

A BACTERIAL STUDY OF PYODERMA IN BELGAUM

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One hundred children with primary pyoderma and fifty healthy children were included in the study. The swabs collected from the lesions were cultured on various media. The colonies were identified by conventional methods. Commonest isolate was Staph. aureus (45%), followed by Strept. pyogens (35%), E.coli (5%), Citrobacter (1%) and Staph and Strept. together (14%). Staphylococci showed highest resistance to ampicillin (85%), followed by penicillin (78%), tetracycline (40%) and ciprofloxacin (15%). Streptococci and other Gram-negative isolates were sensitive to most of the drugs. Most strains of staphylococci were nontypable (42.2%) suggesting the possible emergence of new strains. Among typable ones, phage group-1 was commonest.

All streptococcal isolates belonged to serogroup-A and a significant carriage of Staph.aureus in normal children (15%) was observed.

Key Words : Pyoderma, Staph. Phage types, Drug resistance

Introduction

The patients with cutaneous lesions present one of the most challenging and frequently rewarding problems in clinical practice; especially in school going children.¹ Most of such lesions are primary pyoderma. Primary pyoderma is a pyogenic infection of the skin (nondiseased) and its appendages. Most commonly these lesions are produced by staphylococcal and streptococcal species, and less commonly by other Gram-negative organisms. Though easily treatable the condition is known for complication like post streptococcal glomerulonephritis.^{2,3} Therefore timely recognition and a prompt bacterial diagnosis of such lesions is mandatory. Hence the present study was conducted with aim of isolation, identification and antibiotic susceptibility testing of the isolates.

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Materials and Methods

The study was conducted in the department of Microbiology, J.N. Medical College, Belgaum in collaboration with Civil Hospital Belgaum. Study group comprised of 100 children with primary pyoderma attending Dermatology OPD of Civil hospital, Belgaum.

The pus was collected on two sterile cotton swabs after puncturing a fresh closed lesion with a sterile needle. The specimens were transported to the laboratory and processed within 2 hours. One swab was used for smear examination after Grams staining and another was used to put up culture on blood agar, Mac.Conkey's agar and crystal violet blood agar (1 in 50000 crystal violet in candle jar (5% CO₂). The isolates were identified by standard conventional methods. Antibigram of the isolates was performed using standard disc diffusion technique.⁴

All staphylococcal isolates were sent to Moulana Azad Medical College, New Delhi (Bacteriophage reference

center) for bacteriophage typing. Serogrouping of streptococci were done at Christain Medical College, Vellore (Streptococcal reference center). Fifty skin swabs were taken from normal healthy children and they were processed similarly as in study group and isolates were identified.

Results

The age and sex relationship is shown in table-I. Most of the patients belonged to the age group of 1-4 years (45%). Boys were more commonly affected (62%) than girls (38%). Majority of patients belonged to lower socioeconomic status (69%) than middle (27%) and higher (4%). We could also elicit history of similar lesions in the family members in 21% of cases. Common sites involved were face, scalp and upper limbs.

Table I. Age and sex distribution of patients

Age in years	Males	Females	Total	Percentage
1-4	25	20	45	45
5-8	22	12	34	34
8-12	15	06	21	21
Toatal	62	38	100	

Figure-1 shows bacterial isolates from pus. Infection was due to single organism in 86% and was due to mixed (staph.and strepto) in 14% of cases. Commonest isolate was *Staphylococcus aureus* (45%) followed by *Streptococcus pyogenes* (35%) and others.

Figure-2 shows bacteriophage-types of staphylococcal isolates. Many belonged to untypable group (43%) suggesting the possible emergence of new strains. Among typable group -I was commoest. All streptococcal isolates belonged to serogroup-A.

Figure-3 shows antibiogram of staphylococci. Maximum resistance was shown against ampicilin (85%) and penicillin

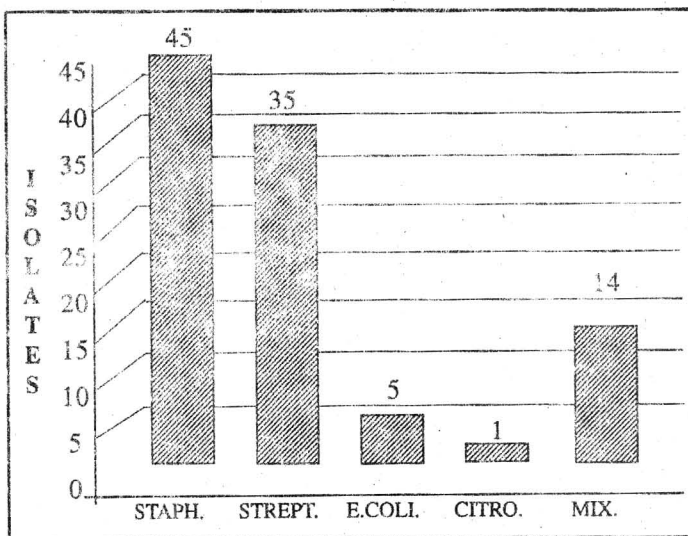


Fig.1. Shows bacterial isolates

(78%). Streptococci and Gram negative organisms were sensitive to most of the drugs.

There was significant skin carriage of *Staph.aureus* in control group (15%).

Discussion

Primary pyoderma is a common health problem in children. The results of the present study reveal that *Staph.aureus* and *Strepto.pyogenes* are major etiological agents of primary pyoderma in Belgaum.^{1,3} Similar findings

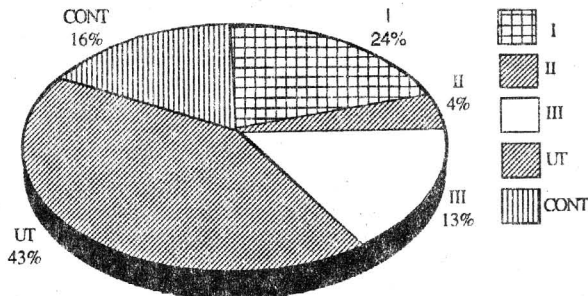


Fig.2. Shows bacteriophage types of staphylococcal isolates

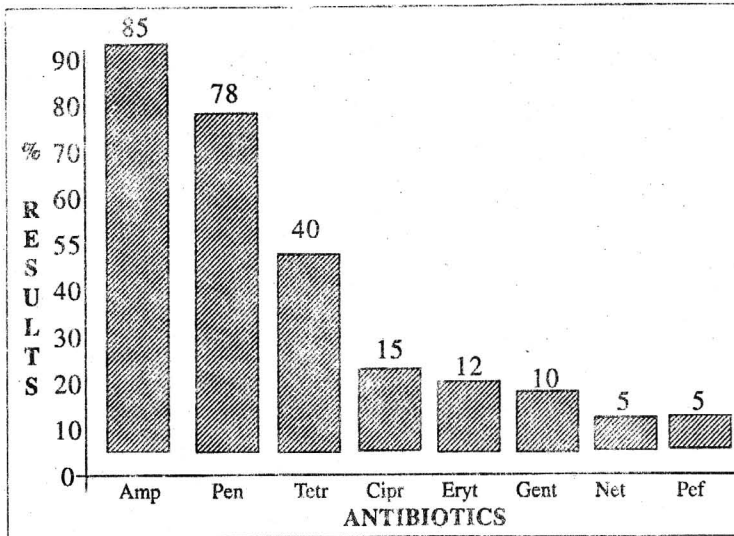


Fig.3. Shows antibiogram of staphylococci

have been reported from the other workers from different parts of India.^{5,7} Mixed infection due to *Staph.aureus* and *Strepto.pyogenes* is also common.^{8,9} Large number of staphylococci were untypable, which could probably be due to emergence of new strains. Phage group 1 staphylococci are common cause of infection;¹⁰ also they are common prevailing group of staphylococci according to phage reference center.

Prolonged staphylococcal carriage on skin could also be one of the causative factors for primary pyoderma.¹¹ High degree of penicillin resistance correlated well with wide spread use of penicillin in private practice and also to penicillinase producing staphylococci.⁷⁻⁹

Hence timely recognition, and prompt bacterial diagnosis of the cases is very important for the management and also to check the major complications.

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