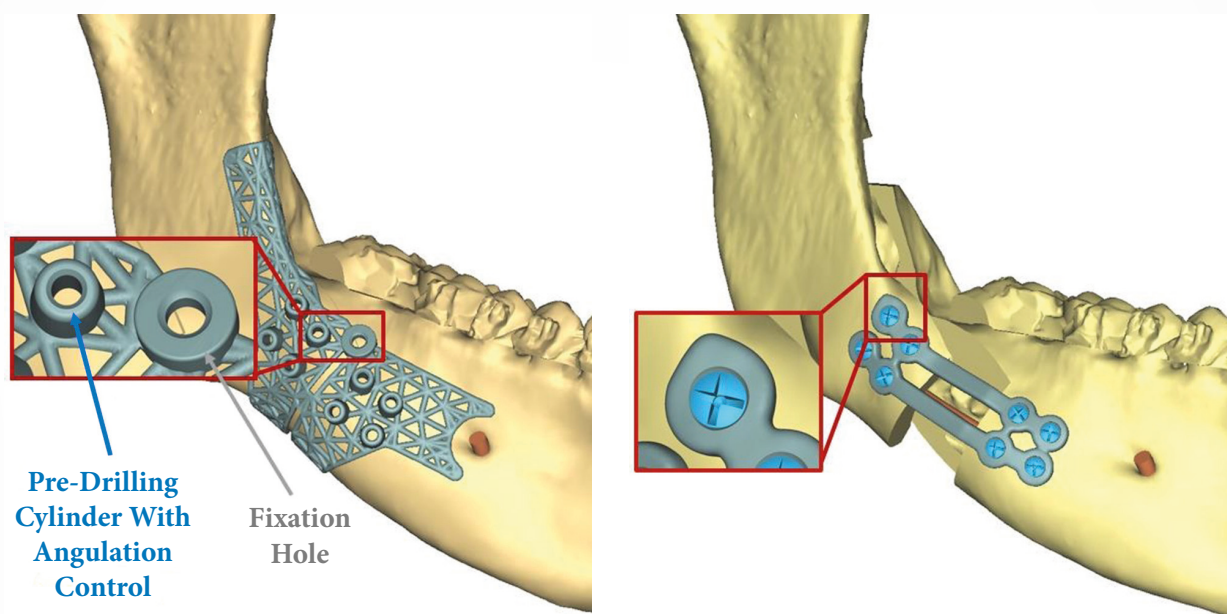


Journal of

# DIAGNOSTICS & TREATMENT

of Oral & Maxillofacial Pathology

3<sup>2018</sup>



## Implants & Bone Grafting

Severely Atrophic Mandible Reconstruction  
by Dental Implants and Modified  
“Tent Pole” Technique

## Implant Surgery

Linkows` Blade-Vent Implants:  
29 Years of Successful Function

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Orthognathic Surgery  
Mario Brinhole (São Paulo, Brazil)



Official Journal of the  
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Journal of *Diagnostics & Treatment of Oral & Maxillofacial Pathology* goals to publish the cutting-edge and peer-reviewed articles on work in oral and maxillofacial surgery and neighboring specialties. The journal includes the following topics: implants surgery, head and neck imaging, microvascular and reconstructive surgery, oral and maxillofacial pathology, head and neck surgery/oncology, TMJ lesions/disorders, head and neck trauma, plastic surgery, pharmacology/drugs.

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Continued from page EB A2



# TANTUM VERDE®

## INFORMATION LEAFLET

### for the medicinal product

#### **Composition:**

*active substance:* **benzydamine hydrochloride**;  
100 mL of solution contain benzydamine hydrochloride 0.15 g;  
*excipients:* ethanol 96%, glycerol, methyl parahydroxybenzoate (E 218), flavor (menthol), saccharin, sodium hydrocarbonate, Polysorbate 20, Quinoline Yellow (E 104), Patent Blue V (E 131), purified water.

**Dosage form.** Oromucosal solution.

*Basic physical and chemical properties:* a clear green liquid with a typical mint flavor.

**Pharmacotherapeutic group.** Dental preparations. Other agents for local oral treatment.  
ATC code: A01A D02.

#### **Pharmacological properties.**

##### *Pharmacodynamics.*

Benzydamine is a non-steroidal anti-inflammatory drug (NSAID) with analgesic and antiedematous properties.

Clinical studies have shown that benzydamine is effective in the relief of symptoms accompanying localized irritation conditions of the oral cavity and pharynx. Moreover, benzydamine has anti-inflammatory and local analgesic properties, and also exerts a local anesthetic effect on the oral mucosa.

##### *Pharmacokinetics.*

Absorption through the oral and pharyngeal mucosa has been proven by the presence of measurable quantities of benzydamine in human plasma. However, they are insufficient to produce any systemic pharmacological effect. The excretion occurs mainly in urine, mostly as inactive metabolites or conjugated compounds.

When applied locally, benzydamine has been shown to cumulate in inflamed tissues in an effective concentration due to its ability to permeate through the mucous membrane.

#### **Clinical particulars.**

##### **Indications.**

Symptomatic treatment of oropharyngeal irritation and inflammation; to relieve pain caused by gingivitis, stomatitis, pharyngitis; in dentistry after tooth extraction or as a preventive measure.

#### **Contraindications.**

Hypersensitivity to the active substance or to any other ingredients of the product.

#### **Interaction with other medicinal products and other types of interaction.**

No drug interaction studies have been performed.

#### **Warnings and precautions.**

If sensitivity develops with long-term use, the treatment should be discontinued and a doctor should be consulted to get appropriate treatment.

In some patients, buccal/pharyngeal ulceration may be caused by severe pathological processes. Therefore, the patients, whose symptoms worsen or do not improve within 3 days or who appear feverish or develop other symptoms, should seek advice of a physician or a dentist, as appropriate.

Benzydamine is not recommended for use in patients hypersensitive to acetylsalicylic acid or other non-steroidal anti-inflammatory drugs (NSAIDs).

The product can trigger bronchospasm in patients suffering from or with a history of asthma. Such patients should be warned of this.

For athletes: the use of medicinal products containing ethyl alcohol might result in positive antidoping tests considering the limits established by some sports federations.

#### **Use during pregnancy or breast-feeding**

No adequate data are currently available on the use of benzydamine in pregnant and breastfeeding women. Excretion of the product into breast milk has not been studied. The findings of animal studies are insufficient to make any conclusions about the effects of this product during pregnancy and lactation.

The potential risk for humans is unknown.

TANTUM VERDE should not be used during pregnancy or breast-feeding.

#### **Effects on reaction time when driving or using machines**

When used in recommended doses, the product does not produce any effect on the ability to drive and operate machinery.

**Method of administration and doses.**

Pour 15 mL of TANTUM VERDE solution from the bottle into the measuring cup and gargle with undiluted or diluted product (15 mL of the measured solution can be diluted with 15 mL of water). Gargle 2 or 3 times daily. Do not exceed the recommended dose.

**Children.**

The product should not be used in children under 12 years due to a possibility of ingestion of the solution when gargling.

**Overdosage.**

No overdose has been reported with benzydamine when used locally. However, it is known that benzydamine, when ingested in high doses (hundreds times higher than those possible with this dosage form), especially in children, can cause agitation, convulsions, tremor, nausea, increased sweating, ataxia, and vomiting. Such acute overdose requires immediate gastric lavage, treatment of fluid/salt imbalance, symptomatic treatment, and adequate hydration.

**Adverse reactions.**

Within each frequency group, the undesirable effects are presented in order of their decreasing seriousness.

Adverse reactions are classified according to their frequency: very common ( $\geq 1/10$ ); common ( $\geq 1/100$  to  $<1/10$ ); uncommon ( $\geq 1/1,000$  to  $<1/100$ ); rare ( $\geq 1/10,000$  to  $<1/1,000$ ); very rare ( $<1/10,000$ ); frequency unknown (cannot be estimated from the available data).

*Gastrointestinal disorders: rare* – burning mouth, dry mouth; *unknown* – oral hypesthesia, nausea, vomiting, tongue edema and discoloration, dysgeusia.

*Immune system disorders: rare* – hypersensitivity reaction, *unknown* – anaphylactic reaction.

*Respiratory, thoracic and mediastinal disorders: very rare* – laryngospasm; *unknown* – bronchospasm.

*Skin and subcutaneous tissue disorders: uncommon* – photosensitivity; *very rare* – angioedema; *unknown* – rash, pruritus, urticaria.

*Nervous system disorders: unknown* – dizziness, headache.

TANTUM VERDE contains methyl parahydroxybenzoate, which can cause allergic reactions (including delayed-type reactions).

**Shelf life.** 4 years.

**Storage conditions.**

Do not store above 25°C. Keep out of reach of children.

**Packaging.**

120 mL of solution in a bottle with a measuring cup; 1 bottle per cardboard box.

**Dispensing category.**

Over-the-counter medicinal product.

**Manufacturer.**

Aziende Chimiche Riunite Angelini Francesco A.C.R.A.F. S.p.A., Italy.

Location of the manufacturer and its business address. Via Vecchia del Pinocchio, 22 – 60100 Ancona (AN), Italy.

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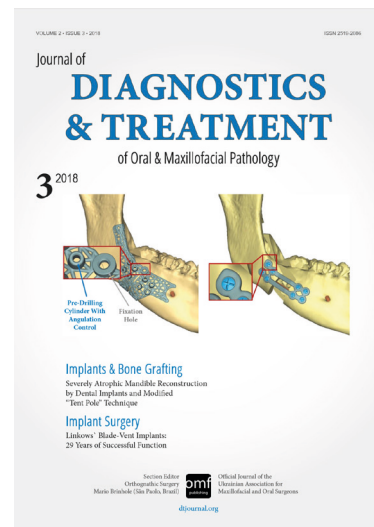
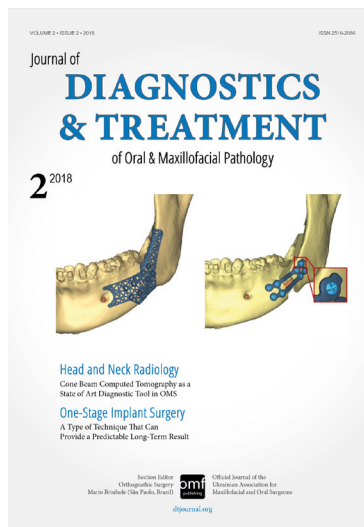
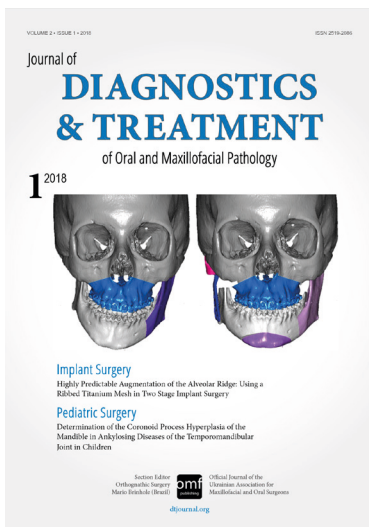
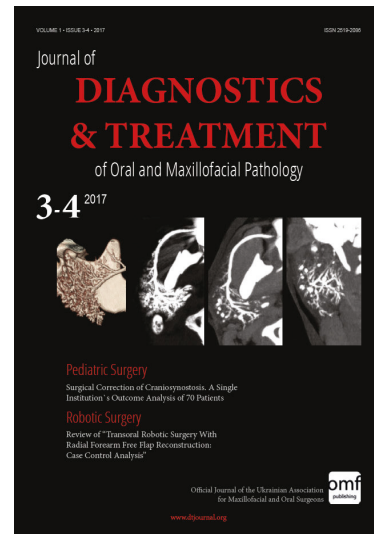
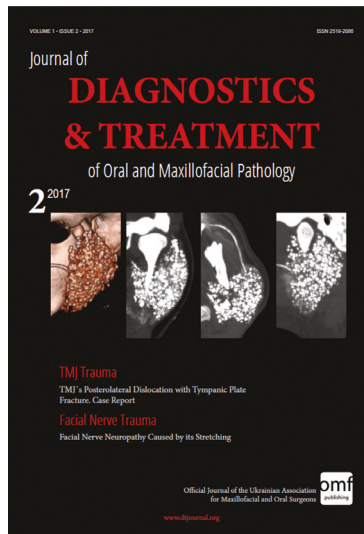
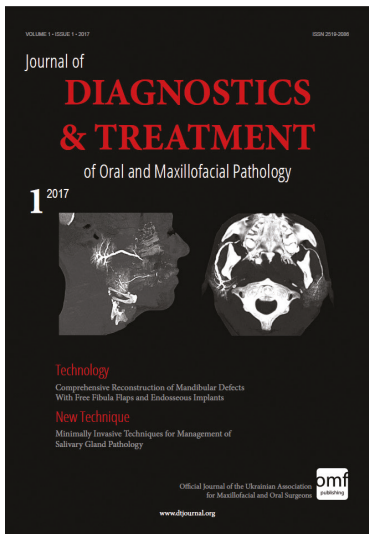
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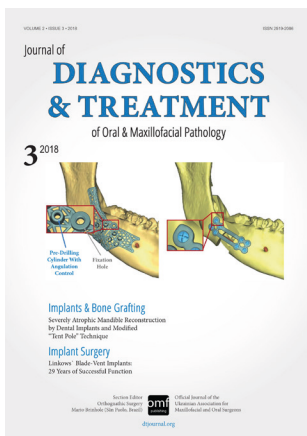
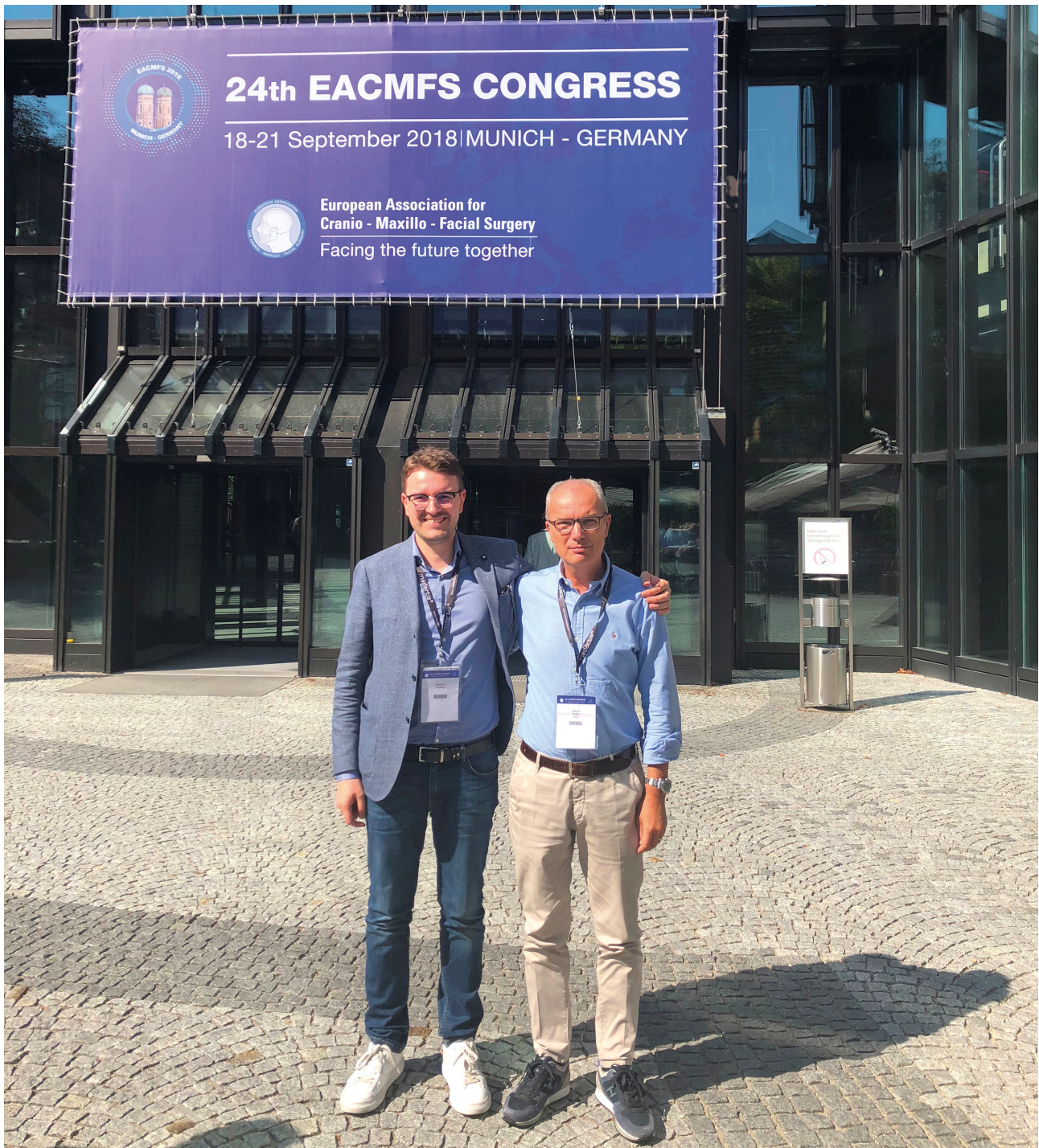
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*Journals' cover images (virtual surgical planning for a sleep apnea patient treatment using custom made cutting guides and plates for sagittal split osteotomy) are courtesy of:*

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# Review of Event

“Communication leads to community, that is, to understanding, intimacy and mutual valuing”

—Rollo Reese May, American psychologist

## 24th Congress of the European Association for Cranio-Maxillo-Facial Surgery (EACMFS2018) 18-21 September 2018 – Munich – Germany

“Facing the future together”... what an amazing beauty of words and its meaning. The social media (Figs 1, 2) continues to give us so many advantages, they can help us to communicate, to catch and share the incredible moments of success, to be and watch simultaneously at the hottest events in different corners of the world. But feelings... emotions... personal connection... and building trust can be achieved in

the best way only being at the Congress... at 24th Congress of the European Association for Cranio-Maxillo-Facial Surgery ([www.eacmfs2018.com](http://www.eacmfs2018.com)). 18-21 of September was the hottest and the most anticipated days among OMF and H&N surgeons, residents, and trainees. In that days all roads come to Munich. The city brought so much new connections, inspiration and so needed motivation. Wolff, Rodriguez (Fig 2), Fernandes, Rana, D’Cruz, Turvey, Gilbert, Parmar *et al*, those names continue to sound in our minds, being the guiding stars in our surgical life. And we start dreaming again... dreaming about 25th Congress in Paris (September 15-18, 2020).



Liked by dt\_journal, camosquerag and 55 others

**anastasiaqmbomfs** Feels good to be done! Was super nervous but super excited to share our newly developed scalp classification 😊 can't wait to be able to share it with everyone 🥰

View all 8 comments

**raniahajib.md.dds** Strong work @anastasiaqmbomfs! So proud! #girlboss

**FIGURE 1.** Instagram post of Anastasiya Quimby, MD, DDS, (Chief Resident, PGY4, Oral & Maxillofacial Surgery Department, College of Medicine, University of Florida; Jacksonville, FL, USA) about presentation of her lecture at 24th Congress.



Liked by sylviodemoraes, mkamal.dmd.md and 71 others

**beyondfaces.nyc** Listening to the masters of FACIALreconstruction at the European Cranio Maxilo-Facial Conference #eacmfs2018 - World renowned presenters #plasticsurgeon from:  
France, Dr Jean-Paul Meningaud  
France, Dr Bernard Devauchelle  
Spain (Dr Pedro Infante-Cossio)  
USA #DrEduardoDRodriguez -

**FIGURE 2.** Instagram post of @beyondfaces.nyc about the lecture of Eduardo D. Rodriguez, MD, DDS (The Helen L. Kimmel Professor of Reconstructive Plastic Surgery; Chair, Hansjörg Wyss Department of Plastic Surgery; New York, NY, USA) *Facial Transplantation: The Long Lasting Result.*

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Editorial

## Minister Brings the Best World Standards to the Ukrainian Scientific Publications\*

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### ABOUT ARTICLE

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Editorial contains non-classic order of references to **Figures** with a purpose of better position of images.

*“To improve is to change, so to be perfect is to have changed often”*

—Winston Churchill,  
Prime Minister, United Kingdom  
from 1940 to 1945  
from 1951 to 1955

Improvement is always great. Improvement in the science of oral and maxillofacial surgery is more than great. Especially, when that improvement is supported and implemented at the highest level of Government. Order #32 of the Ministry of Education and Science of Ukraine (issued January 15, 2018) accelerate the movement of the Ukrainian scientific publications to the best positions in the extremely dynamic world of scientific publication. The purpose of that Editorial is to highlight the features of a new Order.

According the Order all Ukrainian scientific publications, which are in the List of scientific professional publications of Ukraine, divided into three categories till the year 2020: “A”, “B”, and “C” [1]. After March 2020 there will be only two categories: “A” and “B”.

The item 3 (Fig 2A) of the Order is established that the scientific professional publications included in the List of scientific professional publications of Ukraine on the day of the entry into force of this Order shall be assigned a category “C” for a period of two years (till March, 2020). If, during this period, the categories “C” to the Ministry of Education and Science have submitted documents confirming compliance with the requirements for the assignment of category “A” or category “B”, they are assigned these categories [1].

The item 6 (Fig 2B) (Rule of the Formation of the List of scientific professional publications of Ukraine) tell us:

To the category “A” are included scientific publications that included to the scientometric databases Scopus® and/ or Web of Science Core Collection (Fig 1) [2, 3]. To the category “B” are included the scientific publications that meet the requirements of subclauses 1-8 of item 6.

All advantages and disadvantages of a new Order the readers and workers of the editorial offices can easily find in the Rule of the Formation of the List of scientific professional publications of Ukraine (Fig 2B-E).

What I can tell on behalf of Editorial Board of the *Diagnostics & Treatment of Oral & Maxillofacial Pathology* that other great international journals of head & neck area (*Plastic & Reconstructive Surgery*, impact factor – 3.475; *Head & Neck*, impact factor – 2.471; *Journal of Oral & Maxillofacial Surgery*, impact factor – 1.779; etc.) are completely supporting those key item of a new Ministers’ Order being included to those scientometric databases. So, it’s definitely a right Order that will help to move the surgical science forward much faster.



Scopus®  
Web of Science  
Trust the difference

FIGURE 1. Official symbols of Scopus® (A) and Web of Science (B).

\* This manuscript has not been presented

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## МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

### НАКАЗ

15.01.2018 № 32

Зареєстровано в Міністерстві  
юстиції України  
06 лютого 2018 р.  
за № 148/31600

### Про затвердження Порядку формування Переліку наукових фахових видань України

Відповідно до пункту 8 Положення про Міністерство освіти і науки України, затвердженого постановою Кабінету Міністрів України від 16 жовтня 2014 року № 630, та пункту 12 Порядку присудження наукових ступенів, затвердженого постановою Кабінету Міністрів України від 24 липня 2013 року № 567, **НАКАЗУЮ:**

1. Затвердити Порядок формування Переліку наукових фахових видань України, що додається.

2. Визнати таким, що втратив чинність, наказ Міністерства освіти і науки, молоді та спорту України від 17 жовтня 2012 року № 1111 «Про затвердження Порядку формування Переліку наукових фахових видань України», зареєстрований в Міністерстві юстиції України 02 листопада 2012 року за № 1850/22162.

3. Установити, що науковим фаховим виданням, включеним до Переліку наукових фахових видань України на день набрання чинності цим наказом, присвоюється категорія «В» строком на два роки. Якщо протягом цього строку стосовно видань категорії «В» до МОН подані документи, що підтверджують дотримання вимог для присвоєння категорії «А» або категорії «Б», їм присвоюються ці категорії.

4. Департаменту атестації кадрів вищої кваліфікації та ліцензування (Шевцов А.Г.) забезпечити державну реєстрацію цього наказу в Міністерстві юстиції України в установленому законодавством порядку.

5. Контроль за виконанням цього наказу покласти на першого заступника Міністра Ковтунця В.В.

6. Цей наказ набирає чинності з дня його офіційного опублікування.

Міністр

Л.М. Гриневич

**FIGURE 2. (A)** Cropped copy of the 1st page of Order of the Ministry of Education and Science of Ukraine (issued January 15, 2018). Item 3 is indicated by red line. Source: the date received from [www.zakon5.rada.gov.ua](http://www.zakon5.rada.gov.ua) [1], September 10, 2018. (Fig 2 continued on next page.)

**ЗАТВЕРДЖЕНО**  
**Наказ Міністерства освіти**  
**і науки України**  
**15.01.2018 № 32**

**Зареєстровано в Міністерстві**  
**юстиції України**  
**06 лютого 2018 р.**  
**за № 148/31600**

## **ПОРЯДОК**

### **формування Переліку наукових фахових видань України**

1. Цей Порядок встановлює умови формування Переліку наукових фахових видань України (далі - Перелік), а також класифікації та моніторингу видань, включених до Переліку. Видання, яке відповідає визначеним у цьому Порядку вимогам, включається до Переліку.

2. Метою об'єктивної оцінки, класифікації та моніторингу наукових фахових видань є підвищення якості опублікованої у них наукової інформації та інтеграція цих видань до світового наукового простору. Під публікацією розуміється випуск друкованого видання накладом не менше 50 примірників або оприлюднення видання в електронному вигляді в мережі Інтернет у форматі, не призначеному для редагування, з вільним або платним доступом.

3. Наукові фахові видання з Переліку застосовуються для:

1) розвитку вітчизняного наукового потенціалу та інтеграції його у світовий науковий простір;

2) створення простору якісної публічної комунікації вчених, зокрема якісного донесення результатів їх діяльності до вітчизняної і світової наукових спільнот;

3) офіційного визнання наукових публікацій, зокрема:

опублікування основних наукових результатів дисертацій здобувачами наукових ступенів та досліджень претендентів на присвоєння вчених звань;

врахування при оцінюванні результатів наукової діяльності закладів вищої освіти і наукових установ;

врахування при оцінюванні результатів наукової діяльності та атестації наукових та науково-педагогічних працівників;

врахування при оцінюванні проектів науково-дослідних робіт, поданих на конкурси для фінансування за кошти державного чи місцевих бюджетів.

4. Засновниками (співзасновниками) наукового фахового видання можуть бути суб'єкти наукової і науково-технічної діяльності, які діють відповідно до Закону України «Про наукову і науково-технічну діяльність», серед яких має бути принаймні одна юридична особа.

5. При включенні наукового періодичного видання до Переліку зазначаються спеціальності, за якими видання здійснює публікації.

6. До Переліку включаються наукові періодичні видання України, що входять до наукометричних баз Scopus та/або Web of Science Core Collection (категорія «А»), видання, які відповідають вимогам підпунктів 1-8 цього пункту (категорія «Б»), і видання, які відповідають вимогам підпунктів 1-5 цього пункту, з урахуванням вимог підпункту 3 пункту 11 цього Порядку (категорія «В»):

1) наявність свідоцтва про державну реєстрацію засобу масової інформації із загальнодержавною та/або зарубіжною сферою його розповсюдження (для періодичних друкованих наукових видань);

**FIGURE 2. (cont'd). (B)** Cropped copy of 2nd page of the Order of the Ministry of Education and Science of Ukraine. Item 6 is indicated by red line. (Fig 2 continued on next page.)

2) ISSN-номер, що використовується для ідентифікації друкованого та/або електронного періодичного видання та дотримання заявленої періодичності;

3) присвоєння кожному опублікованому матеріалу міжнародного цифрового ідентифікатора DOI (Digital Object Identifier);

4) наявність web-сайта видання з українським та англійським інтерфейсами (інтерфейс може мати інші іноземні мови, пов'язані зі сферою поширення видання) або web-сторінки видання на web-сайті засновника (співзасновника) видання з такою інформацією:

політика (мета та завдання) наукового видання;

склад редакційної колегії (редакційної ради (за наявності)) із зазначенням наукового ступеня, звання та основного місця роботи;

процедура рецензування та дотримання редакційної етики;

порядок оформлення та подання публікації для оприлюднення;

у разі відкритого доступу - повні тексти за умови розповсюдження за передплатою - інформація про умови доступу та анотації до кожної статті відповідно до змісту випусків, оприлюднених на web-сторінці видання;

якщо видання не є повністю англійським, кожна публікація не англійською мовою супроводжується анотацією англійською мовою обсягом не менш як 1800 знаків, включаючи ключові слова. Якщо видання не є повністю українським, кожна публікація не українською мовою супроводжується анотацією українською мовою обсягом не менш як 1800 знаків, включаючи ключові слова;

5) розміщення на платформі «Наукова періодика України» в Національній бібліотеці України імені В.І. Вернадського НАН України та в Національному репозитарії академічних текстів у разі відкритого доступу електронних копій видання, а за умови розповсюдження за передплатою - повного бібліографічного опису та анотації до статей, які розміщуються у відповідних номерах видань, для формування реєстру академічних текстів;

6) забезпечення якісного незалежного рецензування поданих для публікації матеріалів вченими, які здійснюють дослідження за спеціальністю і мають за останні три роки не менше однієї публікації у виданнях, включених до Переліку, або закордонних виданнях, включених до Web of Science Core Collection та/або Scopus, або мають монографії чи розділи монографій, видані міжнародними видавництвами, що належать до категорій «А», «В» або «С» за класифікацією Research School for Socio-Economic and Natural Sciences of the Environment (SENSE); рецензії, підписані рецензентом звичайним або цифровим електронним підписом, мають зберігатися в редакції не менше трьох років;

7) наявність у складі редакційної колегії видання не менше семи вчених, які мають науковий ступінь за однією із спеціальностей, що відповідають науковому профілю видання згідно з пунктом 5 цього Порядку. Кожен з цих фахівців, включаючи головного редактора видання, повинен мати не менше трьох публікацій за останні п'ять років або не менше семи публікацій (статті, монографії, розділи монографій, що відповідають науковому профілю видання) за останні п'ятнадцять років, у тому числі не менше однієї за останні три роки, опублікованих щонайменше у двох різних виданнях, включених до Web of Science Core Collection та/або Scopus, або мати монографії чи розділи монографій, видані міжнародними видавництвами, що належать до категорій «А», «В» або «С» за класифікацією Research School for Socio-Economic and Natural Sciences of the Environment (SENSE).

У складі редакційної колегії має бути не менше трьох вчених, що працюють за основним місцем роботи в українських наукових установах або закладах вищої освіти, і щонайменше - один науковець, що працює за основним місцем роботи в закордонній науковій установі або закладі вищої освіти. Для включення вченого до складу редакційної колегії потрібна його письмова згода. Вчений може входити до складу не більш як трьох редакційних колегій видань, включених до Переліку;

FIGURE 2. (cont'd). (C) Cropped copy of 3rd page of the Order of the Ministry of Education and Science of Ukraine. (Fig 2 continued on next page.)

8) включення до профільних міжнародних наукометричних баз даних, рекомендованих МОН.

7. Для включення періодичного наукового фахового видання до Переліку (категорії «А» та «Б») до МОН подаються такі документи:

1) клопотання засновника (співзасновників) наукового фахового видання про включення до Переліку на офіційному бланку, засвідчене підписом керівника;

2) заповнений бланк заявки на включення наукового видання до Переліку наукових фахових видань України (додаток) на паперовому та електронному носіях;

3) ксерокопія свідоцтва про державну реєстрацію друкованого засобу масової інформації (для друкованих періодичних видань) або витяг з наказу засновника про утворення електронного наукового періодичного видання;

4) документ про здійснення обов'язкового розсилання періодичного видання відповідно до додатка до постанови Кабінету Міністрів України від 10 травня 2002 року № 608 «Про порядок доставляння обов'язкових примірників документів»;

5) два останні номери видання по одному примірнику з копіями рецензій на опубліковані матеріали (з забезпеченням анонімності особи рецензента).

8. Подані документи розглядаються відповідною експертною радою з питань проведення експертизи дисертаційних робіт МОН відповідно до підпункту 4 пункту 8 Положення про експертну раду з питань проведення експертизи дисертаційних робіт Міністерства освіти і науки, молоді та спорту України, затвердженого наказом Міністерства освіти і науки, молоді та спорту України від 14 вересня 2011 року № 1058, зареєстрованого в Міністерстві юстиції України 10 жовтня 2011 року за № 1167/19905 (далі - Положення). За наявності позитивного висновку експертної ради з питань проведення експертизи дисертаційних робіт, затвердженого відповідно до Положення, матеріали подаються на розгляд атестаційної колегії МОН для прийняття рішення.

9. Наказ про включення наукового видання до Переліку МОН оприлюднює на офіційному web-сайті. У разі відмови про включення до Переліку або передчасного виключення видання з Переліку МОН офіційним листом інформує засновника (співзасновників) про причини відмови щодо включення або виключення.

10. Рішення МОН про відмову у включенні наукового видання до Переліку може бути оскаржене протягом місяця з дня отримання засновником (співзасновниками) листа з підставами про відмову шляхом подання до МОН апеляційної заяви або до суду в порядку, передбаченому законодавством.

11. Під час включення наукового видання до Переліку йому присвоюється відповідна категорія, яку разом з датою включення до Переліку необхідно вказувати у вихідних відомостях видання:

1) категорія «А» присвоюється науковим фаховим виданням, включеним до міжнародних наукометричних баз даних Web of Science Core Collection та/або Scopus;

2) категорія «Б» присвоюється іншим науковим фаховим виданням, які відповідають вимогам підпунктів 1–8 пункту 6 цього Порядку;

3) категорія «В» присвоюється всім науковим фаховим виданням, включеним до Переліку на день затвердження цього Порядку наказами МОН, а також може присвоюватись виданням, які були виключені з категорії «А» або категорії «Б» на два роки.

Видання категорії «В», яке протягом двох років не отримало права на присвоєння категорії «А» чи категорії «Б», виключається з Переліку без права поновлення.

12. У разі перереєстрації друкованого видання зі зміною свідоцтва про державну реєстрацію друкованого засобу масової інформації або змін в електронному виданні засновник (співзасновники) має(ють) впродовж одного місяця подати до МОН клопотання щодо внесення змін до Переліку та ксерокопію нового свідоцтва про державну реєстрацію друкованого засобу

**FIGURE 2. (cont'd). (D)** Cropped copy of 4th page of the Order of the Ministry of Education and Science of Ukraine. **(Fig 2 continued on next page.)**



масової інформації або витяг з наказу засновника про зміни в електронному науковому періодичному виданні.

13. Видання, яке отримало статус фахового із визначенням певної категорії, обов'язково підлягає моніторингу МОН щодо дотримання ним вимог цього Порядку. За результатами моніторингу видання може залишитись у відповідній категорії, бути переведеним до іншої категорії або виключеним з Переліку, про що МОН інформує засновника (співзасновників) наукового видання та висвітлює цю інформацію на офіційному web-сайті.

14. Наукове фахове видання виключається з Переліку або переводиться до нижчої категорії за рішенням МОН у разі виявлення порушень вимог, передбачених одним із підпунктів 1-8 (виключення з категорії «Б»), або підпунктів 1-5 (виключення з категорії «В») пункту 6 цього Порядку. У разі виключення наукового видання з Переліку засновник (співзасновники) може(уть) подавати нове клопотання після виправлення зауважень МОН не раніше ніж через рік з дня прийняття такого рішення.

У разі повторного виявлення цих порушень видання виключається з Переліку без права поновлення.

Підставами для виключення видання з Переліку за рішенням МОН також є:

порушення при опублікуванні видання редакцією, авторами публікацій, рецензентами принципів академічної доброчесності, передбачених законами України;

систематичні публікації матеріалів, які не містять нових наукових результатів, і водночас не містять інформації про те, що вони є оглядовими чи науково-методичними.

15. Голова та члени редакційної колегії є відповідальними за організацію рецензування статей та дотримання академічної доброчесності.

16. При виключенні видання категорії «А» з наукометричних баз Web of Science Core Collection та/або Scopus воно набуває статусу видання категорії «Б». При виявленні підстав для виключення видання з категорії «Б» воно виключається з Переліку або набуває статусу видання категорії «В». У цих випадках видання підлягає перевірці на наявність підстав для виключення його з Переліку відповідно до пункту 14 цього Порядку.

**Директор департаменту  
атестації кадрів вищої  
кваліфікації та ліцензування**

**А.Г. Шевцов**

FIGURE 2. (cont'd). (E) Cropped copy of 5th page of the Order of the Ministry of Education and Science of Ukraine. Important items are indicated by red lines.

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Editorial

# One of the Highest World Privileges\*

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ABOUT ARTICLE

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*"Success is the result of perfection, hard work, learning from failure, loyalty and persistence"*

—Colin Powell,  
American statesman,  
four-star general in U.S. Army



**FIGURE 1.** Cropped screenshot from a facebook page [UF Health Jacksonville](https://www.facebook.com/UFHealthJax/). Professor Rui P. Fernandes addresses new fellows during the induction ceremony in Edinburgh, Scotland [2].

Royal College of Surgeons of Edinburgh (RCSEd) is one of the oldest surgical corporations (professional organization) in the world and traces its origins to 1505 [1]. The ad hominem fellow distinction is the most prestigious designation a surgeon can receive from the college. Of the more than 10,000 U.S. surgeons in his specialty, Rui P. Fernandes, MD, DMD, is just the third to be inducted as one (Fig 1) [2].

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Consulting Editor of the highly prestigious Journal *Oral and Maxillofacial Surgery Clinics of North America*. Textbooks: *Local & Regional Flaps in Head & Neck Reconstruction: A Practical Approach* (Fernandes) – published in 2014; *Oral, Head & Neck Oncology & Reconstructive Surgery* (Bell, Fernandes, Andersen) – published in 2017. Co-author in the cutting-edge articles: *Outcomes of total or near-total lip reconstruction with microvascular tissue transfer*; *Margin analysis: sarcoma of the head and neck*; *The cervicofacial flap in cheek reconstruction: a guide for flap design*; *Alternative approach in mandibular reconstruction for benign disease* [3-6]. The list goes on. He don't stop to relax. He continue to do that again, and again, and again... To move a surgery forward.

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# Reconstruction of Severely Atrophic Mandible by Installing Dental Implants Using the Modified “Tent Pole” Technique: Case Report\*

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## ABSTRACT

### Summary.

Patients who use full dental prostheses for long periods of time usually experience bone resorption in the alveolar process and in keratinized mucosa. This can cause instability, low prosthetic retention, and subsequent loss of function. Treating a patient with a severely atrophic mandible is quite challenging due to the low bone height and thickness, potentially impairing rehabilitation, aesthetics, and functional recovery. Several techniques are used to reconstruct major vertical defects for the installation of dental implants. Among these is the “tent pole” technique, which features low morbidity and generally produces good results in the form of increased height of the alveolar ridge bone. Herein we describes a patient with a severely atrophic mandible, reconstructed using a plate and dental implants. We employed a modified “tent pole” technique using an autogenous graft of the iliac crest and without use of platelet-rich plasma concentrate. Our results indicate that the modified tent pole technique using the iliac crest graft, and without use of platelet-rich plasma, is a safe and effective method for achieving mandibular reconstruction while restoring function, aesthetics, and the patients’ quality of life.

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## Introduction

In edentulous patients, prolonged use of removable total dental prostheses may cause reabsorption of the alveolar bone and consequent reduction of the keratinized mucosa. These processes can result in poor prosthetic retention and loss of function. Prosthetic maladjustment and constant trauma to the mucosa may produce pain as well as functional and aesthetic limitations that affect patients’ quality of life [1, 2].

Treatment for a severely atrophic mandible is a major challenge for both the prosthodontist and the maxillofacial surgeon due to the minimal amount of alveolar ridge

that is generally available. Several techniques have been described that can increase osseous volume, allowing the installation of dental implants [3], however, these techniques are also associated with complications such as extensive osseous reabsorption, pathological fractures, osseous graft failure, recurrent infections, fistulas, chronic pain, and sensory disorders [4].

In 2002, Marx *et al* [2] described the “tent pole” technique (*synonym*: tentpole technique) for tissue matrix expansion. This involves installation of 4 to 6 dental implants in patients whose mandibles have less than 6 mm of bone thickness, classified as Cawood-Howell type VI [1]. Using submandibular access, an autogenous iliac crest graft is used with platelet-rich plasma (PRP) concentrate and dental implants. The tent pole increase can reportedly increase bone height by as much as 10.2 mm [2].

PRP with bone grafts were successfully used in several studies in animals and humans [5-11]. Still other authors have reported successful use of the technique even without PRP [4].

Here in we report a clinical case involving reconstruction of a severely atrophic edentulous mandible through the fixation of a 2.4 mm reconstructive plate and use of a modified tent pole technique without use of PRP [12-16].

\* This manuscript has not been presented

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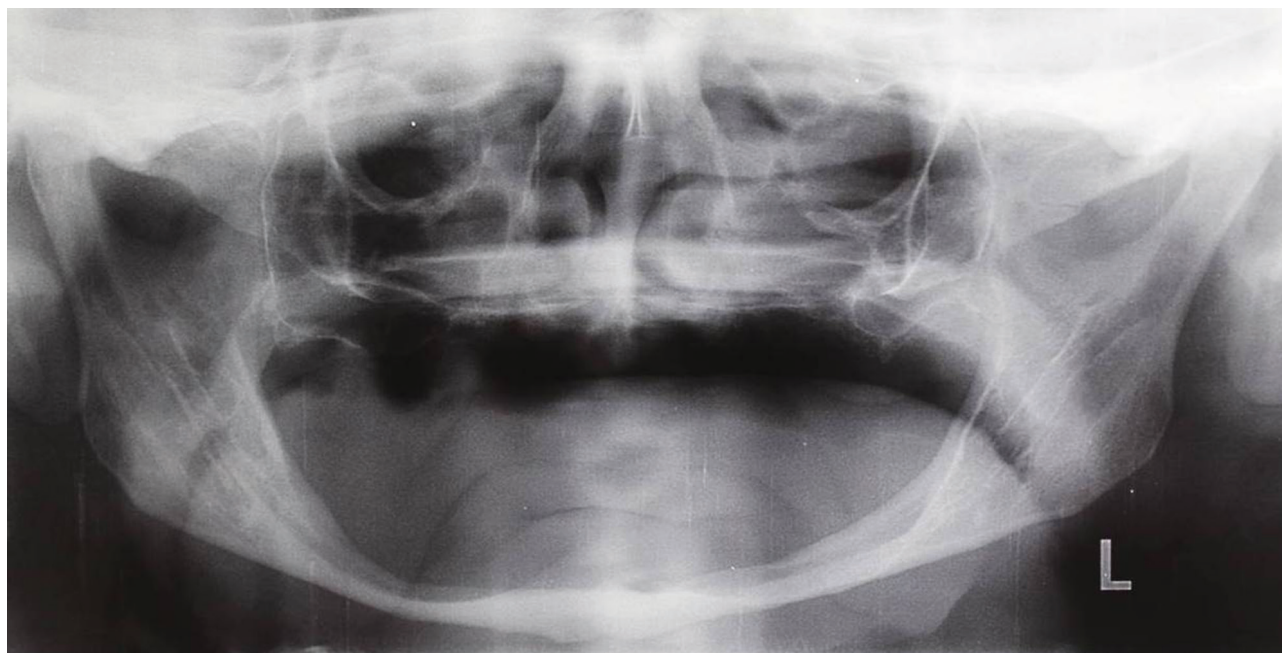
<http://dx.doi.org/10.23999/j.dtomp.2018.3.3>

## Clinical Case Report

A 71-year-old male patient, diagnosed with leukoderma, presented with complaints of impaired mastication, instability, and an inability to use his lower removable total prosthesis. The patient did not present with any systemic comorbidities. Clinical examination revealed edentulous arches, an atrophic mandible, a

small amount of keratinized mucosa, and chronic oral mucosa trauma.

Panoramic jaw radiography and cone beam computed tomography revealed low mandibular bone availability, designated class V according to the classification system proposed by Cawood and Howell [1]. This rendered the patient's mandible unsuitable for rehabilitation using only integrated bone dental implants (Fig 1).



**FIGURE 1.** Panoramic preoperative radiograph; note the severe bone reabsorption, classified as type VI, according to Cawood and Howell [1].

The procedure was performed under general anesthesia. Marx *et al* [2], protocol involving submandibular access with exposure of the mandible and installation of 4 to 6 implants in the anterior region of mandible, between the two mental foramens.

One 2.4 mm reconstructive plate (OsteoMed, Addison, Texas, USA) was installed, followed by mandibular body to body to support the mandibular masticatory load. Two 11 mm implants (Neodent, Curitiba, Paraná, Brazil), with 3.0 mm platforms, were centrally mounted followed by another two (Neodent, Curitiba, Paraná, Brazil), more distal 13 mm implants with 3.3 mm platforms (Fig 2A). We then removed the right anterior iliac crest graft.

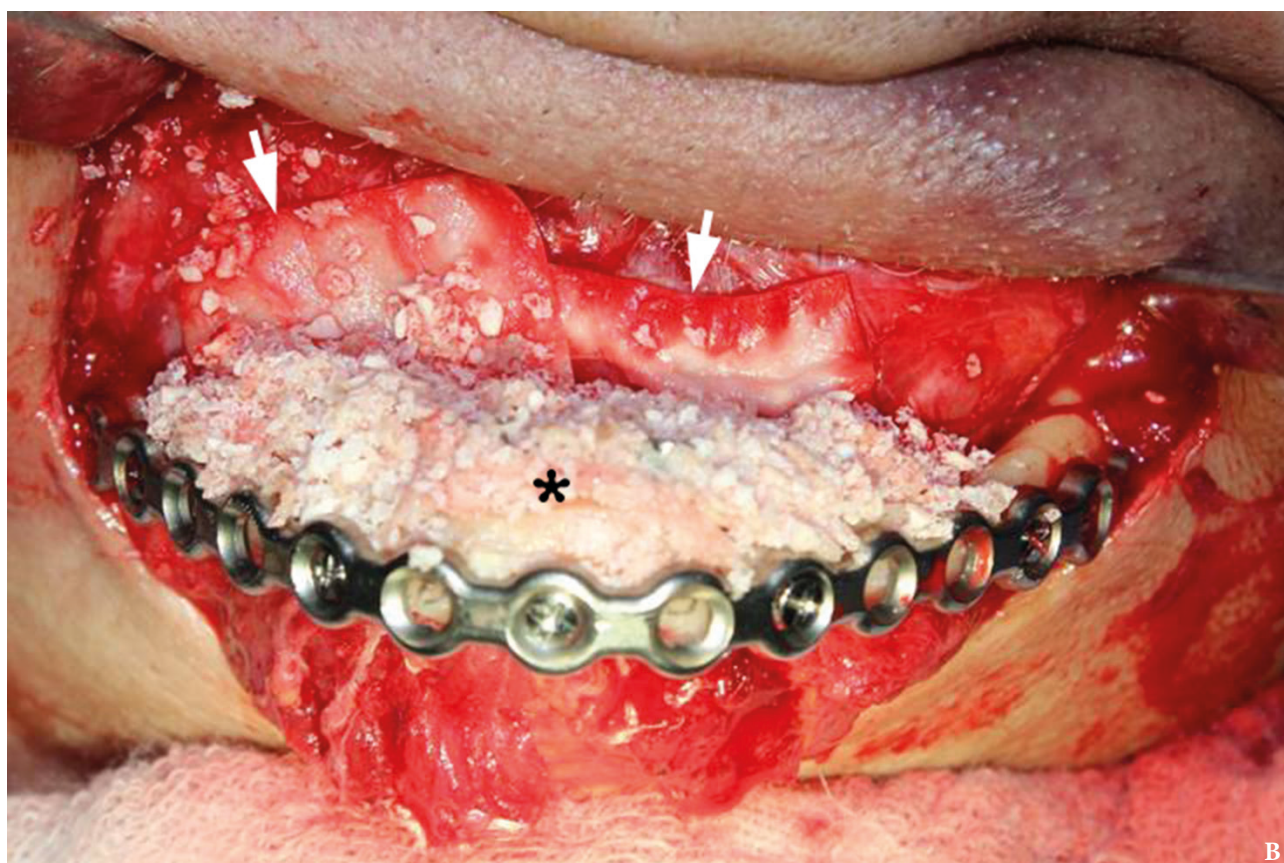
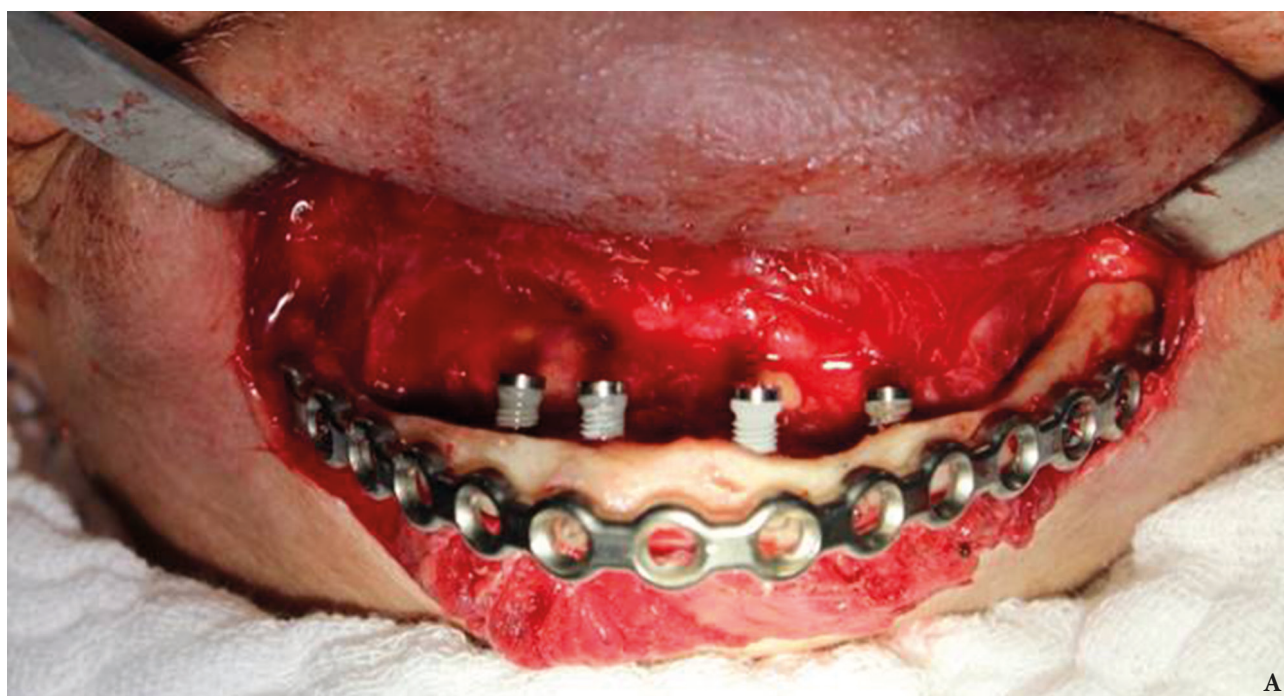
A bone crusher was used to form small bone particles to facilitate adaptation fitting strategically around each dental implant. Both particulate graft and dental implants were covered with two collagen membranes (Geistlich Bio-Gide, Switzerland), the platelet-rich plasma was not use (Fig 2B). Thus surgical approach was synthesized with 4-0 vycril sutures for internal layers and 5-0 nylon sutures for skin. During the period of implant osseointegration and bone graft incorporation, the patient was advised not to use his lower total prosthesis and only consume soft consistency food throughout the

postoperative period.

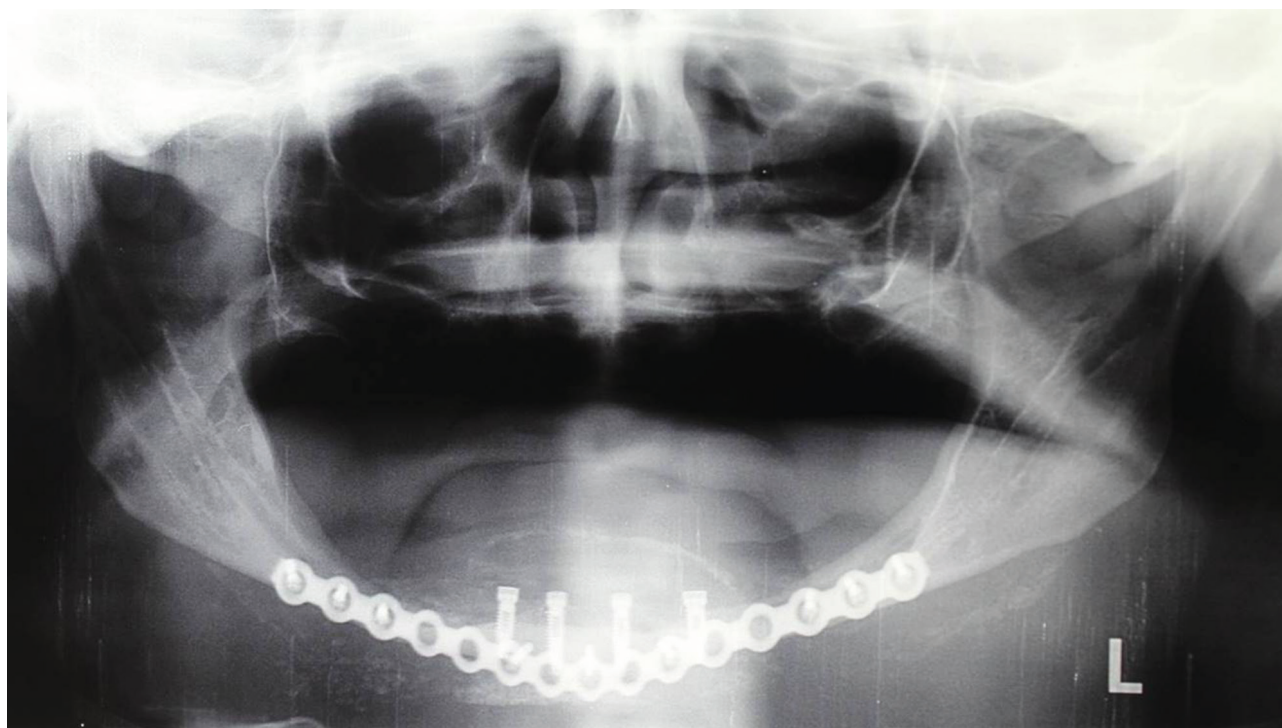
The osseointegration and bone graft incorporation processes took seven months to complete. Following reopening of the implants under local anesthesia, an alveolar crest incision was made to the mental foramen, the mucoperiosteum was then detached and the implant lid screws were removed without any difficulties. Transmucosal cicatrizers were finally installed and the patient was referred for rehabilitation with prosthesis under the implant. At the time of this report, the patient had experienced no adverse effects over the 14 month postoperative period (Fig 3).

## Discussion

Although the last few decades have seen great advances in dentistry, the rehabilitation of atrophic mandibles is quite delicate, requiring careful manipulation of remaining tissues in order to improve hard tissue availability. The autogenous bone graft is considered a gold standard technique and holds the advantage of increasing mandibular bone volume, establishing a better relationship between the maxilla and mandible, improving residual alveolar ridge shape, and producing great functional and aesthetic gains following prosthetic treatment [4, 17].



**FIGURE 2. A** – a 2.4 mm reconstruction plate was installed to the mandibular body, followed by installation of two central implants: an 11 mm implant with 3.0 mm platforms and two distal 13 mm implants with 3.3 mm platforms. **B** – Adaptation of an autogenous graft (*asterisk*) of the anterior iliac crest, with two collagen membranes (*arrows*) covering the graft.



**FIGURE 3.** A panoramic radiograph at 1 year post fixation of the prosthesis using implants; note the bone gain (*arrow*) in the residual alveolar ridge.

The tent pole technique uses an autogenous iliac crest graft, followed by immediate installation of dental implants. This promotes greater hard tissue availability and soft tissue gains, produces efficient surgical results, and is associated with minimal morbidity [2].

The advantages of this procedure are stable height gains from osseous tissue, a lower risk of mandible fracture, and a successful prosthetic retention. Postoperative infections, mental nerve paresthesias, donor site deformities, and transoperative mandible fractures are complications associated with this procedure.<sup>5</sup>

Ellis and Prince [18] and Eyrich *et al* [20] reported that installation of a rigid fixation plate associated with a bone graft and followed by the immediate installation of dental implants produced more stable results, compared to the patients who only received bone grafts. This technique may help prevent mandibular fractures from occurring during the intraoperative period, especially when the mandible is less than 10 mm in height and therefore classified as severely atrophic [1, 5].

Marx *et al* [2] described installation of 4 to 6 implants which were covered with an iliac crest graft and PRP; however, Korpi *et al* [4] described a series of 22 patients successfully treated with iliac crest grafts and without PRP. Hence, questions surrounding the use of PRP as a component of this protocol remain unresolved.

The tent pole technique is a safe and effective alternative method for reconstruction of severely atrophic mandibles, even without the addition of PRP. This method can help solve functional and aesthetic complaints and improve the patient's quality of life. Because the use of PRP remains

uncertain in the literature, additional double blind and randomized clinical trials are needed to define the role of PRP in these reconstructions.

#### **Conflict of Interest**

The authors declare no conflict of interest.

#### **Role of the Authors and Co-authors**

Rodrigo Tavares de Sá (concept and design of the paper and writing)

Lincoln Lara Cardoso (material collection and writing)

Italo Cordeiro de Toledo (material collection and writing)

Luis Gustavo Jaime Paiva (material collection and writing)

Guilherme Romano Scartezini (material collection and writing)

Giovanni Gasperini (material collection and editing)

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None.

#### **Term of Consent**

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# Linkows' Blade-Vent Implants Continue to Work After Twenty-Nine Years: Case Report\*

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Abutment teeth

## ABSTRACT

### Summary.

We report a case of two osseointegrated Linkows' blade-vent implants [1] supported fixed partial dentures that still osseointegrated at the mandible of 54-year-old patient during last twenty-nine years. The purpose of the report is to compare the bone condition around the blade-vent implants, condition of the fixed dentures, and two abutment teeth. Benefits and disadvantages of Linkows' blade-vent implants are also highlighted [24].

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## Introduction

Endosseous blade-vent implants (*related names*: blade implants, Linkow-type blade implants, Linkow-type blade vent implants) were introduced by American dentist and pioneer in the field of oral implantology Leonard Linkow in 1968 [1, 2]. First 2 year follow-up results were presented by him in 1970 [3]. The whole next five decades is a period that shows a transition from wide blade-vent and subperiosteal implants usage to root-form and zygomatic implants usage not only into jaws but also into flap-reconstructed mandible/maxilla [4, 5]. A lot of publications show that, despite of disadvantages, blade-vent implants continue to work in the long time follow-up period [6-20]. One of them is Pasqualini and Pasqualini (2003) publication, who reported a success rate of 91% at 10 years for 386 blade implants placed between 1971 and 2009 [2, 7]. Risks and benefits of connecting an implant and natural tooth were precisely described by Brägger *et al* (2001), Cordaro *et al* (2005), Nickenig *et al* (2006), and Davis *et al* (2014) [21-24]. Our case represents a unique comparison of long-

term usage of two tooth-blade-vent-implant supported fixed partial dentures with different conditions of denture-supported teeth (endodontically treated vs non-treated).

## Case Presentation

A healthy 54-year-old lady referred to the Center of Maxillofacial Surgery for a one month history of movement of one of the fixed partial dentures. Out-office oral examination revealed a non-significant mobility of an anterior part of tooth-implant fixed partial denture in area of tooth 3.4 (Figs 1 and 2B) and signs of gingival inflammation in the area of contact of the movable part of the denture near root of the tooth 3.4. Mobility of the denture was caused by the destruction of crown of the abutment teeth 3.4 by caries. The tooth-implant fixed partial denture on the opposite site shows no mobility and symptoms of gingival inflammation.

A panoramic radiography (Figs 1, 2) shows two blade-vent implants with the tooth-implant supported fixed partial dentures. A good bone level at the alveolar ridge in areas of inserted blade-vent implants was noted. According to patient medical history the two blade-vent implants (there was no precise data about manufacturer; implants material is presumably titanium, taking into account the production capacity in the late 1980s and the longevity of these two implants) placement and prosthetic work were performed in 1986 at Department of Prosthetic Dentistry, Bogomolets National Medical University (Kyiv, Ukraine). Endodontic treatment of the tooth 4.4 was performed simultaneously with blade implants placement. At maxilla

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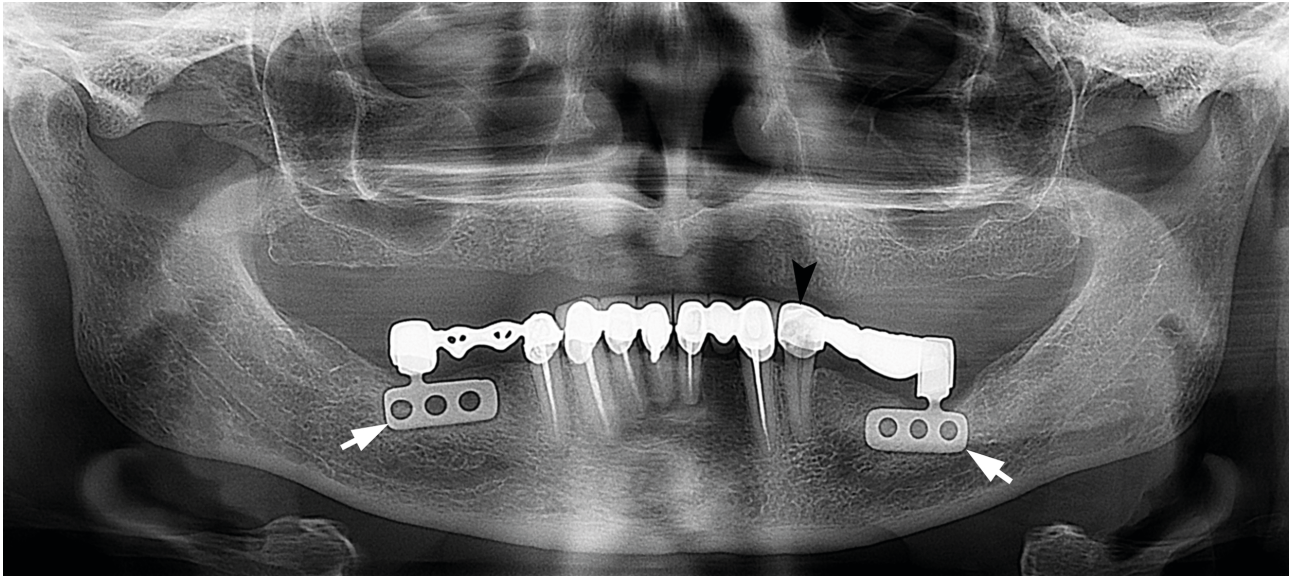
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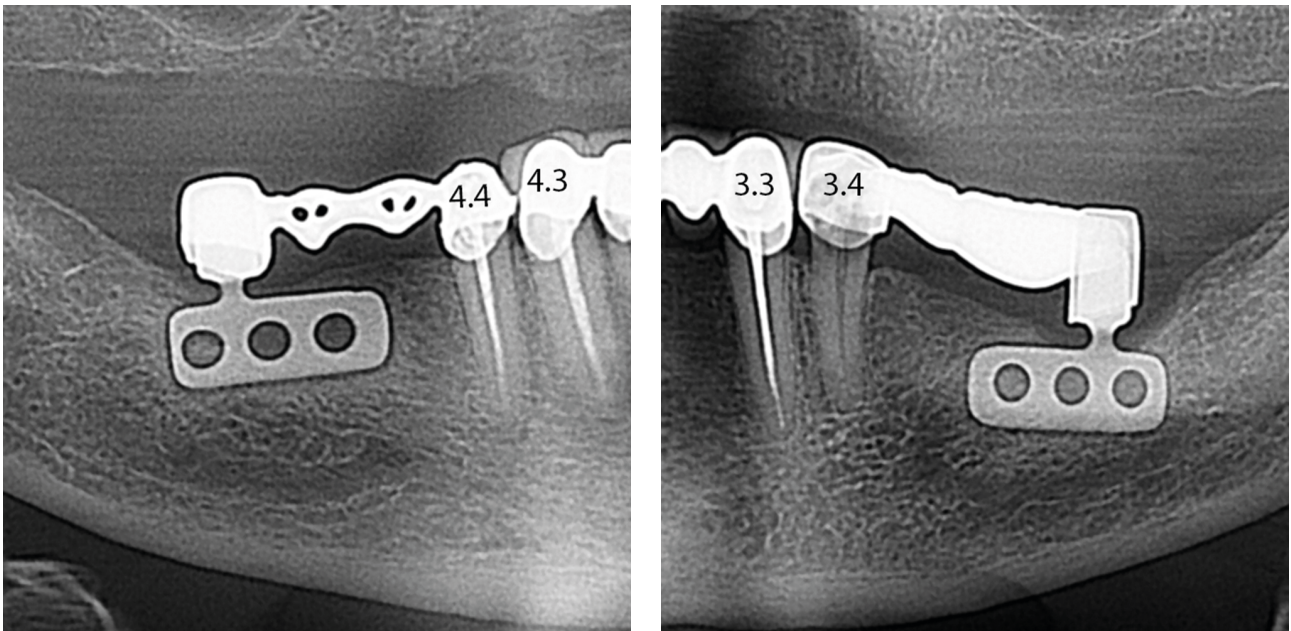
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**FIGURE 1.** A panoramic radiograph of 54-year-old lady after 29 years of the blade-vent implants (arrows) placement. Notes the mobility (arrowhead indicates direction of mobility) of fixed bridge (cement fixation) on the tooth 3.4. Oral examination revealed a destruction of the crown part of tooth 3.4 with caries to the level of tooth neck. Radiograph shows no radiopaque filling material inside a root canal of tooth 3.4. No crestal bone resorption or peri-implant radiolucencies are present.



**FIGURE 2.** A cropped and zoomed panoramic radiograph of the same patient. The teeth are indicated by numbers. (A) Tooth-implant fixed partial denture on the right side. Denture is fixed at endodontically treated tooth 4.4. (B) Tooth-implant fixed partial denture on the left side. Denture is fixed at non-treated tooth 3.4.

a patient used a fully removable denture during the whole period of dental implants function at the mandible.

The condition upon oral examination and panoramic radiography clearly demonstrate us the need of tooth 3.4 treatment with possibility to use it as abutment tooth further in new tooth-implant supported fixed partial denture.

### Discussion

Naert *et al* (2001) [25] in their study of 339 implants fixed

to 313 abutment teeth, shows that complications with the implant-tooth group included: periapical lesions (3.5%), tooth fracture (0.6%), extraction (decay or periodontal disease) (1%), intrusion (3.4%), and cement failure (8%). Davis *et al* (2014) [24] argued about the next advantages of a tooth-implant supported fixed partial dentures: 1) increased tactile perception; 2) greater chewing comfort and efficiency; 3) avoidance of vital structures; 4) reduced cost; 5) reduced need for advanced graft; 6) improved patient acceptance.

Thus, upon the planning of the tooth-implant supported fixed partial dentures the next risks [24] cannot be ignored: 1) intrusion of natural tooth; 2) biomechanical complications: fixture-abutment failure, loss of retention, screw loosening/implant fracture (implant, especially risk is high in the neck of blade implants [26], cement failure (implant/tooth), fracture (tooth), caries (tooth), crown fracture; 3) loss of natural tooth: endodontic involvement, fracture, caries, periodontal disease; 4) peri-implantitis.

## Conclusion

The twenty-nine years of two blade-vent implants function in implant-tooth fixed dentures confirms: 1) a possibility of blade implants to perform function; 2) to be a long-term period successfully osseointegrated; 3) to have insignificant bone resorption around the implants, showing no alveolar ridge atrophy; 4) a tooth-blade-vent-implant supported fixed partial denture can long-term exist in case of healthy/perfect endodontically treated abutment teeth.

And we are completely supporting an opinion of Davis *et al* (2014) [24] that for the sake of increasing predictability, cases for combination tooth-implant supported FPDs should include ideal proposed implant location, healthy natural/endodontically treated abutment teeth, and excellent patient factors such as occlusion, oral hygiene, and motivation.

## Conflict of Interest

The authors declare no conflict of interest.

## Role of the Authors and Co-authors

Zinaida Y. Zhehulovych (editing)

Ievgen I. Fesenko (material collection, concept of a paper, and editing)

Nadim S. Al-Makhamid (material collection and writing)

## Ethical Approval

No needed.

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# Correlation and Accuracy of Labial Minor Salivary Gland Biopsy in the Establishment of Diagnosis in Patients with Suspected Sjögren's Syndrome\*

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Labial minor salivary glands

Focal lymphocytic infiltration

Focus score

## ABSTRACT

### Purpose.

The goal of this paper is to find out the correlation, and evaluate the accuracy of labial minor salivary gland biopsy as a diagnostic tool in the multidisciplinary management of patients with Sjögren's syndrome.

### Patients and Methods.

Thirty seven patients referred to our outpatient office between January 2016 and December 2017 from a rheumatologist for biopsy examination, as part of the complex diagnostic plan for suspected Sjögren syndrome were included in the current study. Each specimen was examined histomorphometrically by the pathologist to calculate the focus score describing the degree of salivary gland inflammatory infiltration.

### Results.

From the total number of patients, 25 presented with an established Sjögren syndrome diagnosis by fulfilling the revised American-European criteria. From those 15 had a positive lip biopsy. The rest 10 patients from the total group who were diagnosed with Sjögren syndrome based on the same criteria had a negative lip biopsy.

### Conclusion.

The labial minor salivary gland biopsy is a valuable diagnostic tool to establish the diagnosis of Sjögren syndrome. However, a positive biopsy result must always be correlated with all the other diagnostic criteria to prove the exact diagnosis.

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## Introduction

Sjögren syndrome is a systemic, slowly progressive, chronic inflammatory autoimmune disease characterized by chronic lymphocytic invasion and eventual destruction of exocrine glandular structures, specifically the salivary and lacrimal glands. Is one of the most prevalent autoimmune disorders [1].

Classically, two types have been described: i) the primary Sjögren syndrome characterized by a combination of keratoconjunctivitis sicca and xerostomia and ii) the secondary Sjögren syndrome which is defined by a triad of keratoconjunctivitis sicca, xerostomia and an autoimmune disease, usually rheumatoid arthritis, but also systemic lupus erythematosus or scleroderma.

Nine out of ten Sjögren syndrome patients are women, around the fifth decade of life [2]. The spectrum of the disease extends from an organ-specific autoimmune disease to a systemic process with diverse extraglandular manifestations. The hallmark symptoms of Sjögren syndrome are dry mouth and dry eyes. However, clinical features may also include other head and neck manifestations involving the nose, ears, throat, thyroid

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gland, and systemic symptoms such as neurologic, pulmonary, gastrointestinal and hematologic [3].

Sjögren syndrome often is undiagnosed or misdiagnosed. The symptoms of Sjögren syndrome may mimic those of menopause, drug side effects, or medical conditions such as lupus, rheumatoid arthritis, fibromyalgia, chronic fatigue syndrome and multiple sclerosis. Because all symptoms are not always present at the same time and because Sjögren syndrome can involve several body systems, physicians sometimes treat each symptom individually and do not recognize that a systemic disease is present [4]. Eight to ten years are generally required for the disorder to progress from initial symptoms to the development of the syndrome. While some patients experience mild discomfort, others suffer debilitating symptoms that greatly impair their functioning.

Sjögren syndrome is treatable. Early diagnosis and consequently proper treatment may prevent serious complications and greatly improve the quality of life for these patients [5]. However, patients with Sjögren syndrome are generally picked up at a late stage in their disease, after the salivary and lacrimal glands are already destroyed, because they are asymptomatic until that time. Unfortunately, at this point only symptomatic treatment can be offered.

Although rheumatologists have primary responsibility for managing Sjögren syndrome, patients suspected to have Sjögren syndrome often are referred to an Oral and Maxillofacial surgeon for evaluation and biopsy to rule out the disease.

A Sjögren syndrome work-up can include various objective tests, such as Schirmer test, sialometry, injection sialography and scintigraphy that add little to the diagnosis, but provide information about the degree of ductal and acinar destruction [6]. The same information can be obtained from a CT or MRI scan, which will often show internal hypodense areas indicative of ductal ectasia and salivary pooling.

A more focused work-up should seek to establish histopathological confirmation. For this purpose, oral labial minor salivary gland biopsy has been traditionally considered the most valuable diagnostic tool for the diagnosis of Sjögren syndrome, especially in patients who present with inconclusive clinical findings [7]. With all this background, the aim of this study is to discover the accuracy and effectiveness of this diagnostic procedure in the establishment of diagnosis in patients with suspected Sjögren syndrome.

## Materials and methods

Between January 2016 and December 2017, 37 patients were referred to the Outpatients Office of the Department of Oral and Maxillofacial Surgery, St. Elizabeth Oncologic Clinic and Comenius University in Bratislava, Slovakia with suspected Sjögren syndrome.

Criteria for patient selection to this study were: i) patients sent from rheumatologists for further examination of suspected Sjögren syndrome and ii) patients with at least one sicca symptom (either xerostomia or xerophthalmia) at the time of presentation. Patients with other established systemic diseases with symptoms similar to Sjögren syndrome and xerostomia as a result of medicaments, radiotherapy to the head and neck region and chemotherapy were excluded from the study.

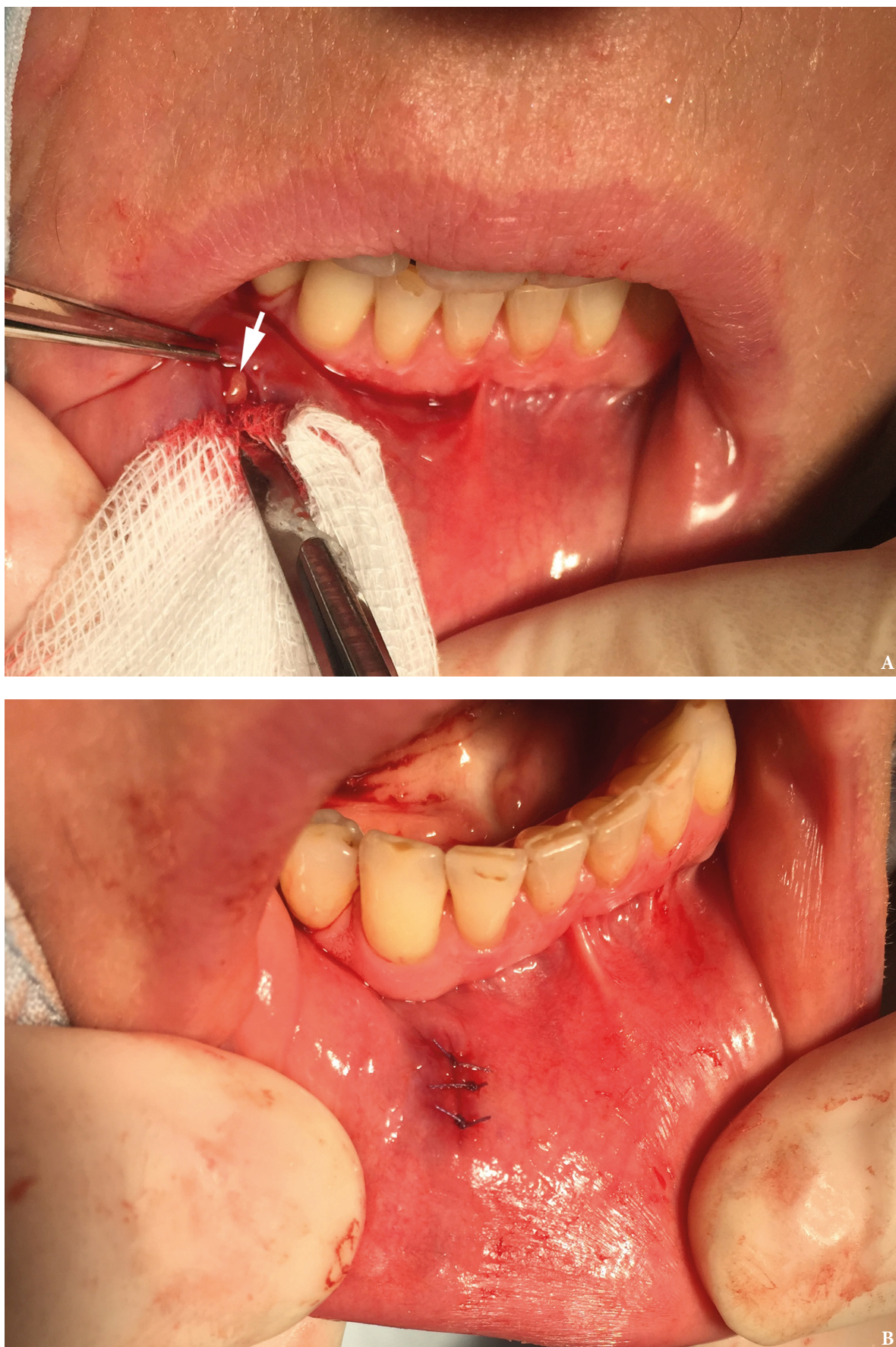
A complete history and physical evaluation were performed. In addition to lip biopsy, the following diagnostic tools were employed: anti-SSA/Ro or anti-SSB/La antibodies, Schirmer test, ultrasonography and scintigraphy.

The biopsy specimens were taken from beneath a clinically normal mucosa of the lower lip between the midline and commissure, and 5 to 10 minor salivary glands were removed for examination. Local infiltration with anesthetic containing vasoconstrictor was applied, followed by a single incision of 1.5-2 cm vertically to just penetrate epithelium. The minor salivary glands were then removed by blunt dissection, while avoiding sensory nerves (Fig 1A, B). The fragments of minor salivary glands were sent for histopathological examination in the Department of Pathology of St. Elizabeth Oncologic Clinic and processed completely according to Sjögren syndrome focus score grading the degree of salivary gland inflammatory infiltration. A focus score of 1 or greater was considered supportive of the diagnosis of Sjögren syndrome. Long term follow up was introduced with assessment every 3 months.

## Result

Of the 37 patients meeting the selection criteria, the average age at the time of presentation was 51 years. The oldest patient was 78 years and the youngest 6 years at the time of first examination. Female patients were 31 while the male patients were 6. During physical examination, patients presented with a wide range of clinical findings including xerostomia, xerophthalmia, difficulty in swallowing, inability to speak continuously for longer than several minutes, altered taste, fissured tongue, red and tender oral mucosa, decreased vision, asymmetric and painless enlargement of major salivary glands.

In the present study, evaluation of the accuracy of minor salivary gland lip biopsy in the support of Sjögren syndrome diagnosis was performed by comparing the biopsy result (either positive or negative) and the criteria for classification of the disease. From the 37 patients including in the study, 25 concluded with an established Sjögren syndrome diagnosis. From those, 15 (60%) had a positive lip biopsy and all of them were confirmed to fulfill the revised American-European criteria establishing the diagnosis of the syndrome. A number of 10 patients from the total group (27%) were diagnosed with Sjögren syndrome, based on the above criteria despite



**FIGURE 1. (A)** Exposure of minor salivary gland (*arrow*) fragment after a small vertical incision on the labial mucosa. **(B)** Suturing of the wound after removal of the fragments.

MINOR SALIVARY GLAND BIOPSY IN SJÖGREN'S SYNDROM PATIENTS

of presenting a negative minor salivary gland lip biopsy. All of the patients, 12 in the number, whose diagnostic criteria didn't support the diagnosis of Sjögren syndrome, presented with a negative lip biopsy (Fig 2). Among the 25

patients diagnosed with the disease, 7 were observed with the criteria of secondary Sjögren syndrome, with the most common established connective tissue disorder being rheumatoid arthritis in 4 patients (Chart 1).

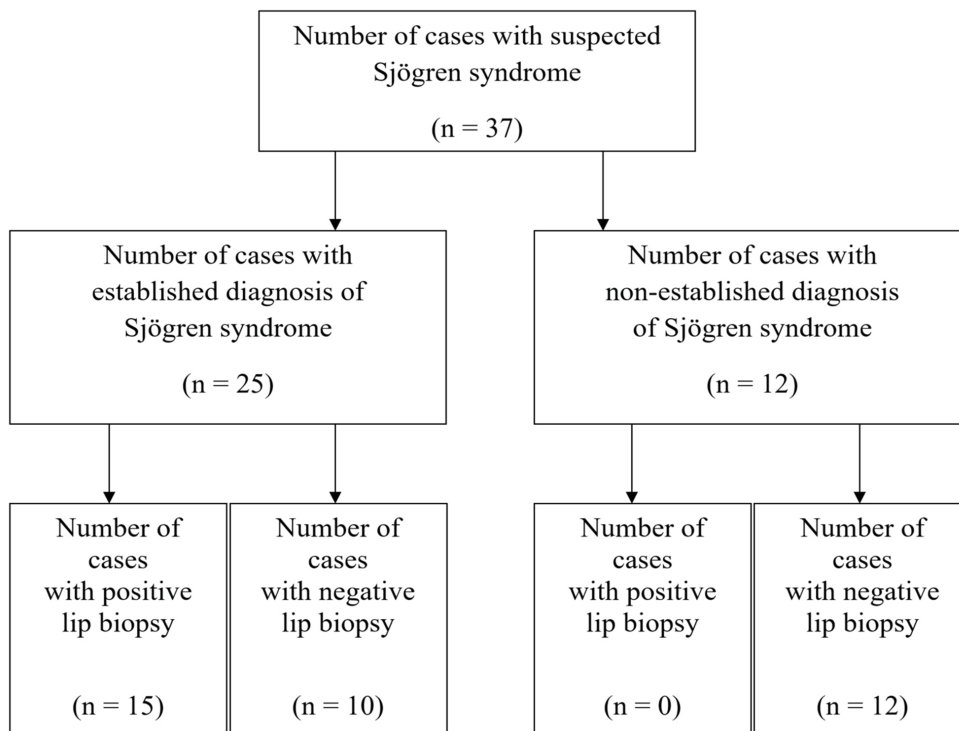


FIGURE 2. Flowchart displaying a correlation of labial minor salivary gland biopsy in the establishment of diagnosis of Sjögren syndrome.

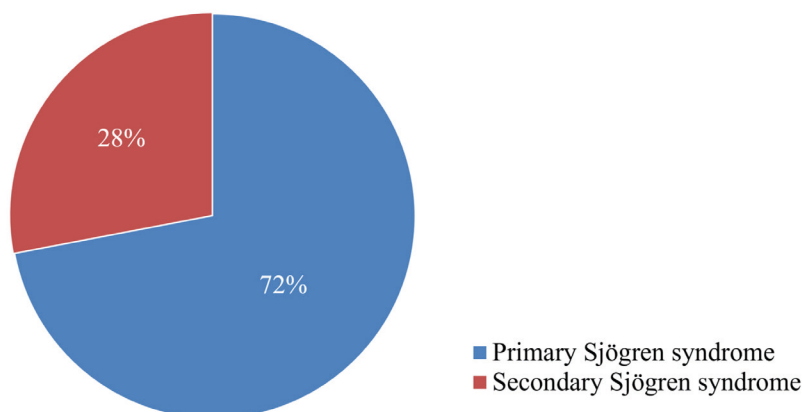
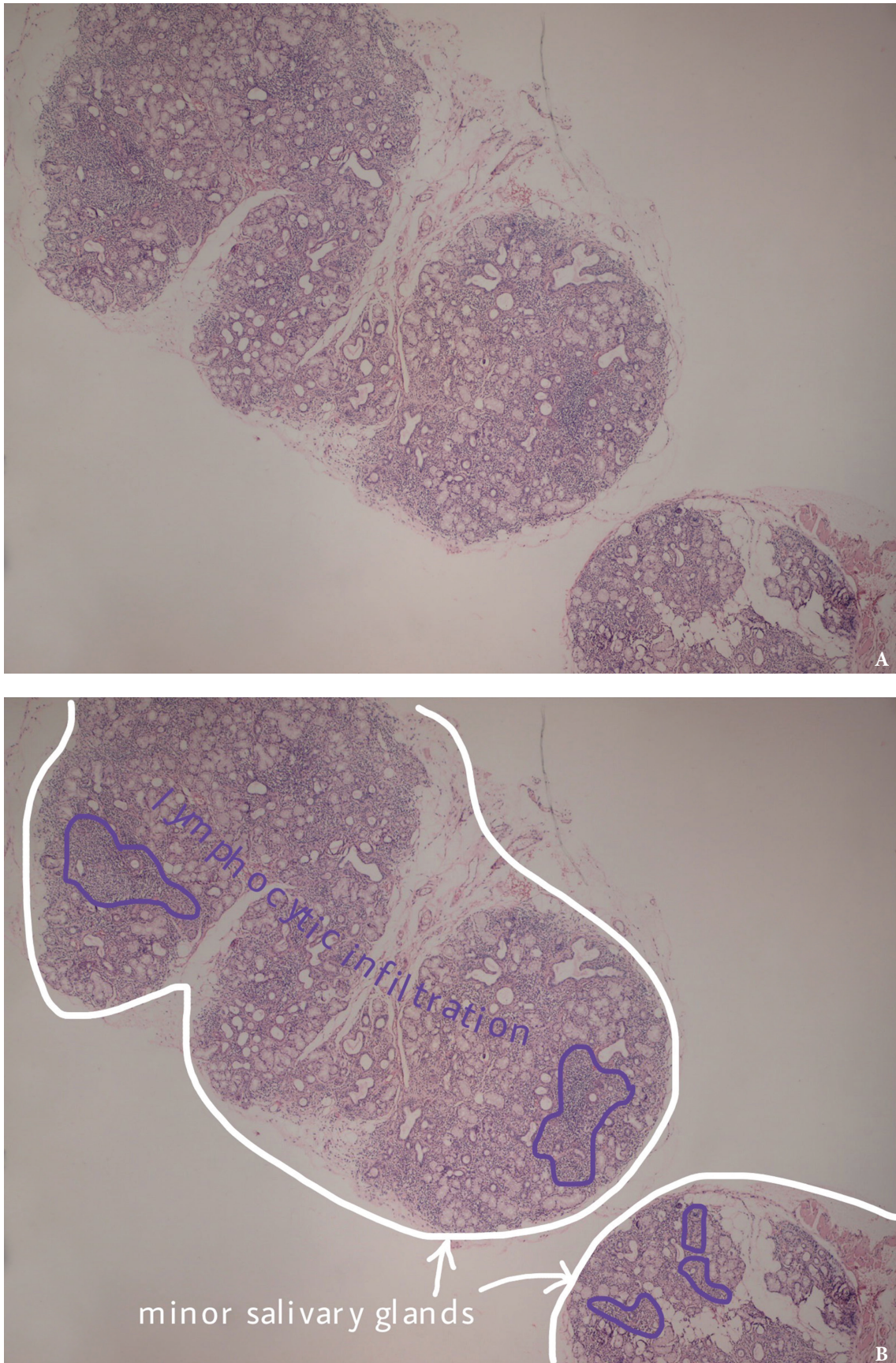


CHART 1. Distribution of patients with primary and secondary Sjögren syndrome.

Salivary gland scintigraphy was additionally performed in 12 patients of the study group who concluded with established Sjögren syndrome. The construction of time - activity curves presented reduced major salivary gland function. In 8 patients the radionuclide uptake from the blood to the major salivary glands was normal, but the excretion into the oral cavity was significantly decreased. The rest 4 patients

who appeared with increased salivary dysfunction, both uptake and excretion of the radionuclide was diminished. Moreover, these patients presented with the highest focus score level. Characteristic histopathological changes of positive specimens included loss of acinar cells, a relative preservation of ductal structures, and the presence of an intense, focal periductal/vascular mononuclear cell infiltrate (Fig 2).



**FIGURE 3.** (A) Image without notations. Two minor salivary glands exhibiting a focal lymphocytic pattern of inflammatory cell infiltration (hematoxylin and eosin stain,  $\times 100$ ). (B) Image with notations. Two minor salivary glands (indicated with *white lines* and *arrows*) exhibiting a focal lymphocytic pattern of inflammatory cell infiltration (the areas with biggest infiltration are indicated with *purple lines* and words *lymphocytic infiltration*).



**Discussion**

The current standards for diagnosis of Sjögren syndrome are described by the revised American-European criteria (Table 1). The diagnosis of primary Sjögren syndrome requires 4 out of the 6 criteria, involving either a positive lip biopsy or positive

anti-SSA/Ro or anti-SSB/La. Secondary Sjögren syndrome requires an established connective tissue disease and at least one sicca symptom plus 2 out of 3 objective tests for either xerophthalmia or xerostomia. It should be noted that Sjögren syndrome can also be diagnosed in the absence of sicca symptoms if 3 out of 4 objective tests are positive (Table 1).

**TABLE 1.** Revised American-European Criteria for Classification of Sjögren Syndrome.

Ocular Symptoms (1 of 3)	Oral Symptoms (1 of 3)	Ocular Tests (1 of 2)	Oral Tests (1 of 3)	Positive Lip Biopsy	Positive Anti-SSA and/or SSB
Dry eyes for longer than 3 months	Dry mouth for longer than 3 months	Unanesthetized Schirmer's test (less than 5mm in 5 minutes)	Unstimulated salivary flow (less than 0.1 mL/min)		
Sensation of a foreign body in the eye	Swollen salivary glands	Vital dye staining	Abnormal parotid sialography		
Use of artificial tears more than 3 times a day	Need liquids to swallow		Abnormal salivary scintigraphy		

Salivary glands involved by this condition show a focal lymphocytic pattern of infiltration, in which there are multiple interstitial aggregate foci of inflammatory cells (Fig 4). An aggregate focus is defined as a collection of greater than 50 inflammatory cells. The focal lymphocytic infiltrate, including focal aggregates of 50 or more lymphocytes, defined as a focus, that are adjacent to normal appearing acini and the consistent presence of these foci in all or most of the glands in the specimen is the characteristic microscopic feature of Sjögren's syndrome in the minor salivary glands. These histopathological changes represent the hallmark of this disorder [8].

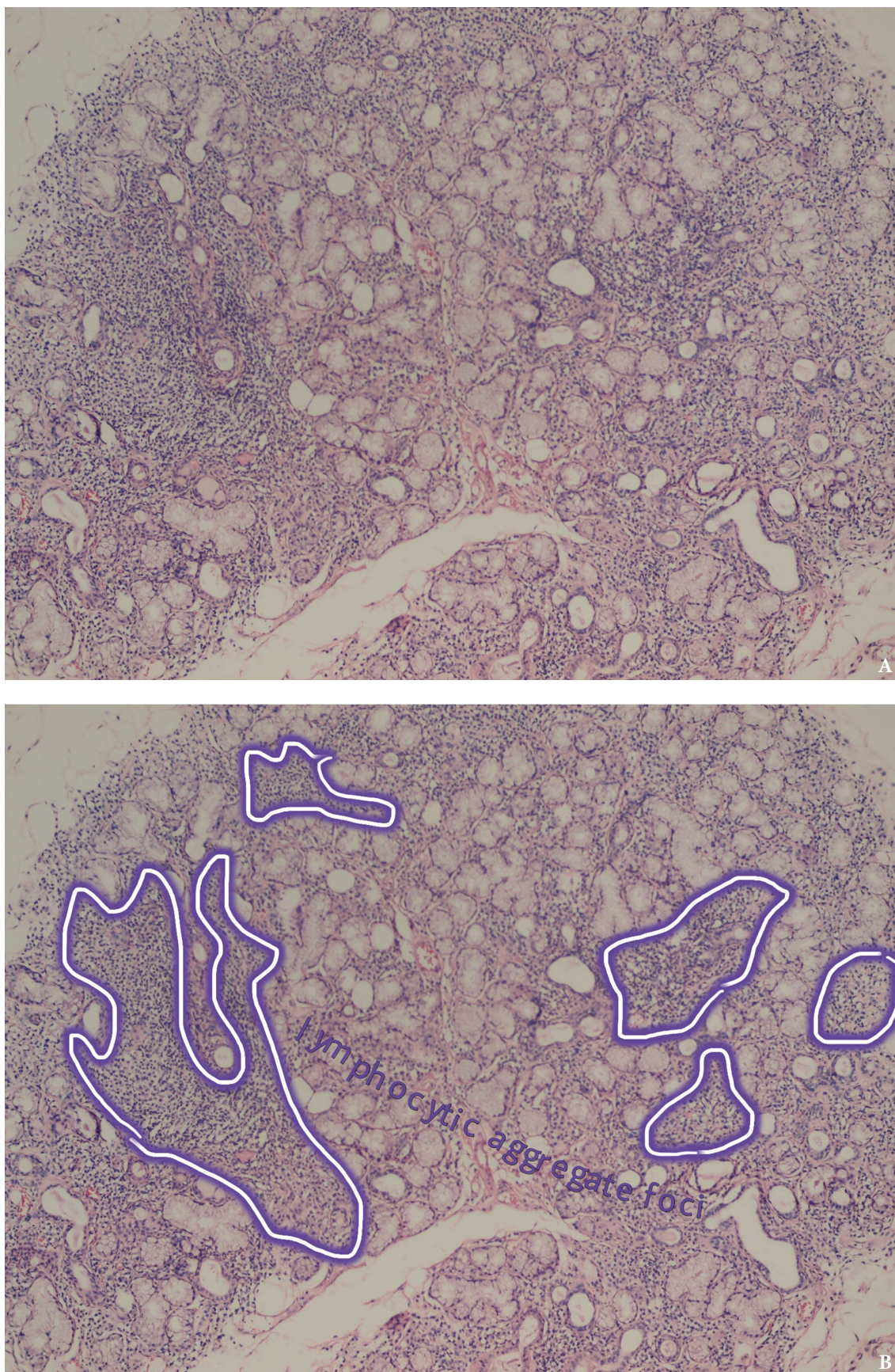
The infiltrate should consist predominantly of lymphocytes (Fig 5). The study showed that the prevalent cells in the minor labial salivary gland infiltrate were those bearing the T-helper phenotype (CD4+). These T cells also express the adhesion molecule LFA-1 (lymphocyte function associated molecule) and other T cell markers, such as CD2 and LFA-3, which mediate an antigen independent interaction and are up-regulated after lymphocytic activation. B cells constitute approximately 20% of the total infiltrating population, while NK cells are rarely observed. There may be admixed plasma cells and histiocytes, but these cells should not comprise a significant portion of the infiltrate. Granulomatous inflammation should not be present. Uncommonly, epimyoeplithelial islands may occur in minor salivary glands of patients affected by Sjögren syndrome.

The Sjögren syndrome focus score is a semiquantitative method of grading the degree of salivary gland inflammatory infiltration [9]. Histomorphometric analysis is utilized by the pathologist to quantitate the area

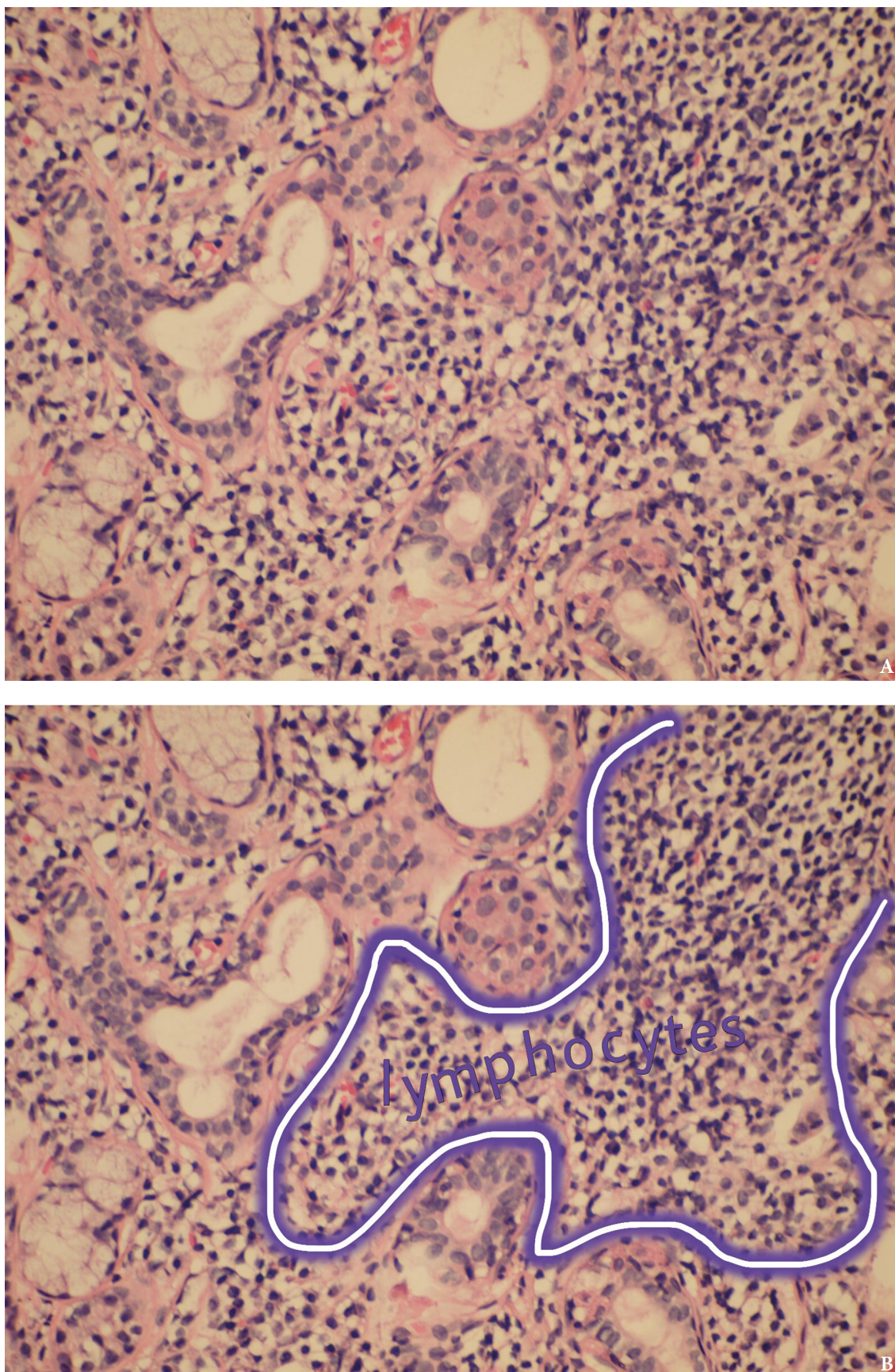
of salivary gland parenchyma in square millimeters, by counting the number of lymphocytic aggregates. The focus score represents the number of lymphocytic aggregates per 4 square millimeters, and therefore an absolute minimum of 4 square millimeters of salivary gland tissue is required to calculate the focus score. A focus score of 1 or greater is considered supportive the diagnosis of Sjögren syndrome. The focus score can range from 0 to 12, with a focus score of 12 representing diffuse glandular effacement by the lymphocytic infiltrate and a score 0 referring to the absence of these cells. The presence of a dense effacing infiltrate should raise concern for possible progression to lymphoma.

The focus score has been validated as a histological index of severity of the salivary gland involvement in Sjögren syndrome [10]. A series of studies have correlated the presence of high focus scores with indices of local or systemic disease activity. The presence of a higher focus score has been found to correlate with acinar damage, presence of anti-SSA/B serology (12 times higher among those with focus score >1 than among those with focus score <1), and the presence of specific extraglandular features such as Raynaud's phenomenon, vasculitis, lymph node or spleen enlargement and leucopenia. A focus score >1 has also been found to correlate with positive RF serology, high ANA titers and IgG concentrations, the presence of keratoconjunctivitis sicca and low unstimulated but not stimulated salivary flow rates. More recently, it has been established that a high focus score (>3) has a significant predictive value for the development of non-Hodgkin B cell lymphoma [11].

In our study, the focus score in the group of the examined patients who presented with a positive lip minor salivary gland biopsy, was extended from 1 to



**FIGURE 4.** (A) Image without notations. Minor salivary gland with multiple lymphocytic aggregate foci (hematoxylin and eosin stain,  $\times 200$ ). (B) Image with notations. Minor salivary gland with multiple lymphocytic aggregate foci (the lymphocytic aggregate foci are indicated with purple-white lines and words *lymphocytic aggregate foci*).



**FIGURE 5.** (A) Image without notations. Section showing a dense aggregate of lymphocytes with adjacent intact salivary gland parenchyma (hematoxylin and eosin stain,  $\times 400$ ). (B) The same image with notations. Section showing a dense aggregate of lymphocytes (the lymphocytes are indicated with *purple-white lines* and words *lymphocytes*) with adjacent intact salivary gland parenchyma.

6.42 with the highest values seen in patients with Sjögren syndrome without associated connective tissue disease (primary Sjögren syndrome). It was also pointed out that the focus score cannot separate early from late disease as chronicity of symptoms and focus score did not show a relationship.

Minor salivary gland lip biopsy results report a useful diagnostic value in Sjögren syndrome. They should be carefully addressed in the overall diagnostic procedure due to inconsistencies of sensitivity and specificity. Whilst the focus score has been proven as a functional diagnostic and prognostic tool, it presents obvious limitations.

First, the stability of the focus score in repeated biopsies over a long period of time is not fully established. In a recent study, surprisingly, in 12% of the cases the second evaluation by trained pathologists led to a diagnosis change. Minor salivary gland infiltration may also be revealed in patients affected by myasthenia gravis, sialolithiasis and other autoimmune disorders not associated with sicca symptoms [12].

In addition, the extent of infiltrate in a lip biopsy using the same methodological approach may vary greatly from gland to gland in a single patient. Further, if the density of infiltrate is severe, the foci may become confluent, hindering focus score determination.

Whilst the last studies, in particular the correlation between a higher focus score and the development of lymphoma, suggest stability of the histological lesions over a period of time, this has not been proven in large cohorts. Moreover the sensitivity of focus score is reduced in smokers and in patients taking corticosteroids. The combination of focus score >1 and immunological staining for IgA has been shown to increase the diagnostic specificity for Sjögren syndrome. Indeed, the presence of a focus score >1 and quantitative immunohistological staining of IgA <70%, had greater sensitivity and specificity than the focus score alone.

The focus score, although giving an idea of the extent of the cellular infiltrate, fails to provide discrete data on the foci size (indeed, for larger or confluent foci a focus score of 12 is arbitrarily used). This aspect, while not critically determinant for the histological diagnosis of Sjögren syndrome, could represent a problem for the use of the focus score as an outcome measure in clinical trials in which subtle changes in foci size might not be accurately reported in the focus score. The introduction of additional measurements such as average of focus area, area of lymphocytic infiltration and evaluation of the degree of organization to augment the information provided by the simple focus score is currently debated in the Sjögren syndrome community.

## Conclusion

The oral labial minor salivary gland biopsy is a valuable diagnostic tool for the establishment of Sjögren syndrome

diagnosis. However, a positive Sjögren syndrome focus score is not diagnostic of Sjögren syndrome by itself, but the results of the biopsy must be correlated with each of the other diagnostic criteria in order to establish an accurate diagnosis. In addition, a number of patients with negative lip biopsy, (focus score less than 1) can end up with a confirmed diagnosis supporting the Sjögren syndrome. Furthermore, the minor salivary gland biopsy is also helpful in excluding other conditions, such as sarcoidosis, which may be associated with a sicca syndrome, or sialosis.

In conclusion, despite the lack of agreement in the parameters considered when evaluating salivary gland biopsies, histology remains the gold standard for diagnosis of Sjögren syndrome and has the potential to become the most reliable biomarker in clinical studies. However, the heterogeneity of the measurements might present the potential risk of compromising the combined analysis of different trials. The current interest in designing clinical trials in Sjögren syndrome will therefore require a combined effort of rheumatologists and oral medicine specialists to discuss these aspects and define consensus guidelines on the methodology and use of the salivary gland biopsy analysis in clinical trials.

This increased awareness will help to reduce the time to diagnosis, to direct the treatment from symptomatic, at the exact etiology behind the disease (tissue specific receptors), and to preserve the health and quality of life of patients with Sjögren syndrome [13].

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# Medication-Related Osteonecrosis of the Jaw (MRONJ): Clinical Manifestations and Radiographic Signs\*

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## ABOUT ARTICLE

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Sequestration

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## ABSTRACT

### Purpose.

To study clinical and radiographic symptoms of chemotherapeutic osteonecrosis of the jaws.

### Methods.

The examination is based on a clinical study of 28 patients with medication-related osteonecrosis of the jaw (MRONJ), which appeared after the chemotherapy with bisphosphonates, which was performed after the removal of malignant neoplasms of the maxillofacial region.

### Results.

On the basis of the performed examination of the patients, clinical symptoms and radiographic signs of the MRONJ were studied. The methods of MRONJ treatment were described.

### Conclusion.

Upon medication-related osteonecrosis of the jaw, a significant destruction of bone tissue is observed, which is accompanied by the formation of sequesters and necrosis in the jaw bone what needs a special surgical tactic upon the MRONJ treatment.

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## Introduction

Chemotherapy is a method of treating malignant tumors with drugs that have antitumor activity [1, 2]. Surgeons, unfortunately, do not always manage to remove the entire tumor. Sometimes the areas of the affected tissue are not noticed, which can subsequently cause a relapse of the tumor. In these cases it is recommended to use chemotherapy. Influencing the cells of a malignant tumor, chemotherapy drugs, unfortunately, also act on other cells of the human body.

Chemotherapy is prescribed in various regimens. Adjuvant chemotherapy is usually a short course of combined chemotherapy, when drugs are used in large doses in patients without residual manifestations of cancer after radiation or surgical treatment. Its goal is to destroy any remaining cancer cells. Inductive chemotherapy is, as a rule, combined chemotherapy in high doses to induce remission. Supportive chemotherapy is a long-term mode

of administration of low doses of drugs in patients in the stage of remission for its preservation by suppressing the growth of the remaining tumor cells.

Thus, there are two regimens of chemotherapy – it is curative and preventive. The treatment regimen is used to treat a tumor. Preventive chemotherapy is performed to suppress hidden foci of the tumor after the application of surgical method and radiotherapy. Chemotherapy does not necessarily lead to a complete cure of the tumor, but it often causes regression of the tumor and allows prolonging the life of the patient. A group of synthetic drugs with antitumor activity is called bisphosphonates.

Bisphosphonates were developed in the XIX century, but for medical purposes they were applied only in the 1960s. For non-medical purposes, they were used to soften water in irrigation systems. The basis for the medical use of bisphosphonates was their ability to prevent the dissolution of hydroxyapatite, the main bone mineral, thereby reducing bone loss.

In pharmacology, bisphosphonates (synonym: diphosphonates) are a class of drugs that prevent bone loss and are used to treat osteoporosis and similar diseases. They are called bisphosphonates, since their molecules contain two phosphonates (PO<sub>3</sub>). One of the valuable properties of bisphosphonates is that they can be used in cancer diseases characterized by the formation

\* This manuscript has not been presented

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of tumors in the bone tissue (these drugs do not allow spreading metastases and reduce pain syndrome). Receiving positive effects with the use of chemotherapy, the doctor has to face complications that occur with side effects, and this complication can be osteonecrosis of the jaw. Bisphosphonates have a retarding effect on the endothelium of the vessels, leading to a decrease in blood flow in the bone tissue [3]. Therefore, osteonecrosis of the jaw when using bisphosphonates is also known as “dead jaw syndrome” or avascular necrosis or aseptic necrosis.

At present, many antitumor drugs, are based on bisphosphonates. A large number of complications are caused by bisphosphonates, which contain the following active substances: zoledronic acid (Zometa, Zoledronate, etc.), pamidronic acid (Arheda, etc.), alendronate sodium (Fosamax, etc.). With oral administration of bisphosphonates, the osteonecrosis of the jaw is practically not found [4]. The frequency of osteonecrosis of the jaw bones with intravenous administration of these drugs ranges from 6.5% to 12.5% [5, 6]. Among these drugs, a special place should be given to the drug Zometa – bisphosphonate of IV generation, the anti-resorptive activity of which exceeds the earlier bisphosphonates (first, second and third generations) more than 1000 times.

The toxicity of antitumor drugs depends on the physical condition of the patient, concomitant diseases (lungs, heart, kidneys, and liver), the dose, the duration of the course of chemotherapy, the nature of the drugs themselves.

The purpose of the survey is to study the clinical features of the clinical course of the osteonecrosis of the jaw (medication-related osteonecrosis of the jaw (MRONJ))

(*synonyms*: bisphosphonate-related osteonecrosis of the jaw, chemotherapeutic osteonecrosis of the jaw)) in patients after chemotherapeutic treatment with drugs containing bisphosphonates.

### Material and Methods

A complex clinical examination of 28 patients aged 33 to 79 years with osteonecrosis of the jaw in patients after chemotherapeutic treatment with drugs that contained bisphosphonates was carried out. We have observed patients and surgical interventions both in the Department of Maxillofacial Surgery at Shupyk National Medical Academy of Postgraduate Education and in other surgical departments of Kyiv city and other cities of Ukraine. Observation of this group of patients was carried out for 8 years, i.e. from 2009 to the present. All patients with hospitalization to the Department of Maxillofacial Surgery and the dynamics of the treatment conducted general clinical examination methods, which included: collection of anamnesis, clarification of the nature of complaints, examination, palpation, X-ray of the jaws in different projections, computed tomography, clinical blood tests.

### Results and Analysis

The most typical beginning of the changes in bone tissue in the maxilla or mandible, with complications with bisphosphonates [9-14], is the non-healing wounds after the teeth extractions, which increase in size with the subsequent exposure of bone tissue or can be exposed to the bone after traumatic damage to the mucosa of the alveolar process (Fig 1).

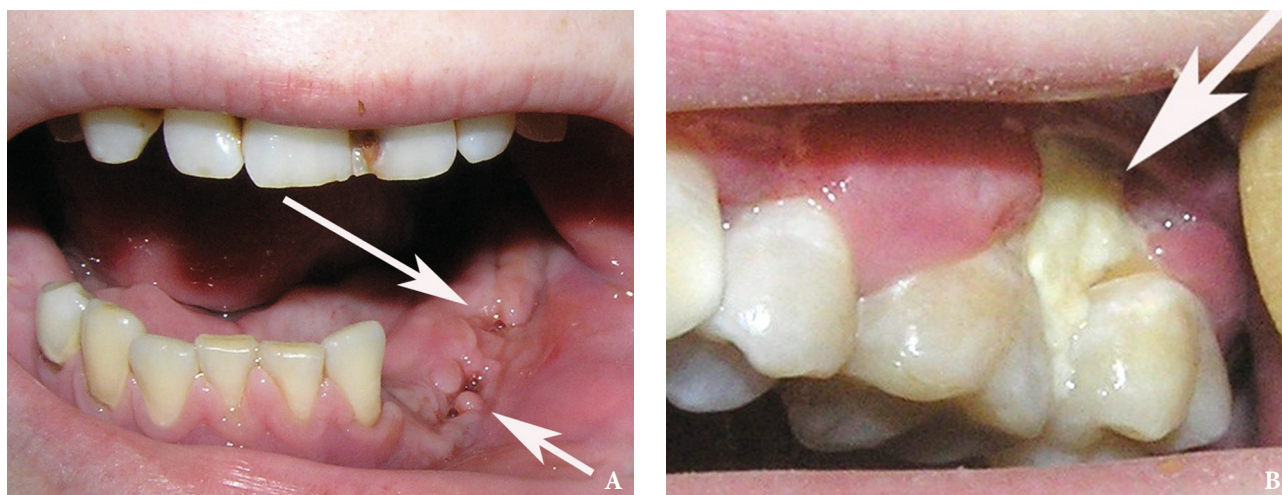


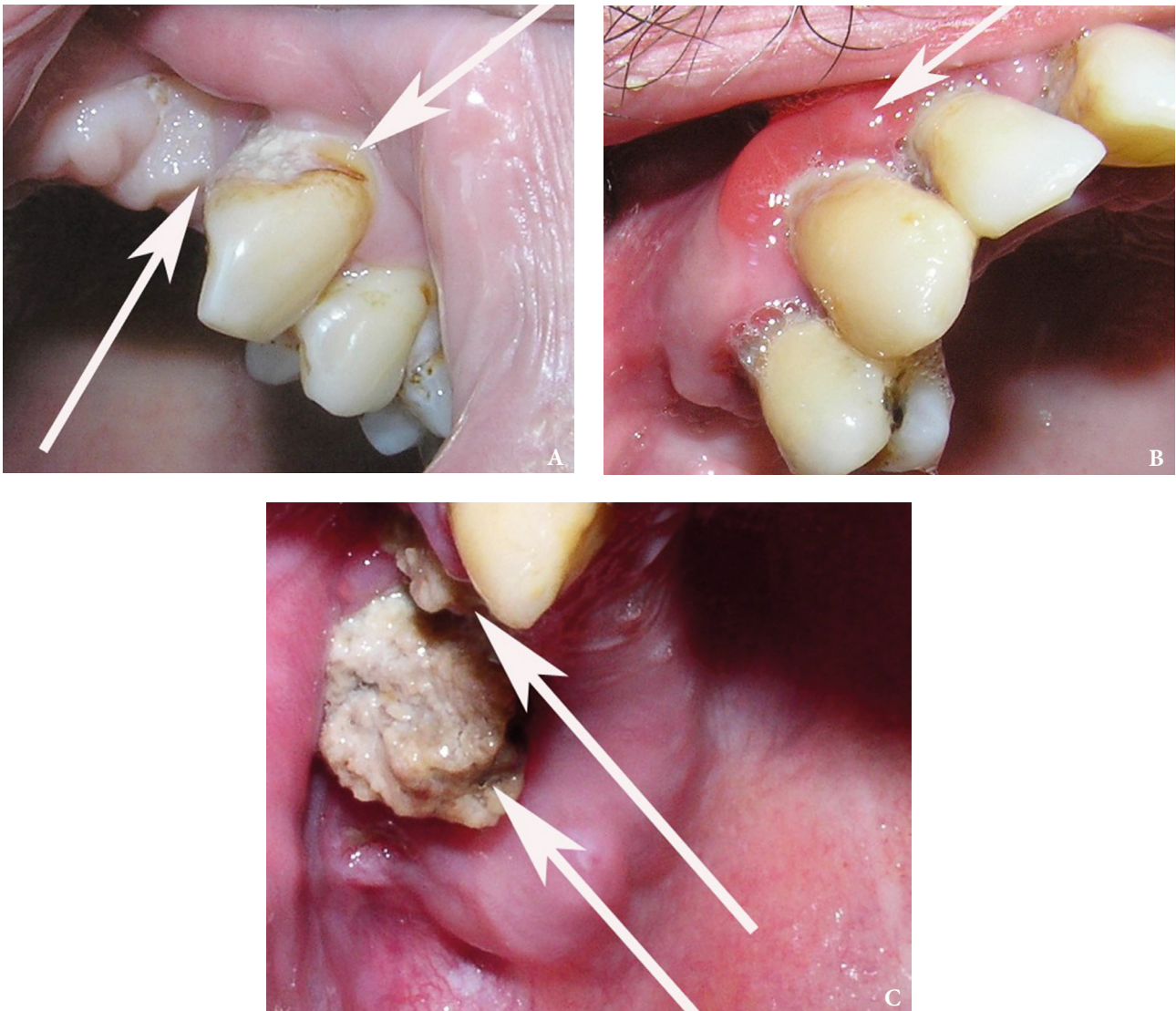
FIGURE 1. (A) Appearance of non-healing wounds (arrows). (B) Noted exposure of the bone tissue (arrow) after a trauma of the alveolar mucosa.

On the maxilla, chemotherapeutic osteonecrosis can seldom take place in the form of a limited focus (focal), but it is more often characterized by a diffuse nature. Characterized by chronic course and the extent of the

lesion (more often has a diffuse character). Bone tissue in the area of the pathological focus is exposed within the alveolar process in the area of one (rarely) or several alveoli (more often) of previously removed teeth. Alveoli

are clearly visible on the site of previously removed teeth, the teeth sockets are separated from each other by deformed dental septa, which are covered with a dirty yellow plaque. The bone of the alveolar process is surrounded by a mucous membrane of pale-pink color (more often) or hyperemic (less often), the bony holes are usually filled with a purulent exudate having a foamy appearance (Fig 2). Bone tissue in pathological foci (areas of its outcrop) has a dirty gray, dull, matt or yellow-brown color, and in some places is covered with a touch of dirty and/or gray. Bone tissue always looks “eroded” in the absence of granulation tissue in the pathological foci (Fig 2C). In some areas, between the exposed and deformed bone tissue of the alveolar process of the maxilla may be

externally intact, but with exposed necks and even roots of the teeth. The mucous membrane of the mucobuccal fold is pale pink, somewhat thickened and painless. Soft tissues around the exposed bone, from the hard palate and the mucobuccal fold, are thickened and covered with a mucous membrane of both pale pink color (more often) and hyperemic (in places of accumulation of dirty gray plaque). Soft tissue around the pathological focus is infiltrated and painless. Granulation tissue in the exposed areas of the bone is absent. On the computed tomography scans (Fig 3), foci of thickening and expansion of the jaw bone are determined with the formation of sequesters and inflammatory complications (sinusitis, ethmoiditis, etc.).

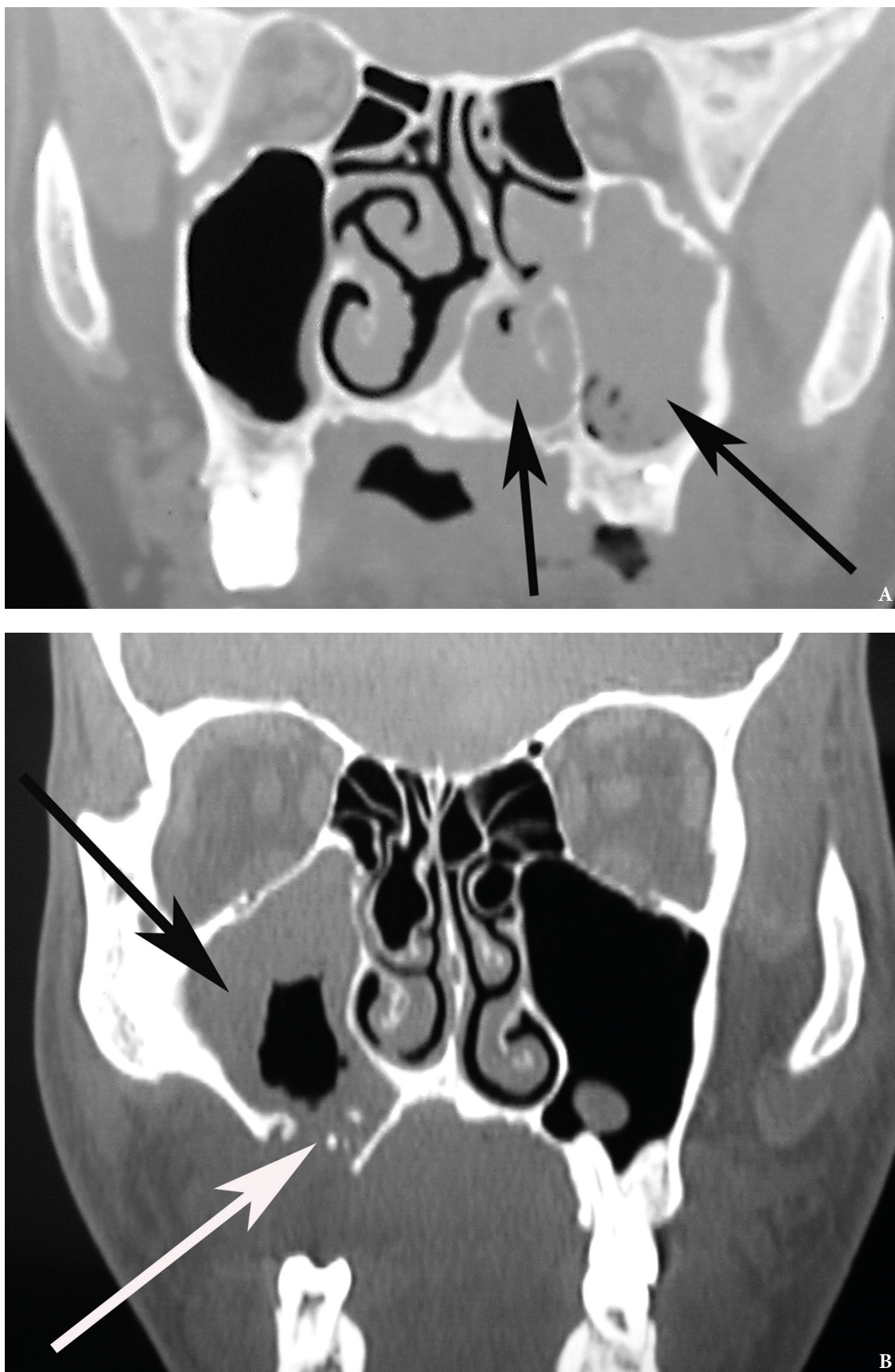


**FIGURE 2.** Appearance of pathological changes (arrows) in the oral cavity in patients with medication-related osteonecrosis of the maxilla (A-C)

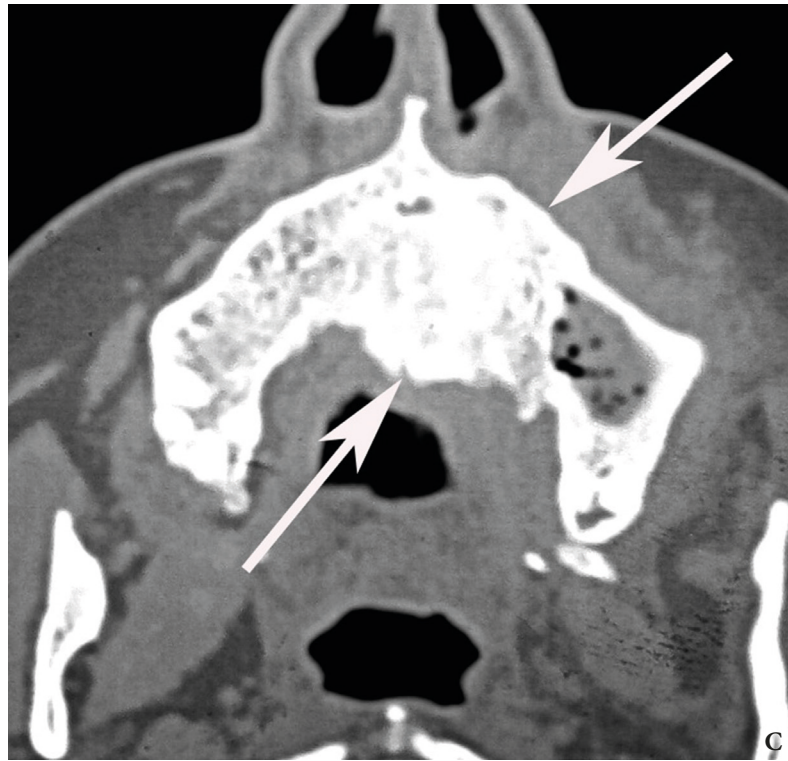
On the mandible medication-related osteonecrosis proceeds in chronic form and in prevalence can be limited, or focal and/or diffuse. With a limited form of chronic osteonecrosis of the mandible, an exposed portion of the

alveolar ridge can be detected within the area of one or several teeth, the bone has a pale yellow, matt, dull or dirty gray color. The mucous membrane around the exposed area of the alveolar bone is usually pale pink in color.





**FIGURE 3.** Radiological changes in the bone tissue of the maxilla in patients with medication-related osteonecrosis (A-D). Computed tomography revealed pathological foci are indicated by arrows. (Fig 3 continued on next page.)

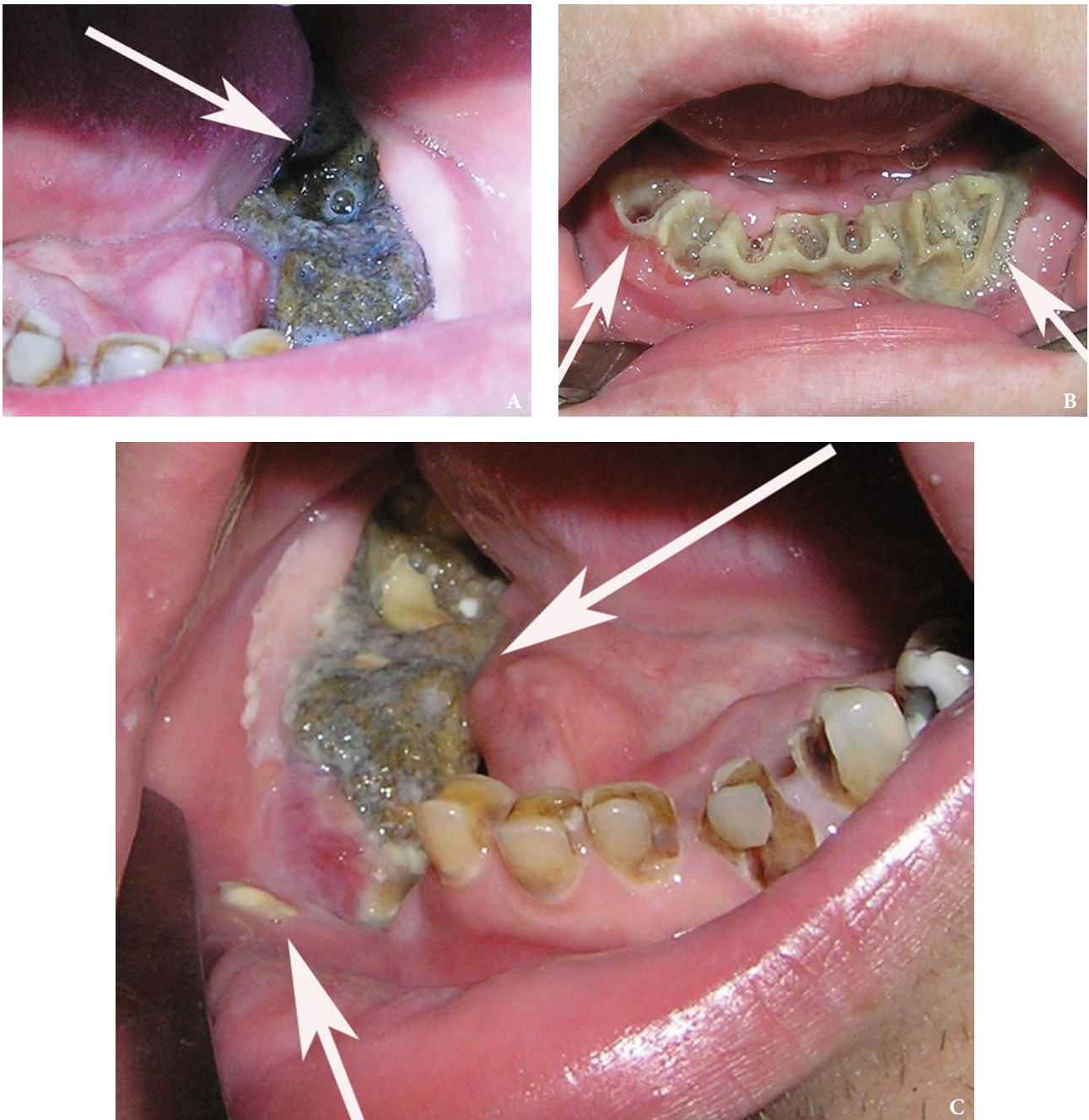


**FIGURE 3. (cont'd).** Radiological changes in the bone tissue of the maxilla in patients with medication-related osteonecrosis (A-D). X-ray revealed pathological foci are indicated by arrows.

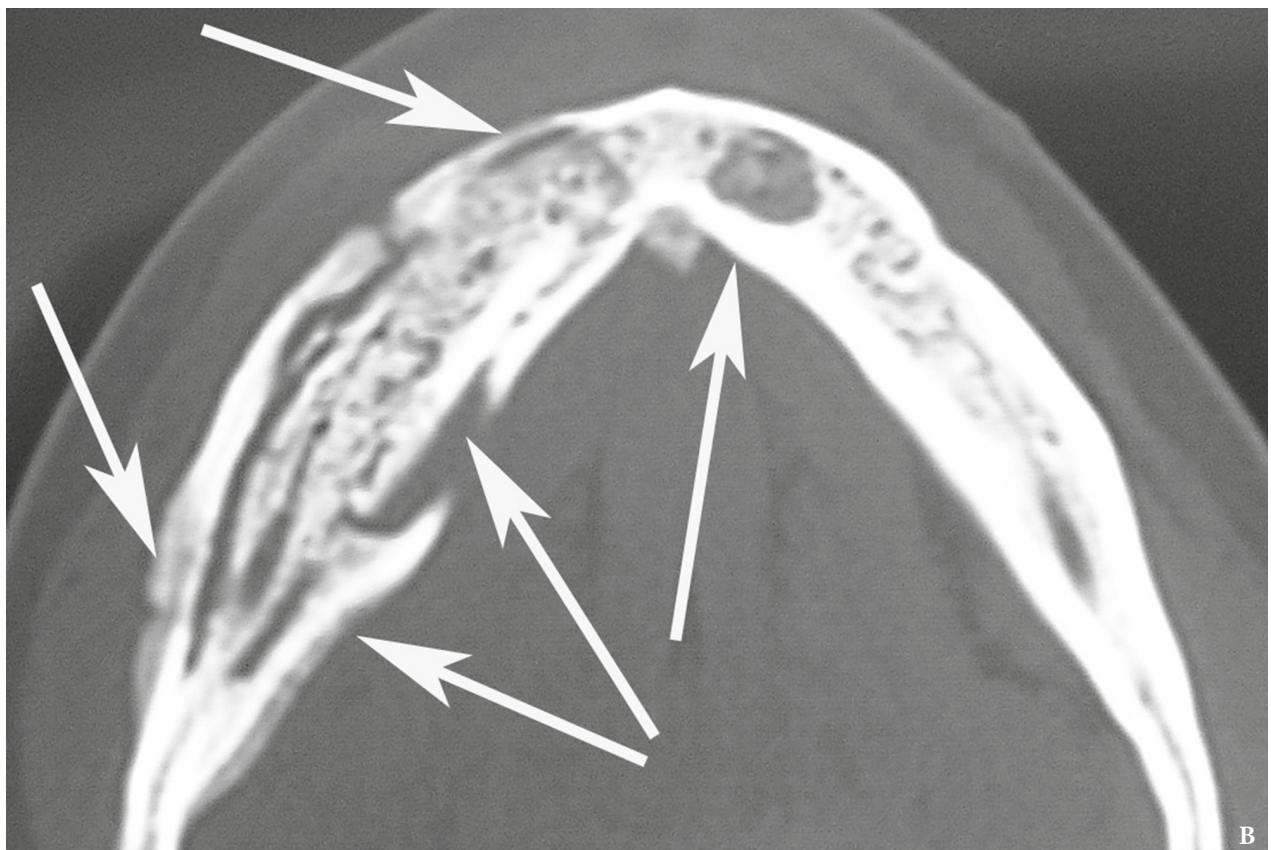
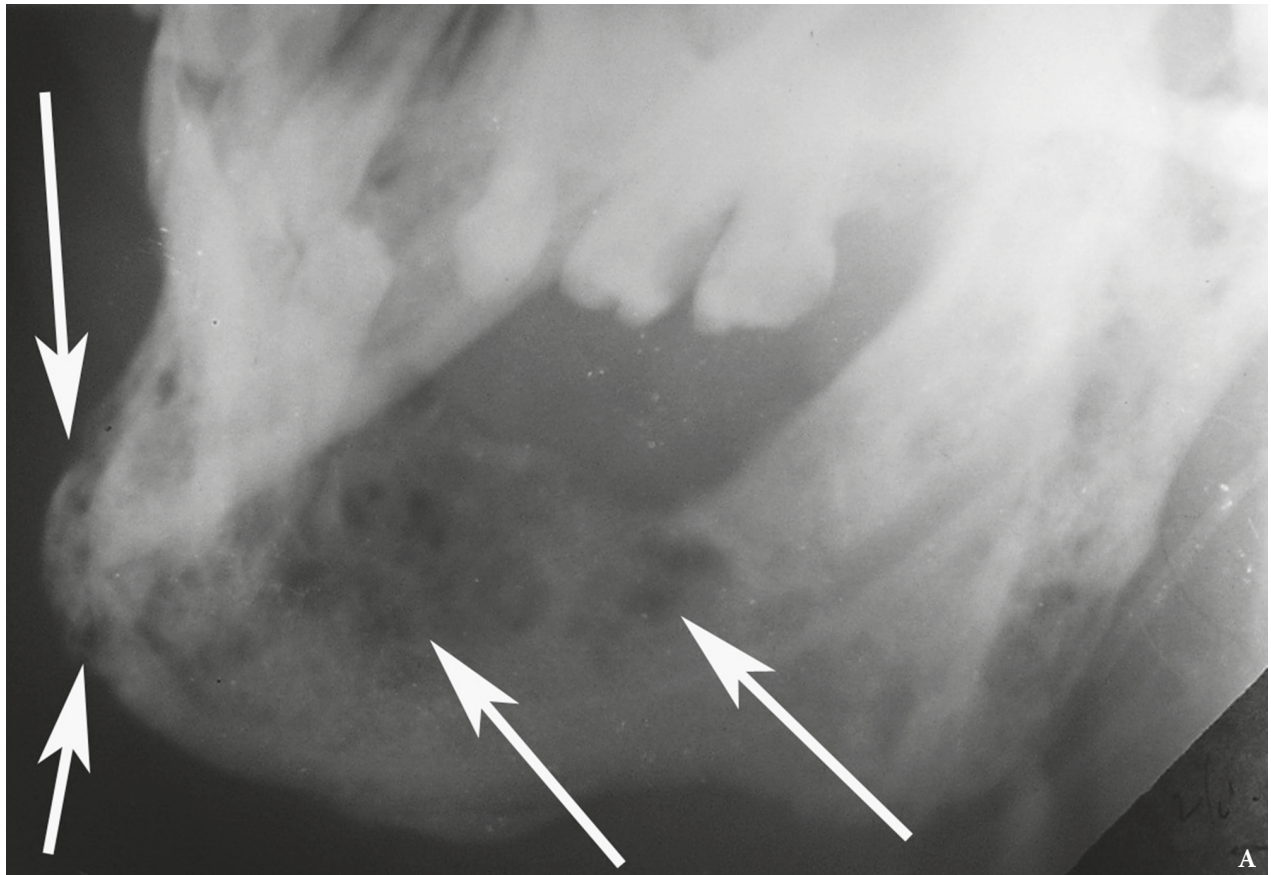
**MRONJ: CLINICAL MANIFESTATIONS AND RADIOGRAPHIC SIGNS**

The exposed alveoli can be filled with purulent exudate, and the surrounding mucous membrane in places of accumulation of purulent exudate can be hyperemic. With diffuse forms of osteonecrosis of the mandible (this form is more common than limited) the areas of the exposed alveolar bone are captured from three or more alveoli of the neighboring teeth (Fig 4). Bone tissue is exposed not only in the area of the alveolar crest (the visible bone alveoli, which are covered with a dirty-gray, dirty-green or dirty-brown bloom), but also at its base. Alveoli of the teeth are clearly visible on the site of previously removed teeth (Fig 4), the alveoli of the teeth are separated from one another

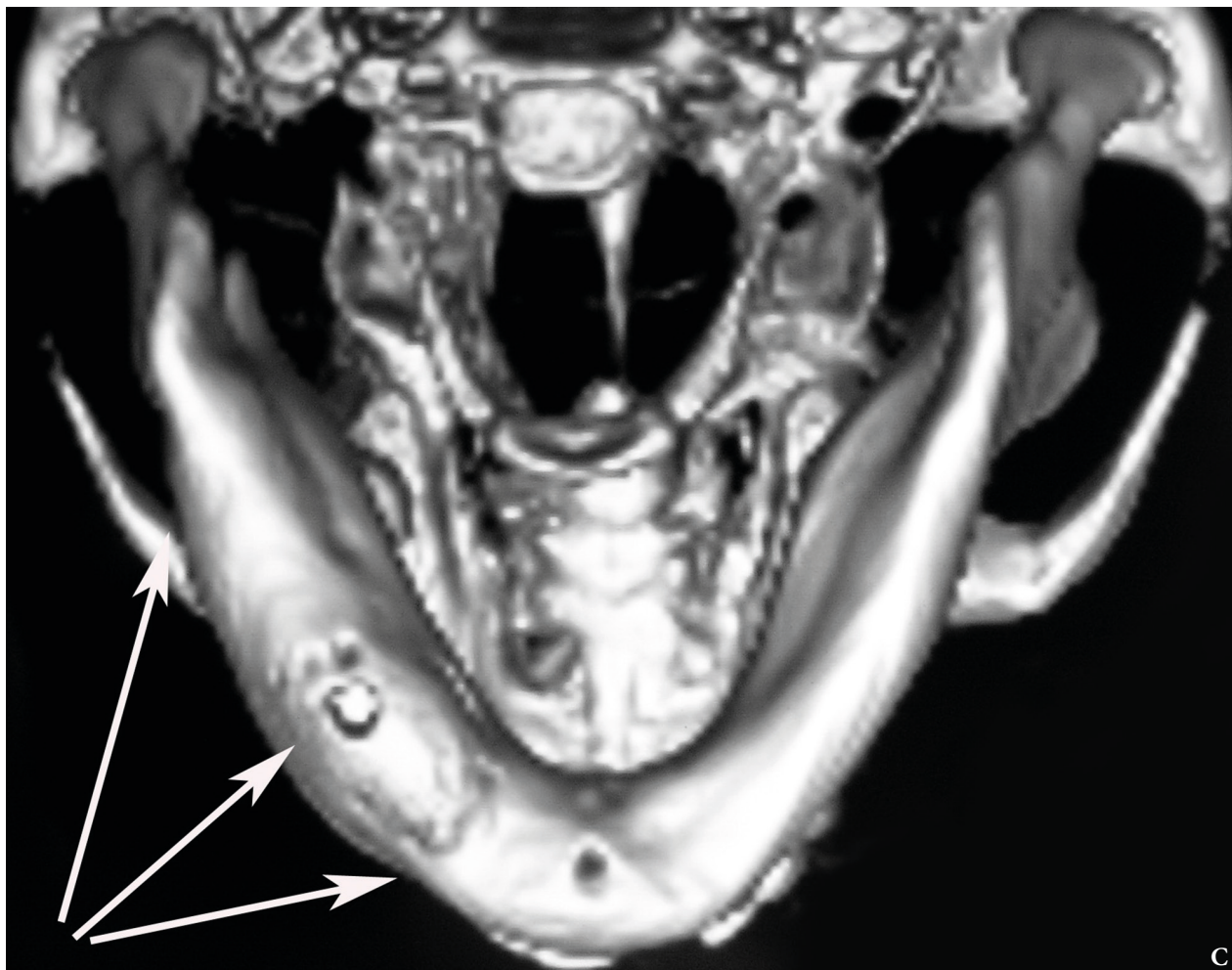
by deformed dental septa, the bone has a dirty yellow, dirty gray or brown (with different shades) color. The mucous membrane surrounding a site of the exposed bone is of a pale pink color, without signs of hyperemia. Presence of foci of granulation tissue in inflammatory foci is usually not detected. On the X-rays of the mandible against the background of osteoporosis foci, areas of rarefaction of bone tissue of different sizes are determined with the formation of sequestrs (Fig 5) [15-17]. The peculiarity of the X-ray picture of the osteonecrosis data is that the osteomyelitic areas are revealed in the background of the foci of the osteoporosis of the jaw.



**FIGURE 4.** Appearance of pathological changes in the oral cavity with medication-related osteonecrosis of the mandible (A, B) and in drug addicted patients (C).



**FIGURE 5.** Radiographic changes (**A** – plane radiography, **B, C** – multislice computed tomography scans) in the bone tissue of the mandible in patients with medication-related osteonecrosis (**A-C**). X-ray revealed pathological foci are indicated by *arrows* (**Fig 5 continued on next page.**)



**FIGURE 5. (cont'd).** Radiographic changes in the bone tissue of the mandible in patients with medication-related osteonecrosis (A-C). X-ray revealed pathological foci are indicated by arrows.

Clinically, medication-related osteonecrosis is distinguished from chronic osteomyelitis, which is found in drug addicts [7] hardly, because this pathology has the same pathogenesis of the development of the disease (Fig 4C). Long-term toxic effects on the body of bisphosphonates (with chemotherapy) and chronic phosphoric intoxication (red phosphorus is a part of the drug “vint”) [7] leads to previously described pathological changes in the jaws and they should be evaluated as chronic osteonecrosis of the jaws. Only by collecting the anamnesis of the disease it is possible to establish the true cause of the development of the osteonecrosis of the jaw. The abolition of the use of bisphosphonates does not lead to an independent elimination of the disease, i.e. to self-healing.

When performing the jaw surgery, the main goal of the operation is not only to remove sequestrs and necrotic tissues, but also to remove the non-viable bone tissue. This surgical intervention, in our opinion, should be called wide sequestrectomy with resection (with the latter) of a certain fragment of the jaw. In carrying out sequestrectomy, it can be found that large areas of bone of turbid or muddy-gray (dirty yellow) color did not undergo resection and when bone is bored the latter has a lifeless (marbled) appearance

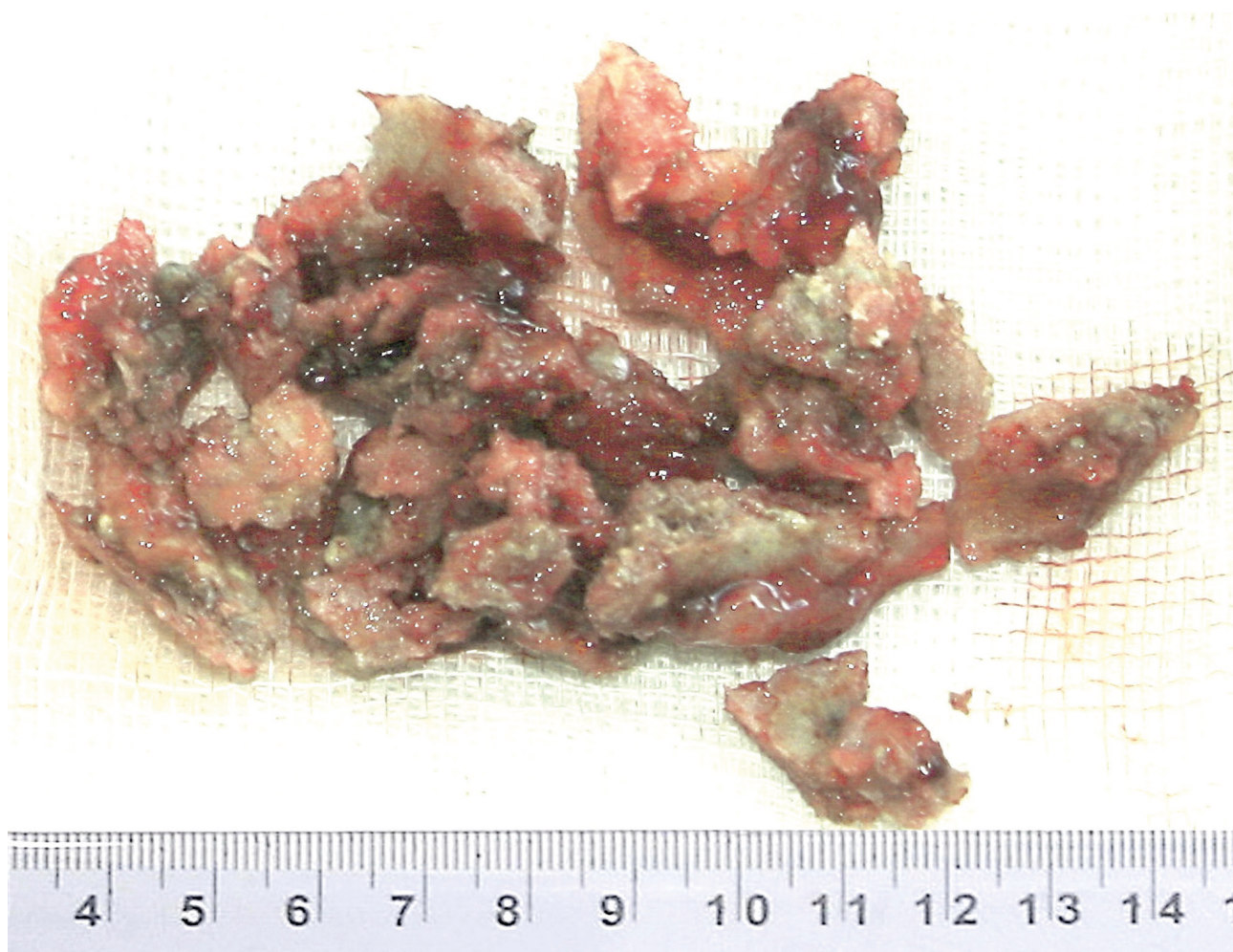
due to the lack of bone vessels in it (Fig 6). In these cases, the surgeon needs to remove the non-viable bone tissue to those parts of the bone until the functioning bone vessels are found with the subsequent maximum possible closure of the bone defect of the jaw with local soft tissues.

We consider it a mistake when, with limited or other forms of MRONJ, surgical treatment results in removal of not only non-viable bone tissue, but removal (resection) of viable bone sites. Only removal (resection) of non-viable areas of bone tissue are needed.

For the more effective treatment of purulent-inflammatory lesions of the soft tissues of the maxillofacial region and neck, antibiotics should always be prescribed (better than the last generation), and modern ointment dressings (with Oflocaïne, Miramistin, Niticide, Streptonitol or Pantestine, etc.) should always be applied to purulent wound surfaces), as well as immunostimulating (Hepon, Nucleate, Lysobact [18], etc.) and antifungal drugs.

### Conclusions

The peculiarity of medication-related osteonecrosis



**FIGURE 6.** Appearance of the removed non-viable bone tissue in patient with MRONJ.

of the jaws in patients after chemotherapy with bisphosphonates is the extent of the lesion (diffuse nature), the chronic and progressive nature of the clinical course, the exposure of the bone tissue of the alveolar bone (the bone tissue has a non-viable appearance, dull, matt or dirty gray), characterized by the absence of granulation tissue in the pathological focus, the absence of pronounced hyperemia of the mucous membrane (pallor of the mucous membranes), thickening of the alveolar process and soft tissue around jaws, low morbidity, as well as the typical poor healing of post-extraction wounds and low effectiveness of the conventional therapeutic measures [19, 20].

#### **Conflict of Interest**

The authors declare no conflict of interest.

#### **Role of the Authors and Co-authors**

Oleksii O. Tymofieiev and Oleksandr O. Tymofieiev are equally contribute to that paper.

#### **Term of Consent**

Written patient consent was obtained from parents to publish the clinical photographs.

#### **Ethical Approval**

Approval was obtained from the Medical Ethics Committee of the Shupyk National Medical Academy of Postgraduate Education, Kyiv, Ukraine.

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# Approaches to the Systematization of the Trigeminal Nerve Disorders\*

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## ABOUT ARTICLE

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## ABSTRACT

### Purpose.

To systematize secondary neurogenic lesions of the trigeminal nerve branches.

### Patients and Methods.

We observed 1096 patients with secondary neuronal lesions of the trigeminal nerve system.

### Results.

The systematization of lesions of trigeminal nerve branches is proposed, taking into account the mechanisms of development, the course of the disease, secondary complications and localization.

### Conclusion.

Systematization can be recommended for doctors to improve the diagnosis and treatment of diseases of the trigeminal nerve system.

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## Introduction

Maxillofacial area is one of the most frequent localizations of chronic pain syndromes, which are caused by injuries of the peripheral nerves. Among the latter, the injury of the trigeminal nerve takes the leading place [1-3]. The problem of pain syndromes associated with the trigeminal nerve is very relevant, is difficult to diagnose and has not been adequately studied in relation to the pathogenesis. In search of medical assistance, patients with this pathology are forced to contact many specialists of related fields: neurostomatologists, otolaryngologists, maxillofacial surgeons, dentists, and neurologists.

The maxillofacial area has abundant innervation. We have become accustomed to the fact that after a certain type of surgical intervention in this area, post-operative pains, which are eliminated through the use of analgesic drugs, are expressed to varying degrees, as well as sensitivity dysfunction that lasts for a long time. Often we have to deal with persistent, long-existing pains that can not be eliminated by prescribing analgesics. This fact also helped to analyze the incidence of these syndromes

(symptoms) after surgical interventions in various maxillofacial pathologies.

In his daily practice, a dentist faces neurogenic lesions that have clinical manifestations in the facial area. These neurological diseases of the trigeminal nerve branches have not only different clinical manifestations, depending on the severity of nerve damage, but also differ in the mechanism of their occurrence and other factors [4-6]. Attempts to systematize neurogenic lesions of peripheral branches of the trigeminal nerve, in the dental literature, were not found. Unfortunately, we can even note that many neurogenic disorders of the trigeminal nerve system that arise as complications of diseases, as well as after trauma, surgical interventions, are perceived as a clinical symptomatology that can be characteristic of many nosological forms, thus, an adequate medical neurological evaluation, and, consequently, the corresponding treatment are not carried out.

## Materials and Methods

We observed 1096 patients with secondary trigeminal neuronal lesions of the trigeminal nerve system who were referred for treatment to the Department of Maxillofacial Surgery, Shupyk National Medical Academy of Postgraduate Education.

All patients underwent general clinical examination methods, which included: examination, palpation, collection of anamnesis, radiography of the bones of

\* This manuscript has not been presented

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the facial skeleton, etc. The distribution of patients with localization of the trigeminal nerve neuropathy on the maxilla and mandible by the age and sex is presented

in Table 1.

The control group consisted of 35 people – practically healthy people in the same age range (from 17 to 47 years).

TABLE 1. Distribution of Patients With Trigeminal Neuropathy in the Examined Groups, Depending on Age and Sex.

Observation Group	Total Number of Patients	Age and Sex of Patients											
		18-19		20-29		30-39		40-49		50-59		60 and More	
		M <sup>a</sup>	F <sup>b</sup>	M	F	M	F	M	F	M	F	M	F
Maxilla	541												
Neuralgia	161	10	8	16	12	20	17	23	17	16	11	7	4
Neuralgic neuritis	184	15	10	19	14	21	19	23	20	18	11	8	6
Neuritis	196	17	8	21	17	24	20	25	19	21	12	7	5
Mandible	524												
Neuralgia	146	11	7	16	14	18	15	20	13	13	8	7	4
Neuralgic neuritis	192	16	9	22	20	24	20	23	19	14	10	8	7
Neuritis	186	14	8	23	15	26	18	25	17	16	10	9	5

<sup>a</sup> M – Men  
<sup>b</sup> F – Females

In addition to general clinical examination methods, we used special methods: the study of the electrophysiological parameters of the peripheral branches of the trigeminal nerve on the hardware-software complex “DIN-1” [7-9], as well as the study of pain, tactile, and temperature sensitivities. All special methods of examination were carried out in the dynamics of treatment of the revealed neurogenic complication.

**Results**

Depending on the mechanism of development of secondary lesions of the trigeminal nerve system, they need to be divided into those that arise in non-tumor and tumor diseases (Table 2) of the maxillofacial region. Non-tumor lesions include neurogenic complications that arise in odontogenic inflammatory diseases of the jaws (periodontitis, periostitis, osteomyelitis, odontogenic subcutaneous granuloma, sinusitis, etc.), non-odontogenic inflammatory diseases (sinusitis, arthritis of temporomandibular joint, nonspecific and specific non-odontogenic inflammatory diseases of the jaws, etc.), traumatic injuries to the facial bones (maxillary and mandibular fractures, fractures of the skull, hematoma, post-traumatic scars, etc.), postoperative lesions of the peripheral branches of the trigeminal nerve (after sequestrectomy, Caldwell Luc surgery (synonym: highmorotomy) [10], removal of impacted teeth, or/with bone-plastic and reconstructive operations on the facial skeleton, etc.), post-treatment injuries of nerves (trauma with endodontic instruments in the treatment of teeth, compression and toxic effects of the filling material when it is moved below tooth root apex, etc.) after dental

implants placement (nerve compression with hematoma, displaced bone portion or dental implant, surgical instrument trauma etc.), as well as narrowing of the bone canals where peripheral branches of the trigeminal nerve are located [11-13].

We found that neurogenic disorders are also revealed in tumor diseases of the bones of the face and soft tissues of the maxillofacial area. This group includes neurogenic disorders in tumor-like formations of the jaws (odontogenic and non-odontogenic cysts, epulis, fibrous dysplasia of the jaws, etc.), benign tumors (fibromas, osteomas, osteblastomas, ameloblastomas, etc.), malignant tumors (osteosarcomas, primary forms of jaw cancer, malignant neuromas, etc.), as well as post-surgical interventions that are carried out to remove tumor-like formations and tumors. Depending on the pathogenesis of neurogenic complications, they have their own characteristics of clinical course, treatment and outcome.

According to the clinical symptoms of secondary lesions of peripheral branches of the trigeminal nerve, we consider them to be divided into three groups (Table 3): neuralgia, neuralgic neuritis and neuritis. Neuralgia, occur when irritating sensitive fibers and are characterized by paroxysmal intense pain along the nerve trunk and its branches. Neuritis is characterized by changes in interstitium, myelin sheath and axial cylinders, and manifested by symptoms of loss of sensitivity in the corresponding zone of innervation. The combination of clinical symptoms of neuralgia and neuritis should be referred to as neuralgic neuritis.

Depending on the severity of clinical neurological symptoms, the disease can be divided into acute,

subacute and chronic (Table 4). This division should be attributed to the neurogenic complications that develop with odontogenic and non-dental diseases, tumor-like formations and tumors.

If neurogenic complications occur after trauma (post-traumatic), after surgical interventions (post-operative), as well as post-implantation or post-consolidation complications, division should be applied to them depending on the timing of patients seeking medical help after the appearance of symptoms of a neurogenic complication (Table 5). According to this principle of all patients, we divided into those with whom neurological treatment was initiated no later than 10 days after the action of the damaging factor (trauma, surgery, compression of the nerve with filling material, etc.) and the appearance of the first symptoms of neurogenic complications. In these cases, we observed no favorable outcomes for more than 90% of those who applied for help. In those cases when patients seek treatment in 11-30 days after the action of the damaging factor and the appearance of the first clinical neurogenic symptoms, the effectiveness of treatment is reduced to 75%, and if treated after 1 month or more – the favorable outcomes are much lower and constitute up to

50% [14-17].

In case of traumatic effects (post-traumatic or postoperative neurogenic lesions of the branches of the trigeminal nerve) it is necessary to use systematization depending on the degree of nerve injury (Table 6). According to the above, the nerve injury, depending on the degree of its damage, should be divided into the following groups: contusion, stretching (with and without rupture of the vascular bundle that accompanies the nerve), incomplete rupture and complete nerve rupture. Each of these groups has its own characteristics of clinical manifestation, course, diagnosis, and treatment. The effectiveness and timeliness of the treatment applied is directly dependent on its adequacy. Therefore, there is a need for early differential diagnosis of the degree of severity of nerve damage.

For topical diagnosis (localization), i.e. depending on the name of the affected sensitive peripheral nerve, they should be divided into: injury of the ophthalmic nerve (frontal, tear, etc.), maxillary nerve (zygomatic, infraorbital, superior alveolar nerves, etc.), and the mandibular (inferior alveolar, auriculotemporal, buccal, and others nerves) nerve (Table 7) [18].

TABLE 2. Systematization of the Secondary Neurogenic Lesions (in Peripheral Branches of the Trigeminal Nerve) According to Pathogenesis.

Systematization According to Pathogenesis	
Non-Tumor Lesions	Tumor Lesions
<ul style="list-style-type: none"> <li>• Odontogenic inflammatory diseases of the jaws</li> <li>• Non-odontogenic inflammatory diseases of the jaws</li> <li>• Post-traumatic</li> <li>• Postoperative</li> <li>• After dental treatment (post-filling)</li> <li>• After dental implants placement</li> <li>• As result of narrowing of the bone canals</li> </ul>	<ul style="list-style-type: none"> <li>• Tumor-like formations</li> <li>• Benign tumors</li> <li>• Malignant tumors</li> <li>• Postoperative</li> </ul>

TABLE 3. Systematization of the Secondary Neurogenic Lesions (in Peripheral Branches of the Trigeminal Nerve) According to the Clinical Manifestation (Clinical Symptoms).

Systematization According to the Clinical Manifestation (Clinical Symptoms)
<ul style="list-style-type: none"> <li>• Neuralgia</li> <li>• Neuritis</li> <li>• Neuralgic neuritis</li> </ul>

TABLE 4. Systematization of the Secondary Neurogenic Lesions (in Peripheral Branches of the Trigeminal Nerve) According to the Severity of the Manifestation of Clinical Symptoms.

Systematization According to the Severity of the Manifestation of Clinical Symptoms
<ul style="list-style-type: none"> <li>• Acute</li> <li>• Subacute</li> <li>• Chronic</li> </ul>

**TABLE 5.** Systematization of the Secondary Neurogenic Lesions (in Peripheral Branches of the Trigeminal Nerve) According to the Terms of Medical Care After the Appearance of First Neurologic Symptoms.

<b>Systematization According to the Terms of Medical Care After the Appearance of First Neurologic Symptoms</b>
<ul style="list-style-type: none"> <li>• Up to 10 days</li> <li>• On the 11-30 day</li> <li>• After one month or more</li> </ul>

**TABLE 6.** Systematization of the Secondary Neurogenic Lesions (in Peripheral Branches of the Trigeminal Nerve) According to the Degree of Nerve Injury.

<b>Systematization According to the Degree of Nerve Injury</b>
<ul style="list-style-type: none"> <li>• Contusion</li> <li>• Stretching (with or without rupture of the vessel)</li> <li>• Incomplete rupture</li> <li>• Complete rupture</li> </ul>

**TABLE 7.** Systematization of the Secondary Neurogenic Lesions (in Peripheral Branches of the Trigeminal Nerve) According to the Localization of the Affected Nerve.

<b>Systematization According to the Localization of the Affected Nerve</b>
<ul style="list-style-type: none"> <li>• Ophthalmic nerve and its branches</li> <li>• Maxillary nerve and its branches</li> <li>• Mandibular nerve and its branches</li> </ul>

On the basis of studying the clinical symptoms of neuropathic complications in maxillofacial patients and taking into account the phase of nerve damage, we propose to classify secondary neurogenic lesions in the trigeminal nerve system, taking into account the phase (or stage) of pathology development, namely the phase of irritation and the phase of loss of function.

To the phase of irritation of the function, we recommend to include odontogenic algia, hyperalgesia and neuralgia. The phase of irritation is represented by clinical manifestations in the form of odontogenic algia, hyperalgesia, neuralgia.

The phase of loss of function include hypoalgesia, neuritis, secondary disorders in motor and trophic functions. The phase of prolapse corresponds to neuritic manifestations with hypoalgesia, motor and trophic disorders. In the phase of the loss of the function, a subphase should be distinguished in which the features of irritation persist (neural-neuritis should be included in this subphase).

The problem is ambiguous, as many considered it. We believe that the process of neuropathic lesions is one, but in it there are different phases (with the greatest likelihood, even subphases) of pathophysiological changes in the trigeminal nerve system. These phases (subphases) are not static, but are in dynamics and therefore a transition from one phase to another is possible.

Clinical symptoms of secondary lesions in the trigeminal nerve system are manifested in the form of pain of varying severity and/or as a violation of the sensitivity of the soft tissues of the maxillofacial region. These clinical manifestations of neurogenic symptoms are

directly related to the dysfunction of the nerve.

Based on the results of a comprehensive survey of more than 1096 patients with a variety of maxillofacial pathology, accompanied by signs of structural lesions in the trigeminal nerve system, we suggest that clinico-pathophysiological approaches should be taken into account in the classification of the corresponding lesions.

### Conclusions

Offering doctors this classification, we hope that it will help them in the early diagnosis of neurogenic lesions of the trigeminal nerve system in patients, help to correctly assess the degree of nerve damage and timely appoint an adequate treatment [19-22], which will greatly improve the beneficial outcomes of treatment of patients.

### Conflict of Interest

The authors declare no conflict of interest.

### Role of the Authors and Co-authors

Oleksii O. Tymofiev (material collection, concept of the paper and writing)  
 Olena P. Vesova (material collection)  
 Natalia O. Ushko (material collection)

### Ethical Approval

None.

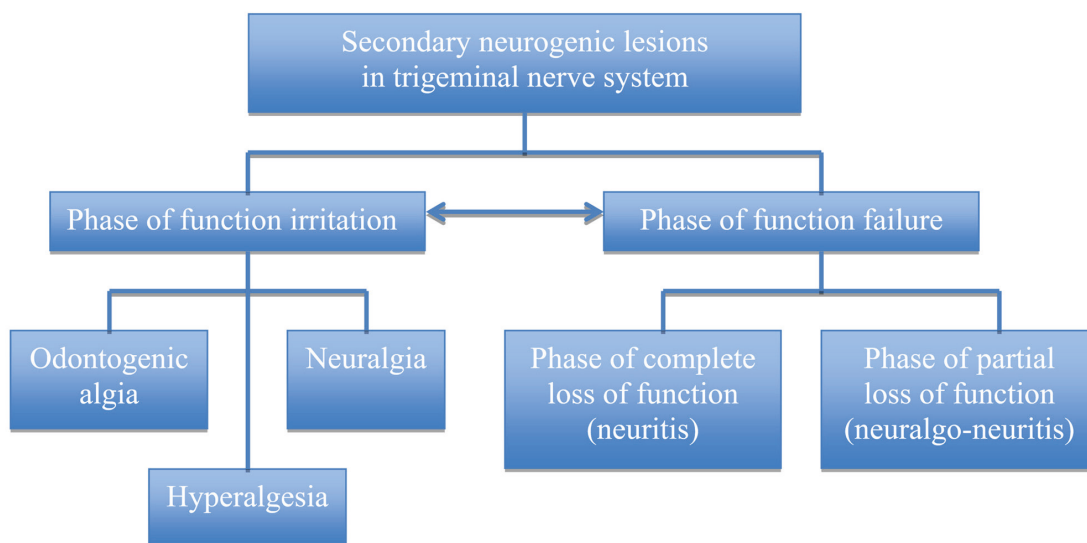


FIGURE 1. Scheme of classification of secondary neurogenic lesions in the trigeminal nerve system.

### Term of Consent

No needed.

### Ethical Approval

Approval was obtained from the Medical Ethics Committee of the Shupyk National Medical Academy of Postgraduate Education, Kyiv, Ukraine.

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## OBITUARY

# Obituary for Dr. José Guerrerosantos: A Teacher Who Continues to Live in the Works of His Disciples



drjuliopalacios



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**drjuliopalacios** "El que prudente medita, muchos pesares evita"... José Guerrerosantos (1932-2017) - Nació en Jalisco, México el 26 de Febrero, egresó de la Escuela de Medicina de la Universidad de Guadalajara y continuó su formación en la Universidad de Illinois, en Chicago. - En 1976 fundó el Instituto Jalisciense de Cirugía Reconstructiva.

- Publicó múltiples artículos científicos entre los que destacan el del colgajo de lengua y el tratamiento del platysma, entre otros.

- "El Maestro" es gratamente recordado por sus alumnos como un ser humano excepcional, que siempre mantuvo el afán de compartir lo que sabía.

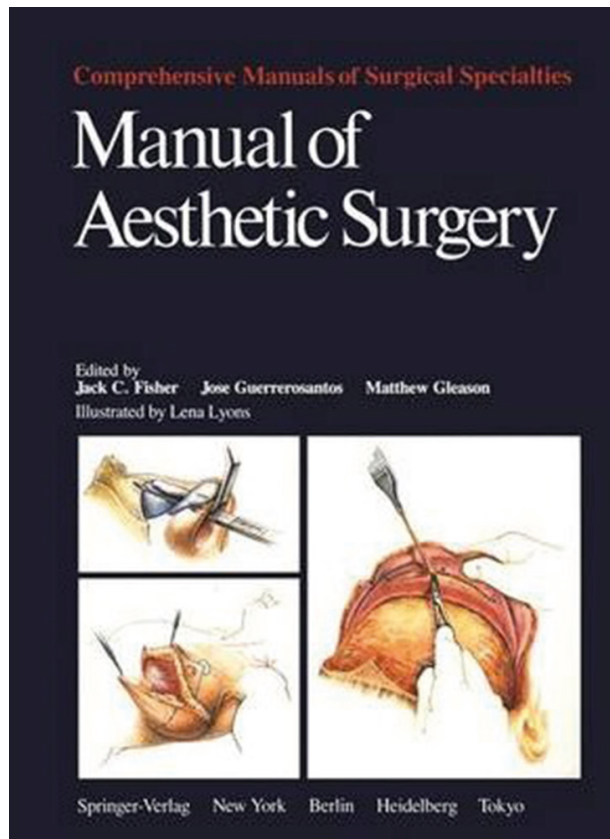
#cirugiaplastica #plasticsurgery #plasticsurgeon  
#cirujanoplastico #maestro #jalisco #mexico 🇲🇪  
#iwanabelikeyou #ciruqiareconstructiva

Legend of plastic surgery, the great founder has gone. José Guerrerosantos, M.D. (Fig 1), was not only a Director and Plastic Surgeon in Charge, The Jalisco Plastic and Reconstructive Surgery Institute; Professor and Chairman of the Division of Plastic and Reconstructive Surgery, University of Guadalajara Medical College, Guadalajara, Mexico. He was a founding father of the Instituto Jalisciense de Cirugía Reconstructiva (The Jalisco Plastic and Reconstructive Surgery Institute), a hospital affiliated with the University of Guadalajara, Jalisco, Mexico [1]. One of his scientific "children" – *Manual of Aesthetic Surgery* (editors: Fisher JC, Guerrerosantos J, Gleason M) (Fig 2) is a state of art textbook [2], an immortal masterpiece, which continues to navigate next generations of plastic surgeons in the extremely responsible field of surgery. The sacred *Manual*, which is a testament for surgeons of different subspecialties. Also, contribution of Professor José Guerrerosantos to the flap of tongue is really helped to lift a flap surgery to the new heights. Professor Guerrerosantos was born as a son of Mexico and will continue to live in his creations, our minds, and the works of his disciples. And it's very symbolic, that his students and disciples named and still names him the same name as a Jesus was called... "a Teacher"...

**FIGURE 1.** Translation of the Instagram post of Dr. Julio Palacios (Mexico City, Mexico): "The one who prudent meditates, many sorrows avoids" ... José Guerrerosantos (1932-2017) – he was born in state Jalisco (Mexico) on February 26. Graduated from the School of Medicine of the University of Guadalajara (Mexico) and continued his training at the University of Illinois (Chicago, IL, USA). In 1976 he founded the Jalisco Plastic and Reconstructive Surgery Institute [1] (Guadalajara, state Jalisco, Mexico.)

– Published multiple scientific articles among which stand out the tongue flap and the platysma treatment, among others.

– "El Maestro" is pleasantly remembered by his students as an exceptional human being, who always maintained the desire to share what he knew."



**FIGURE 2.** Front cover of the *Manual of Aesthetic Surgery* (editors: Fisher JC, Guerrerosantos J, Gleason M. New York: Springer-Verlag).

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# Future Events

for 2018-2021

## 2018

**Plastic Surgery The Meeting**  
September 28 – October 2, 2018  
Chicago, Illinois, USA  
[www.plasticsurgery.org](http://www.plasticsurgery.org)

**The 10th Congress of the Baltic Orthodontic Association**  
October 4 – October 7, 2018  
Vilnius, Lithuania  
[www.boa2018.com](http://www.boa2018.com)

**122 American Academy of Otolaryngology Annual Meeting (AAO-HNSF & OTO Expo 2017)**  
October 7 – 10, 2018  
Atlanta, Georgia, USA  
[www.entannualmeeting.org](http://www.entannualmeeting.org)

**100th Annual Meeting of American Association of Oral and Maxillofacial Surgeons Scientific Sessions & Exhibition**  
October 8 – 13, 2018  
Chicago, Illinois, USA  
[www.aaoms.org](http://www.aaoms.org)

**Association of Oral & Maxillofacial Surgeons of India 43rd Annual Conference 2018 (AOMSI 2018)**  
October 11 – 13, 2018  
Chennai, India  
[www.43chennai.aomsi.com](http://www.43chennai.aomsi.com)

**13th Asian Congress on Oral and Maxillofacial Surgery**  
November 8 – 11, 2018  
Taipei, Taiwan  
[www.2018acoms.com](http://www.2018acoms.com)

**Timothy A. Turvey Master Class in Orthognathic Surgery (Fig 2A)**  
October 26, 2018  
Buenos Aires, Argentina  
Email: [sac@aoa.org.arg](mailto:sac@aoa.org.arg)

**Ninth William H. Bell Lectureship: Overcoming Obstacles in Orthognathic Surgery (Fig 2B)**  
November 16-17, 2018  
Houston, Texas, USA  
[www.events.houstonmethodist.org/bell-lectureship](http://www.events.houstonmethodist.org/bell-lectureship)

**1st European Arnett Orthognathic Surgery Forum Symposium (Fig 3)**  
November 16-17, 2018  
Madrid, Spain  
Email: [info@nemotec.com](mailto:info@nemotec.com)

**14th Congress of Latin American Society of the Oral-Maxillo-Facial Rehabilitation (Fig 1)**  
(XIV Congreso de la Sociedad Latinoamericana de Rehabilitación Buco Maxilo Facial)  
November 20 – 23, 2018  
Punta del Este, Uruguay  
[www.bmf2018puntadeleste.com](http://www.bmf2018puntadeleste.com)



**FIGURE 1.** Instagram posts of Congresobmf2018 (Punta del Este, Uruguay) notes about 14th Congress of Latin America Society of the Oral-Maxillo-Facial Rehabilitation in November 20-23, 2018 (Punta del Este, Uruguay).



# Orthognathic Surgery Events in October-November 2018



**FIGURE 2. (A)** Cropped Instagram post of Trainee.sacytbf notes about Master Class in Orthognathic Surgery by Timothy A. Turvey, DDS, PhD, FAACS, Prof (Chapel Hill, NC, USA), October 26, 2018 (Buenos Aires, Argentina). Register: [sac@aoa.org.ar](http://sac@aoa.org.ar). **(B)** Cropped Instagram post of Dr. Jose Sandro P. Silva, DDS, PhD (Natal, Brazil) notes about Ninth William H. Bell Lectureship: Overcoming Obstacles in Orthognathic Surgery, November 16-17, 2018 (Houston, Texas, USA). Program Directors: Jaime Gateno, DDS, MD; James Xia, MD, PhD. Register: [www.events.houstonmethodist.org/bell-lectureship](http://www.events.houstonmethodist.org/bell-lectureship)



**FIGURE 3.** Instagram posts (A, B) of Nemotec (Madrid, Spain) notes about 1st European Arnett Orthognathic Surgery Forum Symposium in November 16-17, 2018 (Madrid, Spain). The speakers of the Forum are: William G. Arnett (USA), Domingo Martin (Spain, Instagram: [domingo.martinsalvador](http://domingo.martinsalvador)), Elisabetta Grendene (Italy), Octavio Cintra (Brazil, Instagram: [octaviocintra](http://octaviocintra)), Richard Roblee (USA, Instagram: [drickroblee](http://drickroblee)), Antonio d'Agostino (Italy), Jeffrey McClendon (USA), Nico Vrijens (Netherlands), Renato Cocconi (Italy, Instagram: [renatococconi](http://renatococconi)), Bruno Ardanza (Spain), Mirco Raffaini (Italy), Douglas L. Knight (USA), Julio Cifuentes (Chile), Lorenzo Trevisiol (Italy). More information: [info@nemotec.com](http://info@nemotec.com)

**2019**

**24rd International Conference on Oral and  
Maxillofacial Surgery (Fig 4)**

May 21 – 24, 2019  
Rio de Janeiro, Brazil  
[www.icoms2019.com.br](http://www.icoms2019.com.br)

**18th Meeting of the International Society of  
Craniofacial Surgery**

September 16 – 19, 2019  
Paris, France  
[www.iscfs.org](http://www.iscfs.org)

**2021**

**14th Quadrennial International Facial Nerve  
Symposium**

August, 2021  
South Korea  
[www.internationalfacialnerve.org](http://www.internationalfacialnerve.org)



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**FIGURE 4.** Screenshot from a website [www.icoms2019.com.br](http://www.icoms2019.com.br).

# Submission of Articles

## Papers for the Publication

- original papers
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- surgical notes
- radiological notes
- reports of new equipment, instruments or technical innovations
- journal or book reviews
- reviews of other journals articles
- letters to the Editor

## Article and Abstracts

Article must be written in English.

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The abstract should include full title of the article, full names and surnames of the co-authors, affiliation, scientific degree, specialty. Also the abstract should include short information about article content: purpose, material and methods, results, conclusions. Example how the Abstract should be looked like the authors can get from the published articles in current issue.

## Figures and Tables

Photographs, CT and MRI images, sonograms should be submitted in original with resolution of at least 300 dpi and saved in JPEG or TIFF file format.

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The authors should indicate the sources of funding that were allocated for the preparation of the article, if such were the case.

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At the end of the article the authors should specify about conflicts of interest (e.g., no conflict of interest).

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After specifying conflicts of interest the role of co-authors in writing of the article (concept and design of the study; material collection, material processing, statistical data processing, writing text, editing, etc.) should be designated.

## Patient Consent

Written patient consent should be obtained to publish the clinical images of the patients.

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The authors can acknowledge the persons or institutions which they helped or useful in writing an article.

The Journal is recommended to use that internet source for the articles preparing according to *Vancouver References Style*: <http://libguides.murdoch.edu.au/Vancouver/journal>

## Examples How to Form a Reference List

List all references in numerical order in the text.

Making a list of references from articles, books, internet links, etc.:

*Example for the articles:*

Fernandes RP, Quimby A, Salman S. Comprehensive reconstruction of mandibular defects with free fibula flaps and endosseous implants. *J Diagn Treat Oral Maxillofac Pathol* **2017**;1(1):6–10.

*Example for the articles with more than three authors:*

Neto AMR, Monteiro JL, Borba PM, et al. TMJ's posterolateral dislocation with tympanic plate fracture – case report. *J Diagn Treat Oral Maxillofac Pathol* **2017**;1:59–64.

*Example for the articles from the Journal Supplement:*

Hammerle CH, Chen ST, Wilson Jr TG. Consensus statements and recommended clinical procedures regarding the placement of implants in extraction sockets. *Int J Oral Maxillofac Implants* **2004**;19(Suppl):26–8.

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Hammerle CH, Chen ST, Wilson Jr TG. Consensus statements and recommended clinical procedures regarding the placement of implants in extraction sockets. *Int J Oral Maxillofac Implants* **2004**;19:S26–8.

*Examples for the book chapters:*

Yuen HY, Ahuja AT. Benign clinical conditions in the adjacent neck. In: Sofferman RA, Ahuja AT, editors. *Ultrasound of the thyroid and parathyroid glands*. Springer, **2012**:229–33.

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Baskin J, Duick D, Levine R. *Thyroid ultrasound and ultrasound guided FNA*. 2nd ed. New York: Springer; **2008**.

*Example for the PhD/ScD work (dissertation for candidate/doctor of science):*

Borkowski MM. *Infant sleep and feeding: a telephone survey of Hispanic Americans*. PhD [dissertation]. Mount Pleasant (MI): Central Michigan University; **2002**.

Kopchak AV. *Clinico-biological and biomechanical study of methods for surgical treatment of mandibular fractures*. ScD [dissertation]. Kyiv: Bogomolets National Medical University; **2014**.

*Example for references in Cyrillic:*

Please indicate the language of writing in square brackets [Ukrainian] or [Russian].

Tymofieiev OO. *Manual of maxillofacial and oral surgery* [Russian]. 5th ed. Kyiv: Chervona Ruta-Turs; **2012**.

Tymofieiev OO. *Diseases of the salivary glands* [Ukrainian]. 1st ed. Lviv: VNLT-Klasyka; **2007**.

*Examples for the internet links:*

Seave A. Elsevier CEO using unique data sets and analytic processes to maintain competitive edge. *The Forbes*. February 25, 2016. Available at: <https://www.forbes.com/sites/avaseave/2016/02/25/elsevier-ceo-using-unique-data-sets-and-analytic-processes-to-maintain-competitive-edge/#1d9e4b3979c2/>. Accessed February 25, 2016.

Adult improving access to psychological therapies programme. NHS England. Available from URL: <https://www.england.nhs.uk/mental-health/adults/iapt/> (last accessed 3 March **2017**).

McManus S, Meltzer H, Brugha T, et al., editors. *Adult psychiatric morbidity in England, 2007: results of a household survey*. The NHS Information Centre for health and social care; 2017. Available from URL: <http://www.hscic.gov.uk/catalogue/PUB02931/adul-psyc-morb-reshou-sur-eng-2007-rep.pdf> (last accessed 3 March **2017**).

*Example for conference paper in print proceedings:*

Christensen S, Oppacher F. An analysis of Koza's computational effort statistic for genetic programming. In: Foster JA, Lutton E, Miller J, Ryan C, Tettamanzi AG, editors. *Genetic programming: EuroGP 2002: Proceedings of the 5th European Conference on Genetic Programming; 2002 Apr 3-5; Kinsdale, Ireland*. Berlin: Springer; **2002**. p. 182-91.

*Example for conference paper from the internet:*

Cloherly SL, Dokos S, Lovell NH. Qualitative support for the gradient model of cardiac pacemaker heterogeneity. In: Proceedings of the 2005 IEEE Engineering in Medicine and Biology 27 Annual Conference; 2005 Sep 1-4; Shanghai, China. New York: IEEE; **2005** [cited 2010 Sep 2]. p. 133-6. Available from: IEEE Xplore.

*Example for A-V materials (DVD):*

Acland RD, presenter. Acland's DVD atlas of human anatomy [DVD]. Baltimore (MD): Lippincott Williams & Wilkins; **2004**.

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NRK. Medieval helpdesk with English subtitles [video file]. **2007** Feb 26 [cited 2014 Jan 28]. Available from: <http://www.youtube.com/watch?v=pQHx-SjgQvQ>

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Hillel J, writer. Out of sight out of mind: indigenous people's health in Australia [videorecording]. Bendigo: Video Education Australasia; **2003**.

*Example for Readers/Study Guides:*

Lynch M. God's signature: DNA profiling, the new gold standard in forensic science. Endeavour. 2003;27(2):93-7. Reprinted In: Forensic Investigation (BIO373) unit reader for forensic DNA component. Murdoch (WA): Murdoch University; **2005**.

*Example for newspaper articles in print:*

Hatch, B. Smoke lingers for those who keep hospitality flowing. Australian Financial Review. **2006** Jul 13: 14.

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Devlin, H. Neuron breakthrough offers hope on Alzheimer's and Parkinson's. The Times [newspaper on the Internet]. **2010** Jan 28 [cited 2010 Jan 31]. Available from: <http://www.timesonline.co.uk/tol/news/science/medicine/article7005401.ece>.

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In a conversation with a colleague from the School of Population Health (Jameson LI **2002**, oral communication, 7th August)...

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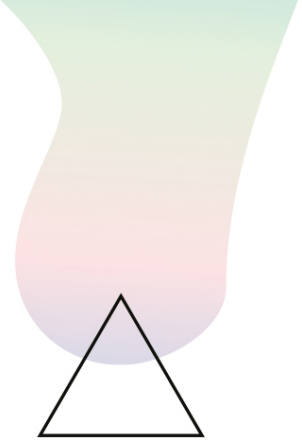
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4, 4.5. Tymofiejew O.O. et al "Prevention of inflammatory complications upon surgeries in maxillofacial region". J Diagn Treat Oral Maxillofac Pathol. 2017;1:105-12.

Clinical and CT images are courtesy of: Ievgen Fesenko (Department of Oral & Maxillofacial Surgery, PHEI "Kyiv Medical University", Kyiv, Ukraine), Oleg Mastakov ("SCIEDECE—Scientific Center of Dentistry & Ultrasound Surgery" Kyiv, Ukraine)



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