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Microorganisms Harbored Between the Sheets of Dental Burs.

KEYWORDS: Dental Burs, Caries, caries associated microorganisms.

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ABSTRACT *Objectives:To identify the bacteria strain found in the leaves of the dental drill after removing extensive and deep dentin cavities of patients attending at University clinics. Perform the Gram+ stain of each bacterial species found in the bacterial cultures.*

Material and Methods: Two groups of 20 dental burs tungsten carbide ball shaped the numbers 4 and 6 were used. Group "A" was subjected to a sterilization process, while group "B" without sterilization.

Results: Dentin in dental organs were observed. Out of 40 samples analyzed 9 were positive, ie bacterial growth in BHI medium, equivalent to 24.32%, were found among gram-positive microorganisms: Coconuts, Bacilli, S.mutans, Candida, and S.Aureus, considered as the main initiators of dental caries.

Conclusion: This results shows the importance of dental burs sterilize after use, to avoid these microorganisms housing by being transferred from one patient to another and avoiding cross-contamination.

INTRODUCTION

Caries multifactorial infectious disease, mainly caused by Gram-positive facultative anaerobic microorganisms including the most important: Streptococcus mutans, which is characterized by an imbalance in the dynamic and physiological, includes episodes of demineralization and remineralization of tooth as a result of carbohydrate metabolism by the bacteria that make up the plaque.[1,2]

Once the cavity formed other bacterial genera found in saliva can settle in the lesion and complicate the bacterial flora at this site which may be important in other pathologies development.

The oral cavity contains one of the most varied and body concentrated microbial populations. It is estimated that between 200 and 300 species.[2]

This study, was performed in clinics at the School of Estomatology of the Benemérita Universidad Autónoma de Puebla, and shows the bacteriological analysis of dental burs, with the aim of raising awareness of the risk of dental caries infection by reusing dental burs after removing dental extensive dentinal caries, also inform professionals about sterilization of such tools.

MATERIALS AND METHODS

We used 2 groups of 20 high-speed dental burs tungsten carbide ball as the number 4 and 6, the group "A" was subjected to a sterilization process, but the group "B" used without going through that process.

When removing extensive dentinal caries dental burs was over, it was deposited in Stuart transport medium which medium whose formula can maintain the viability of the microorganisms present in the sample without any significant growth (Figure 1). Was carried at the laboratory of Microbiology of the School, where we proceeded to the following:

Fig. 1.Collection of dental burs after removing extensive caries.Were stored in Stuart medium.

1. Each sample was subjected to vibration Vortex 3 times for 10 seconds to dislodge any debris between the sheets of the dental burs.

2. Near the burner, it took 100 microliters of this solution with a pipette and were deposited in test tubes with Brain Heart Infussion (BHI), whose characteristic is to provide the components needed to nourish exigent microorganisms and therefore a means was used for cultivating microorganisms such as streptococci, pneumococci and meningococcus.

3. Tubes were placed immediately in a bacteriological oven at a temperature 37 ° C and were monitored at 24

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and 48 hours to verify bacterial growth

4. After that period of time, tubes with BHI broth were stirred vigorously, if the broth became turbid it meas to be positive for bacterial growth.

5. Medium of Mitissalivarius agar (MSA), Eosin Methylene Blue Agar (EMB), Brain Heart Infusion (BHI), Mannitol Salt, DestrosaSabouraud and MRS were prepared according to manufacturer's instructions.

6. The test tubes with positive bacterial growth were separated, it took a little of the broth for bacteriological culture in plaques the medium mentioned above.

7. Plaques were placed in a bacterial oven at 37 ° C for 24 to 48h, three: EMB, Mannitol Salt and Sabouraud Dextrose in aerobic conditions, and BHI , MRS and MitisSalivarius Agar in oven 5% CO2. (Figure 2)

8. After 24 hours, cultivation were analyzed. Those that were positive identified the number of colonies present on each of the plates.

9. Subsequently a handle sterilized Kolle, took a small amount of the sample to be examined and placed on a slide for Gram staining.

10. Finally there was the immersion microscope objective to identify the type of microorganism, the following results were obtained.

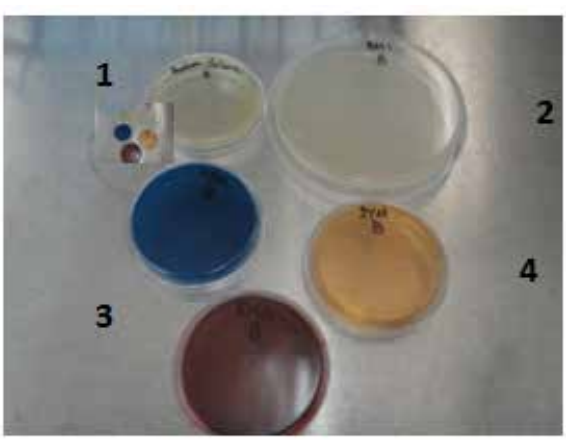

Figure 2.Medium used in the study: 1 SabouraudDextrosae; 2 BHI; 3 MRS; 4 MSA; 5 EMB.

RESULTS

With this experimental design was identified type of microorganism present between sheets of dental burs tungsten carbide ball-shaped after removing carious dentin in dental organs. Of the 40 samples analyzed 9 were positive with bacterial growth in BHI medium, equivalent to 24.32%, were found among gram-positive cocci, bacilli, Streptococcus mutans, Candida sp and Staphylococci aureus which are the main microorganisms initiators of dental caries (Table 1,2).

Sample Identification	Micro-org. Gram +	S. mutans	Lacto-bacilos	Candi-dasp	Stafilococosau-reus
3	+	+	+	+	+
8	+	+	+	+	+
11*	+	+	-	+	+
23	+	-	+	+	-
25	+	+	+	-	-
29	+	+	+	+	+
35*	+	+	+	+	+
37	+	-	-	-	-
40	+	-	-	-	-

Table 1.Shows bacterial growth in different culture media after Gram staining.

(+) Indicates that Gram staining when viewed under a microscope for identification, Gram-positive microorganisms were found, S. mutans, lactobacilli, Candida sp or S. aureus

(-) Indicates that Gram staining when viewed under a microscope for identification were not found, S. mutans, lactobacilli, Candida sp or S. aureus.

(*) Samples belonging to the group "A"

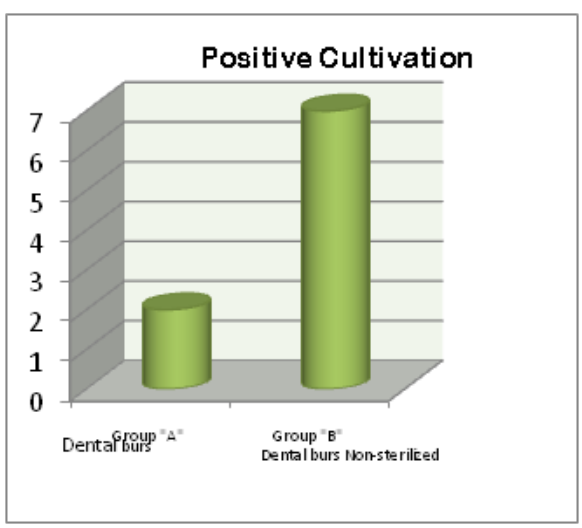

Table2.Relation of number of positive samples from Group "A" and Group "B".

The Professionals in Odontology should have the habit of using a dental bur in each patient. Despite the good irrigation handpiece and friction that occurs with the dental bur to carve the carious tooth organ, is achieved microorganisms accommodation between dental bur sheets.

CONCLUSION

The importance of sterilized dental burs each time they are used to prevent microorganisms in the housing thereof was demonstrated in this study, in order to be transferred from one patient to another, and avoid cross-contamination.

Hence the importance of bringing dental burs to the sterilization process, even knowing that there is a loss in efficiency or cutting wear edged decreased. However, there is an alternative by using dental burs only once and become part of the disposable instruments.

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For this reason it is recommended that new dental burs should be used to optimize operative working time, reducing patient anxiety during dental practice.

REFERENCE

1-Axelsson, P. (2000). "Diagnosis and riskprediction of dental caries". Germany: Quintenssence Publishing, Vol 2. p.199. | 2-Negorni, M.(2005). "Microbiologystomatologicalfundamentals and practical guide". Buenos Aires:Panamerican medical, Firsteditiona and 4ta reprint, p.484. | 3-Seif,R. (1997). "Cariology: prevention, diagnosis and contemporarytreatment of dental caries".medicalStomatologicalcurrentaffairsLatin American. firstedition. Pp.45-49. | 4-Takahashi, N. and Nyvad, B. (2008)."Caries EcologyRevisited: Microbialdinamicsandthe caries process, Caries Research".pp. 42,409-418. |