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Short Communication

Defogging technique for convenient and quality intra-oral photography

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1. Introduction

Photography has an extensive role in teaching, research use, and clinical records. Clinical photography has become a paramount implication of standard dental practice. Clinicians in both general practice and specialty have found the clinical and picture based representation of a patient's condition to be a valuable part of the patient's record. The most commonly encountered problems in dental photography include the pooling of saliva, distractions such as blood, food debris, air bubbles, and fogging of the mirror.

As a clinician, it is important for orthodontists to learn to use a camera and to master and develop expertise in clinical photography skills for the following reasons:

1. Documentation of records for medicolegal reasons
2. To compare pretreatment and posttreatment results
3. Documentation of findings that may be unique and to present those findings with peers
4. Collection of data to make presentations and teaching students
5. Usage of data in clinical practice for patient information and motivation
6. Requirements of certification examinations.[1]

Fogging of the mirror is a significant issue when occlusal photographs are taken. Conventionally, there have been multiple solutions to overcome fogging of the mirror such as blowing air with a 3-way syringe, incorporating a micro fan in the base, and pre-warming the mirror with warm water. But all these options have a downside. Using a 3 - way syringe requires three-handed dentistry and having to pre-warm the mirror each time before photography is a cumbersome procedure. All these options demand increased time and effort both from the clinician and patient. Learning how to maximize the quality of your clinical photography will repay the time invested a thousand-fold.[2] Using modern software, stored photographs are easily accessible and instantly transferable between clinicians anywhere on the globe.[3]

2. Materials and Methods

To curtail fogging of the photographic mirror, we applied an Anti-fog solution available on the market (ZEISS Anti-fog spray based in Germany) which was primarily used to defog spectacles.

The photographic mirror was cleaned to remove any particulate debris using distilled water and was wiped using a clean microfibre cloth. The mirror was allowed to dry for 30 seconds.

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Later on, ZEISS ANTI-FOG spray was sprayed on the microfibre cloth to wipe the mirror. The mirror was allowed to dry for 20 seconds. The photographic field was cleared of saliva and other particulate debris and the occlusal views of the patient were photographed.

3. Results

We observed a significant improvement in the image eliminating obscurities by using the Anti-fog spray.

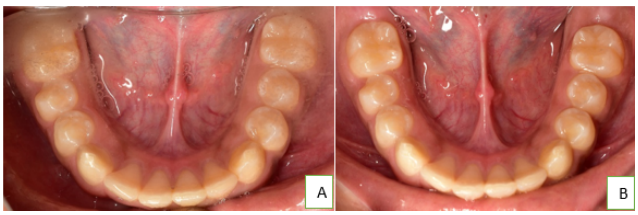

Fig. 1: a: Before using anti-fog spray **b:** After using anti-fog spray

Fig. 2: Anti-fogging spray

4. Discussion

Anti-fog or anti-fogging agents are chemicals that prevent fogging on the surface of the glass on which they are applied by inhibiting the condensation of water on the surface. They are called surfactants which reduce the surface tension of the water. Many small droplets form a non-transparent surface across the mirror. The individual droplets create a so-called contact angle on the mirror which do not allow fogging of the mirror. The larger the angle, the hazier your vision becomes.[4] With Anti FOG spray, the water droplets encounter a flat film, ensuring that there is no contact angle. The end result when the contact angle = 0°: the mirror does not fog up thereby creating an environment for better photography.

The ingredients in ZEISS Anti-fog spray were AQUA, Butyl diglycol, Methylchloroisothiazolinone, and Methylisothiazolinone.[5]

Anti FOG spray leaves behind a thin film comparable with a temporary additional coating on the lenses. This ensures that fine, condensed water droplets which do not adhere to the lens surface.

This property of the spray helped us to overcome the fogging of the photographic mirror and made intraoral photography easier and more convenient.

4.1. Future considerations

Another persisting problem during the COVID-19 era is the fogging of face shields obscuring the vision of the clinician. This anti-fogging spray can come to a quick rescue and help the clinician work with ease.

5. Source of Funding

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6. Conflict of Interest

None.

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