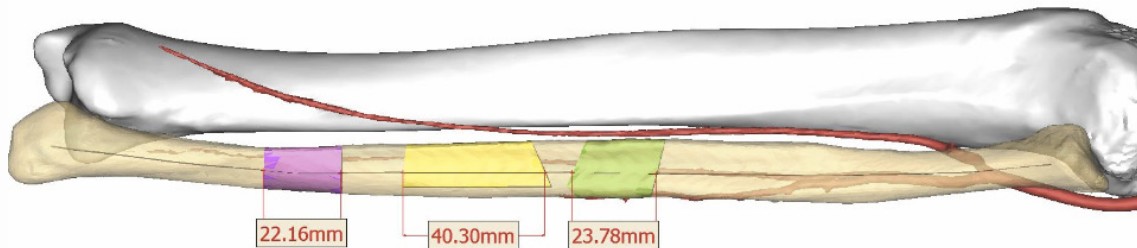
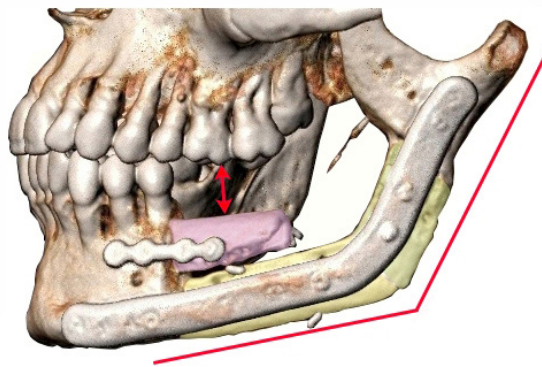


Journal of Diagnostics and Treatment of Oral and Maxillofacial Pathology

8 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 Tymofeiev (Kyiv, Ukraine).



TANTUM VERDE®

QUICK RELIEF FROM PAIN
AND INFLAMMATION IN THE
MOUTH AND THROAT¹

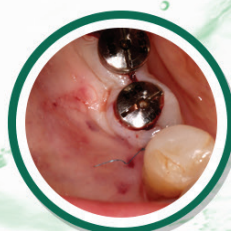
**AN INTEGRAL COMPONENT OF THE TREATMENT
OF PAIN AND INFLAMMATION IN THE ORAL CAVITY
IN DOZENS OF COUNTRIES WORLDWIDE!²**



Reg. № UA/3920/01/01

**LOCAL ANESTHETIC
AND ANTI-INFLAMMATORY
EFFECT¹**

- **JAWS FRACTURES³**
- **IMPLANTS PLACEMENT⁴**
- **WOUNDS OF ORAL CAVITY⁵**



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

AUGUST 2026 • VOLUME 10 • ISSUE 8
www.djournal.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 38 opinion leaders from 15 countries: Brazil, Canada, Colombia, Greece, Hong Kong (SAR), India, Indonesia, Israel, Italy, 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: 10.53% women (4 persons), 89.47% men (34 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.djournal.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: KB № 22251-12151 P)

Re-registration: May 21, 2019 (Certificate: KB № 23999-13839 ПП)

Re-registration: Aug 10, 2021 (Certificate: KB № 24951-14891 ПП).

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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ROR ID: <https://ror.org/017s0zm38>.

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Website: www.omfpublishing.com.

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Digital Object Identifier (DOI) of the Journal

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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, isoeugenol, 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 hundred 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 ($\geq 1/10$); 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).

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.

ADVERTISEMENT

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.

State Registration

AUGUST 2026 • VOLUME 10 • ISSUE 8
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Міністерство юстиції України
Свідоцтво
про державну реєстрацію
друкованого засобу масової інформації

Серія KB № 24951-14891 ПП

«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 (210x297мм), 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 ПАБЛІШІНГ» (код за ЄДРПОУ 40493077)

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

Перший заступник Міністра Євгеній ГОРОВЕЦЬ
10.08.2021
(дата реєстрації)

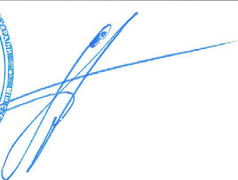


FIGURE 1. Certificate of State Re-Registration of the Print Mass Media (journal) in the Ministry of Justice of Ukraine as of 2021. The *Journal* was registered for the first time in 2016 under the title *Diagnostics and Treatment of Oral and Maxillofacial Pathology*. The next re-registration took place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

State Registration

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УКРАЇНА

**НАЦІОНАЛЬНА РАДА УКРАЇНИ
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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.
Перший заступник голови
Валентин КОВАЛЬ

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.)**

State Registration

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УКРАЇНА

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

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EDITORIAL

Leadership Development for the New Generation of Maxillofacial Surgeons - Part 1: Moving from the Physician to the Physician-Physician Leader

Evangelos G. Kilipiris

ABSTRACT

Many maxillofacial surgeons hold critical leadership positions with no formal leadership training. Furthermore, many of them are anxious about the rapid transformation of healthcare, fearing the loss of values traditionally associated with doctors, such as autonomy and respect. In the first part of this series, I present on the one hand some core elements of the typical clinical training of physicians, and on the other hand, some critical leadership skills that physicians in leadership roles should pursue to effectively shape their organization on a large scale, to vividly show the disconnect in the capacity to build the maxillofacial surgeon-leader in the current complex hospital environment. The catalytic role of leadership in healthcare is also highlighted across quality and safety outcomes, physicians' well-being, and satisfaction.

KEY WORDS

Medical leadership, maxillofacial surgery, leadership skills, healthcare, surgeon-leadership workforce

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Medicine involves leadership, and many physicians assume significant leadership responsibilities throughout their careers [1]. But today, in the rapidly changing healthcare ecosystem, the explosion of daily knowledge is going off within clinical training institutions, fragmented and disorganized, to be meaningfully absorbed by maxillofacial surgeons with no formal leadership education, despite being central players in this transformation [2]. The result is a disconnect between the capacity of the surgeon-leadership workforce and the daily roles and needs of our expanding, increasingly complex hospital environments, which require skills beyond those developed during their clinical training, which focused only on clinical disease management and research.

During their residency training, maxillofacial surgery senior residents lead teams of junior residents, nurses, and other care personnel without any formal training or experience in managing teams effectively. In addition, they gain the skills to be self-sufficient and make decisions independently. To close this gap, maxillofacial surgeons will require leadership skills not acquired during traditional medical training [3]. Their individual hard work and best intentions can no longer guarantee efficient, high-quality care. When it comes to implementing ideas at scale, healthcare organizations must recognize that leadership skills aren't automatically endowed upon joining an organization, since there is no prior training in operations and program development.

Many physicians enter medicine not just to improve individual lives directly but also to make a difference on a larger scale by shaping the direction of their organizations. Many physicians become chairs, deans, or assume hospital executive roles. However, no tailored leadership training is regularly offered to them, and any promotion in the medical field is currently structured around clinical, research, or educational skills rather than leadership skills such as organizational behavior, strategy, decision-making, or conflict resolution.

Maxillofacial leaders should i) appropriately distinguish between urgent tasks and important non-urgent tasks, ii) identify tactics to build and manage high performance teams, iii) develop organizational strategies, iv) establish negotiation strategies focusing on understanding and engaging with people more effectively, v) demand respectful behavior from all team members articulating a strong

commitment to collaboration, vi) not only own vision and develop ideas but also to build execution plans and implement them by being close to every detail shaping and doing the work, vii) be thoughtful and curious because most complex situations require thoughtful consideration rather than reflexive responses, viii) collect and process information, ix) focus on organizational alignment rather than outcomes, x) learn about the financial capital, xi) understand the social capital, skills, awareness, and the relationship aspects of leadership when people work together, xii) innovate and advance the care their hospitals provide, xiii) develop teams- a key leadership function for all healthcare professionals at all levels, xiiii) build a process-improvement culture inside their organization, xiv) make hard decisions and handle hard conversations, xv) work across silos, xvi) carefully consider the colleague experience, xvii) act urgently and mindfully on burnout among physicians, xviii) lead person-to-person interactions that start with setting common values and a shared purpose for the institution, xix) learn to solve problems side by side with physicians finding mutual solution with them instead of them, xx) increase the focus on fundamental verbal and non-verbal communication skills and public speaking, xxi) embrace checklists and debriefings to improve quality and safety for every activity by deeply understanding and acting on quality and safety principles, xxii) coach and give feedback, xxiii) enhance interprofessional communication, xxiv) cultivate a strategic perspective, and xxv) be comfortable with recognizing, disclosing, and addressing errors.

These are some of the leadership skills that the new generation of maxillofacial surgeons must adopt effectively, underscoring the need for tailored training for each new challenge before taking on the next responsibility. Furthermore, this should happen, overcoming the risk of losing their clinical identities as they move into leadership roles [4]. As they continuously develop the core leadership skills required to lead and shape their institutions effectively, they must firmly hold on to the heart and practice of medicine, because without maintaining their physician identity, it will be hard to make distinctive contributions.

The importance of leadership in healthcare is well recognized and results in high standards of care. The Medical Leadership Competency Framework

(MLCF), developed by the Academy of Medical Royal Colleges and National Health Service (NHS) Institute for Innovation and Improvement, describes nine leadership dimensions to promote leadership within healthcare, such as inspiring shared purpose, sharing the vision, and developing capability, among others [5].

The concept of medical leadership has emerged as a critical issue in healthcare, with numerous institutions globally adopting measures to enhance leadership competency among physicians, focusing on team-based, patient-centered approaches, and addressing cultural sensitivity, crisis management, business skills, and digital literacy. In a single-center, qualitative study, 40 semi-structured, 50-minute interviews with physicians who were serving or had served in leadership positions found that the majority considered leadership important to their career success [6]. In addition, they discussed a new model of leadership comprised of the “Four Cs of Physician Leadership”: Character, competence, caring, and communication, revealing a more holistic leadership framework.

The English NHS designed a quasi-experimental study using five years’ data to examine the performance benefits of increased involvement of clinical professionals in senior leadership roles, based on quality and safety outcomes, patient experience, and hospital infection rates. Their findings support the view that medical leadership is an important field of activity with significant value in improving quality and safety, and they pass a message to policymakers to reinforce the importance and usefulness of investing in training and developing physician leaders [7].

Similarly, the Strengthening Primary Health Care Leadership: Global Capacity Building Course aimed to build technical and strategic leadership skills, focusing on a shared commitment with long-term interventions to improve health outcomes [8]. Their work indicated that significant attention should be paid to leadership development. It provided a comprehensive framework for physician leadership development that demonstrated increased career success, reduced burnout, and improved productivity, resulting in better healthcare quality outcomes.

Effective leadership also affects physician well-being, with lower burnout and higher satisfaction. It also equips physicians to lead larger, multidisciplinary teams better. Mayo Clinic has implemented nine organizational strategies to promote physician engagement and reduce burnout, highlighting as one

core strategy the direct effect leadership can have on the professional satisfaction of individual physicians [9]. Evidence from their study of more than 2,800 physicians suggested that the leadership behavior of physician supervisors played a critical role in the well-being of the physicians they led. They pointed out that to harness the power of effective leadership, the right leaders should be selected, these individuals must be developed and equipped for their leadership role, and their performance should be regularly assessed by the individuals they lead.

But, the modern healthcare ecosystem is characterized by constant, unpredictable change, and despite recent leadership initiatives and strategies, medical leadership remains highly informal, sporadic, and fragmented. However, starting the maxillofacial leadership training and work very early at the grassroots level in a strictly structured way can benefit patients, physicians, and healthcare organizations in a holistic and sustainable way.

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ORIGINAL RESEARCH ARTICLE

Management of Cephalohematoma: A Reference Center Experience and Description of a Refined Surgical Technique

Daniel Vélez Restrepo^{a,*}, Andrés Urrego González^b, & Juan Esteban Salas Vargas^c

ABSTRACT

Background: Cephalohematoma is a common perinatal complication that typically resolves spontaneously. However, persistent cases may progress to calcification from the periphery toward the center of the hematoma after 4 weeks, resulting in cranial asymmetry and aesthetic deformity. There is currently no global consensus on the optimal timing and method of intervention. **Methods:** We analyzed the experience of a craniofacial reference center in Medellín, Colombia, in the management of both non-calcified and calcified cephalohematomas. Acute cases were initially observed. Persistent fluid collections were managed via percutaneous aspiration. Early “egg-shell” ossifications underwent minimally invasive removal, while mature calcified lesions with significant asymmetry were treated via craniotomy and tangential burring at approximately 12 months of age. **Results:** Twenty-two patients underwent percutaneous aspiration without complications or residual deformity. Seven patients with calcified cephalohematoma underwent surgical correction (mean age: 11 months). The mean operative time was 201 minutes, with a mean estimated blood loss (EBL) of 15 mL. No blood transfusions, infections, or reoperations were required. All patients achieved satisfactory aesthetic outcomes at 12-month follow-up. **Conclusion:** A staged management algorithm—ranging from aspiration to a specialized craniotomy and burring technique—provides safe, reproducible, and aesthetically satisfactory results for cephalohematoma at various stages of evolution.

KEY WORDS

Cephalohematoma, percutaneous drainage, calcification, craniectomy, cranial asymmetry

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INTRODUCTION

Neonatal cephalohematoma is a subperiosteal hemorrhage confined by cranial sutures, with an estimated prevalence of 0.5% to 3% [1]. Risk factors such as vacuum extraction, occiput presentation, prematurity, fetal scalp electrode use, and gestational diabetes have been described.

While most cases resolve within the first weeks of life, complications such as infection, jaundice, anemia, and progressive calcification may occur [3]. Calcified cephalohematoma poses a significant challenge, as it leads to permanent cranial vault asymmetry and potential psychosocial impact [5].

Despite its prevalence, a standardized treatment algorithm remains elusive. Some authors suggest intervention for collections exceeding 50 mm after the first month of life to prevent ossification [4]. This study describes our institutional experience and a refined surgical technique for calcified lesions that prioritizes bone remodeling and minimizes the need for blood transfusions.

METHODS

Patient Selection and Evaluation

A retrospective review was conducted of patients referred to our craniofacial unit between September of 2022 to September of 2025. Parent informed consent was obtained before photographs were taken both pre and postoperative. This study was approved by the hospital ethics committee.

Neonates with large (diameter > 50 mm measured by computed tomography or ultrasound) [2] or bilateral cephalohematomas were monitored for 2-3 weeks. If the collection persisted or was associated with refractory hyperbilirubinemia, intervention was indicated. For calcified lesions, diagnosis was confirmed via low-dose cranial computed tomography (CT) with 3D reconstruction to plan the surgical approach.

Percutaneous Aspiration Technique

Aspiration was performed at the bedside under local anesthesia (topical EMLA [eutectic mixture of local anesthetics]). Under strict aseptic conditions, a 22-gauge IV catheter connected to a 20-mL syringe was used. Following drainage, a pressure dressing was applied for 24 hours (Fig 1).

Minimally Invasive “Egg-Shell” Resection (Early Ossification Stage)

For patients in the early stage of ossification—characterized by a thin, “egg-shell” layer on CT—a minimally invasive approach is preferred. A 2-cm linear incision is made over the vertex (apex) of the cephalohematoma. Following subperiosteal elevation, the incipient ossified layer is fenestrated using a high-speed burr. The organized fibrous content and residual hematoma are then evacuated. The remaining calcified shell is meticulously resected using rongeurs. Finally, the bone margins are leveled with a bone rasp to ensure a smooth contour and a seamless transition with the surrounding calvarium. This technique minimizes surgical trauma and avoids the need for extensive craniotomies in early infancy. Figure 2 depicts an exemplary case in a 5 weeks old patient with bilateral early ossified cephalohematomas.

Surgical Management of Calcified Lesions (Late Ossification Stage)

For mature calcified cephalohematomas, we employed a “Craniotomy and Translucency-Guided Burring” technique. Under general anesthesia, a wavy (stealth) incision was performed. The exostosis was demarcated using methylene blue. A craniectomy was performed using a 3-mm match-head burr and a pediatric craniotome. The key step involves tangential burring of the external cortex of the bone flap. The endpoint of burring was determined by bone translucency (transillumination) and manual palpation to ensure a uniform thickness comparable to the surrounding normal bone (Fig 3). The remodeled flap was then secured using a resorbable fixation system (Resorb X; Gebrüder Martin, KLS Martin Group), and standard closure with absorbable sutures was performed. Patients were admitted to the surgical ward and discharged home the following day.

RESULTS

A total of 29 patients were treated. In the non-calcified cohort (n=22), percutaneous drainage successfully resolved all collections. In the surgical cohort (n=7), the mean age at surgery was 11 months (range 4–16 months) (Table 1). Two patients were

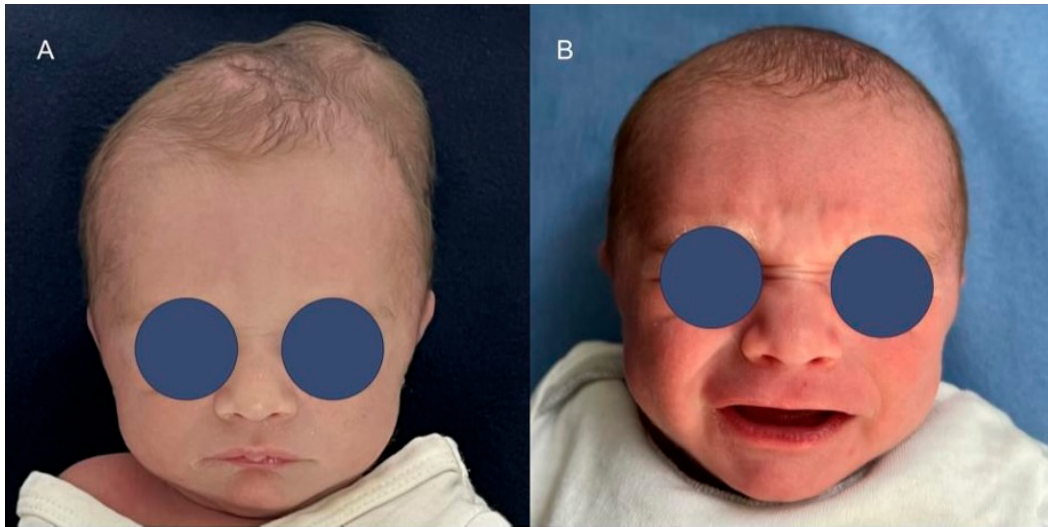


FIGURE 1. Figure demonstrates a preoperative (A) and postoperative (B) photo of a patient treated by percutaneous aspiration technique.



FIGURE 2. A five-week-old patient with bilateral early ossified cephalohematomas, treated with minimally invasive “egg-shell” resection. Computed tomography (CT) findings in coronal view (A). Pre-operative frontal view (B). First post-operative day frontal view (C).

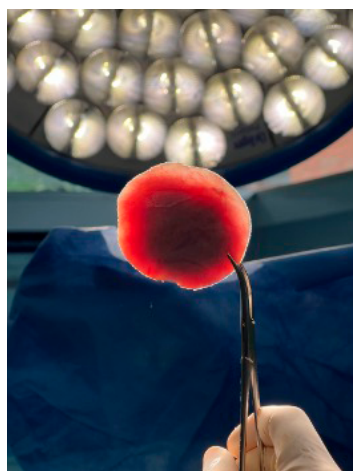


FIGURE 3. Typical translucency after craniectomy.

TABLE 1. Patient Demographic and Surgical Procedure Data.

Patient	DOB	Date of Diagnosis	Surgical Time (min)	Estimated Blood Loss	Technique
1	30/08/2021	28/11/2022	215	<10 ml	Minimally invasive
7	17/06/2019	22/9/2022	205	10 ml	Minimally invasive
2	09/06/2022	16/01/2023	217	20 ml	Craniotomy
3	30/04/2022	03/04/2023	208	20 ml	Craniotomy
4	17/04/2022	20/04/2023	215	15 ml	Craniotomy
5	21/06/2022	28/09/2023	144	>10 ml	Craniotomy
6	11/10/2023	16/09/2024	204	20 ml	Craniotomy

DOB, date of birth.

operated using a minimally invasive approach (egg-shell resection) and 5 patients were operated using the “guided burring” technique. The mean operative time was 201 minutes, and estimated blood loss (EBL) was remarkably low (mean: 15 mL), precluding the need for any blood transfusions. No postoperative complications, such as hematoma or surgical site infection (SSI), were observed. An exemplary case is depicted on Figure 4.

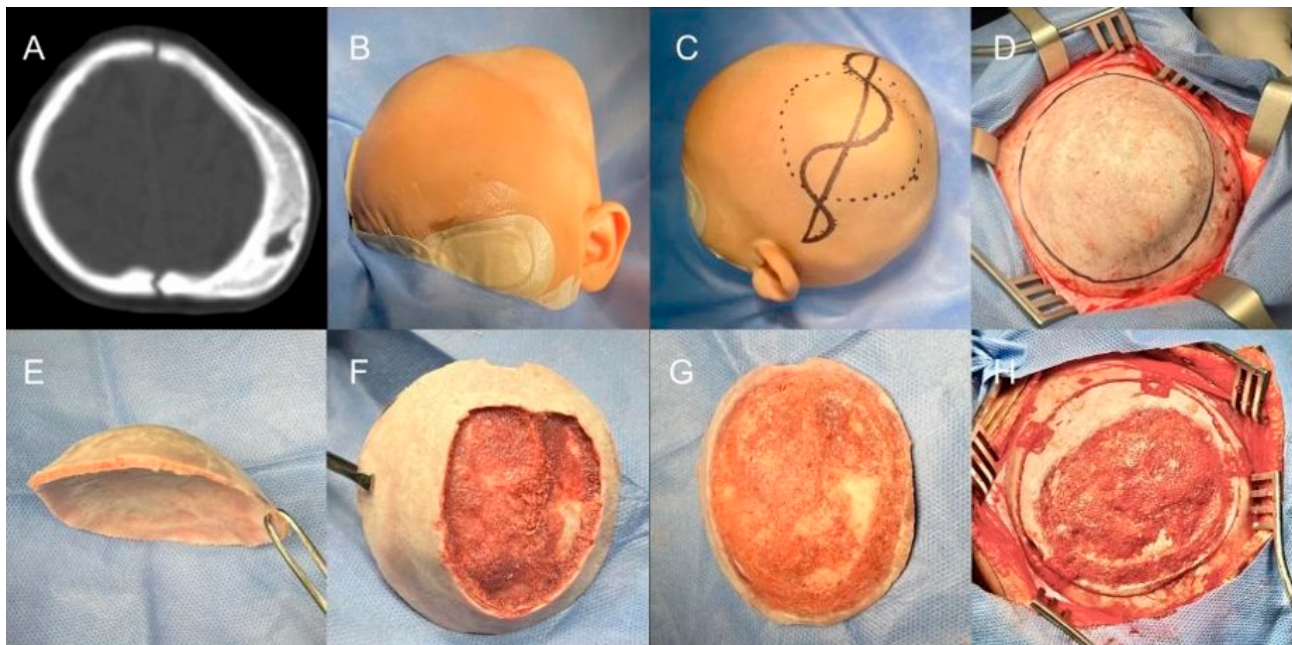
Postoperative photos were taken by a standardized manner. Parents were asked about their level of satisfaction regarding the esthetic result. In all cases, both parents and surgeons reported satisfactory results with no need of further procedures.

DISCUSSION

The management of cephalohematoma remains a subject of debate. While conservative management is the standard for small collections, our data suggest that early percutaneous aspiration (around week 3-4) is a safe and effective method to prevent the “egg-shell” calcification phase.

Although there is no consensus on what is defined as a small or large cephalohematoma, the authors decided to use the definition published by Üçer et al. (2021), which is the biggest observational cohort to our knowledge (94 patients) [2].

Xi et al. (2025) reported that the majority (83%) of

**FIGURE 4.** Image sequence of preoperative CT scan (A), intraoperative photos (B-G) and final surgical result before wound closure (H).

cases required only a single puncture, with no cases of infection or ossification. Despite this data, parents are informed about the possibility of infection [1, 5] or repeated punctures if needed. Our data compares to international standards regarding infection rate.

Our described surgical technique for calcified lesions—performing a craniotomy for *ex vivo* burring—offers several advantages over simple *in situ* burring or flip over techniques. First, it allows for the assessment of bone thickness via transillumination, preventing accidental dural exposure. Second, it ensures a more symmetrical reconstruction of the cranial contour. Finally, delaying surgery until approximately 12 months of age, when the patient's blood volume is higher, significantly reduces the risk of transfusion-related complications, as evidenced by our 0% transfusion rate.

Pediatric units should be encouraged to diagnose and refer promptly all patients with persistent cephalohematoma after two weeks of life, thus providing early treatment and avoidance of unnecessary open interventions and longer scars.

CONCLUSION

Management of cephalohematoma depends on the age of presentation and stage of calcification. A comprehensive algorithm is described for the entire spectrum of clinical presentation. Our *ex vivo*

technique presents some advantages over previously published techniques and proves to be an effective and safe option for calcified lesions.

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