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

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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.

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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.

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

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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.

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

Shelf life.
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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.

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

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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.
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
Every Hashtag Matters: An Importance of That Instagram Tool in a Life of the Peer-Reviewed Journal

João Luiz Gomes Carneiro Monteiro and Ievgen I. Fesenko

Editorial

Hashtag (ie, the # symbol) is a type of metadata tag used in the different social media, such as Instagram, Twitter, YouTube, etc. It was invented by Chris Messina in 2007, when he proposed to use hashtag in Twitter with a purpose to group and easily find posts with a specific content/theme. Scientific journals from different specialties with high Impact Factor are also paying a great attention to the role of hashtags in their journals’ media accounts lives.

The DTJournal’s first Instagram-related international collaboration started in 2017, during the 23rd International Conference on Oral and Maxillofacial Surgery in Hong Kong. Using in DTJournal’s account the hashtag #icoms2017 (which included 164 posts) two participants of the event Dr. Monteiro and Dr. Fesenko began a productive conversation dedicated to submission of a case report article. Which was successfully published (Fig) in the nearest issue.

So, an Editorial’s message to the colleagues is very clear: Do not regret the time to use hashtags in all kind of scientific, communicative or marketing purposes.

REFERENCES


Effectiveness of Ultrasound in Verification of the Mucus Plugs and Sialoliths of the Wharton`s Duct

Olha S. Cherniak and Ievgen I. Fesenko, *

SUMMARY/INTRODUCTION

Mucus plugs (synonyms: mucous plugs, mucin plugs, fibromucinous plugs and mucosal plugs) and sialoliths (synonyms: salivary stones, salivary calculi, and concrements) belong to the one of the common causes of the obstructive salivary gland disease (synonyms: obstructive sialadenitis and obstructive sialadenopathy). Among other etiologies of obstructive sialadenitis are: foreign bodies, inflammation, kinks, strictures, anatomic malformations, polyps or even tumors. Those causes are found in different percentages. The radiographic investigation e.g. X-ray and computed tomography (CT) are very useful in detection of the salivary stones. Nevertheless, as approximately 80-90 percent of the sialoliths are opaque on a standard review X-ray and CT, and in 10-20% radiolucent. But these methods are not useful in the detection of mucus plugs due to the non-contrast features of the last. There are a lot of studies which described ultrasound features of the sialoliths. Also, there are some studies that demonstrate endoscopic view of the mucosal plugs in a ductal system and in some cases the authors during sialendoscopy noted the floating mucous plugs. But we cannot find articles in PubMed which demonstrate ultrasound and clinical appearance of the obstructive salivary gland disease caused by sialoliths with mucus plugs simultaneously.

The purpose of our article is to describe a first and precise description of ultrasound pattern of the mucus plugs comparing with sialolith and their clinical presentation after removal. We report the consecutive gray scale and color Doppler sonograms with a supplemental video.

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CASE

A 32-year-old woman was seen in Maxillofacial Surgery Center of the Kyiv Regional Clinical Hospital because of swelling in right submandibular and sublingual area during last days. The salivary colic (synonyms: postprandial salivary colic, spasmodic pain during eating and meal time syndrome) began to disturb the patient at the same time as the appearance of edema. An intraoral examination showed severe swelling of the mucosa in the right sublingual area with its significant erythema and a local necrosis (Fig 1). During massage of the right submandibular gland no milking exudate or saliva was present from the duct’s orifice. Bimanual palpation of the right submandibular gland was painful to the patient and also indicated us the enlargement of the gland.

Ultrasound (US) investigation was performed with 12-3 MHz linear transducer (synonym: linear probe) (model HD11 XE, Philips). US in the right submandibular position showed the two-times enlarged right submandibular gland comparing with a contralateral organ (Fig 2).

FIGURE 1. Intraoral view before ultrasound and treatment. Note an erythema and swelling (arrowhead) in the right sublingual area. Necrosis of the mucosa is indicated by arrow.
FIGURE 2. Comparison of the longitudinal gray scale sonograms of a right obstructed and inflamed submandibular gland (A) with a left nonsymptomatic gland (B). At image A, the gland is indicated by ‘+’ and ‘×’ calipers. The gland is enlarged in size almost twice and has a rounded form. Note a dilatation of the intraglandular duct (arrow). At image B, the superficial (larger) lobe of the left nonsymptomatic gland is lying within the digastric triangle and is indicated by arrow, the deep (smaller) lobe – by arrowhead.

In a longitudinal transducer’s position the color Doppler US showed a striking increase of intraparenchymal vascularity (Fig 3) of the right obstructed gland. Gray scale ultrasound in the middle portion of the right Wharton’s duct showed a hyperechogenic (synonym: hyperechoic) semilunar formation 0.43 cm in longitudinal size with artifact of ‘clean’ acoustic shadowing behind (Fig 4B). Posteriorly to the hyperechoic semilunar body in the duct, the US shows an isoechoic, round shape formation without acoustic shadowing. Its size reached 0.42 cm (Fig 4C). The Video (Supplemental Video Content) clearly demonstrates how significantly the whole Wharton’s duct is dilated and its maximum width reached 0.5 cm at the posterior part. 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/NF5MY6OW3BQ. Total video’s duration: 10 sec. The duct was filled with anechoic fluid (supposedly suppurated saliva) (Fig 5).

A surgery was performed under local anesthesia (right inferior alveolar nerve block using 1.4 ml Ultracain D-S forte, Frankfurt, Aventis Pharma Deutschland GmbH) after suturing of the proximal part of the duct (to prevent displacement of the sialoliths and plugs posteriorly during surgery). A 1.0 cm incision was made above the swelled duct in the right sublingual area. The operation resulted in evacuation of the suppurated saliva in amount of approximately 5.0 ml (Fig 6) with spontaneous emergence of the sialolith with several mucus plugs. An oval yellow sialolith was measured to be 0.5 × 0.3 cm (Fig 7), what proved its preoperative measurement with ultrasound. Three pinky mucus plugs were 0.4 × 0.4 cm, 0.15 × 2.5 cm, and 0.2 × 0.25 cm in size. Special feature of the mucus plugs was its buttery consistency. That was proved by palpation (they are easily crushed) and even upon the contact with some surface (the plugs leave smudged trace).

The patient immediately felt relief after surgery. No postoperative complications were noted.
FIGURE 3. Longitudinal color Doppler ultrasound: Right inflamed submandibular gland (A) and left healthy submandibular gland (B). Comparing with a nonsymptomatic gland (B) (is indicated by '+' and '×' calipers), the obstructed gland (A) is enlarged in two times. A striking increase of intraparenchymal vascularity (arrowheads) of the right gland is noted. Facial vessel is indicated by asterisk at image A.

FIGURE 4. Position of the linear transducer is seen at image A. (Fig 4 continued on next page.)
FIGURE 4 (cont’d). Gray scale ultrasound images (B, C) have been obtained in that position (in the projection of the middle part of the right Wharton’s duct). At image B, a sialolith is indicated by ‘+’ calipers and its longitudinal size is 0.43 cm. A stone has a hyperechoic semilunar form with artifact of acoustic shadowing behind (asterisk). Circle indicates a lumen of dilated duct filled with anechoic fluid. At image C, a mucus plug is indicated by ‘×’ calipers and its longitudinal size reached 0.42 cm. A plug is isoechoic, round shape formation without acoustic shadowing.

VIDEO. Supplemental Video Content (A, B) demonstrates the gray scale ultrasound examination of the right inflamed submandibular gland with a sialolith and mucus plug in its dilated Wharton’s duct filled with anechoic fluid (ie, suppurated saliva) (asterisk). 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/NF5MY6OW38Q. Total video’s duration: 10 sec.

QR code leads to that video at DTJournal’s YouTube channel Videos DTJournal
FIGURE 5. Gray scale ultrasonogram shows a right submandibular gland (arrow) and a posterior (proximal) part of the Wharton’s duct (circle) filled with anechoic content (suppurated saliva). A significant dilatation of the duct is noted. Distance between ‘+’ calipers (width of the dilated duct) is 0.51 cm.

FIGURE 6. Intraoral view immediately after lancing of the Wharton’s duct. After the duct lancing a significant amount of suppurated saliva (asterisk) was obtained.
DISCUSSION

Terraz et al indicated that secondary infection, due to obstruction of salivary flow by a sialoliths, is leading to progressive parenchymal inflammation, atrophy, and fibrosis of the gland. The obstructive salivary gland disease with a changes in a gland tissue due to sialoliths in Ukraine is also termed as chronic sialolithic disease of the submandibular gland (synonyms: chronic calculous submaxillitis and chronic concrementous submaxillitis). Thomas et al found in sixty-eight patients that sensitivity and specificity of ultrasound in detection of salivary stones were 65 and 80%. That was lower than sensitivity (98 percent) and specificity (88 percent) for CT.

One of the main ultrasound features of the sialoliths is an artifact of acoustic shadowing (synonym: posterior acoustic shadowing). Generally, this artifact may appear behind bones, stones, metal inclusions, gas, etc. as 1) clean (synonyms: complete and total), 2) partial, or 3) dirty shadowing, what we can see at Table 2. But in case of sialolithiasis the shadowing is typically presented as clean or partial, depending on the calcification’s size.

LOCATIONS OF THE STONES AND PLUGS

Erkul and Gillespie used the useful location’s classification for the salivary duct scar location. We used that location’s classification for describing the precise place of the intraductal bodies of the
submandibular gland, such as stones and plugs:

1. Ostium (orifice of the duct is opened in area of sublingual caruncle).
2. Distal part of the main duct—part of the Wharton’s duct close to the duct’s ostium (a synonym according to Thomas et al is ‘anterior Wharton’s duct’\textsuperscript{[20]}).
3. Proximal part of the main duct—part of the Wharton’s duct close to the gland (a synonym according to Turner is ‘posterior duct’\textsuperscript{[26]}).
4. Hilum—part of the Wharton’s duct which enters the submandibular gland.
5. Intraglandular duct.

**SUMANDIBULAR GLAND: ULTRASOUND FEATURES**

According to Ching and Ahuja the nonsymptomatic submandibular gland is a well-capsulated structure which has a uniform homogenous parenchymal echo pattern.\textsuperscript{[22]} Also, the authors stated that the swollen gland due to sialoliths or other obstructive reason may become heterogeneously hypoechoic and may show dilatation of the intraglandular ductal system.\textsuperscript{[22]}

**WHARTON’S DUCT: ULTRASOUND FEATURES**

The length of the Wharton’s duct according to Ching and Ahuja varies but is approximately one and a half times the axial length of the submandibular gland.\textsuperscript{[22]} Carlson and Ord have noticed in their textbook “Salivary Gland Pathology: Diagnosis and Management” that submandibular duct is about 5 cm long in the adult.\textsuperscript{[19]}

In normal (nonsymptomatic) cases the Wharton’s duct can be seen only occasionally.\textsuperscript{[27]} It will be seen as a hypoechoic linear structure with a thin echogenic wall.\textsuperscript{[21, 22]} In case of obstructive salivary gland disease or sialodochitis\textsuperscript{[28]} the duct will be dilated and filled with anechoic fluid.

**SALIVARY STONES: ULTRASOUND FEATURES**

Gritzmann and Katz et al described a sialolith at sonogram as a bright curvilinear echo complex with posterior shadowing.\textsuperscript{[29, 28]} Ching and Ahuja reported that calculus at sonograms has an echogenic rim with complete posterior acoustic shadowing.\textsuperscript{[22]} Goncalves et al clearly noted the salivary stones on ultrasound shows as hyperechoic reflexes with distal signal loss.\textsuperscript{[8]} Aiyekomogbon et al stated that sialolith is usually visualized as a brightly echogenic mass casting posterior acoustic shadow.\textsuperscript{[15]} But some authors insist that in sialoliths smaller than 2 mm, this shadow may be missing.\textsuperscript{[28]}

**MUCUS PLUGS: ULTRASOUND FEATURES**

According to our case the plug has an isoechoic pattern with no acoustic shadowing behind.

Taking into account the fact that during the

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### TABLE 1. Comparison of Ultrasound Features of the Sialolith and Mucus Plug Located in the Wharton’s Duct According to Presented Case.

<table>
<thead>
<tr>
<th>Ultrasound Features</th>
<th>Sialolith</th>
<th>Mucus Plug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Echogenicity</td>
<td>Hyperechoic</td>
<td>Isoechoic</td>
</tr>
<tr>
<td>Artifact of acoustic shadowing</td>
<td>Present</td>
<td>Absent</td>
</tr>
</tbody>
</table>

### TABLE 2. Types of Acoustic Shadowing Artifact According to Hindi and Colleagues.\textsuperscript{[23]}

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Clean (Total) Shadowing</th>
<th>Partial Shadowing</th>
<th>Dirty Shadowing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance of the acoustic shadowing artifact</td>
<td>Uniformly anechoic signal behind a structure.</td>
<td>Hypoechoic signal behind a structure.</td>
<td>Low-level echoes in the shadow deep to gas.</td>
</tr>
<tr>
<td>In what cases occurs</td>
<td>Behind stones/calcifications &gt;0.5 mm, and bones.</td>
<td>1. Behind calcifications and stones &lt;0.5 mm. 2. Behind fat containing structures when surrounded by other soft tissues.</td>
<td>Behind gas collections.</td>
</tr>
</tbody>
</table>
surgery and evacuation of the duct’s content we received three plugs, all 8 sonograms and three videos were retrospectively evaluated and confirmed that two other mucus plugs were located exactly in the ostium area. After all, this was indicated by the following:

1. In addition to one plug in Wharton’s duct, there were no other plugs posteriorly to the calculus.
2. Concrement and concomitant posterior plug were located in the middle part of the duct, which created a place for possible localization of the two other plugs in the anterior duct.
3. The presence of two unclear objects in the anterior duct close to ostium.

And a thesis of Ching and Ahuja, that “stone impacted at the ductal ostium (30 percent) may not be well depicted on sonography, but many cases (65%) have associated main duct dilatation” can explain why we cannot precisely detect other two mucus plugs, as they were located close to the ductal ostium.

CONCLUSIONS

Thus, a first report of the precise ultrasound and clinical appearance of the mucus plugs and sialolith is presented. Also, a 10 seconds supplemental video is added. Comparison of the gray scale and color Doppler ultrasound images of the obstructed submandibular gland with nonsymptomatic contralateral organ is showed.

In addition, to our humble opinion, the mucus plugs which were presented at the ultrasound and post op images can clearly support the arguments of one of the theories, that sialolith’s formation is happened by deposition of calcium salts around a nidus of organic material–mucus plug. So, in that case, mucus plugs can be clearly considered as a stage in the formation of salivary stones. And in that case the usage of ultrasonography can be helpful both in the detection of stones and plugs.

TERM OF CONSENT

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

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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REFERENCES


The authors should be honored for such a well-written and much-needed publication. In the work by Javed et al, a role of different factors in achieving of a primary stability (Fig) is raised and analysed. In their paper "Role of Primary Stability for Successful Osseointegration of Dental Implants: Factors of Influence and Evaluation", are precisely described: Pre-requisites for a fortunate primary stability, density and quality of the bone tissue, design of the implants, methods of evaluation of the primary stability, and how micromotions can effect the primary stability.1

The partial/complete edentulous patient embodies the convergence of three extremely common, very challenging, and highly expensive conditions: lack of bone, poor quality of bone tissue, and high costs for the dental implants placement/bone augmentation procedures.2-8

So, factors affecting primary and secondary stability of the dental implants were beautifully outlined by Javed et al:1

1. Factors influencing primary stability:
   - Bone quantity.
   - Bone quality.
   - Surgical technique.
   - Implant design.

2. Factors influencing secondary stability:
   - Primary stability.
   - Bone remodeling.
   - Implant surface conditions.

The bone dentistry classifications (Linkow and Chercheve, 1970; Leckholm and Zarb, 1985; Misch, 1995) are so clearly characterized that it simplifies for the surgeons to plan and to predict the procedures using cone-beam computed tomography with Hounsfield Units measurement.3 Carefully describing the "soft bones" Javed et al warn about the risks in achieving primary stability in case of soft jaw densities.1 But, as pointed out by other authors,1 poor primary stability is not statistically significant in the loss of dental implants. Cobo-Vázquez et al made those conclusions after analysis of 2,400 implants among which ninety-two implants were placed without primary stability.4

In summary, authors have done a great review of a hot topic of last years, analyzed 68 peer-reviewed literary sources.1 This made the article an important source for colleagues who are interested in a brief review of challenging situations in implant surgeries, especially at posterior maxilla.
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Discussion: role of primary stability for successful osseointegration of dental implants: factors of influence and evaluation.

*Nagorniak IV.*

*Discussion: role of primary stability for successful osseointegration of dental implants: factors of influence and evaluation.*


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Future Events
for 2019-2021

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18th Meeting of the International Society of Craniofacial Surgery
September 16 – 19, 2019
Paris, France
www.iscfs.org

American Association of Oral and Maxillofacial Surgeons: 101st Annual Meeting, Scientific Sessions and Exhibition (Fig)
September 16 – 21, 2019
Boston, Massachusetts, USA
www.aaoms.org

31st World Congress of the International College for Maxillo-Facial-Surgery (ICMFS)
October 29 – November 01, 2019
Tel Aviv, Israel
www.icmfs2019.com

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December 01 – December 04, 2019
Cancun, Mexico

2020

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September 15 – 18, 2020
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2021

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FIGURE. Screenshot from a website www.aaoms.org.
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