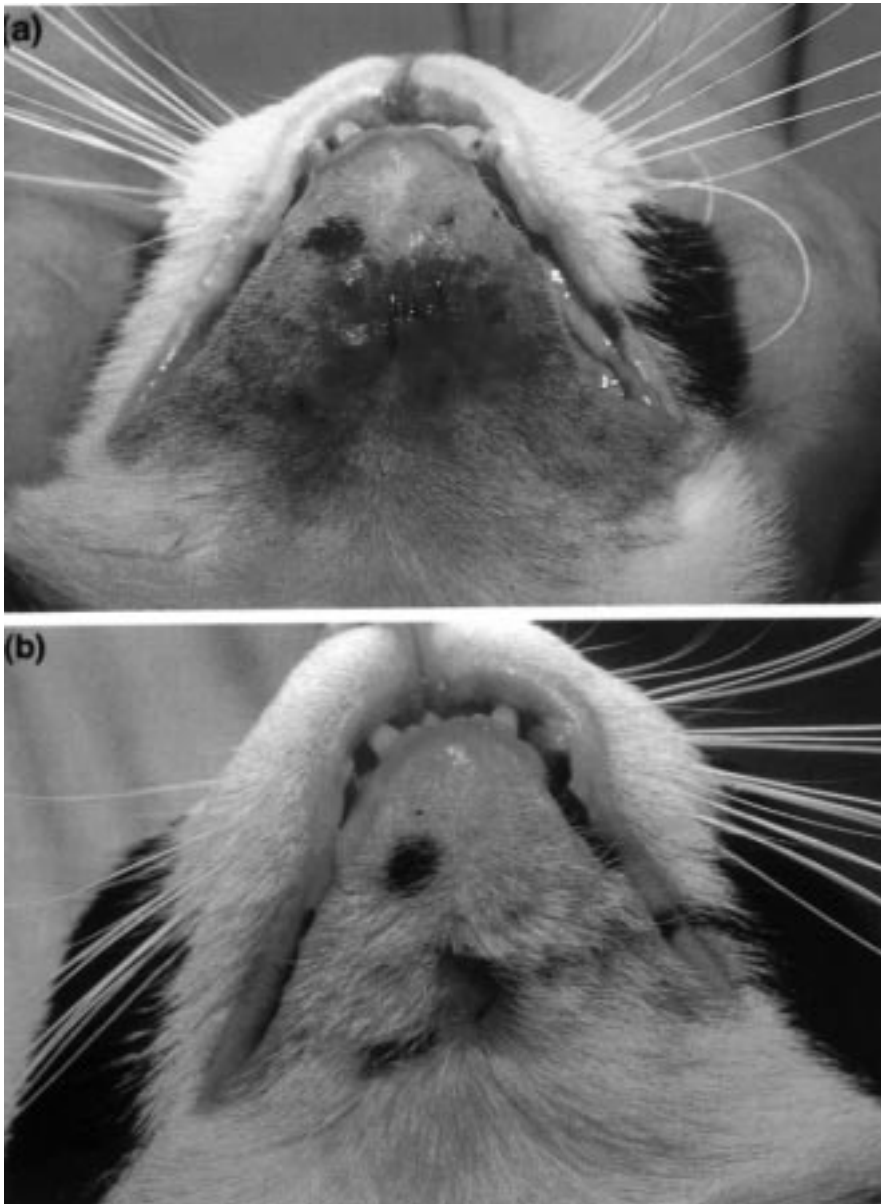


Figure 4. Feline acne in an 8-year-old neutered male European short-hair cat. (a) Note severe erythema, nodules and haemorrhage. (b) Note reduction of clinical signs after 3 weeks application of topical 2% mupirocin ointment twice daily. This was judged an excellent response. Courtesy Dr Eric Guaguère; from reference 9, reprinted from *Veterinary Dermatology* 7, 145–151.

transfer RNA synthase.^{11,12} It is active against a wide range of Gram-positive bacteria, including the staphylococci and most streptococci, and is moderately effective against Gram-negative bacteria,¹² although *Pasteurella multocida* is very sensitive to mupirocin.¹¹ Mupirocin in humans has been effective in eradication of nasal carriage of *Staphylococcus aureus*^{12,13} and in treating impetigo in children (caused by either *S. aureus* or group A β -haemolytic streptococci).¹⁴

While it is tempting to credit the success of the mupirocin treatment in the cats of this report to the product's antibacterial properties, other factors may have been at work as well. For example, mupirocin's efficacy against *Candida* sp. has been reported, both *in vitro* and *in vivo* in humans, although the order of antifungal activity *in vitro* was judged low (minimal inhibitory concentration < 256–512 $\mu\text{g}/\text{mL}$).^{11,15,16} In addition, this same order of activity was found against *Pityrosporum ovale* and *Trichophyton mentagrophytes*.¹¹ These findings could be the reason that the treatment was effective in those cats in which

Malassezia and dermatophytes were isolated. It is interesting that the four cats with positive fungal cultures prior to treatment had negative cultures afterward. Whether this is reflective of the efficacy of mupirocin against fungi or non-repeatable culture findings (i.e. the fungi were not pathogens, but transients in these four cats) is unknown. Alternatively, if feline acne is indeed a keratinization defect, one would expect some residual clinical signs after treating any secondary pathogens. In this regard it is important to note that while mupirocin effected a good or excellent response in 24 of 25 cats in this report, only two cats showed complete resolution of all clinical signs after the 3-week treatment period. It is possible that a longer duration of treatment could have effected a higher incidence of complete resolution; this is suggested by the improved clinical response seen in three of four cats treated for an additional 3 weeks. Finally, mupirocin may have some as yet undescribed keratinization-normalizing properties.



Figure 5. Feline acne in a 4-year-old spayed female Persian-cross. (a) Note severe comedones, crust and alopecia. (b) Note reduction of clinical signs after 3 weeks application of topical 2% mupirocin ointment twice daily. This was judged an excellent response.

The contact reaction to the mupirocin ointment noted in one cat was unexpected. In various animal and human testing, no contact sensitization, contact irritancy, phototoxicity or photoallergy was seen,¹¹ although one text notes that dermal hypersensitivity reactions were seen in some animals (species not identified).¹⁷ The Bactoderm[®] package insert states that because of the polyethelene base, nephrotoxicity is possible if the ointment is applied to large areas.* This seems an unlikely sequelae of treating feline acne due to the small body areas involved.

In conclusion, regardless of the reason(s) for its efficacy, mupirocin has a definite place in the treatment of feline acne. Although rare, contact reactions may occur.

*Bactoderm[®] package insert. Pfizer Animal Health, Exton, PA, USA.

ACKNOWLEDGMENTS

The authors are grateful for the help of Dr Frédérique Degorce, Laboratoire Mialot-Lagadic and Dr Patricia Schultheiss, Department of Pathology, Colorado State University, in the interpretation of the histology samples.

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Résumé Des éléments cliniques et diagnostiques et la réponse à un traitement local à la mupirocine de 25 cas d'acné féline sont présentés. Le menton est la zone la plus fréquemment atteinte mais le lèvres inférieures et supérieures, ainsi que leur commissure présentent aussi des lésions. Le signe clinique le plus commun est la présence de croûtes, de comédons, d'un érythème, d'une alopecie, d'un prurit, des nodules et des fistules. Des raclages cutanés profonds, des examens cytologiques et des cultures fongiques ont été réalisés sur le menton de tous les chats. Des dermatophytes ont été cultivés sur deux chats, *Malassezia pachydermatis* a été cultivé sur deux chats, mis en évidence à partir de calques cutanés sur un chat et observé à l'examen histopathologique sur un chat. Des biopsies cutanées réalisées sur trois chats, montrent une dilatation des conduits des glandes sébacées, une infiltration neutrophilique ou pyogranulomateuse des glandes sébacées et une inflammation pyogranulomateuse du derme. Tous les chats ont été traités avec un gel à 2% de mupirocine, deux fois par jour pendant trois semaines comme suel traitement. La réponse thérapeutique est excellente chez quinze chats et bonne chez neuf chats. Un chat a présenté une réaction locale, nécessitant l'interruption de ce traitement. La réponse au traitement des six chats présentant un dermatophyte ou des levures est bonne dans trois cas et excellente dans les trois autres cas. [White, S.D., Bordeaux, P.B., Blumstein, P., Ibsch C., Guaguère, E., Denerolle, P., Carlotti, D.N., Scott, K.V. Feline acne and results of treatment with mupirocin in an open clinical trial: 25 cases (1994–96) (Acne feline et résultats d'un traitement à la mupirocine en essai ouvert: 25 cas (1994–96)). *Veterinary Dermatology* 1997; **8**: 157–164.]

Resumen Se describen los parámetros clínicos y diagnósticos, y la respuesta a la terapia tópica con Mupirocina en 25 gatos con acné felino. La barbilla fue el área más afectada, pero también el labio inferior, superior y la comisura labial presentaban frecuentemente lesiones. La presentación clínica más frecuente fue la presencia de costras, seguido de comedones, eritema, alopecia, prurito y nódulos/fistulas. Se realizaron, a nivel de la barbilla de todos los gatos, raspados profundos para ectoparásitos, estudios citológicos de raspados superficiales, y cultivos fúngicos. Se cultivaron dermatofitos en dos gatos y *Malassezia pachydermatis* se cultivó ($n = 2$), se observó en citología ($n = 1$) o histopatológicamente ($n = 1$). Se tomaron biopsias cutáneas de tres gatos, que principalmente mostraron dilatación de glándulas sebáceas e inflamación piogranulomatosa de la dermis.

Todos los gatos fueron tratados con pomada de mupirocina tópica al 2% dos veces al día durante tres semanas como tratamiento único. Un gató desarrolló una reacción de contacto a la mupirocina, haciendo necesario retirar el tratamiento. La respuesta a la terapia de los seis gatos con participación de dermatofitos o levaduras fue buena ($n = 3$) o muy buena ($n = 3$). [White, S.D., Bordeaux, P.B., Blumstein, P., Ibsch C., Guaguère, E., Denerolle, P., Carlotti, D.N., Scott, K.V. Feline acne and results of treatment with mupirocin in an open clinical trial: 25 cases (1994–96) (Acne felino y resultados del tratamiento con mupirocina en un ensayo clínico abierto: 25 casos (1994–96)). *Veterinary Dermatology* 1997; **8**: 157–164.]

Zusammenfassung Klinische und diagnostische Parameter und das Ansprechen auf lokal appliziertes Mupirocin werden bei 25 Katzen mit feliner Akne beschrieben. Das Kinn war am häufigsten betroffen, aber die Unterlippe, Oberlippe und Mundwinkel zeigten ebenfalls öfter Läsionen. Die häufigsten Symptome waren Krusten, gefolgt von Mitessern, Hautrötung, Alopecie, Juckreiz und Knoten/Fisteln. Tiefe Hautgeschabsel für Ektoparasiten sowie zytologische Untersuchungen von oberflächlichen Hautgeschabseln und Pilzkulturen des Kinns wurden bei allen Katzen durchgeführt. Hautpilzkulturen waren bei 2 Katzen positiv, *Malassezia pachydermatis* wurde mittels Kultur ($n = 2$), Zytologie ($n = 1$) oder Histopathologie ($n = 1$) nachgewiesen. Drei der Katzen wurden biopsiert und Hautbiopsien zeigten Talgdrüsendilatation, neutrophile oder pyogranulomatöse Infiltration der Talgdrüsen und pyogranulomatöse Entzündung in der Lederhaut.

Alle Katzen wurden ausschliesslich mit 2%-iger Mupirocinalbe zweimal täglich für drei Wochen behandelt. Der Therapieerfolg war bei 15 Katzen ausgezeichnet und bei 9 Katzen gut. Eine Katze hatte eine lokale Reaktion, die Abbrechen der Therapie erforderte. Die 6 Katzen mit Hautpilz- oder Hefeinfektionen sprachen gut ($n = 3$) und exzellent ($n = 3$) auf die Therapie an. [White, S.D., Bordeaux, P.B., Blumstein, P., Ibsch C., Guaguère, E., Denerolle, P., Carlotti, D.N., Scott, K.V. Feline acne and results of treatment with mupirocin in an open clinical trial: 25 cases (1994–96) (Feline Akne und die Behandlungsergebnisse mit Mupirocin in einer offenen klinischen Studie: 25 Fälle.). *Veterinary Dermatology* 1997; **8**: 157–164.]