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Original Research Article

Cutaneous Bacteriological Profile and its Antibiotics Sensitivity Pattern in Patients of Pemphigus Vulgaris Attending Tertiary Care Hospital, Jamnagar, India

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Abstract

Introduction: Pemphigus vulgaris is an rare Autoimmune blistering disease. The common cause of death in Pemphigus is septicemia which is secondary to cutaneous bacterial infection. ***Aim:*** The aim of this study is to find out bacteriological profile and its antimicrobial susceptibility pattern in patients with Pemphigus vulgaris attending tertiary care hospital, Jamnagar. ***Materials and Methods:*** The present study was conducted using the 198 skin swab culture and sensitivity reports collected retrospectively in department of Microbiology Shri M.P.Shah Medical College, Jamnagar from July - 2018 to July – 2019. ***Results:*** During the study 198 culture Reports were analysed. Out of this 91(45%) were culture Positive. Staphylococcus aureus (65.93%) was the most common organism isolated Followed by the Pseudomonas aeruginosa (17.58%), Klebsiella (8.79%). Other isolates include species of CONS, Escherichia coli, Enterobacter and Acinetobacter (7.69%). Out of this High sensitivity rate were observed against linezolid in gram positive cocci and against Imipenem and Piperacilin/ tazobactum in gram Negative bacilli. ***Conclusion:*** Secondary Cuteneous bacterial infection in pemphigus vulgaris is fatal. The Most common Organism is Staphylococcus aureus followed by Pseudomonas aeruginosa, Klebsiella and species of E.coli, acenatobacter and enterobacter showing high resistant to routine antibiotics.

Keywords: Pemphigus, Pseudomonas aeruginosa, Staphylococcus aureus.

INTRODUCTION

Pemphigus is an autoimmune blistering disease involving the skin and mucous membrane. The term pemphigus was derived from the Greek word *"pemphix"* meaning bubble [1]. Pemphigus caused substantial mortality before the advent of steroids and antibiotic therapy. Steroids, immunosuppressive agents, and antibiotics have improved the prognosis [2]. The common cause of death in pemphigus patients is septicemia and pneumonia. Septicemia is usually secondary to cutaneous *Staphylococcus aureus* infection [3]. *S. aureus* was the most common cause of cutaneous bacterial infection in cases of pemphigus [2-7]. In the present study we tried to look into the cutaneous bacterial infection profile in pemphigus in this part of the country.

MATERIALS AND METHODS

The present study was conducted using the 198 skin swab culture and sensitivity reports collected retrospectively in department of Microbiology Shri M.P. Shah Medical College, Jamnagar from June-2018 to August-2019. A total of 198 patients of pemphigus confirmed by biopsy or immunofluorescence and/or Tzanck smear with clinically infected pemphigus lesions were selected. All the patients in the study were subjected to push for culture which was interpreted by the microbiologist. If there was growth of organism, then sensitivity pattern was conducted for the particular organism. The samples were subjected to bacteriological culture following standard microbiological techniques [8]. The colonies grown were identified with the help of colony morphology, Gram's staining, and biochemical tests [9]. The antimicrobial susceptibility testing was performed by modified Kirby-Bauer disc diffusion technique following clinical and laboratory standards institute guidelines [10].

RESULTS

During the study 198 culture Reports were analysed. Out of this 91(45%) were culture Positive.

There were 69 Male patients and 22 Female patients. The age distribution of the patients varied from 25 to 85 years. Majority of the patients (70.32%) were found to be between 40 – 60 year age group.

Staphylococcus aureus (65.93%) was the most common organism isolated Followed by the Pseudomonas aeruginosa (17.58%), Klebsiella (8.79%). Other isolates include species of CONS, Escherichia coli, Enterobacter and Acinetobacter (7.69%). Sixty patients (65.93%) showed gram positive growth and 31 (34.06%) showed gram negative growth. Out of this High sensitivity rate were observed against linezolid in gram positive cocci and against Imipenem and Piperacilin /tazobactum in gram Negative bacilli.

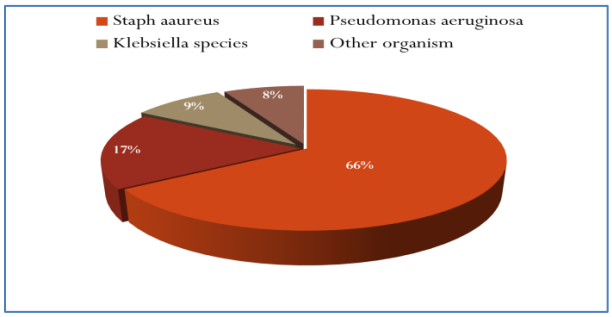

Table-1: Staphylococcus sensitivity pattern for various antibiotics

Drugs	Sensitive (%)	Resistant (%)
Linezolid	52/60(86.66%)	08/60(13.33%)
Tetracycline	26/60(43.33%)	34/60(56.66%)
Cifoxitine	35/60(58.33%)	25/60(41.66%)
Ciprofloxacin	11/60(18.33%)	49/60(81.66%)
Livofloxacin	20/60(33.33%)	40/60(66.66%)
Co - trimazole	13/60(21.66%)	47/60(78.33%)

Table-2: Pseudomonas aeruginosa sensitivity pattern for various antibiotics

Drugs	Sensitive (%)	Resistant (%)
Piperacillin + tazobactam	15/16(93.75%)	01/16(6.25%)
Imipenam	15/16(93.75%)	01/16(6.25%)
Piperacillin	11/16(68.75%)	05/16(31.25%)

DISCUSSION

This study showed male predominance among pemphigus patients, which is comparable with previous studies [11, 12]. S.aureus (65.93%) was the one of the most common isolated organism among pemphigus patients. Solanki *et al*. and Abdullah *et al*. and Kiran *et al*. [13] found the growth of S.aureus to be 72% and 82% and 40%. The S.aureus beings most common cause of skin infection, it is isolated more as comparison to the other organism. In this study S. aureus is 87% sensitive to linezolid and 59% to cifoxitine. While in Kiran *et al*. *S. aureus* recovered from the patients of pemphigus showed maximal sensitivity to tetracycline, amikacin, chloramphenicol and netilmicin all 100% Sensitive. According to Solanki *et al*. s.aureus showed maximal sensitivity to cloxacillin, cefotaxime, and lincomycin. According to this study, *S.aureus* was highly resistant to ciprofloxacin (82%) and Co-trimoxazole (79%) which is very compared to other study like Kiran *et al*. where resistance to ciprofloxacin was only 50%. Increased resistance among s. aureus further enhances chances of morbidity. In our study Pseudomonas shows highest sensitivity to Imipenem (94%) and Piperacillin-tazobactem (94%) and piperacilline (69%) while in Kiran *et al*. pseudomonas shows 100% sensitivity to all this drugs showing developing resistance in pseudomonas also increasing chances of morbidity in affected patients.

CONCLUSION

Even with the advancement in the effective treatment of pemphigus, infections and septicemia are the leading cause of morbidity and mortality. Changing bacterial profile and its antibiotic sensitivity need periodic updates. The Most common Organism is Staphylococcus aureus followed by Pseudomonas aeruginosa, Klebsiella and species of E.coli, acenatobacter and enterobacter showing high resistant to routine antibiotics. S.aureus was the most common organism showing sensitivity to Linezolid, cifoxitin and tetracyclin and resistant to ciprofloxacin, levofloxacin and co – trimazole. Next common organism was Pseudomonas aeruginosa showing highest sensitivity to Imipenem, Piperacilline-Tazobactem followed by Piperacilline.

REFERENCES

1. Korman N. Pemphigus. J Am Acad Dermatol. 1988;18:1219-38.
2. Solanki RB, Shah YB, Shah AN, Jain V. Bacterial culture and sensitivity in pemphigus. Indian J Dermatol Venereol Leprol. 1997;63:89-90.
3. Ahmed AR, Moy R. Death in pemphigus. J Am Acad Dermatol 1982;7:221-8.
4. Abudullah M, Zaki SM, El-Sayed A, Erfan A. Evaluation of secondary bacterial infection of skin diseases in-.and outpatient and their sensitivity to antimicrobials. Egypt Dermatol Online J. 2007;3:1-15.
5. Asati DP, Sharma VK, Khandpur S, Khilnani GC, Kapil A. Clinical and bacteriological profile and outcome of sepsis in dermatology ward in tertiary care center in New Delhi. Indian J Dermatol Venereol Leprol. 2011;77:141-7.
6. Qadim HH, Hasani A, Zinus BM, Orang NJ, Hasani A. Etiology of pyrexia in pemphigus patients: A dermatologist's enigma. Indian J Dermatol Venereol Leprol. 2012;78:774.
7. Esmaili N, Mortazavi H, Noormohammadpour P, Boreiri M, Soori T, Vasheghani Farahani I, Mohit M. Pemphigus vulgaris and infections: a retrospective study on 155 patients. Autoimmune diseases. 2013;2013.

8. M. Cheesbrough, District Laboratory Practice in Tropical Countries, Part II, Cambridge University Press, New York, NY, USA, 2nd edition, 2006.
9. Holt JG, Krieg NR, Sneath PHA, Staley JT and Williams ST. Bergey's Manual of Determinative Bacteriology, Williamsons and Wilkins, Baltimore, Md, USA, 1994.
10. Clinical and Laboratory Standards Institute, Performance Standards for Antimicrobial Susceptibility Testing: Twenty Second Informational Supplement, CLSI Document M100-S22, CLSI, Wayne, Pa, USA, 2018.
11. Sehgal VN. Pemphigus in India. A note. Indian J Dermatol. 1972; 18:5–7.
12. Singh R, Pandhi RK, Pal D, Kalla G. A clinicopathological study of pemphigus. Indian J Dermatol Venereol. 1973; 39:126–32.
13. Kiran KC, Madhukara J, Abraham A, Muralidharan S. Cutaneous bacteriological profile in patients with pemphigus. Indian J Dermatol. 2018; 63:301-4.