ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,Iss 7, Oct 2022

Air abrasion: a new dimension in conservative dentistry

Dr. Sumita Giri Nishad[1]*, Dr. Chetna Arora[2], Dr. Shubhra Malik[3]

1. Professor, Department of Conservative Dentistry & Endodontics, Santosh Dental College & Hospital, Santosh Deemed to be University, Ghaziabad.
2. Professor, Department of Conservative Dentistry & Endodontics, Santosh Dental College & Hospital, Santosh Deemed to be University, Ghaziabad.
3. Professor, Department of Conservative Dentistry & Endodontics, Santosh Dental College & Hospital, Santosh Deemed to be University, Ghaziabad.

*** Dr. Sumita Giri Nishad – Corresponding Author**

ABSTRACT

Air Abrasion is a non-drilling technique used by dentists to remove tooth decay or dental enamel without the use of a drill. Air Abrasion Dentistry has emerged over time as an alternative method for cavity protection and tooth structure preparation that is more conservative. This page discusses the history of Dental Air Abrasion, its applications, how it operates, its safety applications, as well as the benefits and drawbacks of this procedure.

Keywords: Air Abrasion, Conservative Cavity Protection, less traumatic alternative, Minimal Invasive Technique

INTRODUCTION

This type of dentistry is necessary since old treatments are being questioned and new conservative techniques must be suggested. Dr. Robert Black created Air Abrasion Dentistry in the 1950s as an alternative to the needle and dry cavity protection.

Air Abrasion System is a less stressful and more conservative alternative to high-speed drill techniques. It allows the dentist to remove decay selectively, leaving healthy tooth structure intact. It can assist the dentist detect concealed cavities.[1-4] The extremely tiny and narrow stream of abrasive eliminates stains and aids in healing fissures and damaged teeth. After the

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,Iss 7, Oct 2022

affected regions have been thoroughly cleaned, an unique cavity-detection dye can indicate where the decay is actively damaging tooth structure. Air Abrasion has proven to be the most convenient method compared to the alternatives. It is highly effective since it removes dental decay in a very mild manner. This procedure has proven to be a pleasant experience for those who have been terrified of the dentist since birth. Such effective techniques have altered the entire dental practise.[7-9]

Several variables, including air pressure, particle size, the number of particles travelling through a nozzle, nozzle diameter of the handpiece, nozzle angulation of the handpiece, distance from the object, and exposure time to the object, influence the amount of tooth removal and depth of penetration.

IS AIR ABRASION SAFE?

Air Abrasion is safe, yes. However, we must take a few precautions when performing any medical procedure. Important precautions include the use of protective eyewear to prevent eye discomfort from the spray and a rubber dam to fit around the teeth and protect the untreated portions of the mouth.[5-6] Additionally, the suctioning of particles prevents their inhalation into the lungs.

ADVANTAGES OF AIR ABRASION

Compared to the conventional drilling approach, air abrasion dentistry has numerous advantages. Air Abrasion Dentistry has the following benefits: It produces no heat, pressure, or vibration. It can lessen the need for anaesthesia. [10-11] It leaves more healthy dental tissues left. It also minimises the likelihood of tooth fracture, which impacts the longevity of the filling. This approach is far simpler than conventional drilling methods.

DISADVANTAGES OF AIR ABRASION

Every medical technique does carry some disadvantages with it and same is with Abrasion method.

• The particles utilised during air abrasion are delicate and are not always painless.

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,Iss 7, Oct 2022

• Air Abrasion is most effective for treating tiny cavities, but not those near to the tooth's pulp

• It cannot be used to remove hard enamels.

• It cannot be used with magnification devices such as loupes or dental operating microscopes because the particles can harm the lenses.

• It cannot be used to prepare crowns, onlays, or inlays.

APPLICATIONS OF AIR ABRASION

Therefore, understanding air abrasion as a method for eradicating cavities and dental decay is insufficient. It is also utilised for a variety of other dental issues, including: Removal of previous composite fillings.

• Preparation of tooth surface for bonding or sealants

• Removal of stains and discolorations

• Restoration of tooth cracks • Removal of pit and fissure surface stains on enamel

CONCLUSION

Thus, Dental Air Abrasion is a revival of the new restorative technology and has given "Minimally Invasive Technology" a new dimension. This novel approach of bonding with the tooth structure has helped to give patients with conservative dentistry. In addition to offering preventive measures to the patient, the dentist may now educate them about the advantages of preventive dental care by using such effective and gentle approaches.

REFERENCES

1. Walmsley AD. Transfer technology in dentistry. Br Dent J 2003;194:226-7.

2. Christensen G. Cavity Preparation : Cutting or abrasion? J Am Assoc. 1996;127:1651-4.

3. Keen DS, von Frauhofer JA, Parkins FM. Air-abrasive “etching”: Composite bond strengths (abstract 238) J Dent Res. 1994;73 : 131.

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,Iss 7, Oct 2022

4. Roeder LB, Berry EA, You I, Powers JM. Bond strength of composite to air-abraded enamel and dentin. Oper Dent. 1995;20 : 186-90.

5. White JM, Eakle SW. Rationale and treatment approach in minimally invasive dentistry. J Am Dent. Assoc. 2000;131 : 18S.

6. U.S. Department of Labor, Occupational Safety and Health Administration. OSHA regulations(Standards-29 CFR) 2007. Apr 18.

7. Rainey J. Air abrasion: An emerging standard of care in conservative operative dentistry. Dent Clin North Am. 2002;46 : 185-209.

8. Eakle WS, Wong J, Huang H. Microleakage with microabrasion versus acid etched enamel and dentin (abstract 160) J Dent Res. 1995;74:31.

9. Adachi JA, von Fraunhofer JA, Barnes DM. Effect of cavity preparation of composite restoration microleakage behaviour (abstract 3042) J Dent Res. 1999;78:486.

10. Gray GB, Carey GPD, Jagger DC. An *in vitro* investigation of a comparison of bond strengths of composite to etched and air-abraded human enamel surfaces. J Prosthod. 2006;15:2-8.

11. Borsatto MC, Catirse AB, Palma Dibb RG, Nascimento TN, Rocha RA, Corona SA. Shear bond strength of enamel surface treated with air-abrsaive system. Braz Dent J. 2002;13:175-8.