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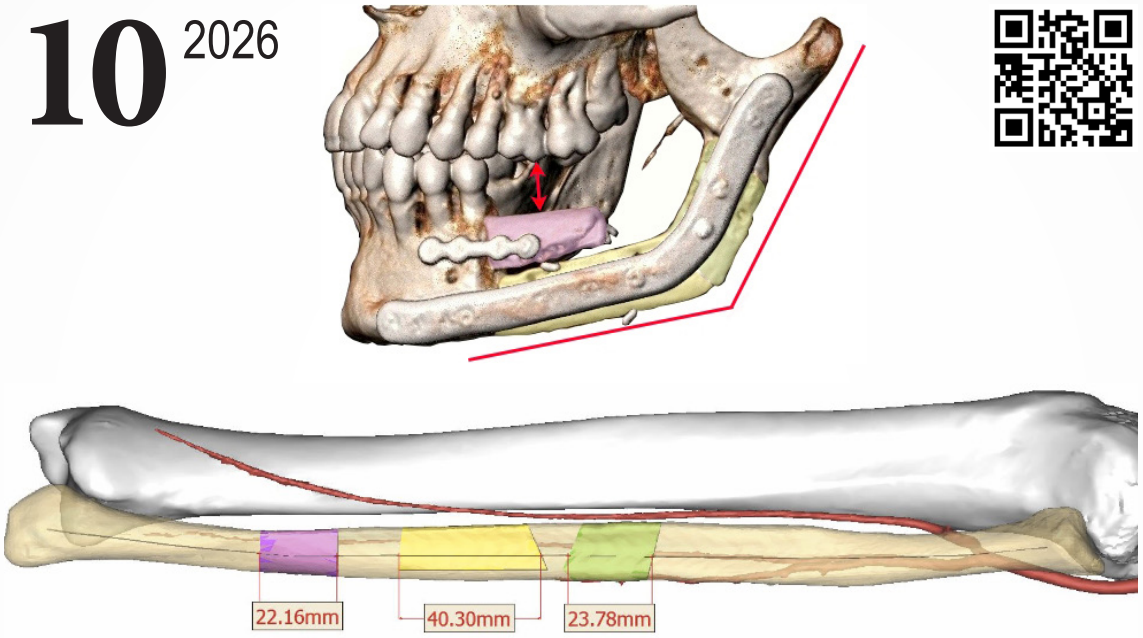
Journal of Diagnostics and Treatment of Oral and Maxillofacial Pathology

10 2026



The cover images indicate the key direction of the journal and highlight an article titled "The 'Beveled One-and-a-Half-Barrel' Fibula Transplant with Virtual Surgical Planning and CT-Guided Implant Surgery for Prosthetic Rehabilitation in Posterior Mandible Defects: A Pictorial Essay" by Olindo MASSARELLI and Silvio Mario MELONI. The article was published in Volume 6, Issue 3.

This is a monthly, gold open access, peer-reviewed journal. It is the first Ukrainian publication dedicated exclusively to Oral and Maxillofacial Surgery, established in 2016. The Editor-in-Chief is Oleksii Tymofieiev (Kyiv, Ukraine).

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TANTUM VERDE®

QUICK RELIEF FROM PAIN AND INFLAMMATION IN THE MOUTH AND THROAT[1]

AN INTEGRAL COMPONENT OF THE TREATMENT OF PAIN AND INFLAMMATION IN THE ORAL CAVITY IN DOZENS OF COUNTRIES WORLDWIDE![2]

Reg. № UA/3920/01/01

- **JAWS FRACTURES[3]**
- **IMPLANTS PLACEMENT[4]**
- **WOUNDS OF ORAL CAVITY[5]**

LOCAL ANESTHETIC AND ANTI-INFLAMMATORY EFFECT[1]

SUMMARY OF PRODUCT CHARACTERISTICS

NAME OF THE MEDICINAL PRODUCT. Tantum Verde 0.15% mouthwash. QUALITATIVE AND QUANTITATIVE COMPOSITION. Each 100 ml contains: active ingredient: benzydamine hydrochloride 0.15 g (equivalent to 0.134 g of benzydamine). **Therapeutic indications.** Treatment of symptoms such as irritation/inflammation including those associated with pain in the oropharyngeal cavity (e.g. gingivitis, stomatitis and pharyngitis), including those resulting from conservative or extractive dental therapy. **Posology and method of administration.** Pour 15 ml of Tantum Verde mouthwash into the measuring cup, 2-3 times per day, using it either at full concentration or diluted. If diluted, add 15 ml of water to the graduated cup. Do not exceed the recommended dosage. **Contraindications.** Hypersensitivity to benzydamine or to any of the excipient. **PHARMACOLOGICAL PROPERTIES. Pharmacodynamic properties.** Pharmacotherapeutic group: Stomatologic drugs: other agents for local oral treatment, ATC code: A01AD02. Clinical studies demonstrate that benzydamine is effective in relieving suffering from localised irritation of the mouth and pharynx. In addition, benzydamine possesses a moderate local anaesthetic effect. **Pharmacokinetic properties.** Absorption. Absorption through the oropharyngeal mucosa is demonstrated by the presence of measurable quantities of benzydamine in human plasma. These levels are insufficient to produce systemic effects. Distribution. When applied locally, benzydamine has been shown to accumulate in inflamed tissues where it reaches effective concentrations because of its capacity to penetrate the epithelial lining.

Information about medicines. Information for health care professionals for use in professional activities.

1. Інструкція для медичного застосування лікарського засобу Тантум Верде®, розчин для ротової порожнини, РП № UA/3920/01/01, затверджено Наказом МОЗ України № 1789 від 04.08.2020.
2. https://www.angelinipharma.com/
3. Тимофеев А.А. и др. "Особенности гигиены полости рта для профилактики воспалительных осложнений при переломах нижней челюсти". Современная стоматология 2015;1(75):52–8.
4. 4,5. Tymofieiev 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 Surgical Dentistry and Maxillofacial Surgery, PHEE "Kyiv Medical University", Kyiv, Ukraine), Oleg Mastakov (Private Practice, Pink Bright Studio, Kyiv, Ukraine)

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About the Journal

OCTOBER 2026 • VOLUME 10 • ISSUE 10
www.dtjournal.org

Official Title

Journal of Diagnostics and Treatment of Oral and Maxillofacial Pathology

Official Title in Ukrainian

Журнал діагностики та лікування оральної і щелепно-лицевої патології

Standard Abbreviation: ISO 4

J. Diagn. Treat. Oral Maxillofac. Pathol.

Acronym

JDTOMP

International Standard Serial Number (ISSN)

ISSN 2522-1965 (online)

Aims & Scope

This is a monthly open access and peer-reviewed oral and maxillofacial surgeons. The journal is focused on trauma, microvascular and jaw reconstructive surgery, dental implants, salivary gland tumors/diseases, TMJ lesions, virtual surgical planning, implementation of ultrasonography into the practice of oral and maxillofacial surgeons.

Editorial Board (EB) Composition

- EB shows significant geographic diversity representing 41 opinion leaders from 17 countries: Brazil, Canada, Greece, Hong Kong (SAR), China, Hungary, India, Indonesia, Israel, Italy, Poland, Slovak Republic, Spain, Ukraine, United Arab Emirates, United Kingdom, and United States.
- The majority of the EB Members have a discernible publication history in Scopus, Web of Science, and journals with a high impact factor.
- The publication records of all EB members are consistent with the stated scope and published content of the journal.
- The journal has several full-time professional editors.
- Gender distribution of the editors: 12.20% women (5 persons), 87.80% men (36 persons), 0% non-binary/other, and 0% prefer not to disclose.

Frequency

12 issues a year (since January 2020)

Publishing Model

The *Journal of Diagnostics and Treatment of Oral and Maxillofacial Pathology* is a fully online-only open access and peer-reviewed publication.

Open Access

This journal is licensed under the CC BY-NC-SA license.

Types of Peer Review

The journal employs "double blind" and open reviewing.

Article Publishing Charge (APC)

The APC in this journal is 519 Euro ($590 USD) and 259 Euro ($295 USD)(excluding taxes) depending on the article`s type. Details at website: www.dtjournal.org.

Types of Articles Currently Published by the Journal

Editorials/Guest Editorials/Post Scriptum Editorials, Images, Case Reports/Case Series, Original Articles, Review Articles, Discussions, Paper Scans (*synonyms*: Review of Articles, Literature Scan), Book Scans (*synonym*: Book Reviews), Letters to the Editor (*synonym*: Letters), and Viewpoints.

State Registration in the Ministry of Justice of Ukraine

Registration: Jul 28, 2016 (Certificate: КВ № 22251-12151 Р)
Re-registration: May 21, 2019 (Certificate: КВ № 23999-13839 ПР)
Re-registration: Aug 10, 2021 (Certificate: КВ № 24951-14891 ПР).

State Registration in the National Council of Television and Radio Broadcasting of Ukraine

- The journal is registered as print media (Decision of 2024, April 11, No. 1225). The identifier of print media R30-04318.
- The journal is registered as online media (Decision of 2024, April 25, No. 1454). The identifier of online media R40-04708.

Journal is Included in

Encyclopedia of Modern Ukraine, Google Scholar, National Repository of Academic Texts, Register of Scientific Publications of Ukraine (also known as Ukrainian Scientific Periodicals or Register of Scientific Professional Publications of Ukraine), ResearchGate, Scilit, and Vernadsky National Library of Ukraine

Co-Founders

1. Shupyk National Healthcare University of Ukraine (formerly known as Shupyk National Medical Academy of Postgraduate Education).
2. Private Higher Educational Establishment "Kyiv Medical University."
3. OMF Publishing, Limited Liability Company.

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Digital Object Identifier (DOI) of the Journal

10.23999/j.dtomp

Official Journal of the Association

Ukrainian Association for Maxillofacial and Oral Surgeons

Ukrainian Association for Maxillofacial and Oral Surgeons (UAMOS)

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INSTRUCTION
for medical use of the medicinal product

TANTUM VERDE®

Composition:
active substance: benzydamine hydrochloride;
100 ml of solution contains 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.

Pharmaceutical form. Oromucosal solution.
Basic physical and chemical properties: a clear green liquid with a typical mint flavor.

Pharmacotherapeutic group. Stomatological 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 antiexudative 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.

Special warnings.
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.

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

This medicinal product contains small amounts of ethanol (alcohol), less than 100 mg/dose.

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

Tantum Verde®, oromucosal solution, contains a flavoring (menthol), which in turn contains benzyl alcohol, cinnamon alcohol, citral, citronellol, geraniol, isoevgenol, linalool, eugenol and D-limonene which can cause allergic reactions.

Use during pregnancy or breast-feeding.
Pregnancy
There are no clinical data from the use of Tantum Verde®, oromucosal solution during pregnancy.

During the third trimester of pregnancy, systemic use of prostaglandin synthetase inhibitors may induce cardiopulmonary and renal toxicity in the fetus. At the end of the pregnancy prolonged bleeding time in both the mother and child may occur, and labour can be delayed.

It is not known whether systemic Tantum Verde®, oromucosal solution exposure reached after topical administration can be harmful to an embryo/fetus.

Therefore, Tantum Verde®, oromucosal solution should not be used during pregnancy unless clinically indicated. If used, the dose should be kept as low as possible and the duration of treatment as short as possible.
Breastfeeding

No adequate data are currently available on the use of benzydamine in 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 breastfeeding. The potential risk for humans is unknown. Tantum Verde® should not be used during breastfeeding.

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.

Intoxication is only expected in case of accidental ingestion of large quantities of benzydamine (> 300 mg). Symptoms associated with overdose of ingested benzydamine are mainly gastrointestinal symptoms (the most frequent gastrointestinal symptoms are nausea, vomiting, abdominal pain and oesophageal irritation) and symptoms of the central nervous system (dizziness, hallucinations, agitation, anxiety and irritability).

Very rarely, in children, excitation, convulsions, sweating, ataxia, tremors and vomiting have been reported after the oral administration of benzydamine dosages (in hundres times higher than possible doses of this dosage form). 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 (≥ 1/10); common (≥ 1/100 to <1/10); uncommon (≥ 1/1,000 to <1/100); rare (≥ 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).

Reporting suspected adverse effects
Reporting of adverse reactions after the registration of a medicinal product is important. This makes it possible to monitor the benefit/risk ratio when using this medicinal product. Medical and pharmaceutical workers, as well as patients or their legal representatives should be notified of all cases of suspected adverse reactions and lack of effectiveness of the medicinal product through the Automated Pharmacovigilance Information System at the link: *https://aisf.dec.gov.ua*

Shelf life. 4 years.

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

Packaging.
120 mL or 240 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.

Location of the manufacturer and its business address.
Via Vecchia del Pinocchio, 22 – 60131 Ancona (AN), Italy.

Міністерство юстиції України

Свідоцтво

про державну реєстрацію друкованого засобу масової інформації

Серія КВ № 24951-14891 ПР

«Журнал діагностики та лікування оральної і щелепно-лицевої патології»
(назва видання державною мовою)

«Journal of Diagnostics and Treatment of Oral and Maxillofacial Pathology»
(назва видання іншою мовою (мовами))

Вид видання журнал
(газета, журнал, бюлетень, збірник, альманах, календар, дайджест)

Статус видання вітчизняне
(вітчизняне, спільне)

Мова (мови) видання змішаними мовами: українська, англійська

Вид видання за цільовим призначенням наукове, науково-виробниче
(громадсько-політичне, наукове, навчальне, інформаційне, рекламне (понад 40 відсотків обсягу одного номера – реклама), еротичне тощо)

Обсяг, періодичність 23,1 ум. друк. арк., формат А4 (210х297мм), 1 раз на місяць

Сфера розповсюдження та категорія читачів загальнодержавна, зарубіжна
лікарі-стоматологи-хірурги; лікарі ультразвукової діагностики, лікарі-рентгенологи, лікарі-патологоанатоми, студенти, лікарі-інтерни, слухачі, аспіранти, докторанти, наукові, науково-педагогічні та педагогічні працівники закладів вищої освіти та наукових установ

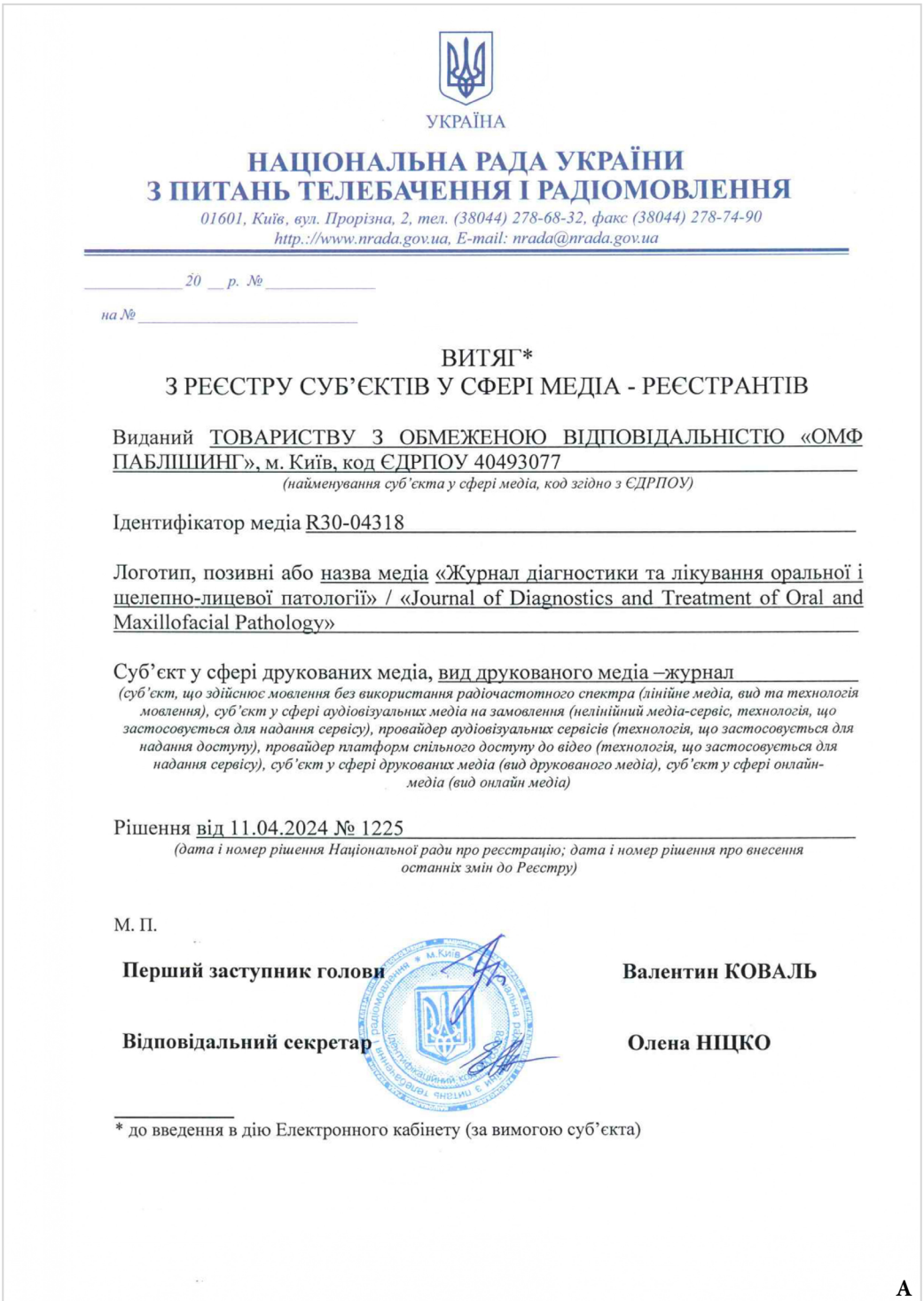
Засновник (співзасновники) Національний університет охорони здоров'я України імені П.Л. Шупика (код за ЄДРПОУ 01896702), Приватний вищий навчальний заклад «Київський медичний університет» (код за ЄДРПОУ 16478809), Товариство з обмеженою відповідальністю «ОМФ ПАБЛІШИНГ» (код за ЄДРПОУ 40493077)

Програмні цілі (основні принципи) або тематична спрямованість журнал присвячений сучасним проблемам діагностики і лікування в хірургічній стоматології та щелепно-лицевій хірургії

Перший заступник Міністра **Євгеній ГОРОВЕЦЬ**

10.08.2021
(дата реєстрації)

FIGURE 1. Certificate of State Re-Registration of the Print Mass Media (journal) in the Ministry of Justice of Ukraine as of 2021. The *Journal* was registered for the first time in 2016 under the title *Diagnostics and Treatment of Oral and Maxillofacial Pathology*. The next re-registration took place in 2019.



УКРАЇНА

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ВИТЯГ*
З РЕЄСТРУ СУБ'ЄКТІВ У СФЕРІ МЕДІА - РЕЄСТРАНТІВ

Виданий ТОВАРИСТВУ З ОБМЕЖЕНОЮ ВІДПОВІДАЛЬНІСТЮ «ОМФ ПАБЛІШИНГ», м. Київ, код ЄДРПОУ 40493077
(найменування суб'єкта у сфері медіа, код згідно з ЄДРПОУ)

Ідентифікатор медіа R30-04318

Логотип, позивні або назва медіа «Журнал діагностики та лікування оральної і щелепно-лицевої патології» / «Journal of Diagnostics and Treatment of Oral and Maxillofacial Pathology»

Суб'єкт у сфері друкованих медіа, вид друкованого медіа –журнал
(суб'єкт, що здійснює мовлення без використання радіочастотного спектра (лінійне медіа, вид та технологія мовлення), суб'єкт у сфері аудіовізуальних медіа на замовлення (нелінійний медіа-сервіс, технологія, що застосовується для надання сервісу), провайдер аудіовізуальних сервісів (технологія, що застосовується для надання доступу), провайдер платформ спільного доступу до відео (технологія, що застосовується для надання сервісу), суб'єкт у сфері друкованих медіа (вид друкованого медіа), суб'єкт у сфері онлайн-медіа (вид онлайн медіа)

Рішення від 11.04.2024 № 1225
(дата і номер рішення Національної ради про реєстрацію; дата і номер рішення про внесення останніх змін до Реєстру)

М. П.

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Відповідальний секретар **Олена НІЦКО**

* до введення в дію Електронного кабінету (за вимогою суб'єкта)

A

FIGURE 2. The *Journal* is registered by the National Council of Television and Radio Broadcasting of Ukraine as print media (**A**) (Decision of April 11, 2024, No. 1225) and online media (**B**) (Decision of April 25, 2024, No. 1454). The identifier of print media is R30-04318 and the identifier of online media is R40-04708. **(Fig 2 continued on next page.)**

УКРАЇНА

НАЦІОНАЛЬНА РАДА УКРАЇНИ
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ВИТЯГ*
З РЕЄСТРУ СУБ'ЄКТІВ У СФЕРІ МЕДІА - РЕЄСТРАНТІВ

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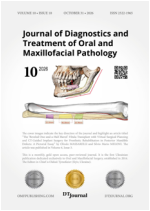
Contents

of the Volume 10 • Issue 10 • October 2026

Article Type	Article Number	Pages	Description
		A1	**Publisher & Editorial Office Information**
		A2	**Editorial Board**
		A6-A8	**State Registration**
		A9	**Contents, Courtesy, & Erratum**
LETTER TO THE EDITOR	100327	1-6	**Fatigue, Hypertension, Dizziness, Anxiety, Depression, Musculoskeletal and Sleep Disorders, and Cardiac Arrhythmia: A Patient with Post-COVID-19 Condition in Dental Practice: 1-Year Follow-Up** Iryna Antoniuk, Olha Reshetnyk, Ievgen I. Fesenko & Oksana Tuz



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LETTER TO THE EDITOR

Fatigue, Hypertension, Dizziness, Anxiety, Depression, Musculoskeletal and Sleep Disorders, and Cardiac Arrhythmia: A Patient with Post-COVID-19 Condition in Dental Practice: 1-Year Follow-Up

To the Editor in Chief,

The sequela of coronavirus disease 2019 (COVID-19), a contagious pandemic disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1], include a broad spectrum of symptoms that fall under the umbrella term *post-COVID-19 condition* (also known as *chronic COVID syndrome*, *long COVID-19*, *post-COVID-19 syndrome*, *long-haul COVID*, *post-acute sequelae of COVID-19*, *post-acute COVID-19 syndrome*, and *long COVID-19 syndrome*) [2, 3].

Global literature has documented how COVID-19 affected surgical practice in oral and maxillofacial surgery [4], as well as oral and maxillofacial manifestations upon both COVID-19 [5] and post-COVID syndrome [6, 7]. At the same time, the general manifestations of post-COVID syndrome—a condition characterized by a prolonged course and numerous symptoms that can baffle even experienced physicians—are not addressed in the practice of oral and maxillofacial surgeons.

The purpose of this letter is to describe a patient with long COVID-19 who presents with a wide range of complaints that could critically impact the management of this condition and the provision of dental and surgical care.

In mid-September 2025, a 67-year-old Caucasian female patient weighing 58 kg with a height of 168 cm (body mass index = 20.5 kg/m2, i.e., normal) (Fig 1) began complaining to relatives of fatigue of unknown origin that had started in late August 2025. She stopped taking her prescribed medication, Lixarit (Laboratorios Normon, S.A.; Spain) 50 mg 2 times daily, for several days, attributing the fatigue to a side effect of the drug. On September 25, at approximately 05:30 pm, the patient experienced an episode of a sharp rise in blood pressure of 182/88 mm Hg and a heart rate of 60 bpm. The next day, the patient underwent an examination by a cardiologist. The following were prescribed: Enap - H (KRKA, d.d.; Slovenia) 5 mg in the morning, Enap KRKA, d.d.; Slovenia) 5 mg in the evening, Mildronat (JSC Grindeks; Latvia) 250 mg twice daily (for one month), and Glycised (Arterium; Ukraine) 2 tablets three times daily (for one month). The patient noted difficulty in handling video calls and performing mental tasks.

On September 27, 2025, the patient's glycated hemoglobin (HbA1c) level was 5.6%, which is within the normal range.

On October 19, 2025, a biochemical profile and automated complete blood count (CBC) with differential revealed several elevated parameters: red blood cell (RBC) count was 4.99 × 10^{12}/L (reference range: 3.7-4.7 × 10^{12}/L), hemoglobin was 148 g/L (reference range: 120-140 g/L), alanine aminotransferase (ALT) was 89 U/L (reference range: <33 U/L), and aspartate aminotransferase (AST) was 52 U/L (reference range: <32 U/L).

The patient complains of periodic sensations of dizziness. The patient herself describes these sensations, noting that, spontaneously while in an upright position, she would feel as though she were on the verge of losing consciousness. On the morning of October 22, 2026, significant weight loss was observed in the patient, along with a gait that could be described as a "zombie gait." The patient has been experiencing soreness in the muscles of the lower legs since September, and in the thigh muscles since October. A brain magnetic resonance imaging (MRI) was performed on October 22, 2025, which showed no abnormalities. The procedure was accompanied by significant fatigue, a panic attack, and marked body tremors, and was conducted with

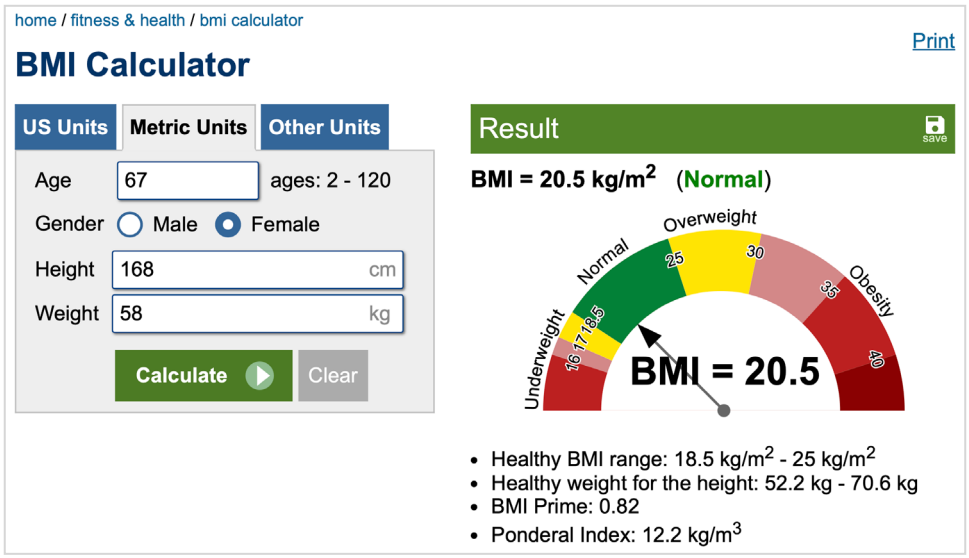

FIGURE 1. The body mass index (BMI) of the 67-year-old long COVID patient, calculated on the website *https://www.calculator.net/bmi-calculator.html* [8].

an anesthesiologist present. After the MRI, the panic attack resolved abruptly, the tremors ceased, and the patient noted a normalization of her gait.

Following a consultation with a neurologist on October 22, 2025, the following medications were prescribed: Magne-B6 (2 tablets twice daily), Arlevert (1 tablet three times daily), and Bifren 250 mg (1 tablet every other day for 14 days).

On October 28, following a neurologist's recommendation, a course of consuming ReO Lightly Carbonated Mineral Water 0.95l (designed to maintain and restore the body's water-salt and electrolyte balance) (Yuria-pharm; Ukraine) was started (1 bottle a day). After starting ReO, the patient's appetite returned for the first time in weeks, and she experienced a significant improvement in her well-being. A diagnosis of post-COVID-19 syndrome was established on October 29, based on the totality of examination data and the course of the disease, and treatment with magnesium citrate capsules was added to the list of the prescriptions.

Summarizing all symptoms and complaints, the following can be identified for the period from August to November 2025: chronic fatigue, dizziness, anxiety, depression, insomnia, and night sweats—specifically, repeated episodes of very heavy sweating during sleep—as well as post-traumatic stress disorder, anxiety, and depression. The patient developed atrial fibrillation (AF) starting in late October. Which manifested as rapid heartbeat at night. Overall, starting in November, the patient began to feel better with each passing day; only atrial fibrillation and night sweats continued to bother her.

On December 30, 2025, a Holter monitor was applied for 24 hours. In total, from September to the end of December 2025, consultations were held with three neurologists, two cardiologists, an ultrasound specialist with ultrasonography, an anesthesiologist, a radiologist, and an oral surgeon.

It is worth noting that the onset of symptoms was not preceded by manifestations of an acute COVID-19 infection. At the same time, the initial symptoms appeared in August in Yahotyn, Kyiv Region, where, during the summer of that year, a family doctor—an acquaintance—observed a significant number of COVID-19 patients seeking care at the local hospital.

From January to July 2026, the patient noted a gradual reduction in symptoms and an improvement in her overall well-being. The only remaining issues were sleep disturbances (the patient described it as feeling as though she were asleep, yet unable to fall asleep) and muscle soreness in her legs.

From July 28 to August 7, 2026, following exposure to cold at a summer cottage, the patient was hospitalized at Yahotyn Central City Hospital for the management of septicemia caused by Gram-negative microorganisms secondary to a urinary tract infection. The clinical course was complicated by a paroxysmal episode of AF, with successful pharmacological cardioversion (medication-based rhythm restoration) achieved on August 1, 2026. The patient's relevant medical history included ischemic heart disease presenting as exertional angina, Stage 2 arterial hypertension (Stage II, Risk 3), and

Stage 1 heart failure. Treatment in the intensive care unit included, among other medications, the administration of Meropenem (Anfarm Hellas S.A.; Greece). An interesting fact: following treatment in the intensive care unit and the subsequent general ward, the patient's bad breath—which had persisted for years—disappeared; this may be linked to the systemic effect of the antibiotic.

On October 15, 2026, following Holter monitoring, a cardiologist prescribed Propanorm (PRO.MED.CS Praha a.s.; Czech Republic) 150 mg (three times daily), Xarelto (Bayer AG; Germany) 15 mg (one time daily), and Rhytmokor capsules (Farkos; Ukraine) (twice daily for 2 weeks). Rhytmokor was discontinued on the 4th day due to the side effect of dizziness.

When assessing the patient's condition exactly one year after the onset of long COVID-19 symptoms, it is worth noting their almost complete resolution, which aligns with recovery timelines reported in the literature [9-11]. Her persistent leg muscle soreness has now become intermittent and is characterized as a mild, workout-like stiffness rated at 2-3 out of 10 on the Visual Analog Scale (VAS), representing a substantial improvement compared to the constant, debilitating soreness experienced in October 2025.

The only remaining symptoms are muscle soreness in the legs and a burning sensation in the knee joints. For nearly 9-11 months, the patient categorically refused the necessary dental treatment due to anxiety and depression, and only after more than 13 months did, she consent to the commencement of the required dental care (Fig 2). A

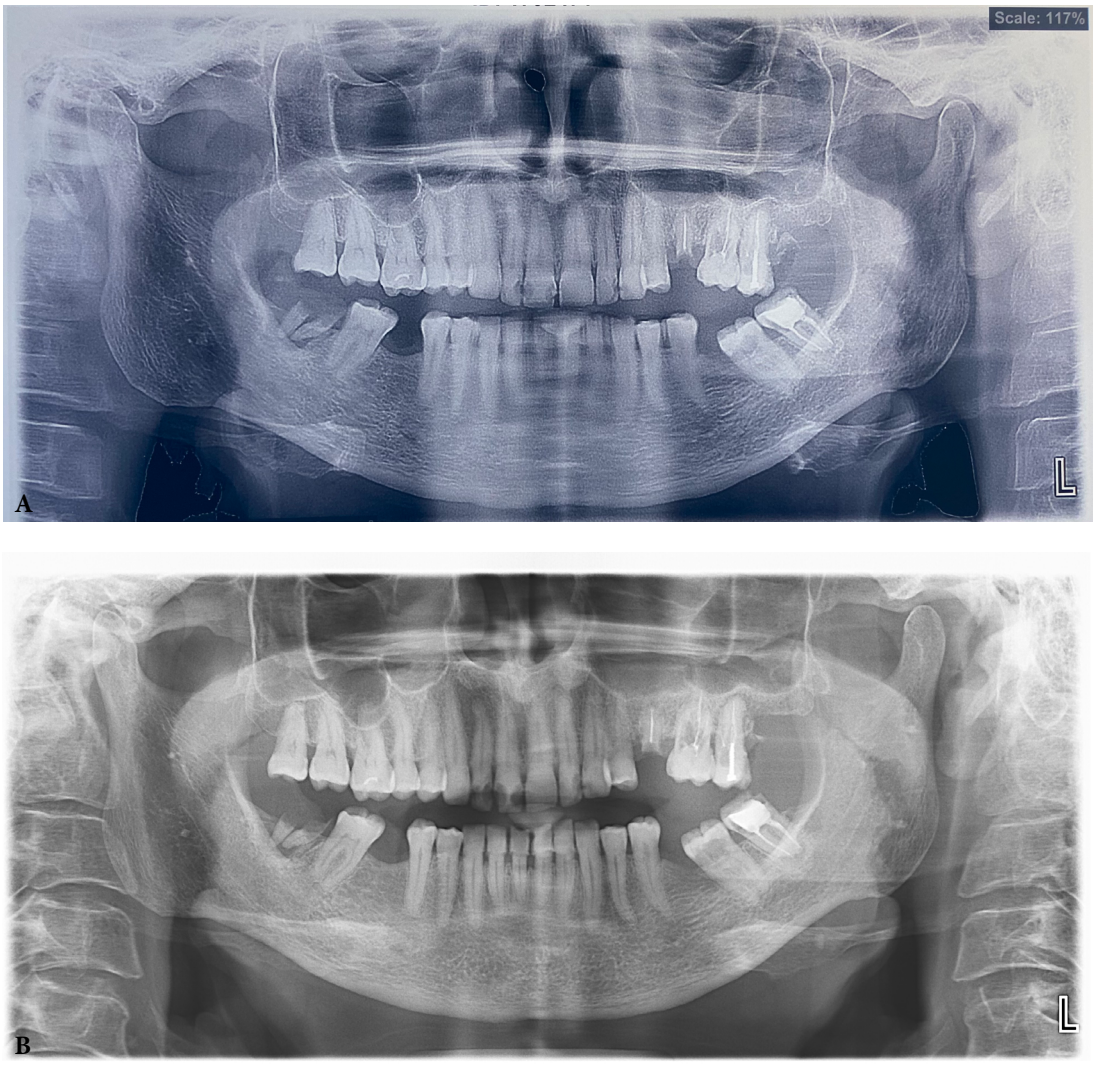

FIGURE 1. Panoramic radiographs of a 68-year-old female patient. (**A**) In the midst of long Covid symptoms (October 15, 2025). (**B**) 1-year and 1-month follow-up from the moment of onset of long Covid manifestations (September 22, 2026).

comparison of the two radiographs clearly indicates the progression of the caries in teeth that required treatment as early as 2025. The patient last visited the dentist in May 2017—that is, more than 9 years ago. The visit to the dentist was postponed due to the coronavirus pandemic and the full-scale invasion that began on February 24, 2022. Dental treatment began on October 10 with professional oral hygiene and periodontal treatment under local anesthesia.

The case of our 67-year-old female patient clearly confirms that patients over 40 years of age recovered more slowly (Jo et al, 2026) [11]. Approximately 15 in 100 people still have symptoms at 12 months as per global estimates from 2022 [10]

Studies suggest that long COVID persists for 24 months after hospitalization due to COVID-19 (Huang et al, 2022; Fernández-de-las-Peñas et al, 2022) [12, 13]. Specifically, the study by the Global Burden of Disease Long COVID Collaborators (2022) [10] estimated that the average duration of long COVID-19 symptoms was 9.0 months for individuals who were hospitalized, and 4.0 months for those who were not. However, a significant cohort (approximately 15.1%) experiences symptoms persisting well past the 12-month mark, as demonstrated in this case.

Terminology has been standardized by the international community: "long COVID" is defined as signs and symptoms that develop during or following an infection consistent with COVID-19 and persist for more than 4 weeks [14]. The National Institute for Health and Care Excellence (NICE) recommends using the term "post-COVID syndrome" from 12 weeks after infection, provided that the symptoms cannot be explained by an alternative diagnosis [14].

In sum, cardiovascular, gastrointestinal, neurological, and musculoskeletal systems are involved upon long COVID by direct or indirect mechanisms with various manifestations [15-18]. During the last years, musculoskeletal involvement increased, but no clear consensus was obtained about the pathogenesis [15]. The risk of developing cardiac arrhythmias is increased after COVID-19 infection in the long term [19-21]. This fact explains the development of AF in our patient.

Boskabadi et al. (2026) emphasize that the cardiovascular system is one of the most important systems involved in long COVID, and even asymptomatic patients have evidence of cardiovascular injury after COVID-19 [19]. Also, it has been noted that varying degrees of anxiety and depression are more frequently observed in patients with AF compared to the general population [22].

For dentists, oral and maxillofacial surgeons, this case underscores the importance of understanding the possible diverse symptoms of long COVID-19 and adopting a multidisciplinary approach for general and dental treatment of such "long haulers" patients [14, 23].

Critical considerations for dentists and oral-maxillofacial surgeons:

For a dentist reviewing this 1-year follow-up, several clinical factors are paramount to safely managing this patient's upcoming surgical or dental care:

1. Anticoagulant therapy and bleeding risks: The patient is actively taking Xarelto (Rivaroxaban) 15 mg daily for AF. For any invasive dental or oral surgery procedure, local hemostatic measures must be planned, and coordination with her cardiologist is necessary to determine if a temporary suspension of the direct oral anticoagulant is required.
2. Hypertensive and arrhythmia thresholds: With a history of paroxysmal AF and a previous hypertensive crisis (182/88 mm Hg), managing perioperative anxiety is critical. Stress can trigger hypertensive episodes or recurrent arrhythmias. The use of local anesthetics with vasoconstrictors (like epinephrine) must be carefully dosed or restricted.
3. Psychological barriers to care: The patient completely avoided dental care for 9 to 11 months due to long-COVID-related anxiety and depression. Building trust, using short appointments, and considering mild sedation or profound local anesthesia are necessary to prevent dental phobias or panic attacks similar to the one experienced during her MRI.
4. Musculoskeletal discomfort: Persistent leg soreness and burning sensations in the knee joints mean that long periods in the dental chair may be physically uncomfortable. Adjusting the chair positioning and scheduling shorter sessions will improve patient compliance.

Abstract: This letter describes a 1-year follow-up of a 67-year-old female patient with a broad spectrum of post-COVID-19 manifestations, including cardiac arrhythmia and anxiety, which severely delayed her dental treatment. It outlines critical clinical

considerations for dentists and oral-maxillofacial surgeons, emphasizing the management of anticoagulant therapy, hypertensive thresholds, and psychological barriers to ensure safe dental care.
Keywords: Post-COVID-19 condition; Long COVID; Post-COVID-19 fatigue; Dentistry; Atrial fibrillation; Anticoagulant therapy.
AI Statement: The authors declare that generative artificial intelligence (AI) (Google Gemini) was used to help synthesize and organize the clinical considerations and management strategies for the oral surgeon section. Additionally, the tool was utilized to generate the initial draft of the abstract and keywords, as well as to update, refine, and correctly integrate the specific statistical data and text regarding the Global Burden of Disease Long COVID collaborative study duration outcomes. The authors independently reviewed, verified, and synthesized all AI-generated suggestions and literature descriptions to ensure clinical safety, factual correctness, and bibliographic accuracy, and take full responsibility for the manuscript's conclusions.
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