

ic restoration, without endangering integrity and biomechanics of the lower jaw. Extraction of the remaining teeth roots was performed bilaterally in the mandible, and levelling of the alveolar ridge of the mandible. At the same time two implants each were implanted on place 34 (length 9.5 mm, diameter 3.5 mm), 36 (length 9.5 mm, diameter 4.5 mm), 44 (length 9.5 mm, diameter 4.5 mm) and 46 (length 9.5 mm, diameter 4.5 mm). After a period of osseointegration of 4 months a fixed prosthetic restoration was fabricated with which the patient's habitual intermaxillary relation was retained.

## Implantoprotetička rehabilitacija distalne bezubosti imedijatnom ugradnjom zubnih usadaka - prikaz slučaja

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Imedijatna ugradnja usatka u svježju alveolu izvađenoga zuba ima niz prednosti naspram odgođene implantacije. U prvome redu skraćuje se razdoblje implantoprotetske rehabilitacije za oko 6-8 mjeseci koliko je potrebno da se alveola ispuni novostvorenom kosti, potrebno je manje kirurških zahvata, prevenira se koštana resorpcija i bolje se pozicionira usadak. Histomorfometrijske raščlambe na eksperimentalnome modelu pokazale su da je cijeljenje koštanoga defekta oko imedijatno ugrađenog usatka u postekstrakcijsku alveolu potpuno i da su mogućnosti za oseointegraciju bolje nego kod odgođene implantacije. Razlog tomu je veći potencijal cijeljenja svježje ekstrakcijske alveole. Schultesovo istraživanje pokazalo je da je postotak oseointegrirane površine 6 mjeseci nakon imedijatne ugradnje usatka 80%, naspram odgođene implantacije kod koje je taj postotak nešto manji, 75%.

Na primjeru pacijentice u dobi od 56 god. s distalnom parcijalnom bezubošću lijeve strane gornje čeljusti prikazat će se potpuna implantoprotetička rehabilitacija kombinacijom dvaju različitih tipova usadaka i tehnikom imedijatne implantacije konič-

nog, vijak implantata u svježju alveolu izvađenoga lijevog gornjeg oćnjaka. Također će biti prikazan primjer imedijatne ugradnje s augmentacijom koštanoga defekta autolognim koštanim presatkom kod gubitka jednoga zuba frontalne regije i primjer imedijatne ugradnje na mjesta izvađenih donjih oćnjaka za sidrište donje pokrovne proteze.

## Implantoprotetic Rehabilitation of Distal Edentulousness by Immediate Placement of Dental Implants - Case Presentation

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Immediate placement of an implant in the fresh alveoli of an extracted tooth has many advantages compared to delayed implantation. In the first place the shortened period of implant prosthetic rehabilitation of approximately 6-8 months, which is the time necessary for the alveoli to fill with the newly formed bone, the smaller number of surgical interventions, prevention of bone resorption and better positioning of the implant. Histomorphometrical analyses on an experimental model have demonstrated that healing of the bone defect around the immediately placed implant in post-extraction alveoli is complete and that the possibility of osseointegration better than in the case of delayed implantation. The reason is the greater potential for healing fresh extractive alveoli. Schultes's investigation showed that the percentage of osseointegrated surface 6 months after immediate placement of implants was 80%, compared with delayed implantation where this percentage was somewhat less, 75%.

An example is given of a female patient, aged 56 years, with distal partial edentulousness/edentia of the left side of the upper jaw. Complete implantoprotetic rehabilitation was achieved by a combination of two different types of implants and the technique of immediate implantation of a conical, screw implant into the fresh alveoli of an extracted

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-