FREQUENCY OF ISOLATION OF STAPHYLOCCUS INTERMEDIUS FROM CANINE PYODERMA AND ITS ANTIBIOGRAM PATTERN

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ABSTRACT

A total of 77 skin swabs from canine pyoderma were subjected for culture and antibiogram. The Staphylococcus intermedius was isolated (60 %) along with other bacteria and fungi. It showed sensitivity to amikacin-72%, ciprofloxacin-60%, gentamicin-56%, amoxicillin-clavulanic acid-54% and complete resistance to ampicillin. The medical records analysis evidenced that the isolates (5%) showed resistant to all antimicrobial drugs were from cases with recurrent pyoderma.

Key words: S.intermedius – antibiogram- canine pyoderma

The skin of normal dog is populated with small numbers of Micrococcus, alpha-hemolytic Streptococci, Propionibacterium acnes, Acinetobacter and Staphylococcus spp. Allergy, keratinisation and follicular disorders and metabolic disorders such as hypo thyroidism and hyper adrenocorticism are the most common causes that trigger the bacterial infection of the skin. (Scott et al, 2000). Staphylococcus sp is the most common pathogen isolated in canine pyoderma. The frequency of Staphylococcus sp isolated from pyoderma varied with different studies, from 67% (Philips and Williams, 1984), 86.6% (Peterson et al, 2002), 91.6% (Medleau et al., 1986), to 92% (Holm et al, 2002). These authors also reported that there was a continuous change in the antibiogram pattern of these organisms. In this backdrop the present study was undertaken to evaluate the frequency of Staphylococcus sp in canine pyoderma and their invitro susceptibility to various antibiotics.

The skin swabs were collected aseptically from dogs presented to the small animal dermatology unit of Madras Veterinary College Teaching Hospital, with the clinical signs of pruritus, papules, yellow pustules, ulcers, crusts and hyper pigmentation. A total of 77 samples were collected from the freshly ruptured pustule and transported through transport medium to clinical laboratory. The swabs were streaked on 5% blood agar and MacConkey agar and incubated for 24 hrs at 37° C. Staphylococcus intermedius was identified on the basis of colony characteristics, Gram staining, catalase test, growth on Mannitol salt agar and other biochemical tests. The pathogenic Staphylococcus intermedius were identified based on the tube coagulase test. (Koneman et al, 1992). Other bacteria were also identified based on their culture characters and by using rapid identification kits (HiMedia®).
Antibacterial susceptibility test:

The antibiotic sensitivity test was conducted by the disc diffusion method as per Bauer et al (1966) in Muller Hinton agar. Antimicrobial inhibition zone diameter was measured and categorised as susceptible, intermediate or resistant. Antibiotic discs (Himedia) of widely used antimicrobials in veterinary practice such as amoxycillin-clavulanic acid, gentamicin, amikacin, ciprofloxacin and ampicillin were used. The frequency of antibiotic susceptibility and resistance of Staphylococcus intermedius were assessed.

In addition to this the medical records of the study population were analysed for clinical relevance.

Staphylococcus intermedius was isolated from sixty percent of cases (46) with pyoderma. Such a high prevalence of S. intermedius was also reported by Phillips et al (1984), Medleau et al (1986) and Holm et al (2002) at the rates of 67%, 73% and 84% respectively. From this study it was evident that Staphylococcus intermedius was the major coagulase positive species of Staphylococcus sp associated with canine pyoderma.

Other bacteria isolated from skin swabs included Escherichia coli (3%), Proteus sp (4%), Klebsiella sp (3%) and Bacillus sp (15%). Besides these bacteria Trichophyton sp and Aspergillus sp were isolated from 12 clinical samples. Such a mixed infection was also documented by Phillips et al (1984), who isolated Pseudomonas sp, Streptococcus sp, Klebsiella pneumonia and dimorphic fungi along with the Staphylococcus sp from the clinical samples.

The results of antimicrobial susceptibility test showed that S. intermedius were susceptible to amikacin-72%, ciprofloxacin-60%, gentamicin-56%, amoxicillin- clavulanic acid-54% and complete resistance to ampicillin. From the analysis of medical records of the study population, it was observed that the majority of clinical specimens which showed antibiotic resistance were collected from case with recurrent pyoderma. In the present study S. intermedius was completely resistant to ampicillin. In contrast to this, Phillips et al (1984) and Medleau et al (1986) observed resistance rates of 50%, and 83% respectively. This may be due geographic differences as well as the selective pressure exerted by prior exposure to this drug.

In the present study isolates from four cases (5%) were resistant to all antimicrobial drugs indicating the presence of multi drug resistance organisms in the study population. The multi drug resistance isolates were of significance that they were isolated from samples of the dogs with recurrent pyoderma. Previously Holm et al (2002) reported that 33% of Staphylococcus sp isolates from canine pyoderma were resistant to three or more antimicrobial drugs and suggested that the resistance was mediated by the erm gene. Ganiere et al (2005) reported that 42% isolates were resistant to three or more antimicrobics. However the presence of multi drug resistance isolates in the present study is in sharp contrast to the three or more drug resistance isolates reported by Holm et al (2002) and Ganiere et al (2005).

This highlighted the existence of multi drug resistance isolates in canine population in Chennai and underscored the need for rationale antibiotic therapy in veterinary practice. It is necessary to consider the risk of possible transmission to humans who are in contact with the affected animals and their zoonotic implications. Guardabassi et al (2004) reported that the owners with dogs affected by deep pyoderma, often carried the multiple antimicrobial...
Frequency of isolation of resistant strains of *S. intermedius*. He further opined that there was possible risk of transfer of resistance genes from the canine strain to human pathogenic *Staphylococci*.

The present study demonstrated the prevalence of *S. intermedius* in pyoderma and necessity for prudent use of antimicrobial drugs in companion animal practice to prevent the emergence of antimicrobial resistance in *S. intermedius*.

REFERENCES


