THE IMPORTANCE OF CROSS –CONTAMINATION CONTROL WITH LAB MADE RESTORTIONS

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Statement of problem:. The increased awareness of the dangers of cross-contamination with hepatitis virus (HBV), (HCV) and HIV during dental procedures is having a growing impact on attitudes toward infection control in the dental clinic and laboratories. .

Purpose of the study: The aim of this study was to evaluate the micro-organisms trans-mission from the metal substructure to the dies after try-in stage..

Material and Methods: 10 cases have been selected and diagnosed. . Two final impressions were taken for every case . The first impression was swabbed for microbiological testing and discarded.The second impression was used for constructing the crown in aseptic conditions. The metal substructure was triad in patient's mouth . The metal substructure was placed on the die without using any disinfecting material for . The die was swabbed and tested for the microorganisms counting . **Results**: The count of Streptoococcus (α Hemoltica) was the same results which obtained from the contaminated impression.

Conclusion: The infection control measurements and guidelines should be strongly encouraged.

to ensure aseptic practice in dental clinics and laboratories to avoid cross contamination .

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The ecologic relationships between micro- organisms and humans are exemplified in the oral flora . The microflora of the oral cavity consist of bacteria, yeasts, certain fungi, , and mycoplasmas,.. It's estimated that 500-600 different kinds of bacteria thrive on mucus and food remnants in the mouth. A predominant member of this community is the Gram positive bacterium Streptococcus mutans. The principal potential route of transmission from the patient to the dental technician is through contaminated impressions, casts and prostheses. It has been demonstrated that microorganisms can be recovered from casts. It would seem essential therefore, that impressions should be disinfected by the clinician or a suitably protected technician prior to the initiation of any laboratory procedures.

MATERIALS AND METHODS:

10 cases have been selected and diagnosed. The teeth were indicated for construction of PFM crowns. our work was to evaluate the micro-organisms trans-mission from the metal substructure to the decontaminated casts after try-in stage .However , two final impressions were be taken , one of them was swabbed in the microbiological lab for testing , while the other was disinfected and used for constructing the crown . The metal substructure was triad in patient's mouth . The metal substructure was placed on it's die in the working cast without using any disinfecting material for it . The die was swabbed and tested for the microorganisms counting in the lab .

The first microbiological testing:

The final impression was swabbed for the microorganisms counting and then discarded.

Fig (1): The sterilized trays and containers for swab

Fig (2): The impression during the swab taken

The swab was cultured into both blood agar and chocolate agar . These media are employed to determine the viable number of cells of specific genera of the micro- organisms such as streptococci, They were incubated into incubator for 18-24 h . The result was as follow:The Streptoococcus (α Hemoltica) count was more than 50 colons .

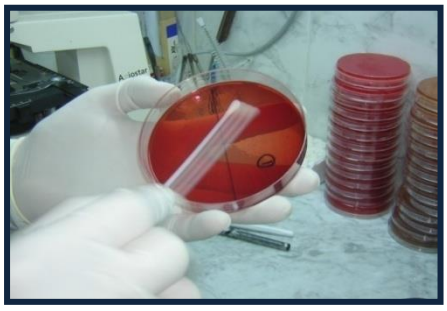

Fig (3): The swab implanted into the blood agar

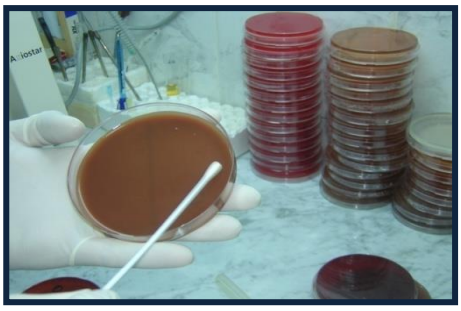

Fig (4): The swab implanted into the chocolat agar .

The second microbiological testing:(for the swabbed die after metal try in stage) :

The second impression was disinfected with (OROPANO) 100 g containing :bis β aminopropyl dedecylamin 0.38 g , didecyldimethylammoniumchloride 0.05). The impression was used for construction of metal substructure with aseptic conditions in lab .The metal substructure was triad in patient's mouth . The metal substructure

was placed on the die without using any disinfecting material for disinfection. The die was swabbed and tested for the microorganisms . They were incubated into incubator for 18-24 h The result was as follow:The Streptoococcus (α Hemoltica) count was more than 50 colons . That means , the same results of the contaminated impression.

RESULTS

Table (1): The first microbiological testing / the values for number of The Streptoococcus (α Hemoltica) count in the first impression in both media :

Case Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	Mean	SD
blood agar media	50	40	50	60	50	50	60	60	50	70	54	8
chocolate agar media	60	30	50	40	70	50	50	60	70	50	53	11.87

Table (2): The second microbiological testing / the values for number of The Streptoococcus (α Hemoltica) count / for the swabbed die after metal try in stage

Case Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	Mean	SD
blood agar media	40	50	50	70	40	50	50	70	50	60	53	10.04
chocolate	60	60	50	60	50	40	50	60	70	40	54	9.16

Discussion:

Certain microbes have been demonstrated to remain viable within gypsum cast materials for more than (7) days. Incorrect handling of contaminated impressions, prostheses, or appliances, therefore, offers an opportunity for transmission of microorganisms whether in the dental

office or in the lab.. The dental laboratory staff should perform cleaning and disinfection procedures for contaminated impressions before casts pouring

American Dental Association (ADA) requires the adoption of the concept of universal precautions (a set of cross-infection measures for all the patients, considering every patient as possibly infectious).

The universal infection control rules

It should be encompass six aspects:

1- A routine patient evaluation,
2- Personal protection with barrier techniques,
3- Instrument sterilization
4- Surface and equipment disinfecting,
5- Asepsis in the dental laboratory
6- Appropriate disposal of contaminated waste including sharps items

All personnel involved in the practice of dentistry must understand the risk involved, and should fully conversant with the procedures employed in cross-infection control. Contaminated stone casts transferred to or from a laboratory area or a clinic should be disinfected .

It is preferable to disinfect the impression so that the resulting cast itself will not have to be disinfected because casts are the most difficult prosthodontic item to disinfect without causing damage. However, inadvertent contamination may make disinfection of the cast necessary. In such cases, casts can be sprayed with an iodophor or chlorine product disinfectant , rinsed and handled in an aseptic manner.

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الملخص العربي

زيادة الوعي بخطورة انتقال الأمراض المعدية كالتهاب الكبد الوبائي(ب . ج) ومرض الايدز بين المرضى خلال جلسات طبيب الأسنان ثم معمل الأسنان ساعد على أهمية التحكم في منع ذلك فى كليهما .

وقد كان الهدف من هذه التجربة هو معرفة مدى التلوث البكتيري في مرحلة تجريب التركيبة في فم المريض ثم نقلها إلى المعمل لتكملتها .

أخذت عشرة حالات وتم عمل مقاسان لكل حالة . أجريت مسحة للمقاس الأول بدون تطهير لقياس عدد التلوث الجرثومي ثم التخلص منه.

أما المقاس الثاني تم تطهيره واستخدامه للحصول على تركيبه المريض وفى مرحلة التجريب أعيد ت التركيبة إلى المعمل بدون تطهير وعند اخذ مسحة وجد أن عدد التلوث تقريبا مساويا لعدد تلوث المقاس الأول .

استنتج من هذه التجربة ان التهاون في اجراءت التعقيم ممكن أن يؤدى إلى كوارث الإصابة بهذه الأمراض الخطيرة بين المرضى عافنا الله وإياكم.