

A CLINICAL AND BACTERIOLOGICAL STUDY OF PRIMARY PYODERMAS WITH ANTIBIOTIC SENSITIVITY PATTERNS

B. T. V. N. Raju¹, S. Dhanyasree², P. Guruprasad³, Rajesh Kumar G⁴, Lavanya⁵, P. Anila Sunandini⁶

¹Assistant Professor, Department of DVL, Andhra Medical College.

²Assistant Professor, Department of DVL, Andhra Medical College.

³Associate Professor, Department of DVL, Andhra Medical College.

⁴Postgraduate, Department of DVL, Andhra Medical College.

⁵Postgraduate, Department of DVL, Andhra Medical College.

⁶Professor, Department of DVL, Andhra Medical College.

ABSTRACT

Fifty cases of pyodermas were studied clinically to determine their cultural and antibiotic susceptibility patterns. All cases were primary pyodermas out of which 50% cases were folliculitis, 32% impetigo, 8% abscess, 8% furunculosis, 2% carbuncle. (Table 1). Out of 50 samples, 61% grow single organism and 39% have multiple organisms. Staphylococcus was isolated alone from 48% of cases, out of which coagulase-positive staphylococcus was isolated from 77.5% cases, coagulase-negative staphylococcus 10.4%, and methicillin-resistant staphylococcus aureus 12.5% cases followed by streptococcus (28%), Klebsiella in 8% cases, culture sterile in 12% cases, and mixed/nonspecific in 8% cases. (Table 2). Overall, most of the strains were sensitive (S1) to ampicillin (22% cases) followed by tetracyclines in 16% cases, azithromycin in 14%, ciprofloxacin in 14%, amoxicillin with clavulanic acid in 12%, imipenem in 12%, and amikacin in 10% of cases. (Table 3).

KEYWORDS

Pyoderma, Antibiotic Sensitivity, Strains.

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INTRODUCTION

Pyoderma is quite common in India and comprises a major portion of patients in Dermatology Clinics.⁽¹⁾ Because of indiscriminate use of topical and systemic antibiotics, many cases do not respond to some antibiotics, which were previously very effective for such cases. Increasing resistance to antibiotics seen in microorganisms poses a big problem to the clinicians. A detailed knowledge about the causative microorganisms and antibiotic sensitivity patterns is required for successful treatment of cases of pyoderma. The present study was designed to find out causative organisms and their latest antibiotic susceptibility patterns.

MATERIALS AND METHODS

This is a cross-sectional study done from December 2014 to June 2015 with an aim to evaluate the clinico-aetiological association between superficial pyodermas and their causative agent and to establish drug sensitivity-based treatment approach.

Fifty cases of pyoderma of various age groups and of either sex attended to the Dermatology Outpatient Department in KGH affiliated to Andhra Medical College, Visakhapatnam, were included. Patients already taken topical/systemic antibiotic within past 1 wk. were excluded.

Relevant details regarding the duration, progress of lesions, past and family history were elicited.

A complete general and dermatological examination was done.

The samples were collected before the antibiotic therapy was started. Specimens of pus were collected aseptically with the help of two sterile swabs. The swabs were transported immediately to the laboratory to do culture and antibiotic sensitivity tests. MacConkey agar, blood agar were used as inoculation media. Antibiotic susceptibility testing was performed on blood agar by modified Kirby Bauer Disc diffusion method.⁽²⁾

Gram stain was used to examine the organisms in microscopy. The organisms grown were identified by standard conventional method. Antibiotic susceptibility testing of isolated organisms was performed as per the standard procedure followed in microbiology laboratory.

RESULTS

In the present study, males (56%) were affected more than females (44%). Marginal difference was noted between adult age group (52%) than paediatric age group (48%). There were 50% cases of folliculitis, 32% impetigo, 8% of abscess, 8% of furunculosis, 2% of carbuncle (Table 1). Out of fifty samples, 61% grow single organism and 39% have multiple organisms. Staphylococcus was isolated alone from 48% of cases (out of which coagulase-positive staphylococcus was isolated from 77.5% cases, coagulase-negative staphylococcus 10.0%, and methicillin-resistant staphylococcus aureus in 12.5% cases) followed by streptococcus (28%), Klebsiella in 8% cases. Culture sterile in 12% cases and mixed/nonspecific in 8% cases. (Table 2).

Overall, most of the strains were sensitive (S1) to ampicillin (22% cases) to tetracyclines (16% cases), azithromycin (14%), ciprofloxacin (14%), amoxicillin with clavulanic acid (12%), imipenem (12%), and amikacin (10% of cases) (Table 3).

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Corresponding Author:

Dr. B. T. V. N. Raju,

Assistant Professor,

Department of DVL,

Andhra Medical College

(King George Hospital),

Maharanipeta, Visakhapatnam-530002.

E-mail: rajubtvn@yahoo.com

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Fig. 1: Impetigo



Fig. 2: Folliculitis



Fig. 3: Colonies of Klebsiella

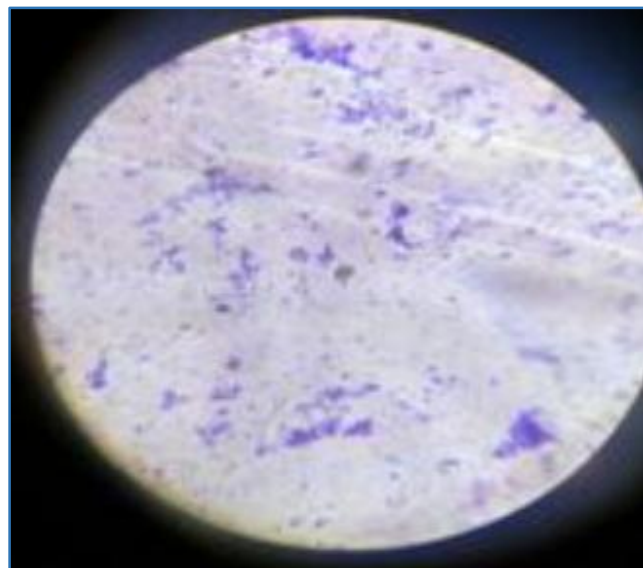


Fig. 4: Staphylococcus Aureus in Gram Stain

Type of Lesion	% of Cases
Impetigo	32
Folliculitis	50
Abscess	8
Furunculosis	8
Carbuncle	2

Table 1: Incidence of Cases

Sl. No.	Type of Bacteria Isolated	% of Samples
1.	Staphylococcus	48
	Coagulase-Positive Staphylococci	77.5
	Coagulase-Negative Staphylococci	10.0
	Methicillin-Resistant Staphylococcus	12.5
2.	Streptococci	28
3.	Klebsiella	8
4.	Mixed/Nonspecific	8
5.	Culture Sterile	12

Table 2: Incidence of Bacteriological Cultures

Type of Antibiotic	Sensitivity in % of Cases
Ampicillin	22
Tetracyclines	16
Azithromycin	14
Ciprofloxacin	14
Amoxiclav	12
Imipenem	12
Amikacin	10

Table 3: Antibiotic Sensitivity Patterns

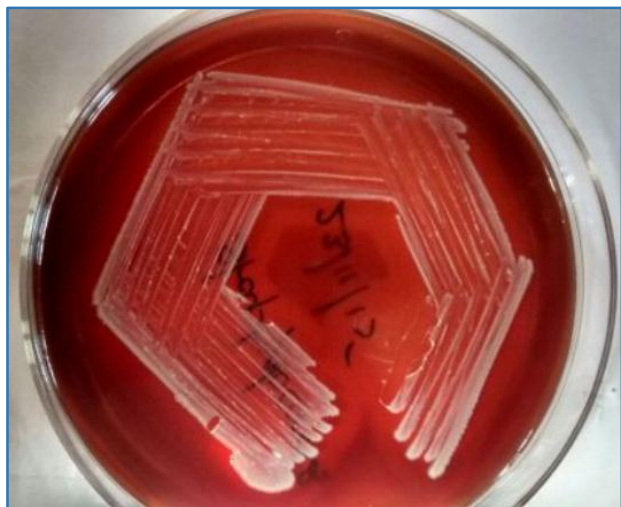


Fig. 5: Colonies of *Staphylococcus Aureus* on Blood Agar

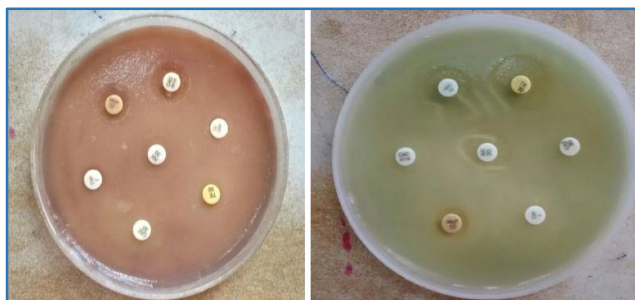


Fig. 6: Antibiotic Sensitivity Patterns on Disc Diffusion Method

DISCUSSION

In our study, fifty cases of pyoderma were investigated to know the antibiotic sensitivity patterns.⁽³⁾ Folliculitis formed the largest group followed by impetigo, furunculosis, abscess, and carbuncle in descending order of frequency, but in Balsas et al⁽⁴⁾ and Mathews et al⁽⁵⁾ study impetigo incidence was high when compared with folliculitis. As in Ghadage et al⁽¹⁾ study, incidence was more in males when compared with females and in adults when compared with children. In bacteriological analysis, we observed that staphylococcus was the

predominant species isolated, streptococcus was the next common aetiological agent, and other organisms in few cases similar to Ghadage et al and Verma et al⁽⁵⁾ study. Among the staphylococcal strains isolated, highest percentage were coagulase positive (77.5%) followed by Methicillin-Resistant *Staphylococcus Aureus* (MRSA) and coagulase-negative *Staphylococcus aureus*; these results slightly deferred with Ghadage et al⁽¹⁾ study. Regarding antibiotic sensitivity in isolated organisms, sensitivity to ampicillin was slightly high when compared with other antibiotics like tetracyclines, azithromycin, ciprofloxacin, amoxicillin with clavulanic acid, imipenem and amikacin; these sensitivity patterns were deferred with other studies (Balsas et al study).

CONCLUSION

This study gives an indication of the present state of pyoderma in and around Visakhapatnam. Most of the strains were found to be resistant to one or more antibiotics probably due to indiscriminate use of antibiotics. Empirical treatment with antibiotics is preferably avoided.

It is advised to start antibiotic only after drug sensitivity results. Newer antibiotics must always be kept in reserve for use only against strains resistant to common antibiotics.

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