

left upper canine. An example will also be given of immediate implantation with augmentation of the bone defect by autologous bone transplant in the case of loss of one tooth in the frontal region and an example of immediate implantation on the site of extracted lower canines, with anchors of the lower supporting prostheses.

## Terapija potpunih bezubosti donje čeljusti fiksnim mostovima. Procjena uspjeha za razdoblje od 3 do 5 godina.

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Jedan od načina implantoprotetske terapije potpune bezubosti donje čeljusti jest izradba fiksnog mosta na usadcima. Takva terapija predmijeva ugradnju 4 do 6 usadka u interforaminalno područje te izradbu mosta na usadcima. Takvi se mostovi češće fiksiraju vijcima, rjeđe cementiraju, a distalni privjesci su pravilo.

Osnovni problem kod vijčano fiksirane suprastrukture jest pasivnost. S obzirom na tehnološki proces izradbe kovinske suprastrukture, termičke promjene nisu neuobičajene što rezultira pojavom napetosti prigodom fiksacije na usadke. Svaka napetost je štetna i u konačnici dovodi do mehaničkih komplikacija suprastrukture.

Drugi problem su distalni privjesci. Opće je pravilo da dužina privjeska iznosi  $2X$ , pri čemu je  $X$  okomita dužina (razmak) između zadnjeg i predzadnjeg usatka. To znači da privjesci mogu biti to duži što je bolji prostorni raspored usadaka. Drugi, manje važni problemi privjesaka tehničke su naravi i moguće ih je izbjeći pravilnim oblikovanjem suprastrukture.

Prezentacija donosi procjenu uspješnosti terapije vijčano fiksiranim mostovima u donjim bezubim čeljustima. Razdoblje praćenja u rasponu je od 3 do 5 godina, s raščlambom komplikacija u istom vremenskom razmaku. Posebno se razmatraju mehaničke, a posebno biološke komplikacije. Analizirani su čestoća i karakter mehaničkih komplikacija.

Rezultati istraživanja daju smjernice za sigurniji i uspješniji klinički rad s takvom vrstom protetske suprastrukture na usadcima.

## Therapy of Complete Edentulousness of the Lower Jaw with Fixed Bridges. Evaluation of Success for over a Period of 3 to 5 Years

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One of the methods of implantoprothetic therapy of complete edentia/edentulousness of the lower jaw is the fabrication of a fixed bridge on implants. Such therapy assumes the placement of 4 to 6 implants in the inter-foramen area and construction of bridges on the implants. Such bridges are usually fixed with screws, rarely cemented, and distal cantilever are the rule.

The basic problem in screwed fixed superstructures is passivity. Because of the technological process of constructing metal superstructures, thermal changes are not unusual, which results in the occurrence of tension when fixing on the implant. Any tension is harmful and finally leads to mechanical complications of the superstructure.

Another problem is distal cantilever. As a general rule the length of the cantilever amounts to  $2X$ , in which  $X$  represents the vertical length (space) between the last and the penultimate implant. This means that cantilever can be longer, which is better spatial arrangement of the implants. Other less important problems with cantilevers are of a technical nature and can be avoided by correct shaping of the superstructure.

The presentation gives an evaluation of the success of therapy with screwed fixed bridges in the lower edentulous jaws. The period of monitoring ranges from 3 to 5 years, with analysis of complications in the same time period. Mechanical and biological complications are separately analysed. The frequency and character of mechanical complica-

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tions are analysed. The results of the research provide guidelines for safer and more successful clinical work with such types of prosthetic superstructures on implants.

## Pregled i klinička primjena veznih elemenata na pokrovnim protezama sidrenim usadcima

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Pokrovne proteze sidrene usadcima dobar su izbor u pacijenata s jakom atrofijom alveolarnoga grebena, osobito u donjoj čeljusti. U frontalnome dijelu (mentalnoj regiji) takvih grebena obično postoji mogućnost ugradnje dvaju usadaka. Takva proteza sidrena usadcima, pogotovo u pacijenata koji su bili nositelji proteza, osigurava prikladnu retenciju i stabilizaciju te pridonosi dobroj funkciji. Postoji mnogo vrsta preciznih veznih elemenata koji se u takvim okolnostima mogu upotrijebiti. Izbor ovisi o nizu čimbenika: raspoloživu prostoru za vezni element (stupanj atrofije, međučeljsni odnosi), međusobnoj paralelnosti - disiparalelnosti i broju ugrađenih usadaka, mogućnosti i načinu opterećenja usadaka (dužina usatka i primarna stabilnost), samom implantološkom sustavu i spektru protetskih nadogradnji. Kao dio tima iznimno je važan zubni tehničar, njegova stručnost i osposobljenost za izradbu takva nadomjestka rabeći ili konfekcijske ili individualno izrađene vezne elemente.

## Examination and Clinical Application of Connective Elements on Overdentures Anchored with Implants

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The overdentures anchored with implants are a good choice for patients with severe atrophy of the alveolar ridge, particularly in the lower jaw. In the frontal part (mental region) of such ridges the possibility of placing two implants usually exists. Such prostheses anchored with implants, particularly in the case of patients who had previously worn dentures, ensure sufficient retention and stability and contribute to good function. Many types of precise connective elements exist which can be applied in such situations. The choice depends on several factors: available space for the connective element (degree of atrophy, intermaxillary relations), mutual parallelism - disiparallelism and the number of placed implants, the possibility and method of loading the implant (length of the implant and primary stability), the implantological system itself and the spectre of the prosthetic restoration. As a part of the team the dental technician is extremely important, his skill and ability to fabricate such a restoration, utilising either ready-made or individually fabricated connective elements.