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About the Journal: Aims and Scope

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Aims & Scope

This is a monthly peer-reviewed oral and maxillofacial surgery journal focused on: 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.

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- EB shows significant geographic diversity representing 26 opinion leaders from 13 countries: Brazil, Canada, Colombia, Greece, Hong Kong (SAR, China), India, Israel, Italy, Slovak Republic, Spain, Ukraine, United Arab Emirates, and United States.
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- The journal has a several full-time professional editors.
- Gender distribution of the editors: 11.53% women, 88.47% men, 0% non-binary/other, and 0% prefer not to disclose.

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Publication History

2017: 4 issues a year
2018: 4 issues a year
2019: 10 issues a year
From 2020: 12 issues a year

Publishing Model

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

Type of Peer Review

The journal employs "double blind" reviewing.

Article Publishing Charge (APC)

During hard times of Covid-19 pandemic our journal trying to support authors by reducing the APC by 50%. And by the end of July 2021 the APC will be 100 USD and 50 USD (excluding taxes) depending on the article`s type. Details at website: dtjournal.org.

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See page A5.

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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 (≥ 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).

Shelf life. 4 years.

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

Packaging.
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Dispensing category.
Over-the-counter medicinal product.

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

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

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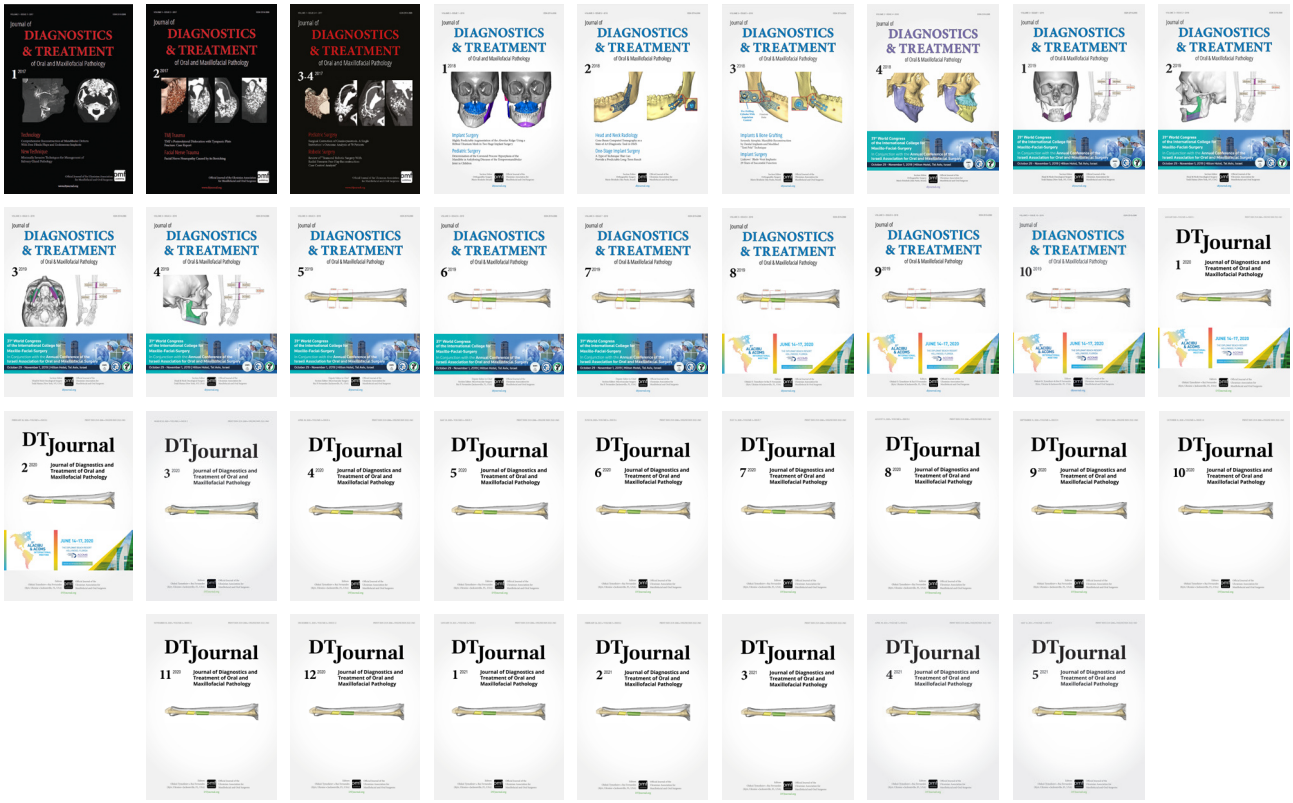

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COURTESY

Journal`s cover image (virtual surgical planning for a segmental mandibular reconstruction with fibula transplant) is courtesy of Rui P. Fernandes, MD, DMD, FACS, FRCS.

Image was taken from the article: 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.

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ESSAY

Mandibular Fractures: Pre-Operative Panoramic Radiography and Duplication Sign Patterns

Oleksandr V. Nosyr[a,*], Ievgen I. Fesenko[b], Serhii I. Khrulenko[c]

SUMMARY

The purpose of this essay is to present the multiple patterns of the duplication sign at the mandibular fracture line/gap visualized at the panoramic radiography as two-line fracture gap or pseudocomminuted fracture. We retrospectively reviewed the orthopantomography of patients with mandible fractures and presented nine patients with 12 duplication signs (also known as lambda course fracture line). On panoramic radiographs the fracture line/gap with duplication sign is visualized as two-line cortical bone discontinuity with or without dislocation due to the fact that the fracture gap runs asymmetrically on the external and internal cortical plates of the jaw. Knowledge of duplication sign patterns, artifacts is also crucial for the precise diagnosis and choice of correct management strategy.

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Abbreviation 'OPG' at the upper right icon means that article contains orthopantomography images.

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INTRODUCTION

Panoramic radiography (PR) is a 2-dimensional zonography of all teeth, maxilla, mandible, and neighboring anatomical structures (like maxillary sinuses, zygomatic bones, hyoid, styloid processes, etc.).[1] The history of the orthopantomography (ie, PR) begun at 1922 when the narrow-beam principle for jaw scanning was described by Zulauf in United States.[2,3] Paatero (professor of clinical dental science) and Nieminen (engineer), both from Finland, were those whose close collaboration and multiple PR-related invented devices given the radiological and manufacturing world possibility to develop the modern *orthopantomography*. The term originally introduced by Paatero which means "orthoradial panoramic tomography".[3]

During the last decades the PR equipment evolved from the conventional to digital systems which multiple advantages, like significantly lower radiation dose, quick usage of the images via different devices, etc., cannot be ignored not only by dentists of all specialties but also by oral and maxillofacial surgeons.[4,5]

Being financially affordable for the patients in Ukraine, PR starts to be a first line diagnostic tool in cases of traumatic injuries of the jaws.[6,7] For example, in Kyiv, Ukrainian capital, the price for the digital PR varies from 190.74 UAH (ie, $6.82 USD) (in communal hospitals) to 280 UAH (ie, $10.02 USD) (in private diagnostic centers). Very often the doctors prefer PR over the X-rays in two different projections (en face [ie, posteroanterior] and lateral radiographic views).

Interpretation of the PR images in some cases in the patients with jaw fractures can be an uneasy task[8] for the less experienced practitioners (interns, residents) due to such radiological signs like *shadows' superposition*, *duplication*, presence of PR artifacts,[9] and in case of the absence of radiologist`s conclusion.

This essay is the first English-language presentation of a multiple orthopantomography patterns of the duplication sign at the mandibular fracture lines/gaps.

MATERIALS AND METHODS

Panoramic images presented in this article were obtained at panoramic x-ray unit (Planmeca ProMax® 2D S3, Planmeca, Helsinki, Finland), Kyiv Regional Clinical Hospital by an experienced x-ray technician (S.I.K.; his experience – 25 years). This equipment was developed precisely for the maxillofacial imaging. The digital processing of radiographs was carried out using the Romexis Viewer software. The PR images were retrospectively analyzed. X-ray sign of *shadows` superposition*[10] (ie, bone fragments overlapping [*double radiopacity*][11]) and comminuted fractures were differentiated from duplication sign.

Nine patients of the age varied from 23 to 45 years old with duplication sign at mandibular fractures on PR images were analyzed (Figs 1–9). In seven of nine fracture cases (ie, in 77.77 percent) the bilateral mandibular fracture was established. In three of nine patients (ie, in 33.33 percent) the bilateral mandibular fractures with duplication sign at each fracture site were noted. So, totally 12 patterns of duplication sign were investigated.

DUPLICATION SIGN

Duplication sign is a radiographical sign which creates a false impression of the presence of a comminuted mandible fracture due to the fact that the fracture gap runs asymmetrically on the external and internal cortical plates of the jaw.[10]

Nardi et al name duplication sign as a lambda course of the fracture line.[1] Lambda (a Greek letter) has an uppercase (Λ) and lowercase (λ) variants what is completely consistent with the various X-ray patterns of fractures. Predominantly, it can be noted an inverted lambda letter fracture pattern. Describing duplication sign by Greek letters, it`s also possible to apply an omicron (Greek letter) fracture pattern (its uppercase variant [O]). It can be visualized on the panoramic radiographs as a description variant of duplication sign. And in the article of Nardi et al, the symphysis fracture with lowercase lambda course description is presented.[1]

However, in our opinion, it is more appropriate to use a unified name duplication sign rather than application of different letters.

Based on our nine PRs with 12 duplication sign cases, we can summarize the following:

- The duplication sign can be visualized on the PR at any fracture`s localization (ramus, angle, body, and symphysis).
- In case of multiple mandible fractures, the bilateral duplication sign (ie, duplication sign at each fracture site) can also be noted.
- Duplication sign can be noted in both types of fracture – with and without fragments displacement.

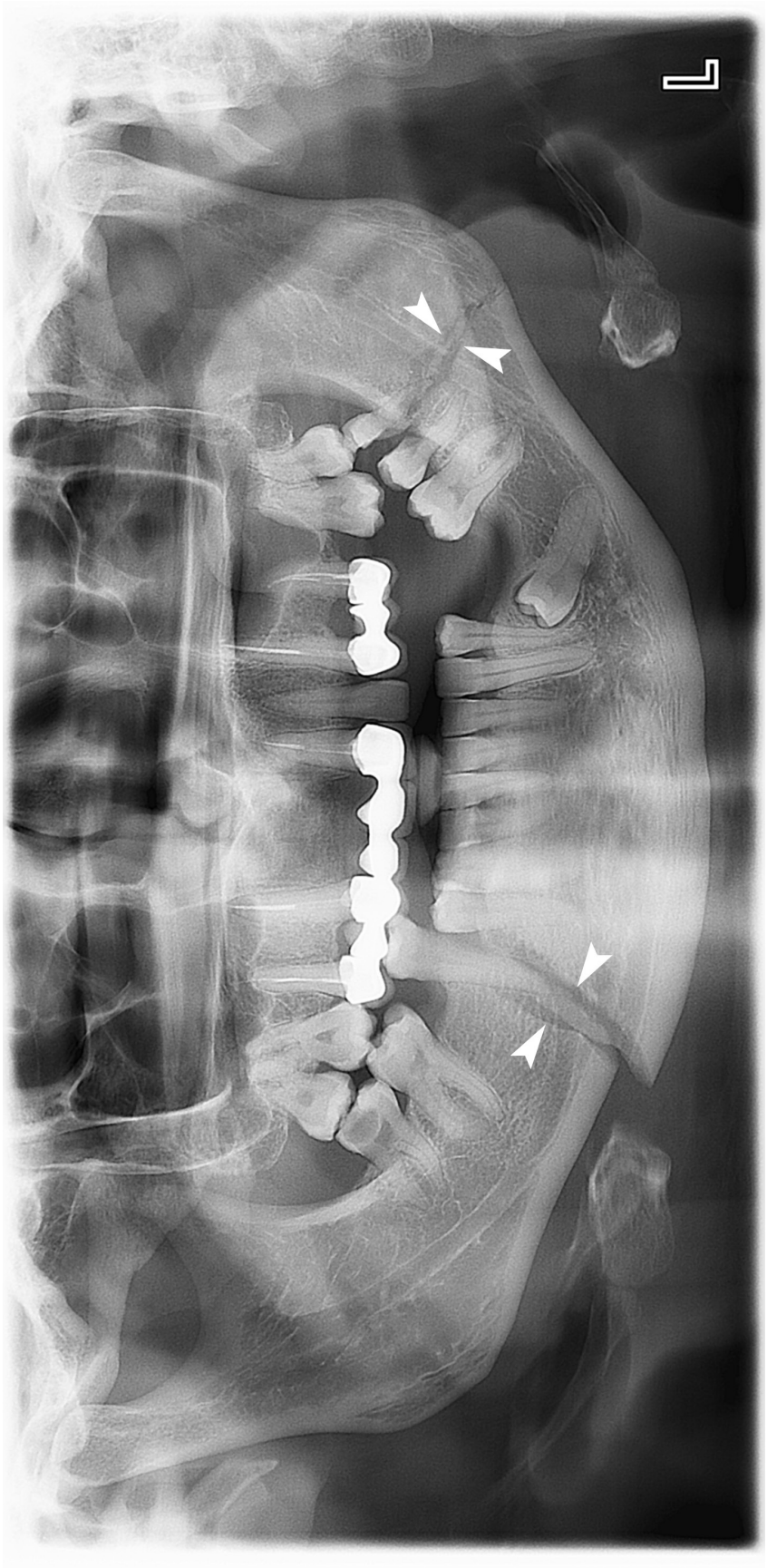

FIGURE 1. Case 1: A 34-year-old patient with bilateral mandibular fracture with duplication sign (*arrowheads*) at each fracture site.

FIGURE 2. Case 2. A 39-year-old patient with mandibular fracture at the left angle with duplication sign (*arrowheads*) at the fracture gap. *Curved arrow* indicated on the fractured lower left third molar. Osteosynthesis plate (*arrow*) in the area of consolidated fracture visualized at the right hemimandible.

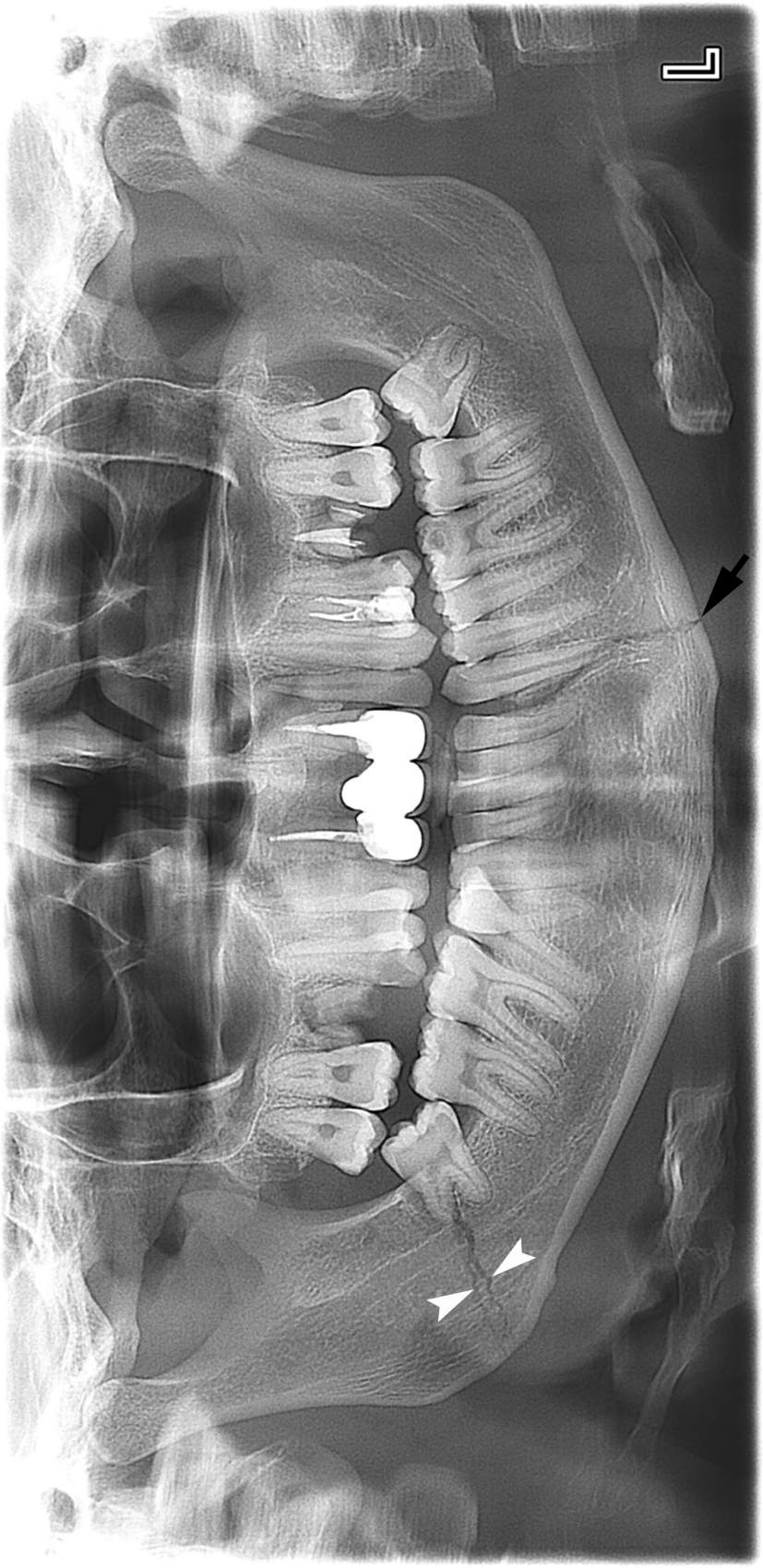

FIGURE 3. Case 3: A 23-year-old patient with bilateral mandibular fracture – at the right angle area with duplication sign (*arrowheads*) and one-line fracture (*arrow*) between tooth 3.2 and 3.3.

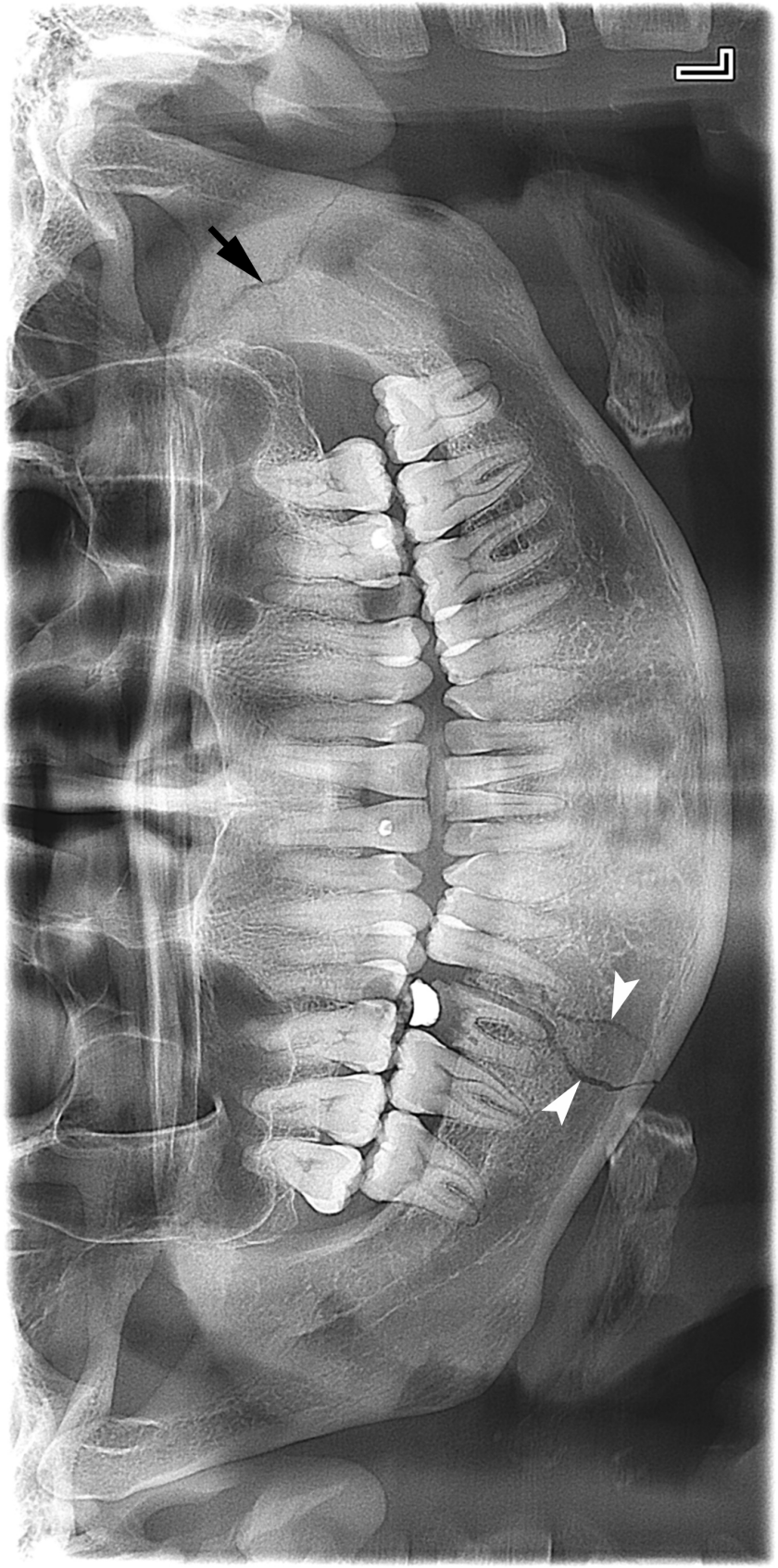

FIGURE 4. Case 4: A 33-year-old patient with bilateral mandibular fracture – at the right body area with duplication sign (*arrowheads*) and one-line fracture (*arrow*) of the left ramus.

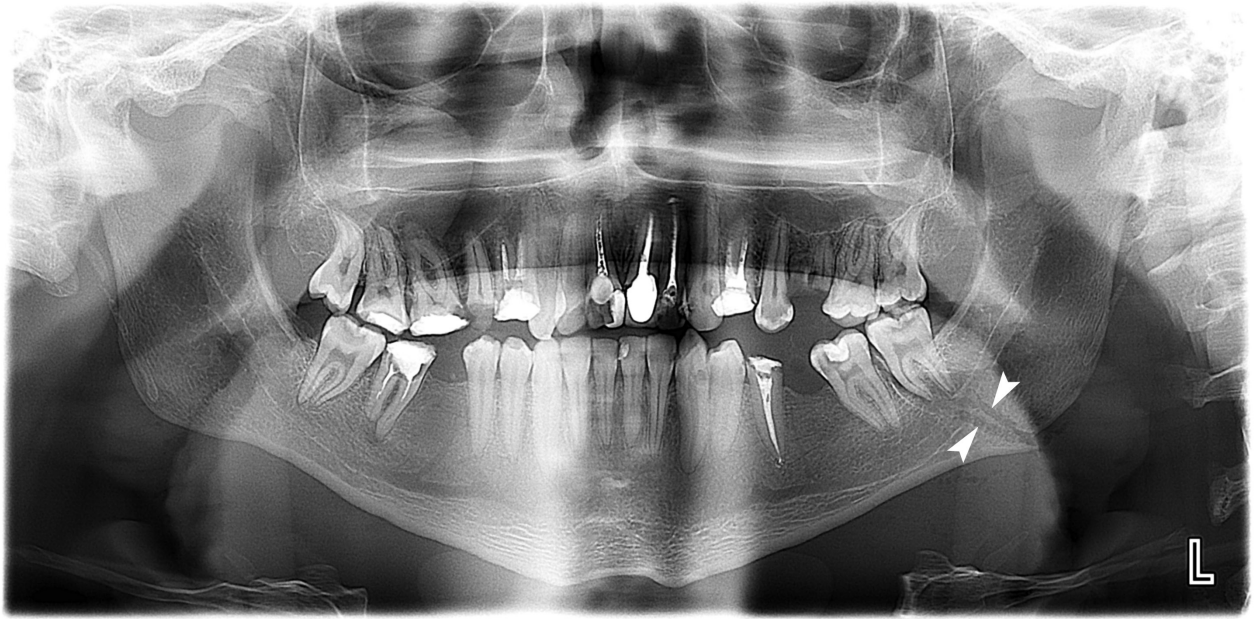

FIGURE 5. Case 5: A 38-year-old patient with unilateral mandibular fracture – at the left angle area with duplication sign (*arrowheads*).

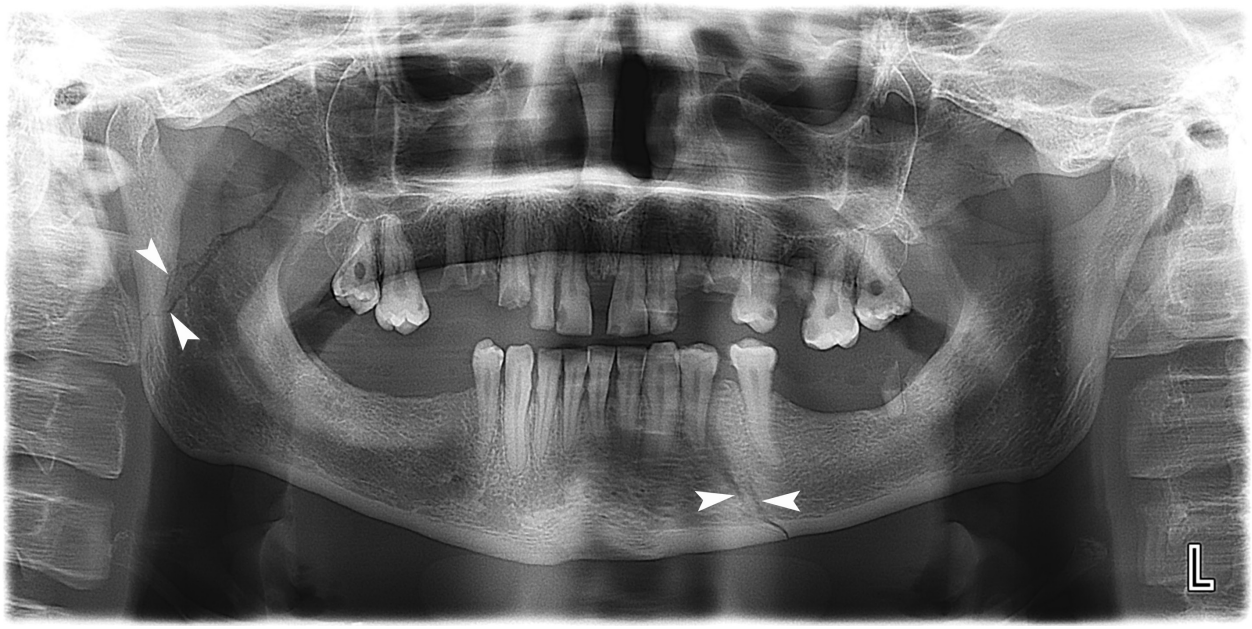

FIGURE 6. Case 6: A 25-year-old patient with bilateral mandibular fracture with duplication sign (*arrowheads*) at the right subcondylar fracture and at the left body area.

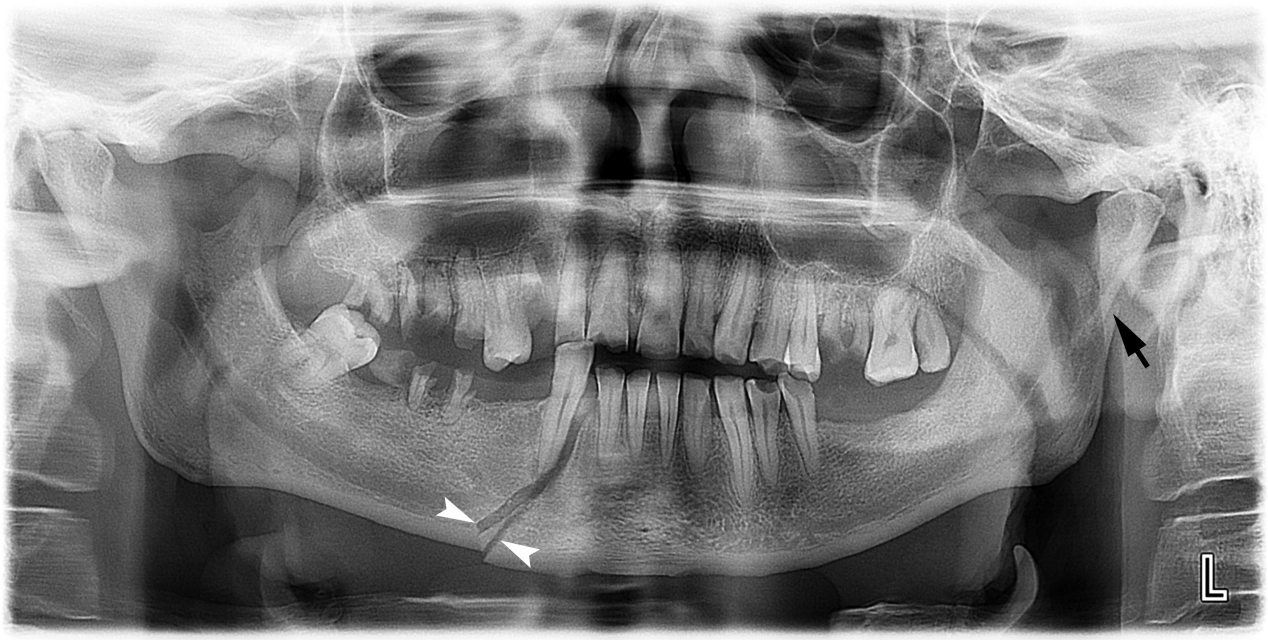

FIGURE 7. Case 7: A 43-year-old patient with bilateral mandibular fracture – at the right body area with duplication sign (*arrowheads*) and subcondylar fracture (*arrow*) with shadows' superposition sign.

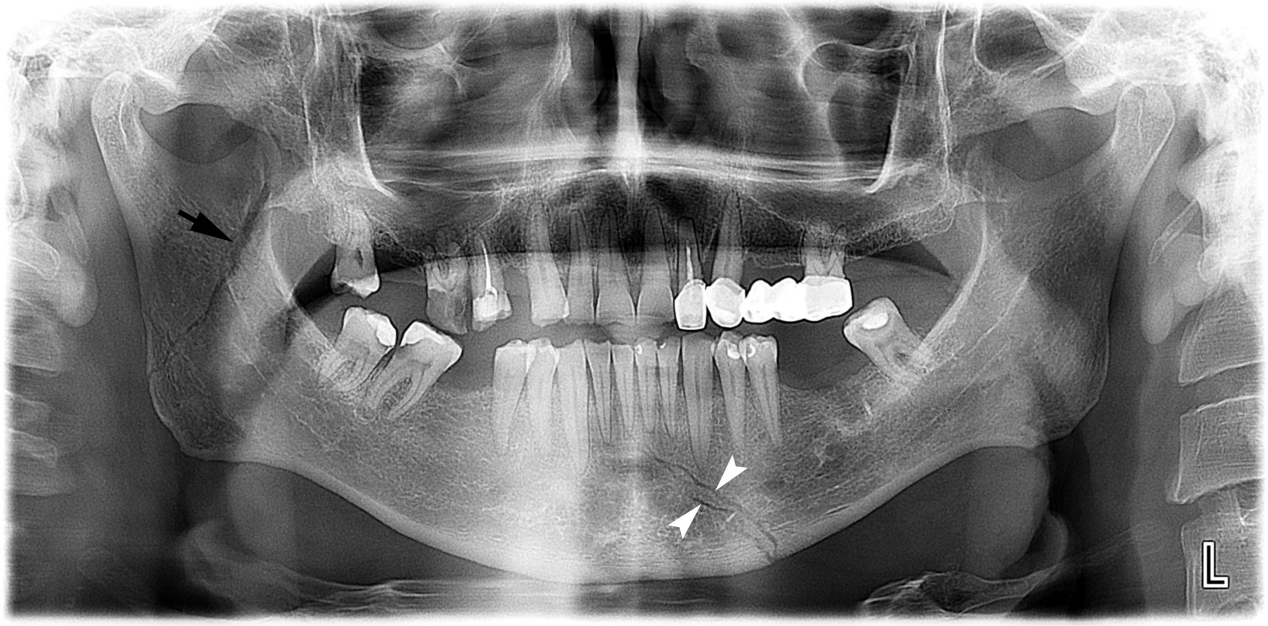

FIGURE 8. Case 8: A 45-year-old patient with bilateral mandibular fracture. The fracture area with duplication sign is indicated by *arrowheads* and one-line fracture – by *arrow*.

FIGURE 9. Case 9: A 36-year-old patient with bilateral mandibular fracture with duplication signs (*arrowheads*).

Of course, analysis and understanding of possible PR artifacts can also facilitate the establishment of the correct diagnosis.

Anyway, Albassal et al are right when emphasized on a need to perform a thorough clinical examination even when PR was done with a purpose not to miss a fracture site.[8] Moreover, such clinical symptoms like indirect load (symptom of reflected pain), spatula symptom or a pressure on both mandibular angles can be helpful.[10]

Based on literature used in this article, five most common terms are widely used to describe panoramic radiography imaging and can be applied equally:

1. Panoramic radiography.[3,5,12–14]
2. Panoramic X-ray.[8]
3. Panoramic dental radiography.[4]
4. Orthopantomography (OPT[15] or OPG[16]).
5. Panoramic view.[11]

Also, only two terms were noted for the description of the same two-line fracture gap sign: *duplication sign* and *lambda course*.

CONCLUSIONS

Panoramic radiography is staying very affordable and helpful as an initial diagnostic tool in patient with mandibular and perimandibular tissues trauma. Knowledge of duplication sign patterns, artifacts is also crucial for the precise diagnosis and choice of correct management strategy.

AUTHOR CONTRIBUTIONS

Conceptualization: Nosyr OV. Data acquisition: Khrulenko SI. Data analysis, interpretation, and drafting of the manuscript: Nosyr OV. Approval of the final version of the manuscript: all authors.

REFERENCES

1. Nardi C, Vignoli C, Pietragalla M, Tonelli P, Calistri L, Franchi L, Preda L, Colagrande S. Imaging of mandibular fractures: a pictorial review. *Insights Imaging* **2020**;11(1):30. https://doi.org/10.1186/s13244-020-0837-0
2. Zulauf F. Panoramic XZ-ray apparatus. U.S. Patent No 1408559; **1922**.
3. Hallikainen D. History of panoramic radiography. *Acta Radiologica* **1996**;37(3):441–5. https://doi.org/10.3109/02841859609177678
4. Sabarudin A, Tiau YJ. Image quality assessment in panoramic dental radiography: a comparative study between conventional and digital systems. *Quant Imaging Med Surg* **2013**;3(1):43–8. https://doi.org/10.3978/j.issn.2223-4292.2013.02.07
5. Angelopoulos C, Bedard A, Katz JO, Karamanis

S, Parissis N. Digital panoramic radiography: an overview. *Semin Orthod* **2004**;10(3):194-203. https://doi.org/10.1053/j.sodo.2004.05.003

6. Tymofieiev OO, Fesenko II, Tymofieiev OO. Condition of the teeth in fracture gap of the mandible. *J Diagn Treat Oral Maxillofac Pathol* **2017**;1(1):41–53. https://doi.org/10.23999/j.dtomp.2017.1.6
7. Woldenberg Y, Gatot I, Bodner L. Iatrogenic mandibular fracture asso¬ciated with third molar removal. Can it be prevented? *Med Oral Patol Oral Cir Bucal* **2007**;12(1):E70-2.
8. Albassal A, Al-Khanati NM, Harfouch M. Could a digital panoramic X-ray not detect a displaced fracture of the mandible? *Quant Imaging Med Surg* **2021**;11(8):3890–2. https://doi.org/10.21037/qims-20-1053
9. Izzetti R, Nisi M, Aringhieri G, Crocetti L, Graziani,F, Nardi C. Basic knowledge and new advances in panoramic radiography imaging techniques: a narrative review on what dentists and radiologists should know. *Appl Sci* **2021**;11:7858. https://doi.org/10.3390/app11177858
10. Tymofieiev OO. Manual of maxillofacial and oral surgery [Russian]. 5th ed. Kyiv, Ukraine: Chervona Ruta-Turs; **2012**.
11. Larheim TA, Westesson P-L. Maxillofacial imaging. 1st ed. Berlin, Heidelberg, Germany: Springer-Verlag; **2006**.
12. Sidorenko de Oliveira Capote T, de Almeida Gonçalves M, Gonçalves A, Gonçalves M. Panoramic radiography — diagnosis of relevant structures that might compromise oral and general health of the patient, emerging trends in oral health sciences and dentistry. In: Virdi M, editor. Emerging trends in oral health sciences and dentistry. IntechOpen; **2015**. https://doi.org/10.5772/59260
13. Rondon RH, Pereira YC, do Nascimento GC. Common positioning errors in panoramic radiography: a review. *Imaging Sci Dent* **2014**;44(1):1–6. https://doi.org/10.5624/isd.2014.44.1.1
14. Farman AG, Kushner GM. Panoramic radiology in maxillofacial trauma. In: Farman AG, editor. Panoramic radiology. 1st ed. Berlin, Heidelberg, Germany: Springer-Verlag; **2007**:155–66.
15. Pandolfo I, Mazziotti S. Orthopantomography. 1st ed. Milan, Italy: Springer-Verlag Italia; **2013**. https://doi.org/10.1007/978-88-470-5289-5
16. Dimitroulis G. Temporomandibular joint disorders. In: Perry M, Holmes S, editors. Atlas of operative maxillofacial trauma surgery. 1st ed. London, United Kingdom: Springer-Verlag; **2020**:753–80. https://doi.org/10.1007/978-1-4471-5616-1_43

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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 Міністерства охорони здоров'я України № 636 від 01.10.2015.
2. http://www.angelinipharma.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. Tymofieiev O.O. et al"Prevention of inflammatory complications upon surgeries in maxillofacial region". J Diagn Treat Oral Maxillofac Pathol. 2017;1:105–12.

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