

A CLINICAL AND BACTERIOLOGICAL STUDY OF PYODERMAS

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Clinical and bacteriological study was carried out in 100 cases of Pyodermas to find out the causative organisms and their antibiotic sensitivity patterns. Maximum cases were of impetigo (31%) followed by furunculosis (24%), folliculitis (22%), pyogenic intertrigo (6%), sycosis and carbuncle (6% each), ecthyma (2%) and cellulitis (1%). Majority of the cases belonged to age group of 0-10 years. A total of 99 isolates from 100 cases with pyodermic lesions were isolated. Single infecting organism was isolated from 85.85% and more than one type of organisms from 7.07% of cases. No organism was isolated from 9.09% of cases. Coagulase positive *Staphylococcus* (80.8%) was the predominant species isolated followed by Beta-haemolytic streptococcus (13.13%) and *Esch. coli* (3.03%). *Staphylococcus aureus* showed highest sensitivity to Gentamicin, Erythromycin and Cephalexin and high resistance to Tetracycline, Penicillin and Polymixin. *Streptococcus Beta-haemolyticus* was highly sensitive to Gentamicin, Cloxacillin and Tetracycline and less sensitive to Penicillin and Ampicillin. Most of the strains were found to be resistant to one or more antibiotics.

Key Words : Pyodermas, Antibiotic sensitivity

Introduction

Pyoderma is defined as 'any purulent skin disease'. In India Pyodermas are still occupying a prominent place among the patients attending skin outdoor.¹ *Staph. aureus* and B-haemolytic streptococcus are most often the two organisms which are the aetiological agents of pyodermas as evidenced by various studies done in India and abroad.²⁻⁸ Occasionally, organisms like *Bacillus proteus*, *Pseudomonas* and Coliform bacilli have also been isolated. Present study was undertaken to find out the organisms responsible for pyodermas and their antibiotic susceptibility in and around Patiala.

Materials and Methods

We studied 100 fresh cases of pyodermas of various age group and of either sex attending Skin & V D Department of Rajendra Hospital, Patiala between the period

January 1992 to May 1993. Only those patients who had not received any type of antibiotic therapy 3 weeks prior to attending the hospital were selected. Lesion was swabbed with sterile saline and sample collected using a sterile swab. Material from the intact pustular lesion was collected after rupturing it with a sterile needle and from the crusted lesions after lifting the crust partly. Inoculation was done on blood agar and MacConkey's medium. These media were incubated aerobically at 37°C for 24 hours.

Morphology of the isolated microorganisms was studied and identification was done. Antibigram of isolated microorganisms was studied by disc-diffusion method of Stokes

Susceptibility of isolated microorganisms to benzyl penicillin, streptomycin, tetracycline, chloramphenicol, erythromycin, ampicillin, gentamicin, polymixin, cephalexin and cloxacillin was tested.⁹

Results

Age and sex wise distribution of 100 cases of pyoderma is given in Table I.

There were 31% cases of impetigo, 24%

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Table I. Table showing age and sex incidence in pyodermas

Age group (in years)	Number of cases		
	Male	Female	Total
0-10	22	9	31
11-20	7	6	13
21-30	13	9	22
31-40	5	4	9
41-50	5	9	14
51-60	2	3	5
61-70	2	1	3
71-80	2	0	2
81-90	1	0	1
Total	59	41	100

of furunculosis, 22% of folliculitis, 6% of pyogenic intertrigo, 5% of sycosis barbae & carbuncle, 4% of hidradenitis suppurativa, 2% of ecthyma and 1% of cellulitis.

Table II shows that a total of 99 isolates from pyoderma lesions were isolated. A single infecting organism was isolated from 85.85%

and more than one type of organism from 7.07% cases. No organism was isolated from 9.09% cases. Staph. aureus was isolated alone from 73.73%, Beta haemolytic streptococcus from 7.07% and both these organisms from 6.06%. Proteus was isolated from 1.01% cases. Esch. coli was isolated alone from 2.02% and in combination with Staph. aureus from 1.01%. Coagulase negative Staph. was isolated from 2.02%. Coagulase positive staphylococcus (80.8%) was the predominant species followed by Beta hemolytic streptococcus (13.13%) and Esch. coli (3.03%).

In this study, antibiogram of various isolates from 100 cases of pyodermas showed a high susceptibility to gentamicin (93.93%), erythromycin (85.85%), cephalexin (85.85%), cloxacillin (84.84%), chloromycetin (81.81%), streptomycin (71.71%) and ampicillin (53.53%). But susceptibility to tetracycline was (46.46%), penicillin (41.41%) and to

Table II. Clinico-Bacterial analysis of Pus Swabs of 100 cases of Pyodermas

Types of pyoderma	Total no. of cases	S,A	C.N.S.	B.H.S.	E.C.	P	S,A,+ B.H.S.	S,A,+ E.C.	No organism
Impetigo	31	22(70.0)	1(3.2)	4(3.2)	-	-	2(6.4)	-	2(6.4)
Ecthyma	2	1(50.0)	-	-	-	-	-	-	1(50.0)
Cellulitis	1	1(100.0)	-	-	-	-	-	-	-
Pyogenic intertrigo	6	4(66.6)	-	-	1(16.6)	-	1(16.6)	-	-
Folliculitis	22	14(63.5)	1(4.5)	1(4.5)	1(4.5)	-	2(9.1)	-	3(21.4)
Furunculosis	24	19(79.2)	-	2(8.3)	-	1(4.2)	1(4.2)	-	2(8.3)
Sycosis	5	5(100.0)	-	-	-	-	-	-	-
Carbuncle	5	4(80.0)	-	-	-	-	-	1(20.0)	-
Hidradenitis suppurativa	4	3(75.0)	-	-	-	-	-	-	1(25.0)
Total	100	73(73.73)	2(2.02)	7(7.07)	2(2.02)	1(1.01)	6(6.06)	1(1.01)	9(9.09)

Figures in parentheses indicate percentage

S,A = Staph. aureus C.N.S. = Coagulase Negative Staphylococcus
 E.C. = Escherichia coli B.H.S. = Beta haemolyticus streptococcus
 P = Proteus

polymixin it was (30.30%) only. *Staph. aureus* was susceptible to gentamicin (96.25%), erythromycin and cephalexin (90% each), cloxacillin (86.25%), chloromycetin (86.25%), streptomycin (71.25%), ampicillin (53.75%). Susceptibility of this organism was low to tetracycline (42.5%), penicillin (33.75%) and polymixin (21.25%) only. Susceptibility of Beta haemolytic streptococcus was high to gentamicin (84.61%), cloxacillin and tetracycline (76.92%), cephalexin, erythromycin, chloromycetin and streptomycin (69.23% each). A low sensitivity to Penicillin (61.53%) and ampicillin (53.84%) was also observed. Number of other organisms isolated from cases of pyoderma in this study were too small; proteus in (1.01%), coagulase negative *Staph.* in (2.02%) and *Esch. coli* in (3.03%).

Comments

We observed *Staph. aureus* to be the predominant organism (80.8%, either singly or in combination with other organisms). It was followed by Beta-haemolytic streptococcus (13.13%), *Esch. coli*, coagulase negative *Staph.* and *Proteus* were also isolated in a small percentage of cases. Pasricha (1972)⁸ also isolated *Staph. aureus* from 68% of cases, Beta-haemolytic streptococcus from 5% and both from 17% of pyoderma cases. *Staph. aureus* and Beta-haemolytic streptococcus are considered to be the main aetiological agents. These have been isolated in different percentages in India and abroad.^{2,9} But in our study percentages of isolation of *Staph. aureus* from pyoderma lesions is higher than reported in previous studies and this indicates changing

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aetiology of pyodermas, now caused much more by *Staph. aureus* than in the past.

Most of the strains were found to be resistant to one or more antibiotics. It is probably due to indiscriminate use of antibiotics which must be avoided. Some antibiotics must always be kept in reserve for use only against strains resistant to common antibiotics.

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