

CORRELATION OF ISOLATES FROM PYODERMA AND CARRIER SITES

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100 cases of pyoderma were studied to find out whether there is any correlation between isolates from pyodermas, normal skin and nasal flora of the individual. From each patient six swabs were taken, two each from the lesion, healthy skin distant from the lesion and anterior nares. One swab from each site was used for direct microscopic examination and the other for culture and antibiotic susceptibility study. Isolates from lesion and normal skin and/or nose were identical in 37% cases of pyodermas. Isolates from lesion and normal skin were identical in 16% of cases; from lesion and nose in 14% cases, from all the three sites i.e., lesion, skin and nose in 7%. *Staphylococcus aureus* was the causative organism in 35 out of these 37 cases. Only in 2 cases was *Staph. albus* isolated. In addition, antibiotic susceptibility pattern of the isolates were also the same in 12 out of these 37 cases.

Key Words: Correlation, Isolates, Pyoderma, Normal flora, *S. aureus*, *S. albus*

Introduction

Normal human skin and nares are colonised by a large number of commensals on its surface and within its hair follicles. *Staphylococcus epidermidis*, a commensal with a pathogenic potential, is prevalent on the skin and in the nose in a great majority of healthy persons. Normal persons carry *Staph aureus* also as transient or persistent carriers on their skin and as persistent or intermittent carriers in the nose. Staphylococci first appear in the nose, then are recovered from normal skin and finally from the lesion.¹ Skin may be contaminated from nose through the agency of fingers. Strains isolated from the fingers of nasal carriers are frequently the same as in the nose.

Normal flora defends against bacterial infection through bacterial interference. But if the immune status of the subject is impaired or skin is damaged these

commensals may become opportunistic pathogens and may cause infection of the skin and its appendages.² This study was undertaken to find out whether there is any correlation between isolates from pyodermas, normal skin and nasal flora of the individual.

Materials and Methods

In this study 100 patients of pyodermas of various age groups who had not received any topical or systemic antibiotic therapy prior to attending the hospital were enrolled. Detailed history was taken, clinical examination and routine investigations were done. From each patient six swabs were taken, two each from three different sites i.e. lesion, healthy skin away from the lesion and anterior nares. One swab from each site was used for preparing stained direct smear to study the morphology of the microorganisms and other swab was used for inoculating the Blood Agar and MacConkey's medium which were incubated aerobically for 24 hours at 37°C. Morphology to the isolated micro-organisms was studied and identification was done. Antibiotic susceptibility of the isolated

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microorganisms to Benzyl Penicillin, Streptomycin, Tetracycline, Chloramphenicol, Erythromycin, Ampicillin, Gentamicin, Polymixin, Cephalexin was also studied by disc diffusion method.³

Results

Out of 100 cases, 59 were males and 41 were females. Maximum (31%) cases were in the age group of 0-10 years. Maximum cases were of impetigo (Table I).

Table I. No. of case of different types of pyodermas

Type of pyoderma	No. and %age of case
Impetigo	31
Ecthyma	2
Cellulitis	1
Pyogenic intertrigo	6
Folliculitis	22
Furunculosis	24
Sycosis	5
Carbuncle	5
Hidradenitis	4
Total	100

Isolates from lesion and also from normal skin and/or nose were identical in 37 cases (Table II). Isolates from lesion and

normal skin were identical in 16 cases of pyoderma. *Staph aureus* was isolated from both the sites in 15 cases, while in only one *Staph albus* was isolated. 7 of these cases were of folliculitis and furunculosis while 6 were of impetigo.

Isolates from lesion and nose were identical in 14 cases. In all these cases *Staph aureus* was the only common organism isolated from the two sites. Out of these 14 cases, 8 were of impetigo and 6 were of furunculosis and folliculitis.

Only from 7 out of 100 cases of pyoderma, same organism was isolated from lesion, normal skin and nose. In 6 cases, *Staph aureus* was the common isolate and out of these 5 cases were of folliculitis, furunculosis and sycosis while one was of impetigo. *Staph albus* was isolated in only one case from all the three sites i.e. lesion, normal skin and nose and this was a case of folliculitis.

In 12 out of 100 cases antibiotic susceptibility of the organisms isolated from all the three sites was also the same.

Table II. Correlation of isolates from Pus, Normal skin and Nose in pyodermas

Type of Pyoderma	No. of case with same isolate from lesion & normal skin		No. of case with same isolate from lesion & nose		No. of case with same isolate from lesion, normal skin & nose		Total
	<i>S. aureus</i>	<i>S. albus</i>	<i>S. aureus</i>	<i>S. albus</i>	<i>S. aureus</i>	<i>S. albus</i>	
Impetigo	6	1	8	-	1	-	16
Ecthyma	-	-	-	-	-	-	-
Cellulitis	-	-	-	-	-	-	-
Pyogenic Intertrigo	1	-	-	-	-	-	1
Folliculitis	4	-	2	-	1	1	8
Furunculosis	3	-	4	-	2	-	9
Sycosis	1	-	-	-	2	-	3
Carbuncle	-	-	-	-	-	-	-
Hidradenitis suppurativa	-	-	-	-	-	-	-
Total	15	1	14	-	6	1	37

S. Aureus = *Staphylococcus Aureus*, *S. Albus* = *Staphylococcus Albus*

Discussion

In corroboration with other studies,⁴⁻⁶ we also observed that same organism was isolated from pyoderma lesions and carrier sites in many cases. Therefore, at least in some cases commensals from the skin and nose may become opportunistic pathogens and may cause pyodermas. Moreover, we also found that antibiotic susceptibility pattern of the isolates from normal skin, nose and pyoderma site were same in 12% cases. So, same organism as derived from the normal flora could have been the cause of recurrent pyoderma. In remaining cases of pyodermas, the causative organism may have been derived from the environment. So, while treating pyodermas, especially in chronic and recurrent cases, carrier sites must be adequately treated and hygiene should be improved to get better results.

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