Spectrum Journal of Innovation, Reforms and Development
Volume 10, Dec., 2022 | ISSN (E): 2751-1731
Website: www.sjird.journalspark.org

CAUSES OF REMOVABLE DENTURE BREAKS AND ALLERGIC REACTIONS

Makhmudova Ugiloy Bakhtiyorovna
Samarkand State Medical University

Annatation:
Patients with partial tooth loss over the age of 50 make up the largest group of persons requiring this type of prosthetic treatment - 40%. At the same time, removable dentures are also used quite frequently in younger patients - 15-20%. This is due to the early loss of some of the front teeth as a result of trauma, decay, or periodontal disease. In order to preserve the healthy teeth, limiting the defect of the tooth row, preference is given to the removable plate denture, which allows to achieve the maximum level of aesthetics. As you know, the main element of the removable denture is the base. The following requirements are imposed on plastics for the bases: to be strong and sufficiently resilient, to retain integrity under the action of alternating loads for a long time, to be easily repaired, not to cause allergic reactions of the oral mucosa. Plastics used in domestic orthopedic dentistry meet most of the requirements. However, there are none that would meet absolutely all requirements. All the basic plastics used in our country belong to the hot-curing materials, i.e. they become hard after the temperature effect.

Keywords: teeth preparation, hyperesthesia, desensitizers, low intensity laser, high intensity laser, adhesive systems, primer, bonding.

Introduction

Of professional interest are failures due to violations of denture fabrication technology. Defects can occur in the structure of removable denture bases: porosity, internal stresses, and the unbound monomer methyl ester of methacrylic acid.

A distinction is made between gas and granular porosity. In order to reduce denture fabrication time, the dental technician places the plastic cuvette for its polymerization not into cold water in order to then gradually increase the temperature of the water bath, but directly into hot or boiling water. The polymerization reaction is exothermic. The heat released cannot be quickly removed from the polymerizing mass. Under these conditions, the monomer boils and its vapors, with no escape to the outside, cause the material to become porous.

Granular porosity develops from a lack of monomer in areas where it can volatilize, resulting in no homogeneous mass when pressed. It can occur as a result of the technician not observing the quantitative ratio of polymer to monomer when kneading the base plastic.

Granular porosity is usually observed in thin sections of the denture, which increases the likelihood of baseplate failure.

Causes of removable denture failures by the patient include: careless handling of the denture (dropping the denture into a sink, on a tiled floor), biting into crumbs, nuts, etc.

Fractures of removable dentures are observed in the form of cracks or fractures of the base in the area of single teeth covered by artificial crowns, clammers (hooks for fixing the denture) or

in the area of scratches left when finishing the denture by the technician, which later turn into cracks.

The current dental material market allows the selection of base polymers for removable prostheses in order to avoid adverse effects. The development of solid-phase polymerization techniques has enabled the development of such fundamentally new materials as monomer-free plastics and flexible nylon.

There are various reasons why removable dentures fail and allergic reactions can occur:

A dental technician's failure to use acrylic;

Carelessness on the part of the patient during the use of the denture.

Of professional interest are breakdowns caused by violations of denture manufacturing technology. Defects can occur in the structure of removable denture bases: porosity, internal stresses, and unbound monomer - methyl ester of methacrylic acid.

A distinction is made between gas and granular porosity. In order to reduce the manufacturing time of the denture, the dental technician places the plastic cuvette for its polymerization not into cold water in order to then gradually increase the temperature of the water bath, but directly into hot or boiling water. The polymerization reaction is exothermic. The heat released cannot be quickly removed from the polymerizing mass. Under these conditions, the monomer boils and its vapors, with no escape to the outside, cause the material to become porous.

Granular porosity develops from a lack of monomer in areas where it can volatilize, resulting in no homogeneous mass when pressed. It can occur as a result of the technician not observing the quantitative ratio of polymer to monomer when mixing the base plastic.

Granular porosity usually occurs in thin sections of the denture, which increases the likelihood of baseplate failure.

Causes of removable denture fractures by the patient include careless handling of the denture (dropping it into a sink, on a tiled floor), biting into crumbs, nuts, etc.

Breakages of removable dentures are observed in the form of cracks or fractures of the base in the area of single teeth covered by artificial crowns, clammers (hooks for fixing the denture) or in the area of scratches left when the technician finishes the denture, which later turn into cracks.

The dental technician's salary depends on the number of dentures he or she makes. In an effort to fabricate more dentures, he shortens the temperature-time polymerization of acrylic plastics, which leaves monomer in the denture base that has not reacted with the polymer. According to Kopeikin V.N., the residual monomer in the plastic even during prolonged polymerization reaches 0.5%, which contributes to inflammation of the oral mucosa. Some patients experience intolerance to the basal polymeric materials in the form of eczema, glossitis, contact stomatitis with taste disorders, swollen lips, acute dermatitis of the face and hands and other allergic manifestations. When the polymerization time is halved, the residual monomer reaches a concentration of up to 5.2%. There is a term "denture stomatitis": reactive changes in the denture bed tissue when using removable dentures.

The poor hygienic state of the dentures contributes to foci of toxicoinfection in the oral cavity of patients in the form of fungal microflora and increased inflammatory phenomena of the mucous membranes.

Dentistry is constantly searching for and studying new base materials for the fabrication of dentures, as well as ways to the best possible treatment or repair. One way to reduce the the adverse effects of acrylic dentures is to Reducing the intake of residual free monomer and other chemical compounds that can have toxic or allergic effects. This is achieved in several ways.
Improving the polymerization method, such as using energy; removal of soluble substances from plastics using supercritical carbon monoxide (CO2) media; and the creation of bio-coatings that eliminate or reduce the release of toxic compounds from acrylics, release of toxic compounds from acrylic plastics that are the most that would be most chemically inert, have good elasticity and strength characteristics, and be easy to apply and clean up.
However, despite great advances in the improvement of structural materials and manufacturing processes for orthopedic structures, the complication rate remains high.
Thus, having considered the negative impact of acrylic monomeric dental materials of the bases of dental
On the tissues of the oral cavity and the patient's organism as a whole, it is possible to summarize.
The development and clinical implementation of new bioinert materials is an urgent issue in dentistry.

ConclusionPartial removable denture fractures are caused by a shortening of the polymerization time of the denture base plastics and, consequently, by a violation of the denture manufacturing technique.
Allergic reactions to dental plastics are usually caused by improper techniques.
Based on these findings, we recommend working dental technicians:
- To reduce the number of breakages and restorations of dentures and to prevent the occurrence of allergic reactions, to use modern technologies of manufacturing removable dentures from monomer-free plastics, thermoplastics and flexible nylon, combining high strength, elasticity, manufacturability and biological inertness for the human body.

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