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Bacterial Contamination of Soft Contact Lens

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ABSTRACT

In this study, we aimed to analyze the rates of bacterial contamination and recognize microorganisms associated with contact lens. In the isolates, Staphylococcus was the only gram-positive organism found in our study. We further discuss the possible sources of contamination and focus on the importance of contact lens care system.

Keyword: *Bacterial Contamination, Contact lens Microorganisms, Staphylococcus, Gram-Positive*

1. INTRODUCATION

Contact lens is a successful form of vision correction. But, many side effects of contact lens responses can occur during wear by an individual. Most of these side effects are developed due to bacterial colonization of the lens [1]. Bacterial contamination of contact lens is linked with corneal infection and inflammation. This study found out, which clinical, microbiological and demographic factors are linked with microbial contamination of soft contact lens when worn for continuous wear by an individual. Wearing of contact lenses requires proper knowledge about possible bacterial contaminants, which are the causes for most of the complications related to eyes.

Microbial keratitis is the foremost genuine complication related with contact lens utilization [2]. Eye infection is mainly caused by resident and environmental microorganisms [3]. Contact lens cases are also considered as highest possible sources of microorganisms linked with corneal infections. Contamination of the lens cases and lens care solutions would most likely contaminate the contact lenses [4]. According to some researchers, in developed countries, contact lens associated keratitis cases has been raised up to 30 per cent of all keratitis cases [5, 6]. This study was carried out to determine the bacterial contamination among contact lens wearer.

2. MATERIALS AND METHODS

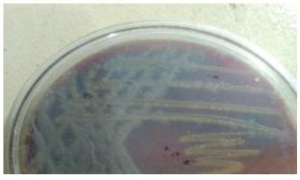
A. Collection of Contact lens with solution

B. Laboratory Analysis

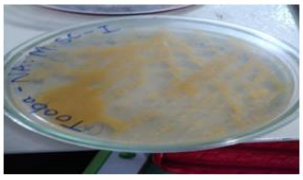
- Isolations
- Characterizations
- Microscopic analysis
- Biochemical test
- Confirmatory tests

Results:

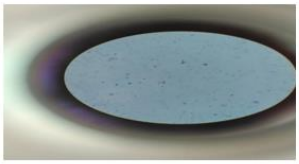
Sample	Nutrient Agar	Blood Agar	Gram Characteristics	Motility	Organisms Identified
Contact lens with solution	Golden Yellow	Golden Yellow	Gram Positive Cocci	Non-Motile	Staphylococcus
Unused contact lens solution	No growth	----	No growth	(-)	No organism found



Growth on Blood Agar plate



Growth on Nutrient Agar plate



Gram positive cocci

Catalase positive test

3. DISCUSSION

The lens case, being stationary with generally low nutrients, gives a favorable environment for the

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formation of biofilm. In our study, the lens case was found to be the most frequently contaminated thing. Boost et al, in their study, also reported 39% of lens case contamination [7]. Thus the lens and its accessories needs to be changed at regular intervals or as per expiration dates as users tend to become careless in lens handling which causes bacterial contamination. These levels of contamination in our study could be accredited not only to unhygienic practices, careless among users but also due to lack of communication between them and the professionals. Rack buying of the contact lenses from local dealers, is common practice in our country which increases the problem, as they are incapable to give proper information to the buyers. Steinmann et al also highlights the issues faced by people due to purchase of contact lens from local dealers [8].

Thakur et al, reported in their research that S. Aureus was most frequently isolated contaminant, we too found the same [9]. Yung et al as well found S. Aureus, coagulase-negative staphylococci and Serratia species as the foremost common microorganisms [10]. P Aeruginosa is the most frequent contaminant of contact lens, followed by Coagulase negative Staph, S. Aureus, S. Epidermidis [11]. Viruses, Fungi, protozoa may also cause similar infection. Rahim et al observed that S. Aureus was found to be total of 5.6% from contact lens storage case, 12.3% from contact lenses and 9.4% from conjunctiva [12].

4. CONCLUSION

Contact lens users are at high risk of getting microbial keratitis. Our findings suggest that lens case hygiene is equally important as contact lens hygiene. Frequent regular disposal of lens cases followed by expiration date is the important and necessary measure to prevent the microbial colonization in such containers and contact lenses. There should be awareness among the contact lens wearer about the lens care practices, hygiene and replacements of contact lenses and lens cases as per manufacturer's guidelines.

5. ACKNOWLEDGEMENT

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