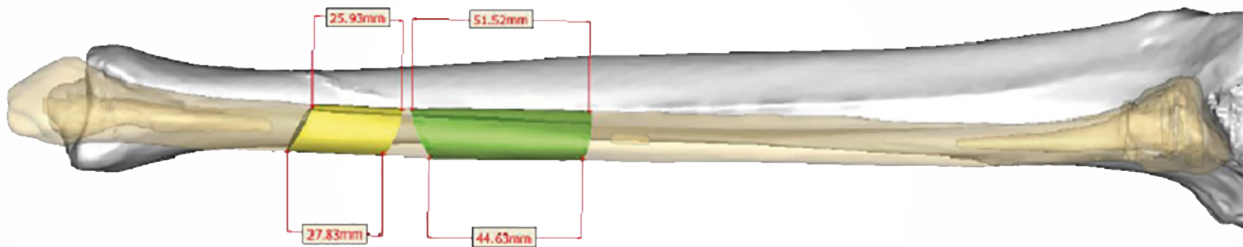


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of Oral & Maxillofacial Pathology

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Editors
Oleksii O. Tymofieiev & Rui P. Fernandes
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Goals & Scope

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. When citing this journal, abbreviate as *J Diagn Treat Oral Maxillofac Pathol*.

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FIGURE. Professor Oleksii O. Tymofieiev (*left*) and Professor Rui P. Fernandes (*right*) at 1st International Scientific Congress of the Azerbaijan Society of Oral and Maxillofacial Surgeons. 14 March, 2019; Baku, Azerbaijan.

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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 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.

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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From a January 2019 the *Journal* became a monthly publication. Taking into account that individuals or institutions who have already subscribed 4 Issues (in 2019) or will subscribe the *Journal* in 2019 will receive additional 8 Issues free of charge.

From the end of 2019 it will be possible to subscribe all 12 of 2020-year Issues.

ANOUNCMENT: At the end of the 2019 it will be possible subscribe the *Journal* from any corner of the globe via *Journal*'s website.

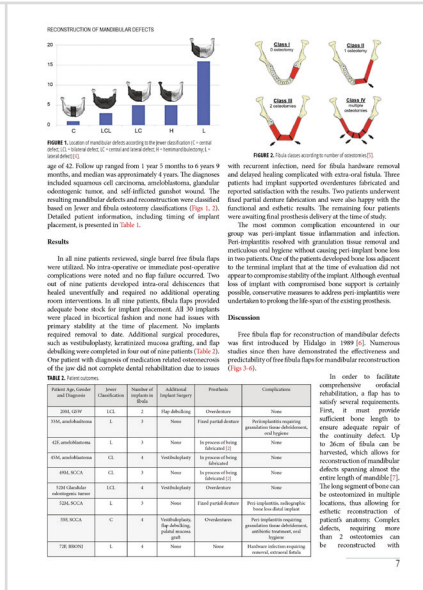
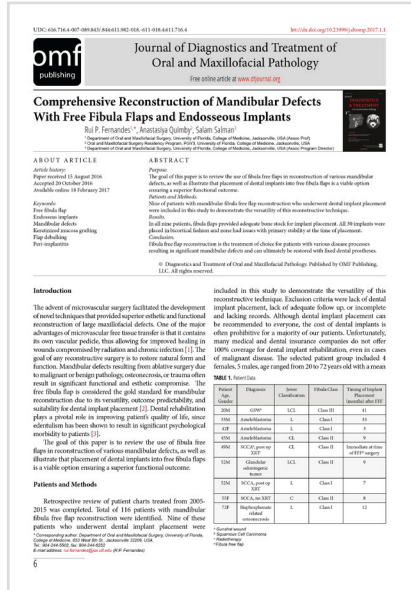
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Journal's cover image (virtual surgical planning for a segmental mandibular reconstruction with fibula transplant) is courtesy of:

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Image was taken from the article (*upper images* is a first and second pages of the publication): 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;1:6–10.

31st World Congress of the International College for Maxillo-Facial-Surgery

In Conjunction with the Annual Conference of the
Israeli Association for Oral and Maxillofacial Surgery

October 29 - November 1, 2019 | Hilton Hotel, Tel Aviv, Israel



WELCOME LETTER

Dear Colleagues,

Tradition and progress coming together.

Maxillofacial surgery is one of the most diverse and challenging professions. We operate while influencing on a person's facial appearance, some of the times unintentionally while at other times in order to improve appearance. We treat bony tissue and soft tissue, functional structures and aesthetic structures, healthy people and sick ones, children and adults. Our field includes numerous procedures; from minor oral surgery and implantology up to major head & neck surgery and reconstruction.

Due to the diversity of our field, an increased number of technological developments are introduced constantly, starting from minimal invasive endoscopic instrumentation up to virtual 3D pre planning of operations and personalized surgical guides and implants.

Research is an important part of our field and completes the clinical activity.

All of the above require us to exchange experiences and developments in our field in order to allow the best possible care for our patients.

In light of the importance of these scientific meetings it is my pleasure to invite you to the 31st World Congress of the International College for Maxillo-Facial-Surgery (ICMFS), which will be held in Tel Aviv, Israel between the 29th of October and the 1st of November 2019 (www.icmfs2019.com).

This congress will include keynote lectures from some of the most experienced and well known surgeons of our field.

In addition, we want this congress to act as a platform for all of you to exhibit your experience as well as your research accomplishments while conducting discussions to improve you as a clinician and researcher.

In this congress you will be exposed to keynote lectures, oral presentations, poster presentations, masterclasses, panel discussions, evening receptions and more. You will get the chance to meet new people in your field and form collaborations.

You will have the opportunity to see Israel with all of its historical past and numerous beaches and cultural experience as well as great food and great weather.

We are looking forward to meet you all in the congress and have a wonderful time together in Israel.

Adi Rachmiel, Professor
President, 31st ICMFS World
Congress 2019

Dr. Yoav Leiser
President Elect, Israeli Association for
Oral and Maxillofacial Surgery



Editorial

Journals and PlumX Metrics

Oleksii O. Tymofieiev^a, Ievgen I. Fesenko^b,
& João Luiz Gomes Carneiro Monteiro^c

Information technology is at the core of how you do your business and how your business model itself evolves.

—Satya Nadella
CEO, Microsoft

Plum Analytics (also known as PlumX) is an online tool which belongs to altmetrics (full term: alternative metrics) data providers and measures of hidden research impact based on online activity – such as saving of papers in Mendeley, downloads, social media sites (Facebook, Twitter), and blogs.^{1,2} PlumX history: founded in 2012 by Andrea Michalek and Mike Buschman, acquired by EBSCO Information Services in 2014, and final acquisition by Elsevier happened in 2017.³ PlumX was successfully integrated into Elsevier's products, including Scopus, ScienceDirect, Pure, Mendeley, and SciVal.⁴ PlumX categories of metrics are: citations, usage, captures, mentions, and social media.⁵

So, how PlumX works we can see on the example of Elsevier's gold open access journal focused on head and neck surgery – *Otolaryngology Case Reports*.⁶ The journal's official webpage contains PlumX link to the article of Barber et al.⁷ Article's metrics

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So, it's an honor to editorial staff of *DTJournal* and OMF Publishing company to congratulate Elsevier with implementation of a powerful altmetrics tool which definitely helps individual researchers uncover the full impact of their work.¹ Furthermore, researchers who know how their project is impacting the scientific community get inspired to do their best in future projects.

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Head & Neck Infection | Ultrasound: Case Report + Video

Accuracy of Ultrasound in Diagnostics of Odontogenic Infection in Layers of Temporal and Parotid Masseter Region

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SUMMARY

The current study presents the case of a first well described profound ultrasound (US) soft tissues examination in a 65-year-old female with odontogenic phlegmon of the masticator space. Consecutive preoperative clinical images, sonograms and US cine loops in comparison with asymptomatic side are presented and described. Terminology related with head and neck purulent conditions in the area of temporal and a masseter region is fundamentally analyzed.

Purulent processes in the soft tissues of head and neck areas are often challenging even to experienced oral and maxillofacial surgeons. It is usually very disputable and unclear in what soft tissue layers a collection of pus is present.¹ Knowledge of precise localization of purulent content is crucial for decisions regarding surgical intervention.¹ There is a bunch of literary sources²⁻⁵ which describe diverse aspects of diagnostics and management of purulent head and neck conditions, but not

enough number of articles⁶⁻⁸, presenting a profound description of ultrasound (US) images in those patients. And even many fewer studies focus on ultrasound upon infection of masticatory space.^{9, 10} Despite the fact that many reports contain data about ultrasonography of masseter muscle in non-purulent cases,^{11, 12} there is complete lack of studies, presenting good quality US scans with supplement video materials of infection in both parotid masseter and temporal region. We present a sequence of

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US images with three videos describing case of a 65-year-old woman with a severe odontogenic infection of temporal and parotid masseter regions. The purpose of our report is to cover the gap about US anatomy and investigation of masticatory space¹³ upon severe infection; the anatomical and nosological terminology will be discussed as well.

CASE

A 65-year-old female presented to the Kyiv Regional Clinical Hospital with 8-day history of increasing swelling first involved the right parotid masseter area and then also in right temporal area after a several day pain in the right lower second molar, severe trismus, fever, and orofacial pain. Clinical examination showed a notable right-side “hourglass” view² (Figs 1 and 2) and palpation revealed painful tenderness in the swelled areas. Ultrasonography (model: HD11 XE, Philips) was performed by an experienced (11 years) physician of ultrasound diagnostics (O.S.C.) using linear transducer (12-3 MHz). For better understanding the soft tissue changes at sonograms of the areas of complaints we started US examination from the contralateral asymptomatic side. Gray scale sonograms of the left asymptomatic parotid masseter region (Fig 3) revealed no signs of inflammation: masseter muscle was 0.69 cm in thickness what was two times thinner than the inflamed contralateral masseter muscle. Seizes and echogenicity of the left parotid gland and subcutaneous cellular tissue were also not changed. There can usually be an assertion that it is worth measuring and comparing the size of the masseter muscle while relaxing the muscle and maximal occlusion.¹² But in our case, as the patient had a trismus, the measurements on both sides were conducted in the same conditions. Sonograms of the left asymptomatic temporal region (Fig 4) showed no signs of inflammation in the soft tissues. B-mode US of the right masseter muscle (Fig 5) confirmed its enlargement up to 2.08 cm and subcutaneous cellular tissue (indicated by two ‘x’ calipers) – up to 0.8 cm. Dissociation of masseter fibers by hypoechoic fluid (pus) indicated for the surgeons that middle layer of masseter region have to be drained. Figure 6 (gray scale sonogram) shows a collection of significant amount of anechoic fluid, i.e., purulent content in our case, between outer surface of the mandibular ramus and fibers of masseter muscle as

a typical location of submasseteric space abscess. This US data indicated to surgeons the fact that the deep layer of masseter region should also be drained. Color Doppler sonogram (Fig 7) of a right inflamed masseter muscle showed a striking increase of intramuscular vascularity, indicating the inflammatory hyperemia. Noted a significant swelling of subcutaneous cellular tissue and the masseter muscle was enlarged in two times (up to 2.2 cm). A collection of hypoechoic fluid (pus) between the muscle fibers is also indicated in Figure 7. The Videos 1-3 (Supplemental Video Content) clearly demonstrate location of purulent content in deep layers of masseter region, behind zygomatic arch, and temporal area. Videos are available in the page of the full-text article on dtjournal.org and in the YouTube channel ‘Videos DTJournal’, available at <https://youtu.be/s8E0pws6M6U> (Video 1), <https://youtu.be/eKJIEq7PJTU> (Video 2), and <https://youtu.be/VEkx2GK2LZU> (Video 3). Total duration of every video is 03 sec. Thus, US data gave to the surgeons a clear information that purulent content is located 1) between masseter muscle fibers, 2) between external surface of the ramus and masseter muscle, 3) involved fat pad of the temporal fascia, 4) fat pad deep to temporal fascia, 5) dissociating fibers and tendons of the temporal muscle, and reached 6) space between temporalis muscle and pericranium. According to Flynn anatomic spaces gradation of infection process severity, our case, with partial masticatory space involvement, related to moderate severity.¹⁴ The surgery was done under general anesthesia with fixation of double perforated tubular drainage systems for 3 days (with every day irrigation by antiseptic solution: 0.02% chlorhexidine hydrochloride). All locations in which the pus is visualized upon US have been confirmed presenting during the surgery.

DISCUSSION

First, before analyzing our case, we need to thoroughly discuss the terminology of purulent processes in head and neck areas accepted in different scientific works and countries. Five main terms, related with purulent inflammation in soft tissue layers, are very common in English-language sources: 1) cellulitis (*synonym*: inflammatory infiltrate), 2) abscess, 3) phlegmon, 4) necrotizing fasciitis, and 5) purulent-necrotic phlegmon.²



FIGURE 1. Anterior view of patient with diagnosis odontogenic phlegmon of the right parotid masseter and temporal regions before treatment. A significant swelling in the right temporal (*arrowhead*) and parotid masseter region (*arrow*) is representing an "hourglass" view.² Printed with permission and copyrights retained by O.A.N.

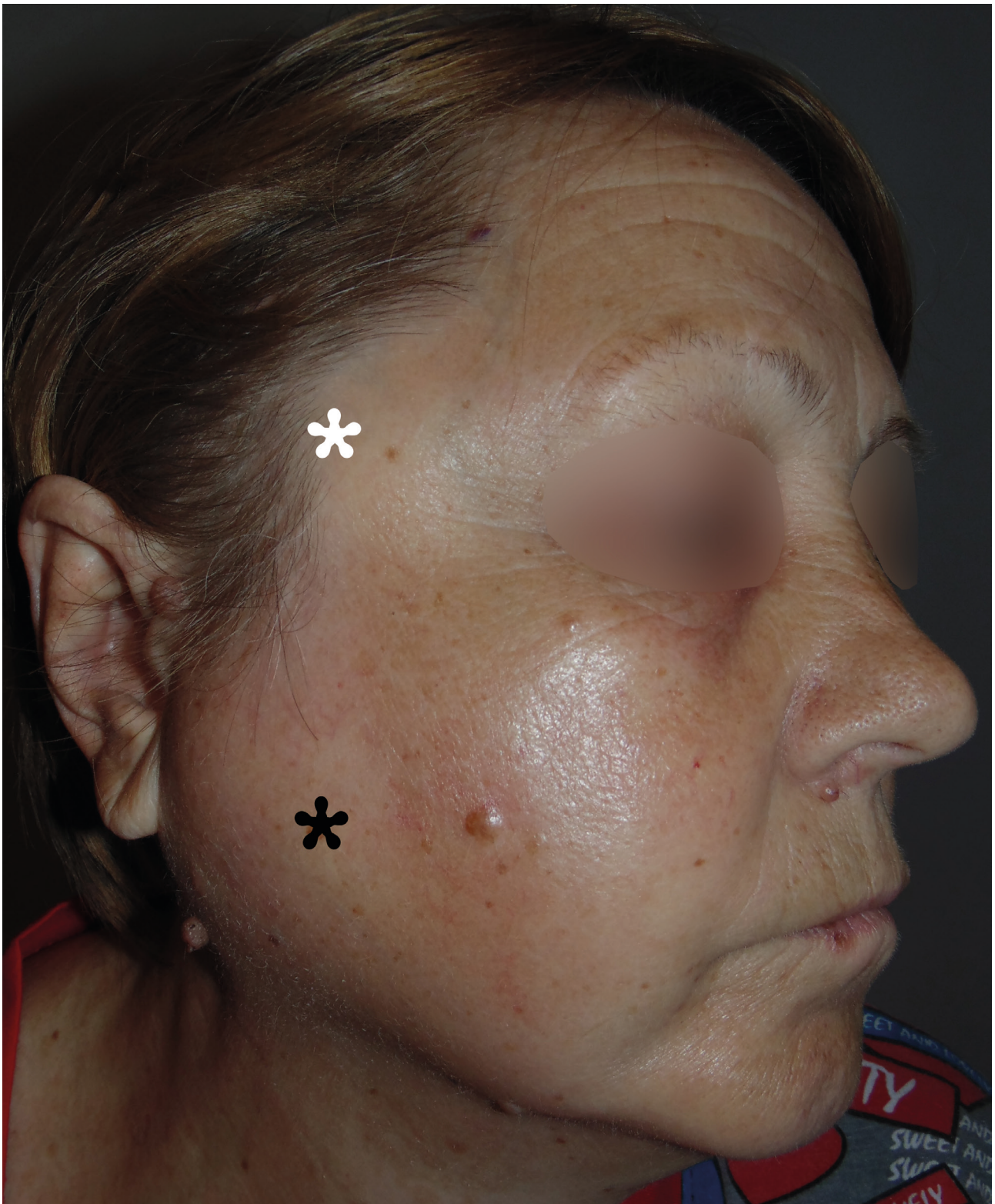


FIGURE 2. Lateral view demonstrates swelling in the right temporal (*white asterisk*) and parotid masseter region (*black asterisk*) with no signs of skin redness, which indicates that purulent content localized in the deep layers of soft tissues. Printed with permission and copyrights retained by O.A.N.

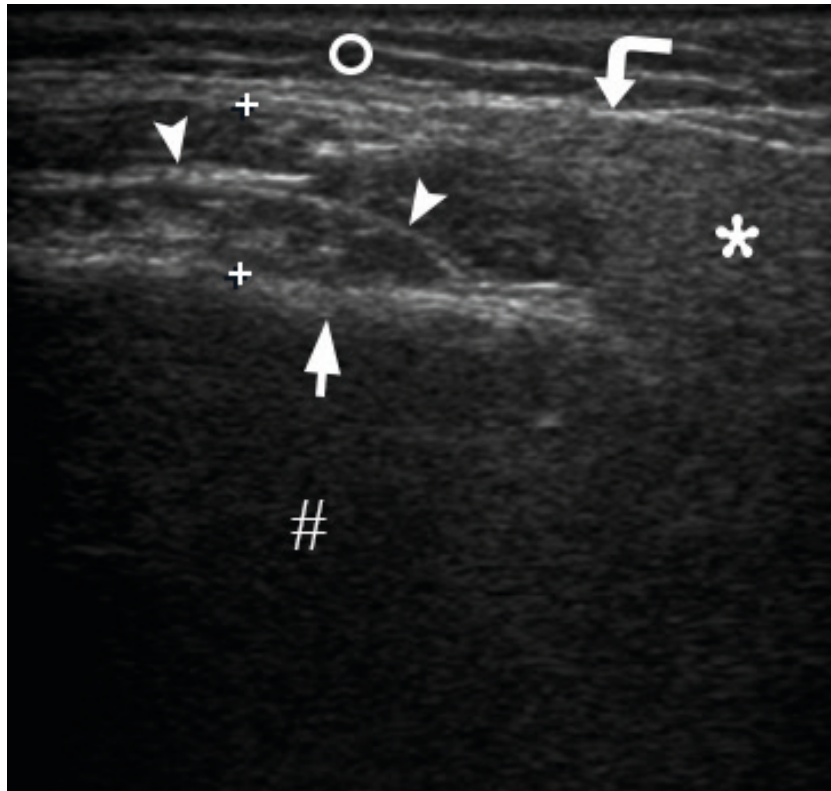


FIGURE 3. Transverse gray scale sonogram of the left asymptomatic parotid masseter region. Notes no signs of inflammatory process: masseter muscle (between '+' calipers) is 0.69 cm in thickness and it's two times thinner than the inflamed contralateral masseter muscle. Connective tissue membranes between masseter sections and layers are indicated by *arrowheads*. Seizes and echogenicity of the left parotid gland (*asterisk*) and subcutaneous adipofascial tissue (*circle*) are not changed. Thick hyperechoic line (*arrow*) represents external surface of the mandibular ramus. *Hashtag* indicates artifact of acoustic shadowing, which is a result of reflection of US waves from the mandible and parotid fascia labeled by *curved arrow*. Printed with permission and copyrights retained by O.S.C. and I.I.F.

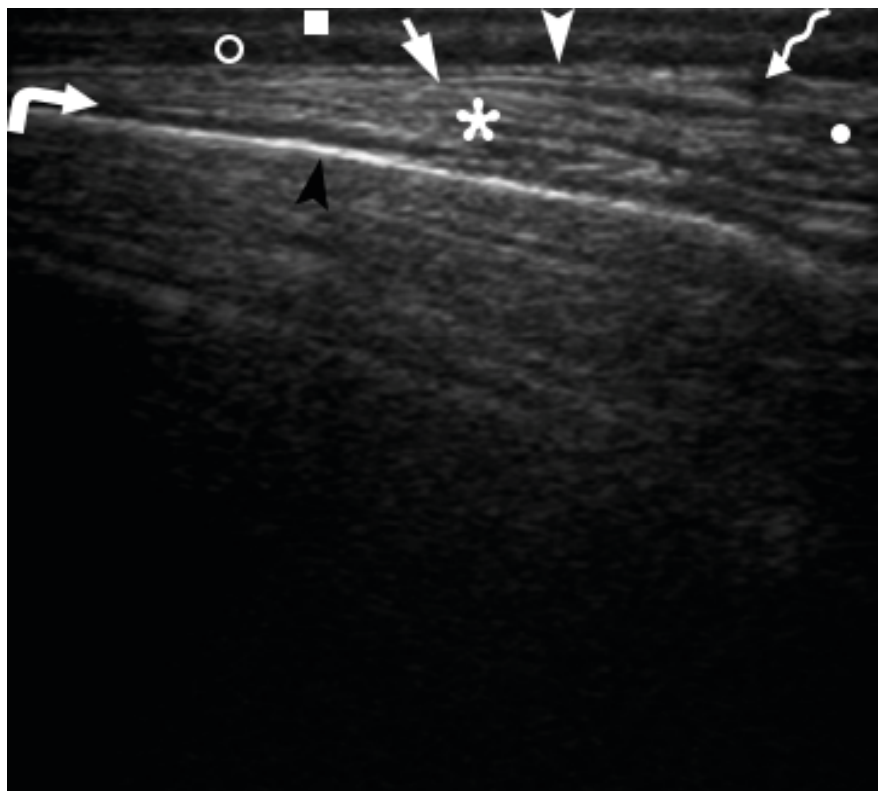


FIGURE 4. Oblique gray scale sonogram of the left asymptomatic temporal region shows no signs of inflammation in subcutaneous adipose tissue (*open circle*) or in other layers. Epidermis and derma are indicated by *quadrate*, tempoparietal fascia is indicated by *white arrowhead*, lumen of the vessel – by *waved arrow*, place of split of temporal fascia – by *arrow*, fat pad of temporal fascia – by *small closed circle*, tendons of temporal muscle – by *asterisk*, cellular tissue beneath temporalis – by *curved arrow*, outer surface of the bone of the lateral side of the skull – by *black arrowhead*. Printed with permission and copyrights retained by O.S.C. and I.I.F.

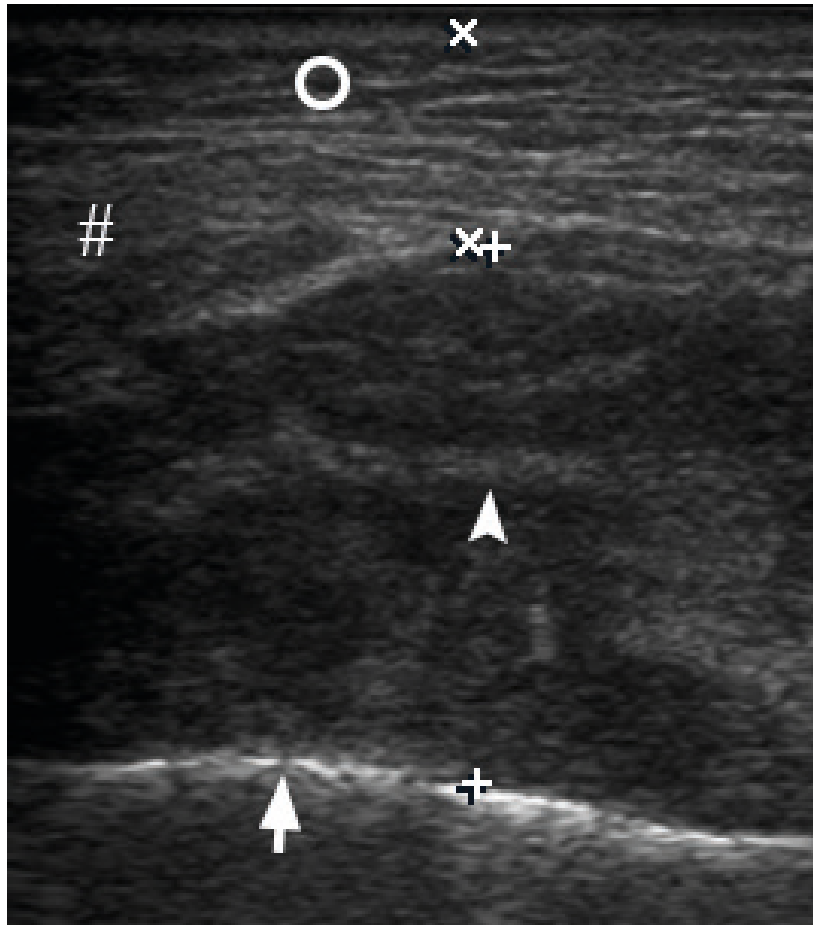


FIGURE 5. Transverse gray scale ultrasound demonstrates a swelling of the right masseter muscle (is indicated by two '+' calipers) up to 2.08 cm and subcutaneous cellular tissue (is indicated by *circle*) up to 0.8 cm. Notes dissociation of masseter fibers (*arrowhead*) by small amounts of hypoechoic fluid (purulent content). Outer surface of the mandibular ramus is indicated by *arrow* and parotid gland – by *hashtag*. Printed with permission and copyrights retained by O.S.C. and I.I.F.

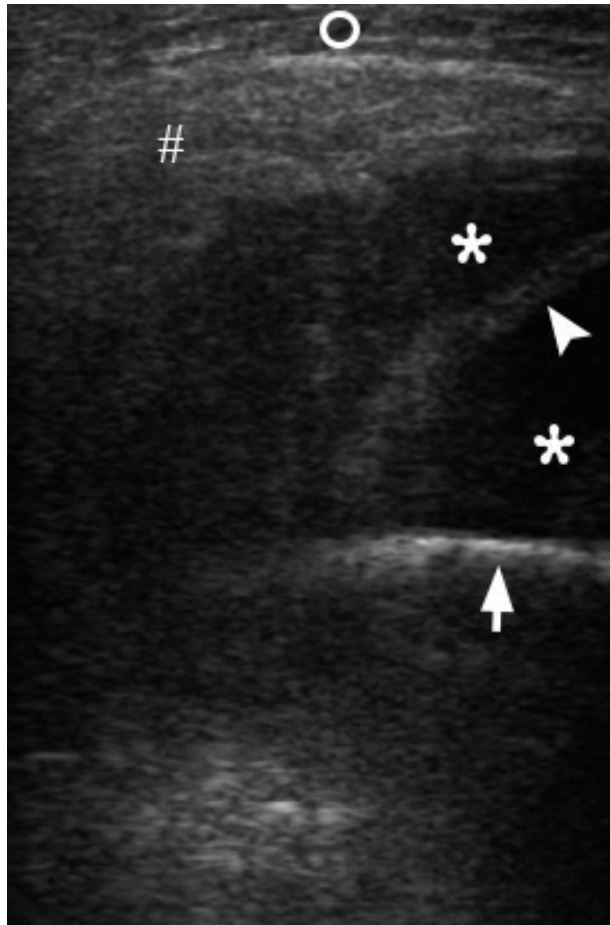


FIGURE 6. This transverse gray scale sonogram shows a collection of significant amount of anechoic fluid (*asterisks*), i.e., purulent content, between outer surface of the mandibular ramus (*arrow*), fibers of masseter muscle (*arrowhead*), right parotid gland (*hashtag*) which displaced by a collected pus. Subcutaneous tissue is labeled by *circle*. Printed with permission and copyrights retained by O.S.C. and I.I.F.

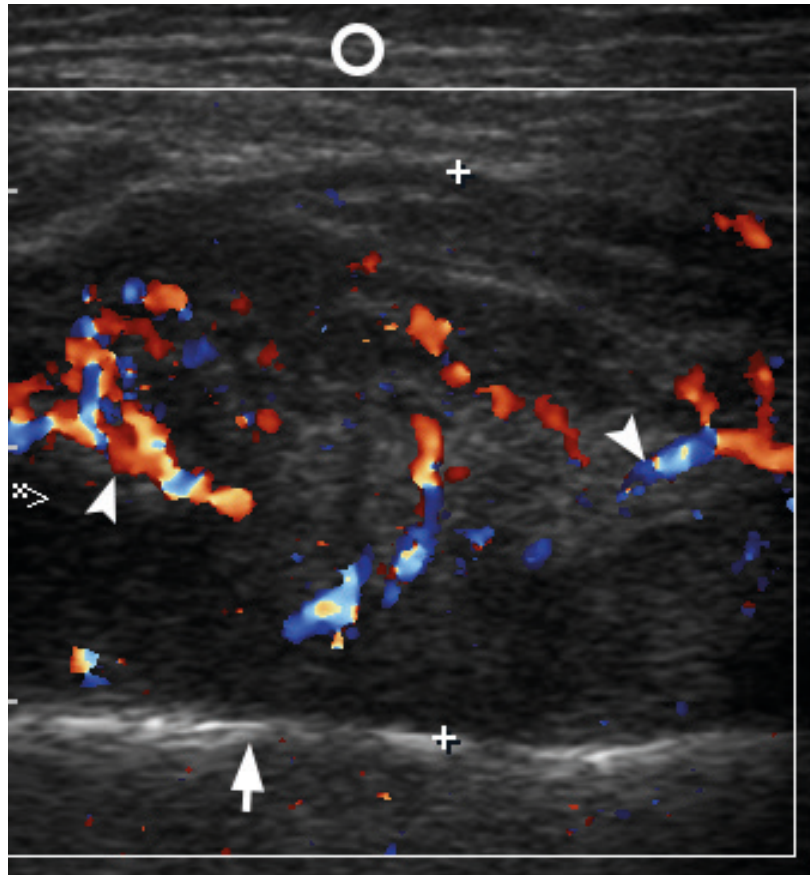
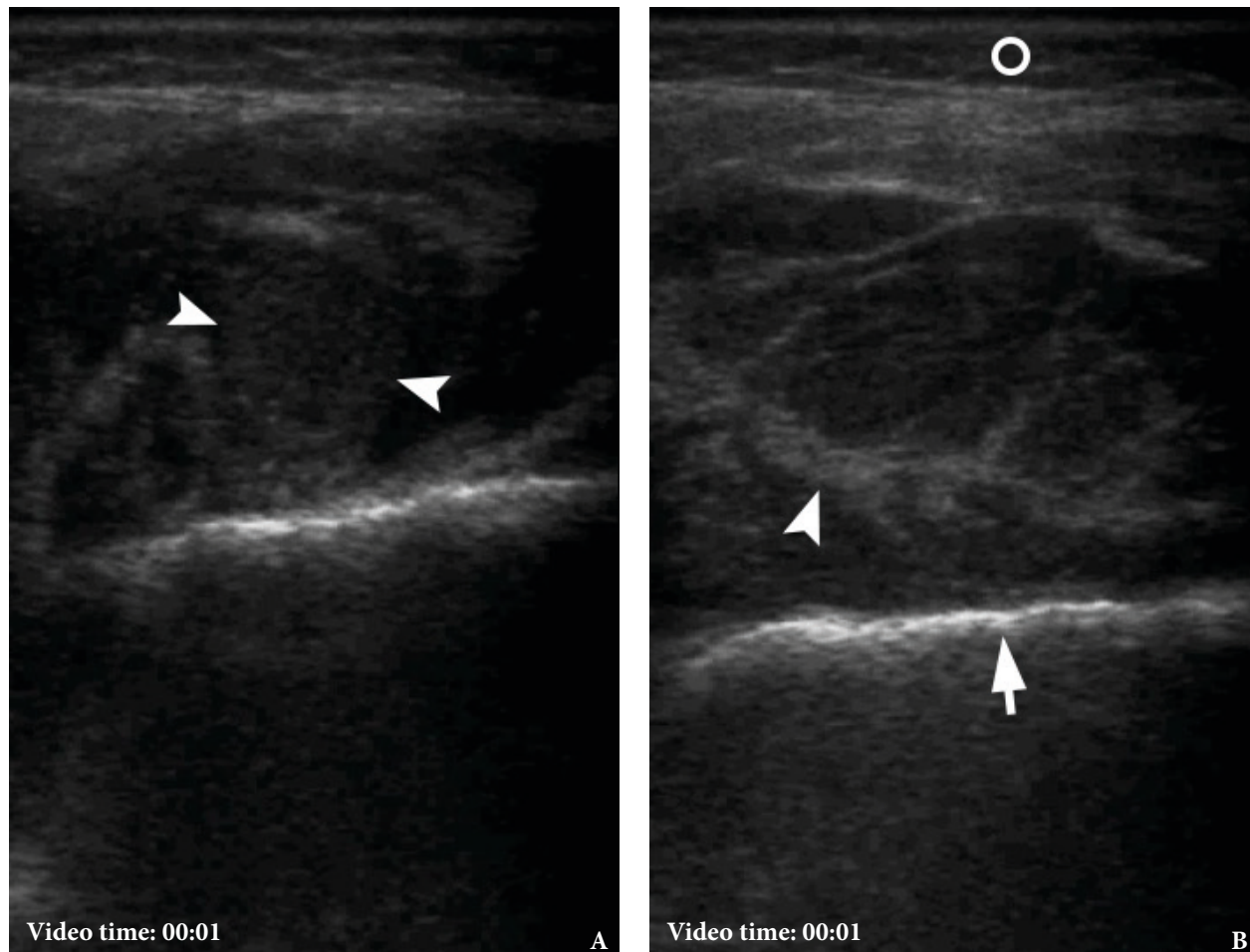


FIGURE 7. Transverse color Doppler sonogram shows a right inflamed masseter muscle (is indicated by two '+' calipers) with a striking increase of intramuscular vascularity (*arrowheads*), which indicates an inflammatory hyperemia. Notes a significant swelling of subcutaneous adipofascial tissue (*circle*) and the masseter muscle is enlarged in two times (up to 2.2 cm). Notes a collection of hypoechoic fluid between the muscle fibers. *Arrow* indicates outer surface of the mandibular ramus. Printed with permission and copyrights retained by O.S.C. and I.I.F.



VIDEO 1. Supplemental Video Content shows the gray scale ultrasound examination of the right masseter muscle. **A:** Intramuscular collection of pus is indicated by *arrowheads*. **B:** A swelled subcutaneous adipose tissue is labeled by *circle*, blade tendon of the internal masseter – by *arrowhead*, outer cortical plate of ramus – by *arrow*. Video is available in the page of the full-text article on dtjournal.org and in the YouTube channel 'Videos DTJournal', available at <https://youtu.be/s8E0pws6M6U>.

Total video`s duration: 03 sec.



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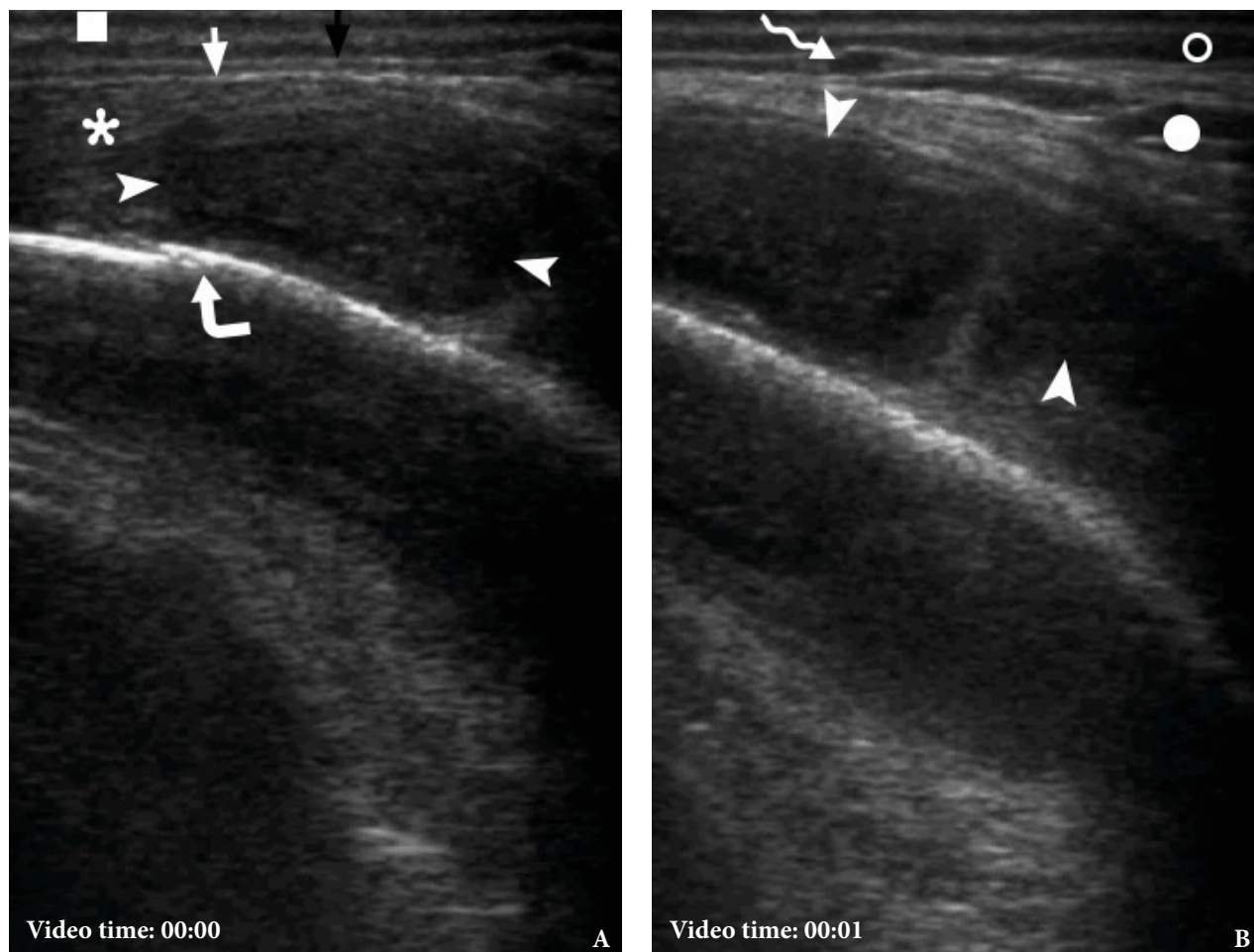


VIDEO 2. Supplemental Video Content shows the gray scale US examination of the lower part of the right temporal region. *Arrowhead* is indicated on outer surface of the right zygomatic arch, *hashtag* – on acoustic shadowing, *asterisks* – on pus, *curved arrow* – on fibers of temporalis, *arrow* – on surface of cranial bone. Video is available in the page of the full-text article on dtjournal.org and in the YouTube channel 'Videos DTJournal', available at <https://youtu.be/eKJIEq7PJTU>.

Total video`s duration: 03 sec.



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VIDEO 3. Supplemental Video Content demonstrates the gray scale ultrasound examination (**A, B**) of swelled soft tissues of the right parotid region. Epidermis and dermis are indicated by *quadrate*. *Black arrow* labels temporoparietal fascia, *white arrow* – temporal fascia to the area of its split. *Arrowheads* indicate well-defined collection of hypoechoic heterogenic fluid (i.e., pus), which is located between periosteum (i.e., pericranium) and tendons/fibers of temporal muscle. *Curved arrow* indicates suture between bones of the lateral side of the skull. *Open circle* labels subcutaneous cellular tissue, *closed circle* – fat pad of temporal fascial, and *waved arrow* – lumen of the vessel located between temporoparietal fascia and temporal fascia. Video is available in the page of the full-text article on dtjournal.org and in the YouTube channel 'Videos DTJournal', available at <https://youtu.be/VEkx2GK2LZU>.

Total video`s duration: 03 sec.



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Fragiskos states that the term 'cellulitis' has prevailed over the term 'phlegmon' which was abandoned.¹⁵ He described cellulitis as an acute, diffuse inflammatory infiltration of the loose connective tissue found underneath the skin with no pus in initial stages and with purulent content in advanced stages.¹⁵ In other study was found that cellulitis (in some East European states it terms as inflammatory infiltrate) occurs in two forms: the first as an independent disease, the second as an early phase of a purulent inflammatory process.² **Bertolus** et al emphasized that treatment only by antibiotics is possible only in early clinical stages of cellulitis, the advanced purulent stages can be complicated by necrotizing fasciitis, abscess, mediastinitis, thrombosis of the cavernous sinus, and septic shock.^{16, 17} **Rath** et al supported the previously mentioned authors and described cellulitis as a common, bacterial, non-purulent infection spreading diffusely along the skin. In their prospective study is also emphasized that suppurative form of cellulitis can also develop.¹⁸

All sources are unanimous in defining the term 'abscess' describing it as a limited collection of purulent content.

The authors from Post-Soviet countries predominantly terms the diffuse purulent inflammation in the soft tissues as 'phlegmon'.^{2, 19} and are using it in the next combination: 'phlegmon of floor of the mouth', 'phlegmon of the submandibular area', 'phlegmon of the neck', etc. The authors from the rest of the world are widely using the term 'phlegmon' in head neck, thoracic, abdominal surgery, and orthopaedics in the next combinations: 'retropharyngeal phlegmon'^{20, 21}, 'phlegmonous esophagogastritis'²², 'abdominal phlegmon'²³, 'appendicial phlegmon'²⁴, 'phlegmon of the hand'^{25, 26}, 'phlegmon of the digital flexor tendon sheaths'²⁷, etc.

The term 'necrotizing fasciitis' (NF) has *synonyms* haemolytic streptococcus gangrene and flesh-eating bacteria syndrome.²⁸ NF of the head and neck is usually named as cervicofacial necrotizing fasciitis¹⁷ and described according to **Marchesi** et al as an infection which proceeds from the subcutaneous cellular tissue to the underlying superficial and deep fascial planes causing tissue necrosis that does not involve muscles.

Malik et al²⁹ and **Chunduri** et al³⁰ stated that NF may also be accompanied by necrosis of muscles, gland tissue and even bone. Puvanendran et al³¹ indicated classification of NF according to:

1. Microbiology (polymicrobial or monomicrobial).
2. Anatomy.
3. Depth of infection.

Another term, 'purulent-necrotic phlegmon', which is frequently use by authors from East European states, described as purulent conditions of the soft tissues which associated with its necrosis and presence of tissues which looked as a 'boiled meat'.² And to our opinion it can be considered as *synonymous* with the NF.

Understanding the anatomical landmarks and ultrasound appearance of the parotid masseter and temporal region at non-symptomatic and swelled sides is also crucial in understanding and describing of our case.

Fascial coverage of the masseter muscle and parotid gland is perfectly described by **Hînganu** et al.³² Masseteric and parotid fascias (also used a collective term for describing both fascias – 'parotideomasseteric fascia'^{2, 33} [*synonyms*: parotideomasseteric fascia⁹, parotid-masseteric fascia³⁴]) present distinctive structures on ultrasound images. During US they are visualized as very thin hyperechoic linear structure which covers lateral surface of the masseter muscle and parotid. **Tymofieiev** stated that parotid fascia, which forms a capsule for parotid gland, gives many processes inside the gland, which in the form of processes divide it into separate lobules.²

Masseter muscle consists of three sections: 1) superficial, 2) middle, and 3) deep (internal masseter).¹¹ **Busato** et al¹¹ described that the deep masseter composed of 3 layers: outward, middle, and inward.

Analyzing ultrasound images of the temporal area, we adhered to the standardized nomenclature of **Davidge** et al³⁵ for the anatomic structures of the temporoparietal region:

1. Skin.
2. Subcutaneous adipose tissue.
3. Temporoparietal fascia.
4. Loose areolar tissue plane.
5. Superficial leaflet of temporal fascia.
6. Fat pad of temporal fascia.
7. Deep leaflet of temporal fascia
8. Fat pad deep to temporal fascia.
9. Temporalis (*synonym*: temporal muscle).
10. Pericranium (i.e., periosteum of the outer side of the cranial bones).

It should be noted, that the presence or absence of fat pad between temporoparietal fascia and superficial leaflet of temporal fascia may be variable and depend on individual characteristics, such as obesity.³⁵ Markiewicz, Ord, and Fernandes stated that temporoparietal fascia is continuous below the zygomatic arch as the superficial musculo-aponeurotic system (SMAS).³⁶

Many fibers of temporalis muscle originate from the inner side of this temporalis fascia, making it difficult not only to detach the last from the muscular belly but also to distinguish deep leaflet of the fascia during US.³³

Mallorie et al clearly proved, based on 43 cases, that sensitivity and specificity of US in identification of purulent content (in head and neck infection cases) were very high, 96% and 82%, respectively.¹ On US images the pus is visualized as homogenous/heterogenous hypoechoic content.⁸ In some cases fluctuating of the collected pus can be visualized upon applying a pressure by transducer. Hwang and Adler and Toprak et al described US appearance of 1) cellulitis – subcutaneous edema and subcutaneous fatty tissue appears thickened and echogenic, 2) abscess – frequently seen as irregular walled, septated, complex cystic lesion containing fluid with debris or internal echoes inside.^{37, 38} US guided aspiration is very useful technique in case of doubts in a surgical team.³⁸ Color and power Doppler can usually show a prominent flow in the area of inflammation.³⁷ Understanding the US landscape of zygomatic arch³⁹ area and anatomic structures located medially to it is also important in realizing all aspects of our masticator space infection.

So, the authors from East European countries usually term the diffuse purulent inflammation without tissues necrosis in the region of masseter muscle as “phlegmon of parotid masseter region” with branching of the diagnosis, depending on the depth of purulent content localization, as “phlegmon of superficial/deep layers of the parotid masseter region.”² Other authors name the purulent conditions in that area and/or temporal region as “masticator space infection.”^{3, 5} Masticator space⁴⁰ according to literature is composed of a suprazygomatic and infrazygomatic portion.³ And the infrazygomatic portion is also separated by the mandibular ramus into medial and lateral (contains the masseter muscle) parts.³ Taking into account terminological data which we analyzed above, US images obtained before surgery, clinical and intraoperative appearance,

and post-operative every day follow-up during 1 week after operation we stick to the pre-operative diagnosis (odontogenic phlegmon of the deep layers of right parotid masseter and temporal region from the tooth 4.7). In our case, we did not use the term ‘purulent form/stage of facial cellulitis’ to avoid any ambiguity (with its non-purulent forms). The term ‘phlegmon’ 1) has a clear difference essentially from the terms ‘abscess,’ ‘necrotizing fasciitis,’ 2) avoid any ambiguity with different stages of cellulitis, and 3) short enough not to overload diagnosis. But we agree that changing the words in the diagnosis to ‘odontogenic phlegmon of the right masticator space from the tooth 4.7’ will make the diagnosis easier despite the fact that anatomically the word ‘space’ does not accurately describe anatomical structures in that area and maybe will be better to be replaced with word ‘region.’

To our knowledge, there is no article highlighting US appearance of odontogenic phlegmon of parotid masseter and temporal regions, presenting both, images and videos. Intraoperative data of our report have clearly confirmed the information from preoperative sonograms in which layers the pus was located. Thus, head neck ultrasound can provide a real help in identifying pus collections and it’s spreading in case of purulent processes in deep-tissues of temporal and masseter regions as parts of masticator space.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ROLE OF THE AUTHORS

The authors are equally contributed to that paper.

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<http://dx.doi.org/10.23999/j.dtomp.2019.9.2>.



Guest Editorial

Can an Article Processing Charge Reach the Number of Impact Factor 3.825?

Daniel Robles Cantero^a, Kateryna Y. Nagorniak^b, & Ivan V. Nagorniak^c

Exciting and important papers are often published in journals with high impact factors.¹

—Inder M. Verma

Editor-in-chief, *Proceedings of the National Academy of Sciences*

Dental implants and their role continue increasing not only in oral surgery/periodontics but also in fibula jaw surgery.² So, the critically important dental implants sections in oral and maxillofacial surgery journals are growing similar to publications focused clearly on implants. One of them is *Clinical Oral Implants Research (COIR)*, which is a 'hybrid' journal (contains both, toll and open access articles)³ and official publication of the European Association for Osseointegration published by John Wiley & Sons Ltd.⁴ Being launched in December 1990 (Niklaus P. Lang is a founding editor) as quarterly journal, it continues developing nearly full last 30 years. From 1997 it increased frequency to 6 issues per year and from 2008 started circulate 12 issues per year.^{5,6}

SCImago Journal & Country Rank put *COIR* at first place among 47 journals in category "Oral Surgery."⁷ According to ISI Journal Citation Reports Ranking

in 2018 the journal holds fifth position among 90 publications in category "Dentistry, Oral Surgery and Medicine" and fourteenth place among 80 journals in category "Engineering, Biomedical."⁴ A journal's 2018 impact factor (IF) is a very prestigious mark and reached 3.825.⁴ And it's very interesting that article processing charge (APC) in August 2019 is also very close to the number of journal's IF, being at level of USD 3,800 (Table).⁸ So, in that case, such a high APC can be named as 'price of prestige.'

TABLE. Comparison of Impact Factor and Article Processing Charge in Journal *Clinical Oral Implants Research*.

2018 Journal Impact Factor	Article Processing Charge
3.825	USD 3,800

There is ongoing debate among publishers about the level of APC.^{9,10} And we know that some journals have APC even at the level of USD 6,000, excluding tax.¹¹ But, can the APC can be as high as *COIR* has? Our opinion is yes and the example of *COIR* proved that. As high APC will give a publisher a wide range of possibilities: to appoint the honorary salaries for editors/reviewers, to spent more income for advertising, growing projects (journal club, podcasts, etc.) inside the journal, organizing awards with stipends for young generations of authors, thus moving the specialties forward.

Impact factor: Imperfect but not yet replaceable.¹²

—Stuart Brody

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JOURNAL'S AWARD

***Journal's* Award in 2019: Mark P. Komsyki, ScD, Professor**

*The first servant-leader in any successful
organization is its founder.*

—Salil Jha

Indian-American author

Mark P. Komsyki, ScD, Professor (Fig), Corresponding Member of the Ukrainian Academy of Sciences is one of the titans of oral and maxillofacial surgery (OMS) in Eastern Europe and modern Ukraine. The great efforts of Dr. Komsyki are highly recognized by surgical community as for the first time in the history of the institution he organized a completely new structure in City Multiprofile Clinical Hospital #4, Dnipro, Ukraine: the union of Department of Maxillofacial Surgery and ENT Department in a one City Center for Head and Neck Surgical Pathology, with a capacity of 60 beds on the basis of the Fourth Clinical Medical Association.¹ In 1992 he was appointed as Chief of that Center, where he is currently working.

His Doctor of Medical Sciences dissertation lifted up the European science of OMS to the new level. The theses were dedicated to inflammation of the bone tissue, a highly important chapter of OMS: analysis of lymphotropic therapy in complex treatment of patients with osteomyelitis of the mandible. Unstoppable support of Professor Komsyki as Editorial Board member of *DTJournal* from the year of launching (i.e., 2017) is extremely valuable.²

So, it's a greatest honor for the *Journal's* staff to present honorary plaque to Dr. Komsyki dedicated to a day of his honorary 70th anniversary: "To a titan of



FIGURE. Mark P. Komsyki

European and Ukrainian maxillofacial, head and neck surgery for the 46 years of improving of our specialty and for support of the new generations of surgeons sincere thanks and appreciation.”

The only way to do great work is to love what you do.
—Steve Jobs
Co-founder of Apple, Inc

Oleksii O. Tymofeiev, Editor in Chief
Kyiv, Ukraine
tymofeev@gmail.com

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FUTURE EVENTS

2019

31st World Congress of the International College for Maxillo-Facial-Surgery (ICMFS)

October 29 – November 01, 2019
Tel Aviv, Israel

www.icmfs2019.com

3rd International Symposium on Medication Related Osteonecrosis of the Jaws (MRONJ)

November 15, 2019
Copenhagen, Denmark

<https://www.rigshospitalet.dk/english/departments/centre-of-head-and-orthopaedics/department-of-oral-and-maxillofacial-surgery/international-symposium-mronj/Documents/information-material-3rd-international-symposium-on-mronj-in-copenhagen.pdf>

21st International Congress of the Latin American Association of Bucomaxillofacial Surgery and the Mexican Association of Oral and Maxillofacial Surgery

December 1 – 4, 2019
Cancun, Mexico

www.cialacibu2019.com/en/welcome/

Dental Implant Conference

December 5 – 7, 2019
Chicago, Illinois, USA

<https://www.aaoms.org/meetings-exhibitions/2019-dental-implant-conference>

2020

2020 Principles of Head and Neck Oncology for the OMS

March 6 – 8, 2020
Chicago, Illinois, USA

<https://www.aaoms.org/education-research/2020-principles-of-head-and-neck-oncology-for-the-oms>

International Symposium on Orthognathic Surgery

April 30 – May 2, 2020
Vienna, Austria

www.iaoms.org/education/vienna2020/registration/registration/

1st ALACIBU & ACOMS International Meeting (1st International Meeting of Latin American Association of Bucomaxillofacial Surgery & American College of Oral & Maxillofacial Surgeons)

June 14 – 17, 2020
Hollywood, Florida, USA

www.acomsalacibu2020.com

25th Congress of the European Association for Cranio- Maxillo-Facial Surgery

September 15 – 18, 2020
Paris, France

www.eacmfs.org

American Association of Oral and Maxillofacial Surgeons:

102nd Annual Meeting, Scientific Sessions and Exhibition

October 5 – 10, 2020
San Antonio, Texas, USA

<https://www.aaoms.org/meetings-exhibitions/annual-meeting/102nd-annual-meeting>

2021

14th Quadrennial International Facial Nerve Symposium

August, 2021
South Korea

www.internationalfacialnerve.org

<http://dx.doi.org/10.23999/j.dtmp.2019.9.4>

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Submission of Articles

Papers for the Publication

- guest editorials
- pictures/videos in oral and maxillofacial surgery (it's a 1-page case without references)
- case reports/case series
- original papers
- surgical/radiological notes
- reviews/discussions of articles from other journals
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- book reviews
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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.

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

Acknowledgments

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

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Examples How to Form a Reference List

List all references in numerical order in the text.

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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.

or

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.

Example for the books:

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**.

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

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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.

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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.

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

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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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Questions?

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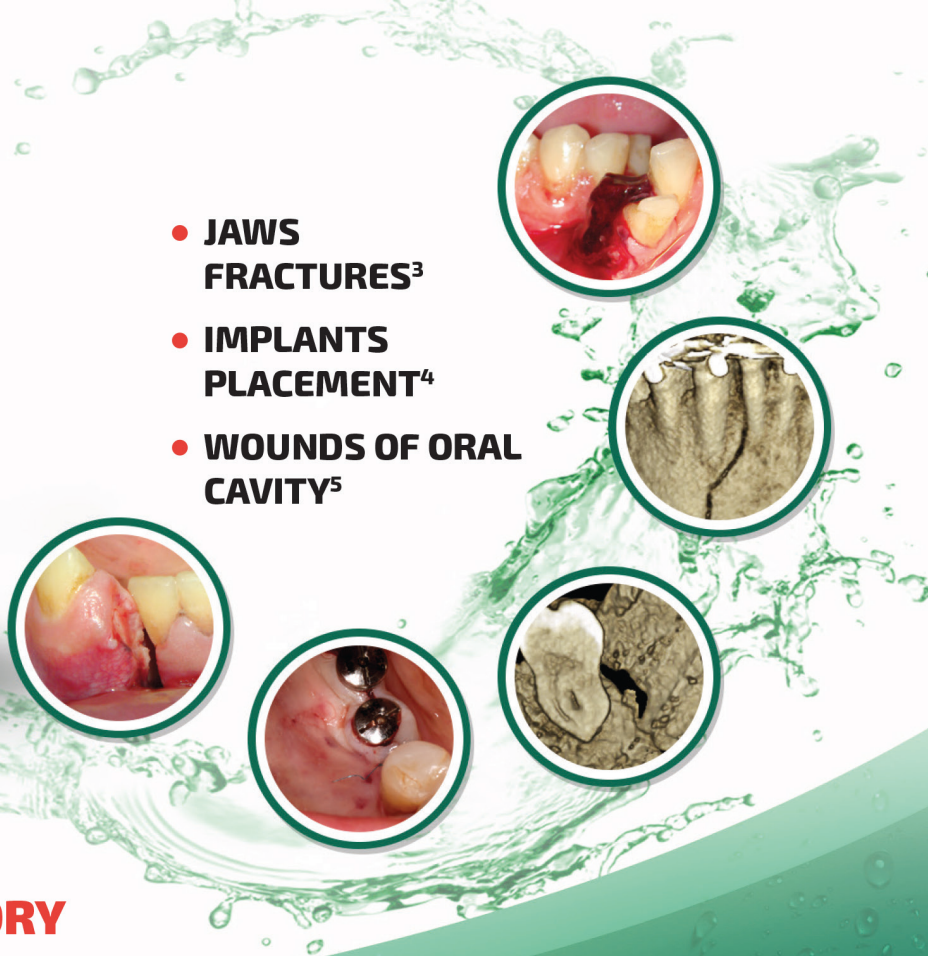
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1. Інструкція для медичного застосування лікарського засобу Тантум Верде®, розчин для ротової порожнини, РПН № UA/3920/01/01, затверджено Наказом Міністерства охорони здоров'я України № 636 від 01.10.2015.

2. <http://www.angelini-pharma.com/wps/wcm/connect/com/home/Angelini+Pharma+in+the+world/>

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. Tymofiev 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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