Journal of Animal and Veterinary Advances 7 (10): 1332-1334, 2008
ISSN: 1680-5593
© Medwell Journals, 2008

Staphylococcal Pyoderma in a Cat: A Case Report

[1]Hasan Icen and [2]Simten Yesilmen
[1]Department of Internal Medicine, [2]Department of Microbiology,
Faculty of Veterinary Medicine, Dicle University, 21280 Diyarbakir, Turkey

Abstract: In this study, we describe the historical, clinical and microbiological features, as well as treatments and clinical outcome, of pyoderma, where *Staph. aerus* alone was isolated on bacterial culture from lesional skin. Skin lesions in cat consisted of erythematous papules, haemorrhagic bullae, ulcers and haemorrhagic crusts confined to the dorsum. An excellent clinical response was achived 10 days of treatment with parenteral Clindamycin.

Key words: Pyoderma, *Staph. aerus*, clindamycin, cat

INTRODUCTION

Pyoderma is a bacterial infection of the skin. It is very common in dogs and uncommon in cats (Ihrke, 1996; Patel *et al*., 2002). Pyoderma frequently occurs as a secondary problem to some underlying condition or health problem Pyoderma is caused most frequently by *Staphylococcus*, a type of bacteria. Other bacteria, such as *E. coli*, pseudomonas or proteus also can invade previously infected skin (Griffin *et al*., 1992; Medlau *et al*., 1991; Paradis *et al*., 2001; Scott *et al*., 2001). Several risk factors may cause an animal to be more likely to develop pyoderma. These risk factors include; Parasites, such as fleas or mange mites, allergies, such as flea, food, contact, or hereditary allergies, hormonal disorders, such as hypothyroidism (low production of thyroid hormone by the thyroid gland) inadequate immune system, such as in young animals or those taking steroids animals with short coats, skin folds, or calloused skin trauma from grooming, scratching, or rooting in dirt or garbage (Devriese *et al*., 1984; Grant, 1991; Medlau *et al*., 1991; Patel *et al*., 2002).

A wide range of antibiotics has been used to treat infections in dogs and cats caused by *Staphylococci* and have led to the emergence of resistant strains. Antibiotics frequently used in cat and dog therapy are: penicillins, cephalosporins, macrolides, lincosamides, fusidic acid, tetracyclines, chloramphenicol, potentiated sulphonamides, aminoglycosides and marbofloxacin, fluoroquinolones, rifampicin (Ganiere *et al*., 2001; Hoekstra and Paulton, 2002; Littlewood *et al*., 1999; Malik *et al*., 2005; Mason and Kietzmann, 1991; Patel *et al*., 2002; Sentürk *et al*., 2005).

The data about its effectiveness in the treatment of pyoderma in horses, dogs and cats are too spare. It has also to be emphasized that the fore-mentioned facts concern spontaneous diseases (Dimitrova *et al*., 2003). There is a lack of information about the therapeutic effect of Clindamycin in infection of the soft tissues in cats.

The aim of this study was to determine the healing effect of Clindamycin injected in cat with staphylococcal infection.

MATERIALS AND METHODS

One year old female cross-breed domestic cat referred to the University of Dicle, Faculty of Veterinary and deparment of internal medicine with a history of skin disease. According to anamnesis, the cat had clinical signs of alopecia, papules, pustules, epidermal collarettes, crusts.

A general dermatological examination was carried both before and after the treatment. Scalpel blade used to remove a deep wedge of tissue from the lessions for bacterial and fungal culture. The skin surface was swabbed at 3 different sites, samples for bacterial culture such as pustules, exudates were obtained from the side of infection. The swabs were placed into Stuarts transport medium. Samples were inoculated onto blood Agar base, MacConkey Agar and Saboraud Dextrose Agar within 48 h of sampling. The plates were incubated overnight in air at 37°C Bacteriological identification were carried out and evaluated based on the BACTEC equipment *S. aerus* is found in culture.

The antimicrobial susceptibility test was also performed on BD Diagnostic Instrument Systems. Amikacin, amoxicillin/clavunate, ampicillin, aztreonam,

Corresponding Author: Hasan Icen, Department of Internal Medicine, Faculty of Veterinary Medicine, Dicle University, 21280 Diyarbakir, Turkey

cefazolin, cefepime, cefoxitin, ceftazidime, ceftriaxone, cefuroxime sodium, ciprofloxacin, clindamycin, erythromycin, gentamicin, imipenem, nitrofurantoin ofloxacin, oxacillin, rifampin, tetracycline, trime thoprim/sulfamethoxazole, penicillin G and vancomycin have been used in the sensitivity tests of the isolated bacteria. Amoxicillin/Clavulan, Oxacillin and Erythromycin were resistant and Ofloxacin were moderately resistant and Clindamycin, Ciprofloxacin, Gentamisin, Tetracycline, Trimeth/Sulfa 1/19 and Vancomycin were susceptible.

RESULTS

At the clinical examination the cat had clinical signs of alopecia, papules, pustules, epidermal collarettes, crusts. The skin, especially on the face, muzzle, earlap and feet and interdigital of extremi showed focal areas of ulceration which were covered with crusts and matted hair appeared to be slightly painful (Fig. 1). Cytological examination of an impression smear revealed numerous neutrophils.

Fig. 1: Before treatment

Fig. 2: After treatment

The *Staphylococcus aerus* were isolated from the excoriated lessions of the cat. The cat was treated with Clindamycin phosphat at a dosage of approximately 11 mg kg^{-1} body weight, q 24 h, given injectable for 10 days and chlortetracycline shampoos for 10 days. On re-examination 21 days later there was complete resolution of the skin lessions (Fig. 2).

DISCUSSION

Staphylococcus aerus is the most important *Staphylococcal* sp. in man, but is not found as often in animals. The major natural hosts for *Staphylococcus aerus* appear to be primates, with niche preference for the anterior nares (Lilenbaum *et al*., 1998; Roy and Kearney, 1985). Household cats commonly carry *Staphylococci* originating from their human handlers and previous studies have already reported the occurrence of staphylococcal isolates of human origin in cat nares (Cox *et al*., 1985). Although, *Staph. aerus* is not frequently isolated from the healthy skin of cats. It has frequently been found on feline skin lessions (Devriese *et al*., 1984; Hoekstra and Paulton, 1996; Medlau *et al*., 1991). The bacteriological results were in agrement with the researcher. Smillary, the *Staphylococcus aerus* were isolated from the excoriated lessions of the cat.

Feline skin disease is not nearly as common as canine skin disease. However, due to the cat's innate behavior to groom intensively, once skin disease develops the cat has the ability to intensify its progression. The majority of feline skin disease is associated with alopecia, scaling and crusting and can many times be clinically indistinguishable (Roy and Kearney, 1985; Wildermuth *et al*., 2006). The smiliar clinical findings were observed in this study.

Treatment of feline pyoderma is best accomplished with systemic antibiotic therapy. This is more diffucult in the feline than canine, as cats are more diffucult to medicate and their incidence of gastrointestinal side effects (vomiting, diarrhea and anorexia) are higher (Wildermuth *et al*., 2006). Severe skin infections usually require an extended therapy regimen over several weeks. It is recommended to treat cases of superficial pyoderma for at least 1 week beyond the clinical cure of skin lesions. In patients with deep pyoderma, treatment should be maintained for at least 2 weeks after the visible lesions have resolved because sequestered foci of infection may still be present in deeper dermal regions (Paradis *et al*., 2001).

In the present study, duration of treatment was 10 days. The cat was treated with Clindamycin phosphat

(Klindan amp: Bilim) at a dosage of approximately 11 mg kg^{-1} body weight, q 24 h, given paranterally for 10 days and chlortetracycline shampoos for 10 days based on the results of disk sensitivity tests.

CONCLUSION

Feline pyoderma is a group of various skin diseases and an accurate diagnosis is mandatory. An appropriate antibacterial therapy is required in most cases of feline pyoderma, in association with topical therapy. Antibiotics must be selected carefully and used with appropriate dosage and duration of treatment. Any underlying disease sholud also be treated if possible.

REFERENCES

Cox, H.U., J.D. Hoskins, S.S. Newman, G.H. Turnwald, C.S. Foil, A.F. Roy and M.T. Kearney, 1985. Distribution of *Staphylococcal* sp. on clinically healthy cats. Am. J. Vet. Res., 46: 1824-1828.

Devriese, L.A., D. Nzuambe and C. Godard, 1984. Identification and characterization of *Staphylococci* isolated from cats. Vet. Microbiol., 9: 279-285.

Dimitrova, D.M. Andonova, I. Borisov, D. Pashov, P. Sotirova, D. Dimitrov and M. Koleva, 2003. Studies on the therapeutic effect of flucloxacillin in dogs with experimental *Staphylococcal* infection in the skin and soft tissues. Trakia J. Sci., 1 (1): 53-60.

Ganiere, J.P., C. Medaille, A. Limet, N. Ruvoen and G.A. Fontaine, 2001. Antimicrobial activity of enrofloxacin against *Staphylococcus intermedius* strains isolated from canine pyodermas. Vet. Dermatol., 12: 171-175.

Grant, D.J., 1991. Skin diseases in the dog and cat. Blackwell Scientific Publications, pp: 8-27.

Griffin, C.E., K.W. Kwochka and J.M. Macdonald, 1992. Current Veterinary Dermatology. Mosby Year Book, pp: 3-21.

Hoekstra, K.A. and R.J. Paulton, 2002. Clinical prevalence and antimicrobial susceptibility of *Staphylococcus aerus* and *Staph. intermedius* in dogs. J. Applied Microbiol., 93: 406-413.

Hoekstra, K.A. and R.J.A. Paulton, 1996. Antibiotic sensitivity of *Staphylococcus aerus* and *Staph. intermedius* of canine and feline origin. Lett. Applied Microbiol., 22: 192-194.

Ihrke, P.J., 1996. Bacterial skin disease in the dog: A guide to canine pyoderma. Veterinary Learning Systems Kansas USA.

Lilenbaum, W., E.L. Nunes and M.A. Azeredo, 1998. Prevalence and antimicrobial susceptibility of *Staphylococci* isolated from the skin surface of clinically normal cats. Lett. Applied Microbiol., 27: 224-228.

Littlewood, J.D., K.L. Lakhani, J.L. Paterson, N. Wood and N. Chanter, 1999. Clindamycin hydrochloride and clavulanate amoxycillin in the treatmen of canine superficial pyoderma. Vet. Rec., 144: 662-665.

Malik, S., H. Peng and M.D. Barton, 2005. Antibiotic resistance in *Staphylococci* associated with cats and dogs: A review. J. Applied Microbiol., 99: 1283-1293.

Mason, I.S. and M. Kietzmann, 1991. Cephalosporins-Pharmacological Basis of Clinical Use in Veterinary Dermatology, 10: 187-192.

Medlau, L., P.M. Rakich, K.S. Latimer and J.B. Grant, 1991. Superficial pyoderma in the cat: Diagnosos an uncommon skin disorder. Vet. Med., pp: 807-811.

Patel, A., H.D. Lloyd S.A. Howell and W.C. Noble, 2002. İnvestigation into the potetial pathogenicity of *Staphylococcus* felis in a cat. Vet. Rec., 150: 668-669.

Paradis, M., L. Abbey, B. Baker, M. Coyne, M. Hanningan, D. Joffe, B. Pukay, A. Trettien, S. Waisglass and J. Wellington, 2001. Evaluation of the clinacl efficaccy of marbofloxacin (Zeniquin) tablets for treatment of canine pyoderma an open clinical trial. Vet. Dermatol., 12: 163-169.

Roy, A.F. and M.T. Kearney, 1985. Distribution of *Staphylococcal* sp. on clinically healthy cats. Am. J. Vet. Res., 46: 1824-1828.

Sentürk, S., E. Özel and A. Sen, 2005. Clinical Efficacy of Rifampicin for Treatment of Canine Pyoderma Acta. Vet. Brno, 74: 117-122.

Scott, D., W.H. Miller and C.E. Griffin, 2001. Bacterial Skin Diseases. Muller and Kirk's. Small Animal Dermatology. 6th Edn. In: Muller, W.B. (Ed.). Saunders, Philadelphia, PA, USA, pp: 274-335.

Wildermuth, B., C. Griffin and W. Rosenkrantz, 2006. Feline Pyoderma Therapy. Clin. Techniques Small Anim. Pract., 21 (3): 150-156.