Adhesive Bridges in Department of Orthopedic Dentistry

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ABSTRACT

Adhesive bridges (AMP) are a relatively new and promising direction in dentistry and orthopedics, which allows solving the problem of restoring the continuity of the dentition with minimal invasion into the hard tissues of the teeth.

Keywords: Adhesive Bridges, Orthopedics, abutment teeth

The advantages of adhesive bridges are a low load on the hard tissues of the abutment teeth, high aesthetics of restorations, treatment without anesthesia, the possibility of replacing a defect in the dentition in one treatment, high structural stability and no problems with the edge fit. The design of an adhesive bridge prosthesis is determined by clinical features: the topography and extent of the dentition defect, the condition and position of the supporting and antagonistic teeth, the morphology of symmetrical teeth (geometric shape, size, microrelief, tooth color, type of transparency), individual morphological features, age-related changes, bite features, alveolarity of the defect site. The shape and severity of protrusions. When planning an adhesive bridge prosthesis, the possibilities of the AMP material and manufacturing technique should be taken into account. Metal, Polyethylene (Ribbon, Connect, Construct), ceramics (Glasspan, Cerec, Press Ceramic), Fiberglass (Fabre-Splint, Splint-It, Fibrecor, Vectris, Everstick, Tenderfibre), high-strength filaments (Grandtech, Kevlar). Fiber systems, on the other hand, include filled (Fibre-Kor, Splint-it, EverStick, Construct, GrandTEC, Tender Fibre) and unfilled (Ribbond, Connect, Fabre-splint, GlasSpan); prefabricated reinforcing elements for AMP production: fiberglass beams, pontoons, fiberglass pins, microlock (CBW, bloLINK). Types of support elements and stabilization include: occlusal-oral and vestibulo-oral fixators such as the Manhattan Bridge and Maryland; circular stabilization; microlocks; support for occlusal tabs or overlays; stabilization by introducing a fiber system into the retention body. The use of restorations with adhesive tape is indicated in cases of significant fracture of the crown, palatine position or absence of one tooth. Restorations can be made in the form of linings, adhesive bridges or composite structures. The location of the reinforcing strips depends on the position of the defect and the expected load on the restoration being made. A specific clinical example is given. The patient is missing tooth 24 . When using photopolymers, it is necessary to follow the procedure for manufacturing an adhesive prosthesis. Dental preparation includes mechanical cleaning of plaque using a fluoride-free paste. Teeth should be thoroughly cleaned with a stream of water. Then the shade of the composite is selected to match the

symmetrical and adjacent teeth. The reference color of the photopolymer is used. Restoration is planned (odontometry, odontoscopy). Then, to strengthen the strip, a recess is formed on the lateral surface of the tooth surrounding the defect, directed towards the defect. The height corresponds to the width of the strip, the depth is 1-2 mm (slightly deeper into the dentin), and the length occupies almost the entire width of the lateral surface, including the approximally oral crest of the crown. The lining should be positioned in such a way that it does not block the incisor edge, gum or vestibule of the tooth. Sharp corners and protruding edges should be smoothed with a thin bar. To determine the exact length of the strip required to form the structure, a thin strip of foil is pulled up with tweezers so that one end fits snugly against the pre-prepared premolar. Then the strip is stretched down to the canine, closing the defect on the opposite side and pressing tightly against the prepared surface. The prepared area is etched with acid gel, rinsed with water and dried with low-fat air. Apply a thin layer of adhesive compound, highlight and cover with a transparent hybrid material or a fluid composite material. Moisten the prepared strip of unfilled ribbon (Ribbon) with glue. Using tweezers, press one end tightly against the prepared area of the distal tooth in the direction from the vestibule to the surface of the mouth. Bend the ribbon and stretch it towards the interdental space. The other end of the tape is pressed against the approximal part of the tooth from its outer side. The further process is similar to the formation of a veneer. The dark opaque layer is the deepest (closer to the lobby). The next layer of dentin (light color) replenishes the volume of dentin of the tooth. The enamel color completes the restoration, maintaining the optimal size, shape and relief of a particular tooth. The macro-microrelief is contoured and polished, and the abutment tooth is coated with a fluoride-containing varnish. The part parallel to the vertical axis of the tooth must be made on the side surface opposite to the defect. The width and depth of the part correspond to the width and thickness of the tape, and the height is limited by the approximal tooth (the lateral ridge is preserved). The stages of tooth restoration include: cofferdam application, preparation by forming micro cavities, determining the length of the tape necessary for the manufacture of AMP, adhesive techniques (etching of micro cavities, washing, applying an adhesive system, photoactivation), tape installation and adaptation to the cavity. placement and adaptation of the tape to the cavity, as well as photopolymerization of the reinforcing base. Figure 7 shows how two sections of the tape can be strengthened, one parallel and the other perpendicular to the gingival edge, at right angles. Micro-voids are filled to form the central part of the AMP. Final modeling, photopolymerization and restoration taking into account the morphological features of the tooth.

Methods and materials: Clinical examples of combined splinted and bonded restorations on removed teeth are shown later. Immediately before making a splinted restoration, the tooth is removed. Hemostasis is performed. To avoid the destruction of enamel and dentin, separate the crown of the removed tooth 31 from the root using a diamond disc under running water. Form an oval vestibule identical to the vestibule of the tooth 41. Make an incision in the crown parallel to the vestibular wall with a width and depth corresponding to the size of the splinting tape. On the lingual surfaces of the lower incisors and canines, at a distance of 1.5-2 mm from the incisor edge, a groove is made with a small spherical rod with a width corresponding to the width of the tape used for splinting. Etch the prepared part of the tooth with acid gel. Apply the adhesive to the groove of the splint element and harden it with a halogen lamp. Apply a thin layer of a flowing composite resin (non-glossy) to the surface of the enamel treated with an adhesive. Moisten the adhesive with a pre-prepared tape without filler. Press the tape to your teeth with a gloved finger. Press the tape into the interdental space. After the tape is acclimatized, apply a thin layer of enamel composite resin to the entire surface of the tire and allow it to polymerize. To strengthen the removed tooth 31, the prepared surface is etched with an acid gel, treated with an adhesive and cured with light. The prepared surface of the tooth 31 adjacent to the gum is carefully

covered with a layer of fluid material up to 0.5 mm (the grooves are not filled) and polymerized. The grooves are filled with a flowing composite resin (Grandiflor), fixed symmetrically to the tooth 41 using strips, the material polymerizes under the light of a halogen lamp. The tire surface is treated with diamond bores, polishing wheels, heads with fine and ultrafine grain and coated with a fluorine-containing varnish. The next clinical example is the simulation of the restoration of chewing teeth. Symmetrical molars and bicuspids are mechanically cleaned with a brush and a fluorine-free paste, after which the shade of the photopolymer is selected. Plan the size and shape of the restoration. The height of the crown is measured proximally from the gum to the lateral bicuspid crest. The width of the adhesive prosthesis is about half the size obtained. One part is located horizontally at the chewing surface of the tooth 16, and the other vertically along the bicuspidal edge. Due to the presence of a defect, the manufacturing area also includes the front of the first premolar. This area is etched with an acid gel, cleaned with a jet of water and dried with low-fat air. Apply a thin layer of adhesive and a transparent fluid composite resist. Using tweezers, press one end of the reinforcing tape tightly against the dissected distal tooth. The strip is bent so that it extends from the chewing surface of the molar to the distal premolar, and attached to the prepared base. They are cured using a halogen lamp. The composite material is then used to form the missing tooth. To do this, the first part of the opaque composite material is applied to the strip covering the missing tooth using a wide smooth iron. A layer less than 2 mm thick continuously simulates the subgingival marginal zone and dentin occupying the equatorial volume of the restoration. The occlusal bottom and occlusal protrusion are formed using an opaque photopolymer. The opaque base of the restoration is covered with a thin layer of enamel composite resist. A transparent composite resist is applied over the enamel layer. The finishing hatching is applied. Abrasive treatment is performed. Fluoride varnish is applied to the tooth of the abutment. The reinforced bond design is shown below. Before choosing composite syringes, the front surfaces of the teeth to be restored (symmetrical with adjacent teeth) must be mechanically cleaned. For tooth restoration 41, an opaque shade of Grandio Nano Composite should be chosen (dark OA3 on one side and light OA2 on the other), and for models of vestibular surfaces of teeth 41, 42 and 31, an enamel shade (base color A3, incisor color A2, transparent I). Size and shape planning includes dental odontoscopy and odontometry. The measurement of this parameter is necessary to ensure an accurate fit of the structure. To close the defect and support the adhesive prosthesis, a recess is formed in the tooth. In this case, the tooth defect 42 is limited to the surface of the central incisor, occupying the entire width of the crown and extending to the lingual surface. On the left central incisor, the furrow surrounds the crown and extends to the anterior, distal and lingual surfaces. Its height is 2 mm, which corresponds to the width of the reinforcing strip, and the depth is 1 mm (slightly in the dentine). For veneers, the vestibular surfaces of teeth 31 and 42 are thinned by 0.3-0.5 mm. Next, determine the length of the strip necessary to form the structure of the missing tooth area: double the size of the dentine defect + 6-8 mm. apply the adhesive to the prepared surface. Apply a thin layer of liquid composite resin to the groove area of the tooth 31, where the adhesive was applied. Press the prepared strip of tape against the prepared circular section of the tooth 31 from the center with tweezers so that both ends are directed towards the tooth 42. The remaining part of the tape is folded inwards and pressed against the outer approximal pad. The part of the tape located inside is pressed against the reinforcing fibers, and then to the lingual surface of the tooth. Each section of the tape is cured separately under the light of a halogen lamp. The further process is similar to the formation of a veneer. In the area of the tooth 31, in the deepest part of the tape (closer to the tip), there is a dark opaque layer. The next layer of dentin (light color) occupies a large area and fills the volume of dentin present on the tooth. The enamel reproduces the optimal size, shape and relief of the tooth to complete the restoration. The tooth around the

defect is covered with an enamel-colored photopolymer. The pink photopolymer reproduces the natural gingival margin. Gingival papillae are modeled with an opaque shade. Opaque areas are covered with a thin layer of gum translucent material and cured using a halogen lamp. The finished structure is processed in the usual way. Another clinical case is an absent maxillary occlusion due to the absence of a tooth 26. Since there are carious cavities of considerable size on abutments 27 and 25, the procedure for forming a platform for fixing the reinforcing tape is excluded. When planning the design, tooth morphometry is performed and GrandTEK reinforcing filling fibers (VOCO) of the optimal size are selected. Dental preparation includes mechanical cleaning of teeth from plaque. The color tone of the composite is selected in accordance with the symmetrical and adjacent teeth, using the reference color of the Grandio nanocomposite (VOCO). In preparation for the closure of teeth, the masticatory surfaces are cleaned and dentin necrosis is performed. If possible, flatten the walls so that they match the strip (fig. 22). To determine the exact length of the tape, attach a long thin strip of foil with tweezers so that one end fits snugly against the vestibular wall of the molar cavity. The strip is stretched over the premolar covering the defect from the opposite side, and is tightly pressed meso-centrally to the inner surface of the vestibular wall of the molar. The fiber strip is cut with scissors to the same length as the foil strip. Prepare the tooth for AMP modeling. Treat the prepared vestibular wall with a one-component self-etching adhesive (Futura Bond M) and apply a thin layer of light-colored, fluid, highly viscous universal nanohybrid filler (Grandio SO Heavy Flow). Using tweezers, press one end of the strip tightly against the inner surface of the vestibular wall of the distally located tooth and stretch it to the tooth 24. The other end of the strip fits its outer surface to the prepared area. Each reinforcement must be cured separately. The tape is laid parallel to the first one and fixed with a flowing photopolymer to the internally prepared oral surface of the dental cavity 25 and 27 . The cavities of the molars and premolars are filled with a light-curing composite resin material. The main volume is occupied by an opaque dentin layer. The cusps and occlusal slope are covered with an enamel-colored surface. The surface relief is modeled. Contouring of macro- and microrelief, polishing and coating of abutment teeth with fluoropolymer. The introduction of a combination of reinforcing fibers and light-curing composite resin into therapeutic dentistry has made it possible to restore teeth with minor defects in a minimally invasive way. Adhesive bridges are becoming increasingly popular among doctors and patients and are indicated in cases of significant crown destruction, missing teeth or abnormal location of individual teeth. For the manufacture of this bridge, minimal preparation of the abutment teeth is required, that is, the creation of a platform for strengthening the reinforcing fibers. The size of the gasket depends on the width of the tape, and its location depends on the clinical picture and functional purpose of the AMP. This may be primarily an aesthetic role or satisfaction of chewing loads.

Conclusion: Modeling of the middle part requires compliance with the procedures for using photopolymerizable materials. The opaque color tone compensates for the volume of dentin, and the color tone of the enamel imitates a translucent layer. The manufacture of AMP in accordance with the indications and rules for the use of composite resins ensures high quality of both aesthetic and mechanical properties of restoration.

Reference:

1. Абдуллаева П. Р., Ахмедов А. А. СПОСОБ ЛЕЧЕНИЯ ИШЕМИЧЕСКИХ СОСТОЯНИЙ ЗРИТЕЛЬНОГО НЕРВА И СЕТЧАТКИ (ЛИТЕРАТУРНЫЙ ОБЗОР): Medical science //Ethiopian International Journal of Multidisciplinary Research. – 2023. – Т. 10. – №. 09. – С. 18-23.
2. Ризаев Ж. А., Ахмедов А. А. ОСНОВЫ СТОМАТОЛОГИЧЕСКОЙ ПОМОЩИ В РЕСПУБЛИКЕ УЗБЕКИСТАН НА ОСНОВЕ РАЗВИТИЯ ОБЩЕЙ ВРАЧЕБНОЙ ПРАКТИКИ //ЖУРНАЛ

СТОМАТОЛОГИИ И КРАНИОФАЦИАЛЬНЫХ ИССЛЕДОВАНИЙ. – 2023. – Т. 4. – №. 3.
3. Абдуллаева Н. И., Ахмедов А. А. ОСТЕО-ИММУНОЛОГИЧЕСКИЙ СТАТУС ПАЦИЕНТОВ С ЗАБОЛЕВАНИЙ ПАРОДОНТА В ПОДРОСТКОВОМ И МОЛОДОМ ВОЗРАСТЕ //TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI. – 2023. – Т. 3. – №. 11. – С. 143-149.
4. Ахмедов А. А. Иммунологические аспекты патогенеза гингивита и пародонтита //IQRO. – 2023. – Т. 3. – №. 2. – С. 121-123.
5. Ризаев Ж. А., Ахмедов А. А. GROWTH AND DEVELOPMENT OF GENERAL MEDICAL PRACTICE IN THE REPUBLIC OF UZBEKISTAN TO IMPROVE DENTAL CARE //ЖУРНАЛ СТОМАТОЛОГИИ И КРАНИОФАЦИАЛЬНЫХ ИССЛЕДОВАНИЙ. – 2023. – Т. 4. – №. 3.
6. Ахмедов А. А., Нарзиева Н. DENTAL PROSTHETICS ON IMPLANTS AND THEIR FEATURES //American Journal of Pedagogical and Educational Research. – 2023. – Т. 16. – С. 132-135.
7. Astanovich A. D. A. et al. The State of Periodontal Tissues in Athletes Engaged in Cyclic Sports //Annals of the Romanian Society for Cell Biology. – 2021. – С. 235-241.
8. Alimjanovich R. J., Astanovich A. A. СОВЕРШЕНТСВОВАНИЕ СТОМАТОЛОГИЧЕСКОЙ ПОМОЩИ В УЗБЕКИСТАНЕ С ИСПОЛЬЗОВАНИЕМ КОНЦЕПТУАЛЬНОГО ПОДХОДА ДЛЯ УЛУЧШЕНИЕ ЕЕ КАЧЕСТВА //JOURNAL OF BIOMEDICINE AND PRACTICE. – 2023. – Т. 8. – №. 4.
9. Ортикова Н. Глобализация биоэтики в период пандемии COVID-19 //Общество и инновации. – 2020. – Т. 1. – №. 1/S. – С. 677-682.
10. Ортикова Н. Влияние психоэмоционального напряжения детей на состояние здоровья полости рта //Общество и инновации. – 2023. – Т. 4. – №. 7/S. – С. 328-333.
11. Ортикова Н. Х., Ризаев Ж. А., Мелибаев Б. А. ПСИХОЛОГИЧЕСКИЕ АСПЕКТЫ ПОСТРОЕНИЯ СТОМАТОЛОГИЧЕСКОГО ПРИЕМА ПАЦИЕНТОВ ДЕТСКОГО ВОЗРАСТА //EDITOR COORDINATOR. – 2021. – С. 554.
12. Ортикова Н. Тенденция эффективности профилактических мероприятий путем коррекции психологического стресса у детей на стоматологическом приёме //Общество и инновации. – 2022. – Т. 3. – №. 6. – С. 181-189.
13. Qobilovna B. Z., Nodirovich E. A. EVALUATION OF ORTHOPEDIC TREATMENT WITH REMOVABLE DENTAL PROSTHESES FOR PATIENTS WITH PAIR PATHOLOGY //Spectrum Journal of Innovation, Reforms and Development. – 2023. – Т. 11. – С. 95-101.
14. Anvarovich E. S., Qobilovna B. Z. INFLUENCE OF DIFFERENT TYPES OF RETRACTION THREADS ON THE DEGREE OF GINGI RECESSION //Spectrum Journal of Innovation, Reforms and Development. – 2023. – Т. 11. – С. 84-86.
15. Tohirovna M. L., Qobilovna B. Z. Optimization of Complex Methods Treatment of Inflammatory Periodontal Diseases //Eurasian Research Bulletin. – 2023. – Т. 17. – С. 138-143.
16. Tavakalova Q. M., Qobilovna B. Z., Sarvinoz Y. Preventive Measures in the Treatment of Caries in School children //Eurasian Research Bulletin. – 2023. – Т. 17. – С. 60-65.
17. Исламова Н., Чакконов Ф. Роль продуктов перекисного окисления липидов и противовоспалительных цитокинов крови в развитии заболеваний полости рта при гипотиреозе //Общество и инновации. – 2020. – Т. 1. – №. 1/s. – С. 577-582.
18. Fakhriddin C., Shokhruh S., Nilufar I. ENDOKANAL PIN-KONSTRUKSIYALARNI ISHLATISHDA

ASORATLAR VA XATOLAR TAHLILI //JOURNAL OF BIOMEDICINE AND PRACTICE. – 2022. – T. 7. – №. 1.
19. Shoxrux S., Shoxrux I., Faxriddin C. PREVENTION AND TREATMENT OF ORAL INFECTIONS IN DENTURE WEARERS //International Journal of Early Childhood Special Education. – 2022. – T. 14. – №. 4.
20. Xusanovich C. F. COMPLETE REMOVABLE PROSTHESIS SUPPORTED BY IMPLANTS //European International Journal of Multidisciplinary Research and Management Studies. – 2023. – T. 3. – №. 11. – C. 127-133.
21. Xusanovich C. F. et al. PROSTHETICS A COMPLETE REMOVABLE PROSTHESIS BASED ON IMPLANTS //European International Journal of Multidisciplinary Research and Management Studies. – 2023. – T. 3. – №. 11. – C. 122-126.
22. Najmiddinovich S. N. et al. CARIES IN SCHOOL CHILDREN AND TREATMENT PREVENTIVE MEASURES //American Journal of Pedagogical and Educational Research. – 2023. – T. 16. – C. 44-49.
23. Khusanovich K. B. R. C. F. TYPES AND APPLICATIONS OF DENTAL COMPLIMENTS //Journal of Modern Educational Achievements. – 2023. – T. 5. – №. 5. – C. 95-99.
24. Zarnigor J. MAIN ROLE OF HYGIENIC EDUCATION IN THE SYSTEM PRIMARY PREVENTION OF DENTAL DISEASES OF PATIENT //European International Journal of Multidisciplinary Research and Management Studies. – 2023. – T. 3. – №. 11. – C. 157-163.
25. Qizi J. Z. B. METHODS OF OPTIMIZATION OF TREATMENT OF PERIODONTAL DISEASES USING NEW TECHNOLOGIES //European International Journal of Multidisciplinary Research and Management Studies. – 2023. – T. 3. – №. 10. – C. 234-241.
26. Kobilovna B. Z., Rushana R. COMPARATIVE EVALUATION OF PARTIAL DENTURES WITH VARIOUS FASTENING ELEMENTS //Intent Research Scientific Journal. – 2023. – T. 2. – №. 9. – C. 98-103.
27. Qobilovna B. Z., Maxzuna U. Improvement of Providing Therapeutic Dental Care to Pregnant Women. Therapeutic and Preventive Measures //Eurasian Research Bulletin. – 2023. – T. 16. – C. 146-150.
28. Tavakalova Q. M., Qobilovna B. Z., Sarvinoz Y. Results of the Prevention Program Dental Diseases in School-Age Children //Eurasian Research Bulletin. – 2023. – T. 17. – C. 50-54
29. Jurabek T. D., Qobilovna B. Z. Principles of Prevention of Dental Diseases in Children in Modern Conditions //Eurasian Research Bulletin. – 2023. – T. 17. – C. 55-59.
30. Tavakalova Q. M., Qobilovna B. Z., Sarvinoz Y. Preventive Measures in the Treatment of Caries in School children //Eurasian Research Bulletin. – 2023. – T. 17. – C. 60-65