JOURNAL OF MULTIDISCIPLINARY SCIENCES AND INNOVATIONS
VOLUME 04, ISSUE 10
MOPNTHLY JOURNALS
ISSN NUMBER: 2751-4390
IMPACT FACTOR: 9,08

THE RETRACTIVE MEANS USED BY ORTHOPEDIC DENTISTS AND THEIR ANALYSIS IN THE MANUFACTURE OF AESTHETIC STRUCTURES

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The abstract: Currently, metal-ceramic and all-ceramic structures are the most modern types of permanent dentures. Their widespread use in dental practice is primarily due to the fact that they provide a high aesthetic effect, have sufficient mechanical strength, while being chemically resistant and biologically inert. However, the process of creating structures of this type is complex and requires special precision at certain stages.

Keywords: gum, retraction, retraction products.

After tooth preparation, one of the main manipulations in the manufacture of aesthetic structures is to obtain an impression. In prosthetics with metal-ceramic and all-ceramic crowns, a refined impression technique is used using silicone or polyester impression materials. One of the main criteria of the impression obtained is the accurate representation of the tissues of the marginal periodontal, the hard tissues of the tooth in the cervical region and the gingival sulcus, which is an important step for the accurate fitting of the subgingival edge of the future restoration. An important factor in carrying out this manipulation is the absence of capillary bleeding in the area of the gingival groove, as well as the temporary absence of gingival fluid. To achieve this goal, a special manipulation is performed – gum retraction, which consists in the expansion and complete opening of the gingival groove. Traditionally, chemical and mechanical means are used to stop bleeding and create horizontal and vertical spaces for the impression material.

To analyze the use of materials and methods of gingival margin retraction in the treatment of aesthetic prosthetic structures in dental institutions.

The objectives of the study included the following:

1) to identify the most commonly used materials in practice for the retraction procedure;

2) to establish the dependence of the use of retraction methods on the type and complexity of the future design.

To achieve this goal, at the first stage, a survey was conducted based on pre-prepared questionnaires from orthopedic dentists working in dental institutions of various forms of ownership. At the second stage, an analysis was carried out on the use of materials and applied methods of the retraction procedure in daily practice.

The survey consisted of 15 items:

Do you collect medical history before using a retraction thread? Do you consider the gum biotype when choosing a retraction technique? Have you experienced any complications after gingival margin retraction?

Which method of retraction do you use most often?

What kind of retraction material do you use? and others .. 70 orthopedic dentists took part in the survey.

The research results were entered into the database of the Pentium personal computer, which made it possible to repeatedly access the digital material obtained. Statistical analysis was carried out in stages using mathematical statistics procedures implemented in the Stratygraphiciplus for Windows version 2.1 system. Correlation analysis was carried out according to Spearman. Gum retraction was first described by Thompson in 1941. He used

moistened twine to mechanically expand the gingival groove. Pronounced gingival retraction, withdrawal, and displacement of gingival tissue are synonymous. Several types of retraction are known.

Mechanical retraction is the physical displacement of gingival tissue from the tooth surface using a jet of air, temporary crowns or non–impregnated retraction threads. The gingival groove should remain retracted for a sufficient time before the injection of the impression mass.

Chemical retraction is the opening of the gingival margin of the prepared area under the action of physiological or chemical substances on the gum tissue. Mechanochemical retraction is the use of retraction threads or rings soaked in medicinal solutions: aluminum chloride, iron chloride, aluminum sulfate, epinephrine.

Surgical retraction is a method of removing gingival tissue using rotary instruments, a surgical scalpel, or electrosurgical devices.

The combined retraction method is a combination of several methods listed above. Impregnated and non-impregnated retraction threads (cords) can be used to displace soft tissues and apply hemostatic and retraction chemicals. Impregnated filaments are of two types in composition: based on adrenergic agents (adrenaline or epinephrine) and based on mineral binders (aluminum sulfate, aluminum chloride, iron sulfate, etc.).

Mineral astringents provide reliable hemostasis and tissue retraction due to a decrease in the elasticity of the collagen fibers of the marginal gum, which prevents premature closure of the gingival sulcus space after removal of the retraction thread, and reduce the movement of gingival fluid through the intact epithelium upon receipt of the impression. C. Kilmartin and C. O. Munroe (1986) believe that epinephrine-soaked thread produces systemic suction. In addition to displacement of the free gum, retraction filaments containing epinephrine can cause changes in the cardiovascular system in patients, such as increased blood pressure and palpitations. Filaments saturated with epinephrine may have high biological activity. It is known that each inch (2.5 cm) of such a thread contains from 225.5 to 661 micrograms of epinephrine solution (113-330 micrograms of pharmacologically active L-form), which is equivalent to 3.13 to 9.16 cartridges with a concentration of 1:100,000 anesthetic solution. For comparison, the epinephrine content in one cartridge is 18 micrograms. Therefore, filaments containing epinephrine should not be used in patients with cardiovascular pathology. Retraction threads are produced in various sizes. The gingival groove in patients is variable in size, as well as in its depth and width, depending on the position of the tooth in the dental arch. A properly selected thread speeds up the retraction procedure and makes it more successful. At the current stage of development of the dental materials market, there are many different means for performing gingival edge retraction, in addition to retraction threads: cotton caps for gum retraction; elastic retraction cuffs; retraction rings; burs for surgical retraction; retraction pastes. The use of cotton caps for gum retraction, such as Comprecap (Roeko, Germany), creates a wide-open tooth groove, but only in combination with the use of threads or pastes. They serve, as a rule, as a uniform distributor of pressure on the gum tissue.

Elastic retraction cuffs and rings are designed for gum retraction, have a number of advantages: they provide a relatively safe gum opening, are repeatedly autoclavable, soft and flexible, and easily accept the contour of the tooth. But at the same time, they are not without drawbacks: the method of their application involves the use of mechanical tools, which can lead to injury to the gingival margin; they can "get stuck" on the ledge and not lead to the necessary gum retraction.

The Tissue Trimmer is a surgical instrument with a ceramic working part. It can completely replace or be used in addition to an electrosurgical instrument or scalpel when working with gum tissue. Its advantages include: high stability, minimal heating level during operation, special ceramic material of the instrument ensures vascular coagulation and reduces bleeding. The use of

this instrument is indicated for the purpose of exposing carious tooth cavities located deep under the gum, exposing retained teeth or implants in a two-stage procedure, during operations to simulate the oral mucosa, papillectomy, to open the gingival groove before receiving an impression or during periodontal treatment.

At the current stage of development of the dental materials market, various retraction systems based on gels and pastes are presented. Their representatives are the retraction system RETRAC (Centrix, USA) and Expasyl (Pierre Rolland Acteon Group). Each of these systems is designed to provide reliable gum retraction without the use of retraction threads or the use of additional methods to ensure hemostasis. RETRAC paste (Centrix, USA) has astringent properties due to its potassium and aluminum sulfate, which reduces the amount of gum fluid, which can affect the accuracy of the final impression. Gum retraction occurs within 5-10 minutes.

Expasyl retraction system (Pierre Rolland Acteon Group) has hemostatic properties due to its constituent kaolin and aluminum chloride. The application time of the paste is from 15 to 20 seconds, and the exposure time is from 30 seconds to 2 minutes, which significantly saves the doctor's working time.

After analyzing the data obtained based on the results of the survey, it was revealed that 23% of orthopedic surgeons surveyed use retraction threads, 18% use retraction pastes, 10% use gel molds, and 2% use retraction rings. At the same time, the largest number of doctors (47%) use a combination of several means in their practice.

Conclusions.

The data obtained by us as a result of a survey of orthopedic dentists suggest that retraction threads, pastes and a combined method of retraction are most often used in practice, and the methods and materials used are directly related to the choice and complexity of manufacturing an aesthetic non-removable orthopedic structure.

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