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Београд, 13.5.2014. год.
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БТ

На основу члана 32. Закона о изменама и допунама Закона о високом образовању ("Службени гласник РС", број 44/10 и члана 47. став 5. тачка. 3. Статута Универзитета у Београду ("Гласник Универзитета у Београду", број 162/11- пречишћени текст, 167/12 и 172/13) и чл. 14. – 21. Правилника о већима научних области на Универзитету у Београду ("Гласник Универзитета у Београду", број 134/07, 150/09, 158/11, 164/11 и 165/11), а на захтев Стоматолошког факултета, број: 804/1 од 28.4.2014. године, Веће научних области медицинских наука, на седници одржаној 13.5.2014. године, донело је

О Д Л У К У

ДАЈЕ СЕ сагласност на предлог теме докторске дисертације:

Кандидат: **Мр др Никола Миковић**

Назив теме: „Утицај бимаксиларне хируршке корекције мандибуларног прогнатизма на промену положаја зглобног наставка доње вилице".

Председник Већа
Проф. др Весна Спасојевић-Калимановска

Доставити:
- Факултету,
- секретару Већа,
- архиви Универзитета

УНИВЕРЗИТЕТ У БЕОГРАДУ
СТОМАТОЛОШКИ ФАКУЛТЕТ
СЕКРЕТАРИЈАТ

ПРИМЉЕНО: 16 -05- 2014

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STOMATOLOŠKI FAKULTET
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Centralna biblioteka

P O T V R D A

U Centralnoj biblioteci Stomatološkog fakulteta urađena je kategorizacija objavljenih radova NIKOLE MIKOVIĆA, indeksiranih u Web of Science bazi.

Na osnovu Pravilnika o postupku i načinu vrednovanja, i kvantitativnom iskazivanju naučnoistraživačkih rezultata istraživača ("Službeni glasnik RS", br. 38/08) utvrđeno je da je Nikola Miković publikovao tri rada u časopisima sa impakt faktorom (*Journal Citation Report* lista).

1. **Miković Nikola**, Lazarević Miloš, Tatić Zoran, Krejović-Trivić Sanja, Petrović Milan, Trivić Aleksandar (2016). Radiographic cephalometry analysis of condylar position after bimaxillary osteotomy in patients with mandibular prognathism. VOJNOSANITETSKI PREGLED, 73(4): 318-325. DOI:10.2298/VSP141210051M (Kategorija M23)
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Bibliotekar
Centralne biblioteke
Ružica Petrović

U Beogradu, 08.04.2016. godine

STOMATOLOŠKI FAKULTET
UNIVERZITET U BEOGRADU

NASTAVNO NAUČNO VEĆE

Na V redovnoj sednici Nastavno naučnog Veća Stomatološkog fakulteta Univerziteta u Beogradu, školske 2015/16. godine, održanoj 26.04.2016 godine, određena je stručna komisija za ocenu **završene teme doktorske disertacije mr sci. dr Nikole Mikovića,** pod nazivom **"UTICAJ BIMAKSILARNE HIRURŠKE KOREKCIJE MANDIBULARNOG PROGNATIZMA NA PROMENU POLOŽAJA ZGLOBNOG NASTAVKA DONJE VILICE"** u sastavu:

Prof. Dr sci. Vitomir Konstantinović
Doc. Dr sci. Milan Petrović
Prof. Dr sci. Dragan Krasić, Medicinski fakultet, odsek za stomatologiju, Niš

Nakon uvida u celokupnu dokumentaciju, analize ciljeva i rezultata istraživanja i razgovora sa kandidatom, Komisija podnosi Nastavno naučnom veću Stomatološkog fakulteta u Beogradu sledeći

IZVEŠTAJ

BIOGRAFSKI PODACI

Nikola Miković rođen je 09.05.1974.god. u Beogradu, gde je završio osnovnu školu i gimnaziju.
Stomatološki fakultet u Beogradu upisao školske 1993/94., a diplomirao 25.05.1999.god., sa prosečnom ocenom 8,44. Za pokazani najbolji uspeh u petoj godini redovnih studija na Stomatološkom fakultetu, dodeljena mu je nagrada fakulteta.
Obavezni pripravnički staž obavio i položio strucni ispit 27.09.2000.god.

Magistarski rad pod nazivom **Klinička i rendgen kraniometrijska procena rezultata lečenja preloma gornje vilice po tipu Le Forta** odbranio 22.07. 2010 god.
Specijalističke studije iz oblasti maksilofacijalnahirurgija upisao 01.12.2000. god., a specijalistički ispit položio 18.04.2006. god., sa ocenom odličan.

Medicinski fakultet Univerziteta u Beogradu upisao 2001., a diplomirao oktobra 2007.god. sa prosečnom ocenom 7,43.
Koautor i autor više od 20 radova objavljenih i saopšetnih u časopisima i kongresima kako u Srbiji tako i u inostranstvu.
Član Udruženja Srpskog lekarskog društva, doktora stomatologije i medicine, kao i sekcije za maksilofacijalnu hirurgiju, evropskog i svetskog udruzenja maksilofacijalnih hirurga.
U zvanje asistenta na predmetu maskilofacijalna hirurgija Stomatološkog fakulteta u Beogradu, izabran 2002.god. U isto zvanje reizabran 2011. i 2014. godine.
Aktivno znanje engleskog i ruskog jezika

Osnovni podaci o disertaciji

Nastavno naučno veće Stomatološkog fakulteta Univerziteta u Beogradu je na III redovnoj sednici školske 2013/14 godine, održanoj 22.04.2014. godine odobrilo kandidatu Dr Nikoli Mikoviću izradu doktorske disertacije pod naslovom: **UTICAJ BIMAKSILARNE HIRURŠKE KOREKCIJE MANDIBULARNOG PROGNATIZMA NA PROMENU POLOŽAJA ZGLOBNOG NASTAVKA DONJE VILICE**

Za mentora disertacije izabran je Prof. Dr Miroslav Vukadinović, redovni profesor Stomatološkog fakuklteta u Beogradu.

Predmet istraživanja

Mandibularni prognatizam je skeletni deformitet, koji predstavlja prekomerno uvećanje donje vilice, u sagitalnoj i transverzalnoj ravni. Povećana je dužina tela donje vilice sa isturenom bradom, okluzalne odnose karakteriše pozitivna incizalna stepenica i povećan gonijalni ugao.
Spada u grupu najčešćih genetskih poremećaja rasta i razvoja kraniofacijanog skeleta.

Izgled je osnovni motiv zbog koga se pacijenti podvrgavaju korekciji ovih deformiteta. Sledeći motiv koji pacijente opredeljuje za hirurški zahvat je korigovanje nepravilnih međuviličnih odnosa i nemogućnost adekvatne artikulacije.
Korekcija mandibularnog prognatizma, kod ovih osoba, utiče da oni izgledaju prijatnije, psihički se bolje osećaju i zadovoljniji su svojim izgledom.
Osim navedenih smetnji, ove skeletne deformacije utiču i na funkciju žvakanja, govora, disanja i hirurškim procedurama se takođe mogu ublažiti.
Učestalost bimaksilarnih deformiteta u populaciji je 0,5% (Profite, White et al., 2003), a od toga 28 do 34% pacijenata ima mandibularni prognatizam. To su osobe prosečne starosti oko 20 godina, znatno češće ženskog pola.

Prikaz sadržaja disertacije

Doktorska disertacija Mr dr Nikole Mikovića pod nazivom **UTICAJ BIMAKSILARNE HIRURŠKE KOREKCIJE MANDIBULARNOG PROGNATIZMA NA PROMENU POLOŽAJA ZGLOBNOG NASTAVKA DONJE VILICE** je napisana na 114 strana i dokumentovana sa preko 130 bibliografskih jedinica iz relevantne domaće i strane naučne literature. Ilustrovana je sa 26 slika, a rezultati su prezentirani na 22 tabela i 5 grafikona.
Pored uvoda i zaključaka doktorska disertacija sadrži 7 poglavlja.

U poglavlju **UVOD** autor navodi predmet njegovog istraživanja. Pojam mandibularnog prognatizma, definiciju, klasifikaciju, etiologiju i epidemiologiju ovog deformiteta. Poglavlje, takođe sadrži detaljnu kliničku sliku i savremenu terapiju mandibularnog prognatizma, ilustrovanu mnogim slikama iz prakse. Na kraju, naglašena je posebna problematika temporomandibularnog zgloba i uticaja hirurške korekcije na kondilarni nastavak donje vilice.

Osnovni **CILj** ove doktorske disertacije je bio da rendgenkraniometrijski i klinički prouči, ispitata, proceni i objasni uticaj bimaksilarne hirurške korekcije mandibularnog prognatizma na promenu položaja zglobnog nastavka donje vilice.

U sledećem poglavlju doktorske teze **MATERIJAL I METODOLOGIJA** autor iznosi kriterijume za formiranje eksperimentalne grupe ispitanika.

Ova studija je obavljena u periodu od 2011. do 2014.godine na Klinici za maksilofacijalnu hirurgiju Stomatološkog fakulteta u Beogradu.

Eksperimentalnu grupu je činilo 21 pacijenata muškog i ženskog pola starosti 18-25 god. sa mandibularnim prognatizmom koji su u tom periodu primani na Kliniku za maksilofacijalnu hirurgiju zbog hirurške korekcije deformiteta.

U okviru ove studije korišćene su sledeće istraživačke metode:

1. Detaljna anamneza i klinički pregled ispitanika,
2. Kompjuterska rendgenkraniometrijska analiza bočnih telerendgenskih snimaka glave ispitanika eksperimentalne grupe načinjenih pre početka ortodontske pripreme,
3. Kompjuterska analiza profilnih telerendgenskih snimaka eksperimentalne grupe načinjenih najmanje šest meseci posle bimaksilarne hirurške korekcije.
4. Statistička obrada i evaluacija podataka dobijenih pomenutim analizama.

Za potrebe rendgenkefalometrijskog istraživanja načinjeno je 63 profilnih telerentgenskih snimaka pre preoperativne ortodontske pripreme, neposredno po završetku ortodontske terapije i 6 meseci nakon hirurškog zahvata. Svi snimci su načinjeni pomoću aparata ORTOCEPH marke Simens. Svi snimci su skenirani u digitalni oblik.

Uz pomoć kompjuterskog programa AxCeph (Audax d.o.o. Tehnološki park 18 SL-1000, Ljubljana, Slovenija, verzija 2.3.0.74.) na svakom snimku izmerene su vrednosti 7 ugaonih i 18 linearnih parametara.

Kod svih pacijenata izvršena je repozicija maksile osteotomijom po tipu Le Fort I i distalizacija mandibule bilateralnom sagitalnom osteotomijom ramusa po Obwegeseru i Dal Pontu u istom operativnom zahvatu. Sve operacije na ispitanicima izveo je autor koristeći doktrinarne stavove usvojene na Klinici za maksilofacijalnu hirurgiju Stomatološkog fakulteta u Beogradu.

Vrednosti 7 angularnih i 18 linearnih parametara su upoređene pre preoperativne ortodontske terapije i 6 meseci nakon operativnog zahvata.

Analiza podataka je izvršena nakon poslednjeg kliničkog pregleda pacijenta kako bi se sprečila pristrasnost istraživača usled eventualne pojave nekog trenda u podacima.

Podaci prikupljeni istraživanjem organizovani su u datoteku u statističkom programu SPSS 15 pomoću kojeg su i analizirani. Od deskriptivnih statističkih pokazatelja korišćeni su aritmetička sredina, medijana, standardna devijacija, minimalna i maksimalna vrednost. U proceni značajnosti razlike uglova i rastojanja pre i posle operacije korišćeni su Studentov t-

test za vezane uzorke kada podaci nisu značajno odstupali od normalne raspodele i Vilkoksonov test ekvivalentnih parova kada je varijabilitet bio veliki, odnosno kada su podaci značajno odstupali od normalne raspodele. Značajnost razlike je određivana na nivou verovatnoće greške prve vrste $\alpha = 0,05$.

Za ispitivanje korelacije između različitih angularnih i linearnih ispitivanih parametara , kao i anamnestičkih i kliničkih podataka, korišćena je metoda linearne Pearsonove i Spirmanove korelacije. Postojanje statistički značajne razlike između posmatranih varijabli odnosno postojanje korelacije u vrednostima različitih parametara je prihvatano prema kriterijumu P (nivo značajnosti, verovatnoća) < 0,05.

REZULTATI ISTRAŽIVANJA su izloženi pregledno i sistematično. U ovom delu disertacije autor sistematično prikazuje rezultate svih segmenata preduzetih istraživanja:

- rezultate koji se odnose na subjektivne procene nakon korekcije mandibularnog prognatizma,
- rezultate anamnestičkog upitnika 6 meseci nakon korekcije mandibularnog prognatizma,
- rezultate kliničkog pregleda pre i 6 meseci nakon korekcije mandibularnog prognatizma
- rezultate kompjuterizovane rendgenkefalometrijske analize koje su obuhvatale promene u anglularnim parametara, antero-posteriorne i kranio-kaudalne skeletne pormene, kao i antero-posteriorne i kranio-kaudalne promene u poziciji kondila.
- rezultate međusobnih korelacija angularnih parametara, korelacije između angularnih i linearnih parametara, kao i povezanosti angularnih i linearnih parametara sa znacima TM disfunkcija

Rezultati su doneli niz konkretnih podataka, interesantnih za stomatološku nauku i kliničku praksu.

Nisu pronađene statističke značajnosti prilikom posteriornog pomeranja donje vilice. Srednja vrednost pomaka donje vilice unazad, 6 meseci nakon intervencije je iznosila 0,91mm mereno na nivou tačke B, međutim statistička značajnost nije pronađena (p= 0,658). Tačka Go je pokazala tendenciju pomeranja unapred (1,19mm, p=0,242). Sa druge strane, gornja vilica je pomerena anteriorno u proseku za 3,29mm (p=0,004).

Nisu pronađene statističke značajnosti prilikom kranio-kaudalnog pomeranja gornje i donje vilice osim u tački Ar. Interesantno je da se tačka Ar značajno pomerila u odnosu na obe ose. Došlo je do pomeranja tačke Ar kaudalno za 1,71mm (p= 0,007) i anteriorno za 1,53mm (p=0,005).

Šest meseci nakon operacije, tačke DI i DC su značajno pomerile lokalizaciju. Tačka DI se pomerila posteriorno za 1,38mm (p= 0,02), dok se tačka DC takođe pomerila posteriorno za 1,52mm (p= 0,007). Pomeranje ostalih tačaka (PI i DC) nije bilo statistički značajno.

Pozicija kondila se značajno izmenila jedino u tački DI i to za 1,62mm (p= 0,04). Ova tačka je pokazala tendenciju kretanja kranijalno.

Poglavlje **DISKUSIJA** je napisano jasno i pregledno, uz prikaz podataka drugih istraživanja i uporednim pregledom dobijenih rezultata doktorske disertacije.
Autor detaljno komentariše rezultate preduzetih istraživanja, poredi ih sa rezultatima sličnih studija u svetskoj i domaćoj literaturi, pruža odgovarajuća objašnjenja i iznosi lične stavove.
Ova studija je pokazala sa kliničkog aspekta relativno mala ali statistički značajna pomeranja fragmenata donje vilice. Međutim, iako mala,ta pomeranja značajno su uticala na poziciju kondila. Utvrđeno je da dolazi do pomeranja kondila. Da bi precizno ustanovili, odredili i objasnili njihove kretnje četiri tačke na samoj površini kondila - DI, PI, DC i Cd su korišćene i na osnovu rastojanja ovih tačaka sa X i Y osom ustanovljena je pozicija kondila pre preoperativne ortodontske pripreme i 6 meseci posle sprovedene bimaksilarne hirurške korekcije.
Dobijeni rezultati ukazuju na pomeranje kondila u dva pravca - unapred i naviše.

ZAKLJUČCI sažeto prikazuju najvažnije nalaze koji su proistekli iz rezultata rada.

- Tokom bimaksilarne hirurške korekcije mandibularnog prognatizma dolazi do značajnih pomeranja koštanih fragmenata donje i gornje vilice u antero – posteriornom i kraniokaudalnom pravcu.
- Pomeranja koštanih fragmenata donje i gornje vilice, direktno i značajno su uticala na promenu položaja kondila.

- Dobijeni rezultati ukazuju je došlo do pomeranje kondila u dva pravca – unapred(anteriorno) i naviše(kranijalno).
- Pod uticajem sprovedenih hirurških korektivnih procedura dolazi do blage prednje rotacije kondila
- Utvđena je povezanost postoperativne pojave pojedinih znakova temporo-mandibularnih disfunkcija (bol, pucketanja i krepitacije) sa promenom položaja kondila.

- Ispitanici ove studije izrazli su kroz svoje subjektivne procene veliko zadovoljstvo ostvarenim funkcionalnim i estetskim rezultatima sprovedenih hirurških korektivnih postupaka.

ZAKLJUČAK I PREDLOG

Doktorska disertacija Dr Nikole Mikovića pod nazivom **UTICAJ BIMAKSILARNE HIRURŠKE KOREKCIJE MANDIBULARNOG PROGNATIZMA NA PROMENU POLOŽAJA ZGLOBNOG NASTAVKA DONJE VILICE** predstavlja ozbiljnu studiju posvećenu jednom značajnom problemu u stomatološkoj nauci i struci. U pitanju je samostalan i originalan naučni rad koji će upotpuniti domaću stručnu literaturu studioznom evaluacijom rezultata bimaksilarnih osteotomija u korigovanju mandibularnog prognatizma. Ovo je bogato dokumentovana studija posvećena promeni u položaju kondila donje vilice nakon bimaksilarne hirurške korekcije kod pacijenata sa mandibularnim prognatizmom . Hirurška korekcija deformiteta kod svakog ispitanika je izvedena primenom osteotomije maksile po tipu Le Fort I i bilateralne sagitalne osteotomije ramusa mandibule po Obwegeseru i Dal Pontu. Kod svih ispitanika primenjena je rigidna fiksacija koštanih fragmenata i intermaksilarna imobilizacija u trajanju od 6 nedelja.

Problematika kojom se bavi ova doktorska disertacija je naučno aktuelna i značajna za svakodnevnu kliničku praksu. Ciljevi istraživanja su jasno definisani a istraživački zadaci sistematično obrađeni. Primena kompjuterizovane rendgenkraniometrije omogućila je izbor i analizu velikog broja angularnih i linearnih parametara, njihovo poređenje i povezanost pre i nakon operacije. Ovo je omogućilo sveobuhvatnu analizu postavljenog problema istraživanja i donelo interesantne i vredne rezultate.

Na osnovu detaljnog pregleda podnetog rukopisa, kao i uvida u celokupni naučni i stručni rad kandidata, komisija u sastavu: **Prof. Dr Vitomir Konstantinović, Doc. Dr Milan Petrović i Prof. Dr Dragan Krasić,** zaključuje da je Dr Nikola Miković opravdao ciljeve istraživanja, studiozno i sistematski obradio zadatke postavljene u okviru svojih istraživanja i primenjujući savremene naučne metode došao do vrednih rezultata korisnih za stomatološku nauku i kliničku praksu. Rezultati ovih istraživanja i izvedeni zaključci predstavljaju naučni doprinos aktuelnoj problematici i donose nova saznanaja u oblasti hirurškog korigovanja deformiteta III klase.

Na osnovu svega izloženog, komisija sa zadovoljstvom predlaže Nastavno naučnom veću Stomatološkog fakulteta u Beogradu da rukopis pod nazivom **„UTICAJ BIMAKSILARNE HIRURŠKE KOREKCIJE MANDIBULARNOG PROGNATIZMA NA PROMENU POLOŽAJA ZGLOBNOG NASTAVKA DONJE VILICE“** Dr Nikole Mikovića prihvati kao rad za sticanje akademskog stepena doktora stomatoloških nauka, te da kandidatu odobri javnu odbranu i odredi dan odbrane pred izabranom komisijom.

Članovi komisije:

1. _____

   Prof. Dr sci. Vitomir Konstantinović

2. _____

   Doc. Dr sci. Milan Petrović

3. _____

   Prof. Dr sci. Dragan Krasić

ORIGINAL ARTICLE

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Radiographic cephalometry analysis of condylar position after bimaxillary osteotomy in patients with mandibular prognathism

Rendgen-kefalometrijska analiza pozicije kondila nakon bimaksilarne osteotomije mandibularnog prognatizma

Nikola D. Miković*, Miloš M. Lazarević*, Zoran Tatić†‡, Sanja Krejović-Trivić†, Milan Petrović*, Aleksandar Trivić§

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Abstract

Background/Aim. Postoperative condylar position is a substantial concern in surgical correction of mandibular prognathism. Orthognathic surgery may change condylar position and this is considered a contributing factor for early skeletal relapse and the induction of temporomandibular disorders. The purpose of this study was to evaluate changes in condylar position, and to correlate angular skeletal measurements following bimaxillary surgery. **Methods.** On profile teleradiographs of 21 patients with mandibular angular and linear parametres, the changes in condylar position, were measured during preoperative orthodontic treatment and 6 months after the surgical treatment. **Results.** A statistically significant difference in values between the groups was found. The most distal point on the head of condyle point (DI) moved backward for 1.38 mm (p = 0.02), and the point of center of collum mandibulae point (DC) moved backward for 1.52 mm (p = 0.007). The amount of upward movement of the point DI was 1.62 mm (p = 0.04). **Conclusion.** In the patients with mandibular prognathism, the condyles tend to migrate upward and forward six months after bimaxillary surgery.

Key words:
prognathism; surgery, oral; postoperative period; cephalometry; temporomandibular joint; centric relation.

Apstrakt

Uvod/Cilj. Postoperativna pozicija kondila je značajna za hirurško korekciju mandibularnog prognatizma. Ortognatska hirurgija može da promeni poziciju kondila, a to može biti jedan od faktora koji doprinosi ranom skeletnom recidivu i pojavi temporomandibularnih disfunkcija. Zbog toga je cilj ove studije bio da proceni promene pozicije kondila kao i da ne korelišu promene pozicije kondila sa angularnim skeletnim promenama nakon bimaksilarne hirurgije. **Metode.** Na telerendgenskim snimcima 21 bolesnika sa mandibularnim prognatizmom mereni su angularni i linearni parametri koji opisuju promene u položaju kondila, pre ortodontske pripreme i šest meseci nakon hirurške korekcije. **Rezultati.** Ustanovljena je statistička značajnost razlika u vrednosti parametara između grupa. Tačka DI – najdistalnija tačka na glavi kondila, pomerila se unazad 1,38 mm (p = 0,02), a tačka DC – tačka koja označava centar *collum mandibulae*, pomerila se, takođe, unazad za 1,52 mm (p = 0,007). Vrednost pomeranja tačke DI naviše bila je 1,62 mm (p = 0,04). **Zaključak.** Kod bolesnika sa mandibularnim prognatizmom, kondili su težili da migriraju unapred i naviše šest meseci nakon bimaksilarne operacije.

Ključne reči:
prognatizam; hirurgija, maksilofacijalna; postoperativni period; kefalometrija; temporomandibularni zglob; centrički odnos.

Introduction

Mandibular prognathism (MP) or skeletal Class III malocclusion with a prognathic mandible has long been viewed as one of the most severe maxillofacial deformities [1]. The treatment of MP is complex and includes preoperative orthodontic treatment and orthognatic surgery. In some severe cases both mandibular and maxillary osteotomy are needed. One of the preferred surgical procedures for the correction of mandibular prognathism, since its introduction by Trauner and Obwegeser [2], is billateral

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sagittal split osteotomy (BSSO). Another popular technique, mostly used for maxillary reposition, is Le Fort I osteotomy. In some severe cases of MP both mandibular and maxillary osteotomy are needed, and that form of correction is commonly known as bimaxillary surgery.

One of the goals of bimaxillary surgery is maintaining skeletal and occlusal stability. Occlusal stability, which is one of the most important factors in the prevention of postoperative relapse in orthognathic surgery, results from good dental occlusion and a normal postoperative condylar position [3]. Condylar processus is a part of the mandibular ramus and a part of the temporomandibular joint (TMJ), specific to the human body in its morphology, position and function [4]. This makes it particularly important, both in functional and in anatomical terms, because of its shape and position depending on the position of the mandible, the function of the TMJ and facial appearance [5]. Good dental occlusion depends on normal temporomandibular joint; that is, dental malocclusion or abnormal interdigitation with normal condylar position can be controlled postoperatively by orthodontic treatment, but an abnormal condylar position can not be corrected postoperatively and eventually disrupts postoperative occlusal stability [3]. Therefore, postoperative condylar position is a substantial concern in the surgical correction of a mandibular prognathism. Orthognathic surgery may change condylar position and this is considered a contributing factor for early skeletal relapse [6–9] and the induction of temporomandibular disorders (TMDs) [10–13].

Positional changes in the condyle have been hard to recognize and accurately measure following orthognathic surgery [14, 15]. Displacement of the condyle can be expected as a result of four variables: anterior-posterior, vertical, medial-lateral, and along the long axis of the condyle [16].

The purpose of this study was to evaluate changes in condylar position, and to correlate angular skeletal measurements following bimaxillary surgery in patients with mandibular prognathism.

Methods

The study included 21 patients (13 males, 8 females; ages between 18–25 years). Clinical examinations and standardized lateral cephalometric radiographs were conducted at the Belgrade University Faculty of Dentistry. The study was approved by the Ethics Committee at the Faculty of Dentistry in Belgrade. Informed consent was obtained from each patient. All the patients were diagnosed with mandibular prognathism on the basis of the following criteria: the angle of mandibular prognathism (SNB) $\geq 80°$; the angle of sagittal intermaxillary relationship (ANB) $\leq 0°$; reverse overlap of the frontal teeth and relationship of the first permanent molars in Class III, and had ended the growth and development of orofacial system. The patients with mandibular prognathism as a result of severe facial asymmetry, deformity secondary to trauma, syndromes, patients with systemic disease, degenerative joint disease, and with signs and symptoms of temporomandibular dysfunction were not included in the study.

The presurgical protocol included preoperative orthodontic treatment, model surgery, cephalometric and photocephalometric analysis. The preoperative orthodontic treatment lasted from 18 to 24 months.

The surgery began with soft tissue incision and initial osteotomy of the ramus of the mandible as in BSSO, but with no definitive separation of bone fragments. The wound was filled with gauze soaked in saline and then the complete Le Fort I osteotomy was done. Using the interocclusal splint and maxillo-mandibular fixation, the maxilla was positioned in a certain position and fixed with monocortical screws (at least four) and L-shaped plates. After fixing the maxilla, the maxillo-mandibular fixation was removed, so the separation of mandibular bone fragments was completed. A separated central fragment of mandible was placed in the correct occlusion with the maxilla, the intermaxillary fixation was restored, and bone fragments of the mandible were fixed with monocortical screws and plates. Monocortical screws were located on the buccal surface of the mandible, three of them on each side of the osteotomy line. Rigid intermaxillary fixation was maintained for 6 to 8 weeks and after that period of time, the elastic fixation was maintained for 4 weeks. Postoperative orthodontic treatment started 6 to 8 weeks after the surgery.

Standardized lateral cephalometric radiographs were obtained at the following 2 stages in all the patients: before the preoperative orthodontic treatment (T1) and 6 months after the surgical treatment (T2).

The machine used to obtain lateral cephalometric radiographs was Ortoceph (Simens, Germany). The scanning settings of the machine were: 65–80 kVp tube voltage, 20 mA tube current, and 1–1.5 second scan time. All the patients sat in an upright position with the teeth in centric occlusion. The patients' Frankfort horizontal (FH) plane was parallel to the floor.

Cephalometric radiographs were scanned by a scanner EPSON 1600 PRO (Japan) into jpg format. In that way all the radiographs were converted into digital form. The software Ax Ceph version 2.3 (Audax, Slovenia) was used for computerized cephalometric analysis. Cephalometric analysis was carried out by one examiner and included the reference points and lines shown in Figures 1 and 2. Analyses were performed twice by the same examiner, on different days. Statistically significant differences did not appear between these two analyses.

Certain linear and angular parameters were used to define the position of the condyle pre- and postoperatively (Table 1). Angular parametres included: SNA – the angle of maxillary prognathism; SNB – the angle of mandibular prognathism; ANB – the angle of sagittal intermaxillary relationships; Cd-DC-Xi/FH – the angle formed by centerline of mandibular rami and X axis; ArGoMe – gonial angle (angle of the mandible); Sna-Snp/FH – the angle formed by the main plane of maxilla and X axis. Linear parametres were the distances between the points Go, Ar, DC, Cd, PI, CI, A, B and Y axis; and distances between the points Go, Ar, DC, Cd, PI, CI, A, B and X axis (see Abbreviations in addendum).

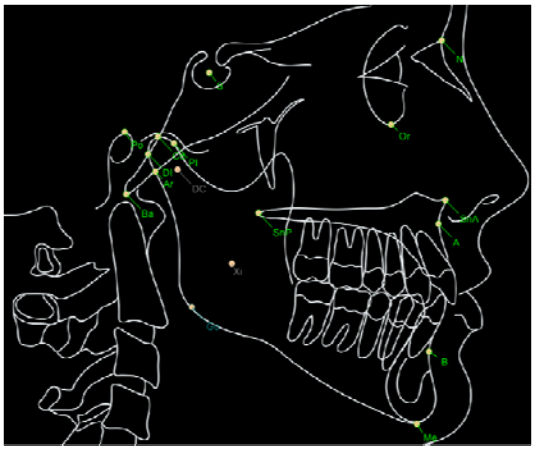

Fig. 1 – Reference points included in the analysis.

S (sella) – The point representing the geometric center of the *sella turcica*.; N (nasion) – The most anterior (midline) point of the frontonasal suture; A (*subspinale*) – The deepest point in the bony concavity in the midline below the anterior nasal spine; Or (*orbitalis*)- The point representing the lowest point on the inferior orbital rim; Po (porion) – The most superior point of the external auditory meatus; Sna (*spina nasalis anterior*) – The most prominent point of maxilla; Snp (*spina nasalis* posterior) – The most distal point of the conjunction of palatinal bone and pterygomaxillar fissure; B (*supramentalis*) – The innermost point on the contour of the mandible between the incisor tooth and the bony chin; Me (menton) – The lowest point of the mandibular symphysis; Go (gonion) – the midpoint of the mandibular angle between the ramus and mandibular body; Cd (condylion) – the most posterosuperior point on head of the condyle; Ar (articularis) – The point midway between the two posterior borders of the left and the right mandibular rami at the intersection with the basilar portion of the occipital bone; DI – The most distal point on the head of the condyle; PI – The most anterior point on the head of the condyle; DC – The center point of the collum mandibulae on the Ba-N line; Xi – The point located at the geographic center of the ramus; Ba (basion) – The point of the anterior margin of the foramen magnum – The midpoint of the curvature between upper and the lower surfaces of the basilar portion of the occipital bone.

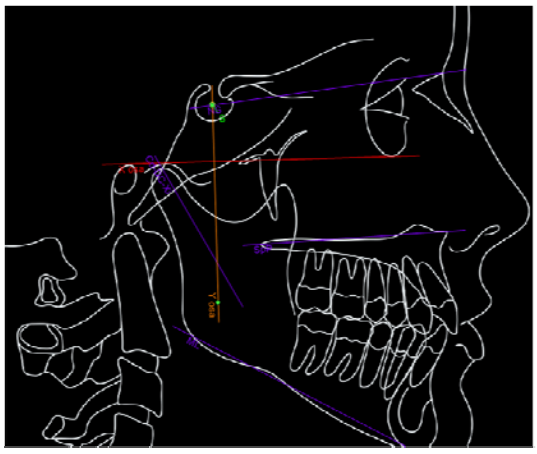

Fig. 2 – Reference planes included in the analysis.

N-S – The main plane of the anterior cranial base; Go-Me – The main plane of the mandible body; Sna-Snp – The main plane of the maxilla; Cd-DC-Xi – the centerline of the mandibular rami; X axis (Or-Po Frankfort horizontal (FH)) – The horizontal plane of the head; Y axis – The vertical plane which is normal to the X osis and goes from the point S.

Table 1

Linear and angular parameters included in the analysis

Linear parameters (millimeters)	Angular parameters (degrees)
Go-Y axis	Cd-DC-Xi / FH
Ar- Y axis	ArGoMe
DC- Y axis	Sna-Snp / FH
Cd- Y axis	ANB
PI- Y axis	SNB
CI- Y axis	SNA
A- Y axis	
B- Y axis	
Go- X axis	
Ar- X axis	
DC- X axis	
Cd- X axis	
PI- X axis	
CI- X axis	
A- X axis	
B- X axis	

SNB – Angle of mandibular prognatism; ANB – Angle of sagittal intermaxillary relationship; SNA – sella nasion, A point. See abbreviations in Addendum.

Using the software, after insertion the digital (jpg) format of lateral cephalogram, calibration was set up. The calibration is used to convert pixels of the inmages into milimetres. A metal ruler on a cephalostat which is visible on radiography was used for calibration (Figure 3).

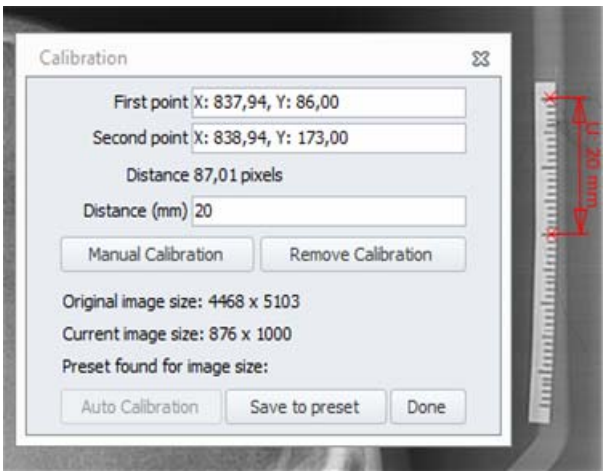

Fig. 3 – Calibration of the digital image usig the software "Ax Ceph".

Then, the location of reference points and lines were defined. To analyze linear (anterior-posterior and vertical) movement of the condyle, in every cephalometric radiograph the coordinate system with X and Y axis (as described in Figure 2) was inserted. After that, the distance between the points Go, Ar, DC, Cd, PI, CI, A, B and Y axis was measured to determine horizontal skeletal changes postoperatively. The distance between the points Go, Ar, DC, Cd, PI, CI, A, B and X axis was measured to determine vertical skeletal changes postoperatively. Angles SNA, SNB, and ANB were used to describe skeletal changes after the intervention. The angle Ar-Go-Me and angle Cd-DC-Xi/FH were used to analyze rotation of the condyle after the intervention. Angle Sna-Snp/FH was used to describe rotation of the maxilla after bimaxilary surgery (see Abbreviations in addendum).

Data analysis was not preformed until the last patient had been examined for the last time to prevent bias from the examiner's awareness of any trends in the basic data.

Statistical analyses were performed with SPSS version 15 (SPSS, Chicago, Ill). For the assessment of the differences between angular and linear parameters before (T1) and after (T2) the surgery, Students paired *t*-test was used. Pearsons correlation was used to correlate changes in condilar position with angular skeletal changes following bimaxillary surgery. The differences were considered significant at $p < 0,05$.

Results

Horizontal skeletal changes: the mean setback of the mandible 6 months postoperatively (T2-T1) was 0.91 mm at point B but the differences were not statistically significant ($p = 0.658$). Point Go showed tendency to go forward (1,19 mm) but also was not statistically significant ($p = 0.242$). On the other hand, maxilla was on average moved forward 3.29 mm at point A ($p = 0.0038$) (Table 2). *Horizontal changes in condylar position*: six months after the surgery the position of point DI and DC changed significantly. Point DI moved backward 1.38 mm ($p = 0.02$), likewise, point DC moved backward for 1.52 mm ($p = 0.007$). The movement of the points PI and Cd were not statistically significant, but it was noted that point PI showed the tendency to move forward by 0.1 mm (Table 2).

Vertical skeletal changes: the results showed the tendency of downward movement of the mandible at points B and Go (1.43 mm, $p = 0.644$; 3.85 mm $p = 0,058$, respectively). Maxilla was moved upward at point A for 3.18 mm but showed no statistical significance (Table 3).

Vertical changes in condylar position: the position of condyle changed only at point DI. The amount of upward movement of point DI was 1.62 mm ($p = 0.04$). Points PI and DC

Table 2

Distances between the reference points and Y axis

Distances (mm)		n	x̄	SD	Med	Min	Max	*p*
YB	T1	21	60.48	14. 84	65.00	39.00	100.00	0.658
	T2	21	59.57	10.82	60.00	37.00	85.00	
YA	T1	21	59.52	11.26	60.00	45.00	82.00	0.0038*
	T2	21	62.81	8.01	63.00	47.00	79.00	
YDI	T1	21	17.38	3.69	16.00	12.00	26.00	0.020*
	T2	21	18.76	4.21	19.00	8.00	24.00	
YPI	T1	21	6.48	3.31	6.00	1.00	13.00	0.653
	T2	21	6.38	3.15	6.00	0.00	11.00	
YCd	T1	21	14.38	3.97	14.00	8.00	24.00	0.446
	T2	21	14.86	3.62	16.00	6.00	20.00	
YDC	T1	21	9.19	3.70	10.00	2.00	16.00	0.007*
	T2	21	10.71	3.94	11.00	2.00	17.00	
YAr	T1	21	15.33	4.08	15.00	8.00	23.00	0.005*
	T2	21	16.86	3.92	16.00	7.00	23.00	
YGo	T1	21	7.00	6.32	6.00	0.00	24.00	0.242
	T2	21	8.19	5.95	6.00	0.00	20.00	

***p < 0.05 (2-tailed); x̄ – mean; SD – standard deviation; Med – median;**
Min-Max – minimal-maximal value; T1 – Standardized lateral cephalometric radiographs obtained before preoperative orthodontic treatment; T2 – Standardized lateral cephalometric radiographs obtained 6 months after the surgical treatment.
See abbreviations in Addendum.

Table 3

Changes in distances between the reference points and X axis

Distances (mm)		n	x̄	SD	Med	Min	Max	*p*
XB	T1	21	71.86	13.28	71.00	45.00	95.00	0.644
	T2	21	73.29	9.03	71.00	61.00	96.00	
XA	T1	21	35.38	13.20	32.00	23.00	88.00	0.137
	T2	21	32.19	5.78	30.00	24.00	49.00	
XDI	T1	21	5.24	2.91	5.00	0.00	11.00	0.040*
	T2	21	6.86	3.41	7.00	0.00	14.00	
XPI	T1	21	3.62	1.99	4.00	0.00	8.00	0.887
	T2	21	3.81	3.17	3.00	0.00	12.00	
XCd	T1	21	4.33	3.79	4.00	0.00	16.00	0.263
	T2	21	3.57	2.73	3.00	0.00	8.00	
XDC	T1	21	8.48	5.47	11.00	0.00	16.00	0.335
	T2	21	9.10	6.20	10.00	0.00	17.00	
XAr	T1	21	12.86	4.05	12.00	6.00	20.00	0.007*
	T2	21	14.57	4.25	14.00	8.00	21.00	
XGo	T1	21	58.05	10.67	57.00	40.00	82.00	0.058
	T2	21	61.90	5.20	62.00	51.00	75.00	

****p* < 0,05 (2-tailed);); x̄ – mean; SD – standard deviation; Med – median; Min-Max – minimal-maximal value;**
T1 – Standardized lateral cephalometric radiographs obtained before preoperative orthodontic treatment;
T2 – Standardized lateral cephalometric radiographs obtained 6 months after the surgical treatment.
See abbrevations in Addendum.

showed the trend to move upward (0.19 mm and 0.62 mm, respectively). On the contrary, point Cd showed the tendency to move downward (0.76 mm; $p = 0.263$) (Table 3).

The results suggest that point Ar was moved significantly from both X and Y axis. Point Ar moved downward (mean difference T2-T1 was 1.71 mm; $p = 0.007$) and forward (T2-T1 was 1.53 mm; $p = 0.005$) (Tables 2 and 3).

SNA, SNB and ANB angle significantly changed postoperatively. SNA and ANB angle increased in dimensions (T2-T1) for 1.76° and 3.76° respectively ($p = 0.049$ and $p < 0.001$). On the other hand, SNB angle decreased for 1.95° ($p = 0.04$). Angles which predicted the rotation of the condyle – ArGoMe changed significantly ($p = 0.009$) for 5.1°, but Cd-DC-Xi/FH did not ($p = 0.277$). The rotation of maxilla (SnaSnp/FH angle) did not change significantly six months after the surgery ($p = 0.128$) (Table 4).

The study showed a positive correlation between the distance XB and the ArGoMe angle. The XA distance also correlated negatively with ArGoMe angle. The distance between the point DI and the X axis showed negative correlation with SNA angle (Table 5).

A positive correlation between the distance YB and the angle SNB, YA and SNB was noted. The distance between the Y axis and the point DI showed a positive correlation with the angle ArGoMe (Table 6).

Discussion

Condyle displacement from or in the glenoid fossa can be caused by abnormal mandibular movement, methods used for fixation, segment rigidity, or masticatory muscle tension [17]. Condylar displacement, especially after BSSO, can cause postoperative complications [18]. Rotational changes also contribute to idiopathic condylar resorption after BSSO [14–16]. The direction of movement of the jaw during surgery is of great importance because it is considered to be one of the factors that influence the postoperative position of the condyle [3]. This study shows a statistically significant movement of the mandible six months after the surgery, which significantly influenced the position of the condyle. Studies have shown that the method of fixation of fragments contributes significantly to the stability of the condyle [8, 16, 19], for

Table 4

Changes in angular parametres

Angle (°)		n	x̄	SD	Med	Min	Max	*p*
SNA	T1	21	81.86	5.51	82.00	72.00	96.00	0.049*
	T2	21	83.62	5.59	84.00	74.00	94.00	
SNB	T1	21	86.57	6.03	88.00	77.00	103.00	0.040*
	T2	21	84.62	5.04	84.00	75.00	92.00	
ANB	T1	21	-4.71	2.41	-4.00	-10.00	0.00	< 0.001**
	T2	21	-0.95	2.62	-1.0	-6.00	3.00	
ArGoMe	T1	21	139.48	7.94	137.00	126.00	155.00	0.009*
	T2	21	134.38	8.55	134.00	119.00	154.00	
Cd-DC-Xi/FH	T1	21	61.90	6.20	62.00	43.00	70.00	0.277
	T2	21	63.76	6.36	63.00	52.00	77.00	
SnaSnpFH	T1	21	4.10	3.27	4.00	0.00	9.00	0.128
	T2	21	5.19	3.37	5.00	1.00	11.00	

****p* < 0.05 (2-tailed); ** *p* < 0.001 (2-tailed);); x̄ – mean; SD – standard deviation; Med – median;**
Min-Max – minimal-maximal value; T1 – Standardized lateral cephalometric radiographs obtained before the preoperative orthodontic treatment; T2 – Standardized lateral cephalometric radiographs obtained 6 months after the surgical treatment.
See abbrevations in Addendum.

Table 5

Correlation of angular and linear parametres (Xaxis)

(T1-T2) n = 21		Cd-DC-Xi / FH	SnaSnp/FH	ArGoMe	SNA	SNB	ANB
X B	r	0.009	-0.031	0.652**	-0.206	-0.303	0.194
	p	0.969	0.893	0.001	0.371	0.182	0.400
X A	r	0.069	-0.188	-0.619**	0.041	0.280	-0.347
	p	0.768	0.415	0.003	0.859	0.218	0.123
X DI	r	-0.063	-0.053	0.148	-0.509*	-0.360	-0.191
	p	0.787	0.818	0.523	0.018	0.109	0.406
X PI	r	-0.067	-0.053	0.037	-0.130	-0.340	0.237
	p	0.775	0.818	0.873	0.574	0.131	0.300
X Cd	r	0.193	0.374	0.232	-0.238	-0.394	0.177
	p	0.403	0.095	0.311	0.299	0.077	0.442
X DC	r	0.077	0.010	-0.089	-0.414	-0.245	-0.261
	p	0.740	0.966	0.702	0.062	0.284	0.252
X Ar	r	-0.234	-0.123	0.261	-0.207	-0.146	-0.041
	p	0.308	0.594	0.252	0.368	0.527	0.860
X Go	r	0.035	-0.171	-0.339	0.074	0.274	-0.252
	p	0.881	0.457	0.133	0.749	0.229	0.271

***Correlation is significant at the level $p < 0.05$ (2-tailed); **Correlation is significant at the level $p < 0.01$ (2-tailed); (T1-T2) – The difference in dimensions in angles/distances before the preoperative orthodontic treatment and six months after the correction of mandibular prognathism.**
See abbrevations in Addendum.

Table 6

Correlation of angular and linear parametres (Y axis)

(T1-T2) n = 21		Cd-DC-Xi / FH	SnaSnp/FH	ArGoMe	SNA	SNB	ANB
Y B	r	-0.303	-0.005	-0.027	0.379	0.680**	-0.360
	p	0.181	0.983	0.906	0.090	0.001	0.109
Y A	r	-0.174	-0.053	-0.218	0.422	0.499*	-0.112
	p	0.450	0.819	0.343	0.057	0.021	0.630
Y DI	r	-0.099	0.078	0.498*	-0.235	-0.061	-0.194
	p	0.668	0.738	0.022	0.306	0.793	0.398
Y PI	r	0.204	-0.393	-0.370	-0.308	-0.234	-0.090
	p	0.374	0.078	0.099	0.175	0.308	0.700
Y Cd	r	-0.328	-0.123	0.178	-0.067	0.071	-0.163
	p	0.147	0.595	0.440	0.774	0.759	0.481
Y DC	r	-0.294	-0.225	0.425	-0.179	-0.236	0.131
	p	0.195	0.327	0.055	0.437	0.303	0.571
Y Ar	r	0.112	0.206	0.422	-0.415	-0.276	-0.129
	p	0.629	0.370	0.057	0.061	0.226	0.577
Y Go	r	0.175	0.009	-0.275	0.193	0.189	0.081
	p	0.447	0.969	0.227	0.401	0.413	0.727

***Correlation is significant at level $p < 0.05$ (2-tailed); **Correlation is significant at level $p < 0.01$ (2-tailed); (T1-T2) – difference in dimensions in angles/distances before preoperative orthodontic treatment and six months after the correction of mandibular prognathism.**
See abbrevations in Addendum.

these reasons, in this study the patients' jaw fragments were connected with rigid fixation.

Many researchers, using various radiographic methods, studied the movement of the condyle in patients after orthognathic surgery [20–22]. However, there are still few studies that deal with bimaxillary orthognathic surgery mandibular prognathism [23, 24]. In this study, four points on the condyle – DI, PI, DC and Cd were used and based on the distance of these points with the X and Y axis the anteroposterior and vertical changes in position of the condyle before the preoperative orthodontic preparation and 6 months after the bimaxillary surgical correction were established. The results of this study indicate the condyle tend to move forward and upward. The anterior condyle movement is similar with the study which Ueki et al. [25] conducted. They also reported that there was anterior and inferior movement of the condyle after BSSO and intraoral vertical ramus osteotomy, but there was no statistically significant difference between these different techniques. The possible reason for moving the condyle forward and downward is anatomical feature of the front part of the glenoid fossa [3].

On the other hand, Hu et al. [26] investigated the effect of sagittal split ramus osteotomy of the mandible on the temporomandibular joint. By comparing images of temporomandibular joints, they noticed a posterior condyle movement in the group of patients who underwent BSSO. They also found the forward rotation of the condyle, which is similar to our results. These results can be explained by the pulling force of the anterior and posterior segments of *m. temporalis* and *m. masseter*. In this study there was a decrease in the value of the angle ArGoMe six months after the surgery which could partialy influence the

forward rotation of the condyle. Contrary to the results of Hu et al. [26], a study by Harris et. al. [27] showed medial, posterior and superior movement of the condyle after BSSO, and also medial rotation of the condyle.

The results showed that the amount of the mandibular and maxillar movement postoperatively did not correlate statistically with condylar displacement as did the results of Harris et al. [27] and Lee and Park [3]. Interestingly, only changes in ArGoMe angle correlated with the changes in the distance Y-DI, and changes in the angle SNA correlated with changes in the distance X-DI.

Conclusion

This study shows that the position of the condyle after bimaxillary orthognathic surgery is altered. In our group of patients, six months after surgery, the condyles tend to migrate upward and forward. Only the most distal point on the head of the condyle (point DI) correlated with the gonial and SNA angle. Although this study yielded significant results over a period of six months, it was performed in a limited number of patients due to strict inclusion criteria. Further research on changes in condylar position is needed with a longer observation period.

R E F E R E N C E S

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Addendum

Abbreviations:

S (sella) – The point representing the geometric center of the *sella turcica*; N (nasion) – The most anterior (midline) point of the frontonasal suture; A (*subspinale*) – The deepest point in the bony concavity in the midline below the anterior nasal spine; Or (*orbitalis*) – The point representing the lowest point on the inferior orbital rim; Po (porion) – The most superior point of the external auditory meatus; Sna (*spina nasalis anterior*) – The most prominent point of maxilla; Snp (*spina nasalis* posterior) – The most distal point of the conjunction of palatinal bone and pterygomaxillar fissure; B (*supramentalis*) – The innermost point on the contour of the mandible between the incisor tooth and the bony chin; Me (menton) – The lowest point of the mandibular symphysis; Go (gonion) – the midpoint of the mandibular angle between the ramus and mandibular body; Cd (condylion) – the most posterosuperior point on head of the condyle; Ar (articularis) – The point midway between the two posterior borders of the left and the right mandibular rami at the intersection with the basilar portion of the occipital bone; DI – The most distal point on the head of the condyle; PI – The most anterior point on the head of the condyle; DC – The center point of the collum mandibulae on the Ba-N line; Xi – The point located at the geographic center of the ramus; Ba (basion) – The point of the anterior margin of the foramen magnum – The midpoint of the curvature between upper and the lower surfaces of the basilar portion of the occipital bone. N-S – The main plane of the anterior cranial base; Go-Me – The main plane of the mandible body; Sna-Snp – The main plane of the maxilla; Cd-DC-Xi – the centerline of the mandibular rami; X axis (Or-Po Frankfort horizontal (FH)) – The horizontal plane of the head; Y axis – The vertical plane which is normal to the X osis and goes from the point S.

Na osnovu člana 49. Statuta Stomatološkog fakulteta Univerziteta u Beogradu, Nastavno naučno veće Stomatološkog fakulteta, na VI redovnoj sednici u školskoj 2015/16. godini, održanoj 07.06.2016. godine, donelo je sledeću

O D L U K U

Usvaja se pozitivan izveštaj Komisije za ocenu završene doktorske disertacije **mr sc. dr Nikole Mikovića**, pod nazivom „UTICAJ BIMAKSILARNE HIRURŠKE KOREKCIJE MANDIBULARNOG PROGNATIZMA NA PROMENU POLOŽAJA ZGLOBNOG NASTAVKA DONJE VILICA“

Imenovani/a će javno braniti doktorsku disertaciju, ukoliko dobije pozitivno mišljenje Veća naučnih oblasti medicinskih nauka Univerziteta u Beogradu, pred komisijom u sastavu:

1. prof. dr Vitomir Konstantinović
2. doc. dr Milan Petrović
3. prof. dr Dragan Krasić, Medicinski fakultet u Nišu

O b r a z l o ž e nj e

Veće naučnih oblasti medicinskih nauka, na sednici od 13.05.2014. godine, dalo je saglasnost na predlog teme doktorske disertacije mr sc. dr Nikole Mikovića, pod nazivom „UTICAJ BIMAKSILARNE HIRURŠKE KOREKCIJE MANDIBULARNOG PROGNATIZMA NA PROMENU POLOŽAJA ZGLOBNOG NASTAVKA DONJE VILICA“

Imenovani/a je objavio/la:

- u časopisu „Vojnosanitetski pregled“, rad pod nazivom: „Radiographic cephalometry analysis of condylar position after bimaxillary osteotomy in patients with mandibular prognathism“ (2016)

Imajući u vidu napred navedeno, Nastavno naučno veće Stomatološkog fakulteta Univerziteta u Beogradu, rešilo je kao u dispozitivu.

Odluku dostaviti: Imenovanom/oj, Univerzitetu u Beogradu, Odseku za nastavu, Veću, Komisiji (3) i Pisarnici.

Referent kadrovskog odseka
Violeta Rastović

Dekan
Stomatološkog fakulteta

Prof. dr Miroslav Vukadinović

Obrazac 1.

Fakultet STOMATOLOŠKI

UNIVERZITET U BEOGRADU

Stručno veće za medicinske nauke

Broj zahteva

(naziv stručnog veća kome se zahtev upućuje , shodno čl.6 Statuta Univerziteta u Beogradu i čl. 7. st.1 ovog pravilnika)

..god.

(Datum)

ZAHTEV

za davanje saglasnosti na izveštaj o urađenoj doktorskoj disertaciji

Molimo da, shodno članu 68. st.3. Zakona o univerzitetu ("Službeni glasnik RS" br. 20/98), date saglasnost na

izveštaj o urađenoj doktorskoj disertaciji kandidata MR NIKOLA DRAGUTIN MIKOVIĆ
(ime, ime jednog od roditelja i prezime)

KANDIDAT MR NIKOLE DRAGUTIN MIKOVIĆ prijavilo je doktorsku disertaciju pod nazivom
(ime, ime jednog od roditelja i prezime)

"UTICAJ BIMAKSILARNE HIRURŠKE KOREKCIJE MANDIBULARNOG PROGNATIZMA NA PROMENU POLOŽAJA ZGLOBNOG NASTAVKA DONJE VILICE"

Univerzitet je dana 13.05.2014. svojim aktom pod br. 61206-2106/2-14 dao saglasnost na predlog teme

doktorske disertacije koja je glasila

"UTICAJ BIMAKSILARNE HIRURŠKE KOREKCIJE MANDIBULARNOG PROGNATIZMA NA PROMENU POLOŽAJA ZGLOBNOG NASTAVKA DONJE VILICE"

Komisija za ocenu i odbranu doktorske disertacije kandidata MR NIKOLE DRAGUTIN MIKOVIĆ
(ime, ime jednog od roditelja i prezime)

obrazovana je na sednici održanoj 26.04.2016 odlukom fakulteta pod br.

u sastavu:

ime i prezime člana komisije:	zvanje:	naučna oblast:
VITOMIR KONSTANTINOVIĆ	PROFESOR	KLINIČKE STOM. NAUKE
MILAN PETROVIĆ	DOCENT	KLINIČKE STOM. NAUKE
DRAGAN KRASIĆ	PROFESOR	KLINIČKE STOM. NAUKE

Nastavno-naučno veće fakulteta prihvatilo je izveštaj Komisije za ocenu i odbranu doktorske disertacije na sednici održanoj dana 07.06.2016.

DEKAN FAKULTETA

Prof. dr Miroslav Vukadinović

Prilog:
1. **Izveštaj komisije sa predlogom**
2. **Akt Nastavno-naučnog veća fakulteta o usvajanju izveštaja**
3. **Primedbe date u toku stavljanja izveštaja na uvid javnosti, ukoliko je takvih primedbi bilo.**