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**Journal of Diagnostics and
Treatment of Oral and
Maxillofacial Pathology**



Editors
Oleksii Tymofieiev • Rui Fernandes
(Kyiv, Ukraine • Jacksonville, FL, USA)



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Maxillofacial and Oral Surgeons

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Switzerland Aarbergerstrasse 107A, CH-2502
Biel, Phone/Fax +41 323230188
info@u-impl.com
www.u-impl.com

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.

Editorial Board (EB) Composition

- EB shows significant geographic diversity representing 24 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.
- The majority of the EB Members have a discernible publication history in Scopus, Web of Science, and journals with a high impact factor.
- The publication records of all EB members are consistent with the stated scope and published content of the journal.
- The journal has a several full-time professional editors.

Frequency

12 print/online issues a year (from January 2020)

Publication History

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

Publishing Model

Journal combines a *hybrid* and *delayed open access* publishing models. The articles of all types, except Editorials, are immediately in open access. Editorials became an open access publication too after 3-month embargo period.

Article Processing 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 August 2020 the APC will be 100 USD and 50 USD (excluding taxes) depending on the article's type. Details at website: dtjournal.org.

12 Types of Articles Currently Published by the Journal

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

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for the medicinal product

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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.

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Pharmacotherapeutic group. Dental preparations. Other agents for local oral treatment.

ATC code: A01A D02.

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Pharmacodynamics.

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No drug interaction studies have been performed.

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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.

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TANTUM VERDE should not be used during pregnancy or breast-feeding.

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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.

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

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Via Vecchia del Pinocchio, 22 – 60100 Ancona (AN), Italy.

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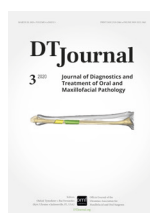
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COURTESY

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.



Editorial

Covid-2019 Response: Virtual Educational Process at the Department of Oral and Maxillofacial Surgery using Google Classroom

Oleksii O. Tymofieiev^{a,*}, Natalia O. Ushko^b, & Maria O. Yarifa^c

*You don't make the timeline; the virus makes the timeline.*¹

—Anthony Fauci

US top infectious-diseases expert

March 25, 2020

Coronavirus disease 2019 (Covid-19)² pandemic led to the severe restrictions around the globe due the extremely rapid spread of the virus and total death number 21,297 people on March 26.³ Quarantine measures of the Ukrainian Government became very similar to actions of the other countries. One of which, a closed educational institutions from March 12,⁴ created a need to continue education virtually using cutting-edge technologies such as Google Classroom and Google Meet.

Google Classroom, a free web service, was released by the Google LLC in August 2014. "Classroom was created hand-in-hand with teachers to help organize day-to-day tasks, communication, and foster greater collaboration," this is how Google describes the purpose of Classroom's creation.⁵

Year by year evolution of the Classroom gave its users in 2020 a wide range of tools: Simultaneous usage with Google Docs, Gmail, Google Drive, Sheets and Slides, and even Google Calendar.

A special training course for professors of our university facilitated the effective usage of the Classroom during the quarantine period implementing the e-learning at our Department. A 256 page book "Teaching with Google Classroom," written by Michael Zhang, a certified trainer for Google Apps for Education, gave a deep look on all possibilities of this global e-learning service.⁶

Google Classroom was also launched as a smartphone application in January 2015. Despite of some limitations, at the mobiles we can: 1) create or join a class, 2) make announcements and post comments to assignments, 3) send e-mails to students, 4) access your class's Google Drive, 5) view whether the students have completed assignments or not, 6) reset or disable your class code.⁷

Thus, using all potential of such e-learning services, as Google Classroom, we can effectively

Department of Oral and Maxillofacial Surgery, Private Higher Educational Establishment "Kyiv Medical University," Kyiv, Ukraine

^a ScD, Professor, Head of the Department
E-mail: tymofeev@gmail.com

^b ScD, Professor

^c PhD, Associate Professor

* Corresponding author's address: 6th floor, Department of Oral and Maxillofacial Surgery. 4-A Profesora Pidvysotskoho Street, Kyiv 01103, Ukraine. Tel., fax: +38 044 528 35 17.

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deal with a “physical learning” crisis, allowing the students at “surgical dentistry” and “pediatric surgical dentistry” classes to avoid the risk for their lives and to master the curriculum during the pandemic when the timeline is made only by the virus.

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Salivary Glands | Head and Neck Ultrasound: Case Report

Foreign Body Retrograde Migration to the Intraglandular Duct of the Submandibular Gland with a Developing of Foreign Body-Induced Sialolithiasis: Analysis of Ultrasonography, Surgery, and Literature Published during Last 124 Years

Lilia A. Savchuk^a & Oleksandr A. Nozhenko^{b,*}

SUMMARY

We present a unique case of a vegetal foreign body retrograde migration to the intraglandular duct of the submandibular gland with a developing of foreign body-induced sialolithiasis in a 61-year-old woman. Analysis of ultrasound examination and operation are performed. Our foreign body's case represents an intermediate stage of complete sialolith formation around the foreign body nidus (*synonym*: scaffold). The paper summarizes the analysis of 28 cases with foreign body-induced sialoliths (27 cases from literature and a case of our team). Literature review which was based on the studies published during the last 124 years gave a possibility to classify the development of the 'foreign body-induced sialolithiasis' in 4 consecutive stages. Our case of the foreign body-induced sialolithiasis represents a second stage of this pathologic process when nidus is partially covered by calcifications.

^a Physician of Ultrasound Investigation, Polyclinic, Kyiv Regional Clinical Hospital, Kyiv, Ukraine.

^b Oral Surgeon, Center of Maxillofacial Surgery and Dentistry, Kyiv Regional Clinical Hospital, Kyiv, Ukraine.

*Corresponding author address: 1 Bahhovutivska Street, Kyiv 04107, Ukraine. Center of Maxillofacial Surgery and Dentistry, Kyiv Regional Clinical Hospital.
E-mail: alexdent@ukr.net (Oleksandr Nozhenko)

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Obstructive sialadenitis caused by the foreign body intrusion into the duct of the gland can have an acute and chronic clinical course or exacerbation of a chronic form.¹ Incredibly different foreign bodies inside the Wharton's ducts have been found and reported. Fingernail,² vegetal nidus,³ thorn,⁴ piece of hair,⁵ fish bone,^{6,7} metal body,⁸ and other particles are published as foreign bodies of the submandibular gland duct which caused obstructive sialadenitis. In some foreign body cases, for example a fish bone, it was connecting several sialoliths.⁶ Study of Xie et al⁷ presented 13 patients which had fish bone nidus inside the sialoliths (*synonyms*: concretions,^{9,1} salivary stones, calculi^{1,10}). All those reports proved one of the sialolithiasis theories, which describe a foreign body-induced sialolith formation. Despite the fact that in some cases the foreign bodies' are localized in the anterior/middle part of the duct, its migration to the intraglandular duct system is also possible and should be analyzed.

Retrograde passage of different foreign bodies into/inside the Wharton duct described in the recent publications: a 2.0 cm long barb-like metal body (which located at the posterior part of the Wharton's duct)⁸ and 3.5 cm long wooden splinter¹¹.

The purpose of our report is to present a unique case of a vegetal foreign body retrograde migration to the intraglandular duct of the submandibular

gland with a developing of foreign body-induced sialolithiasis. Analysis of ultrasound examination, operation, and literature review are also highlighted. Our foreign body's case represents an intermediate stage of forming a complete sialolith around the foreign body nidus.

CASE

A 61-year-old Caucasian woman was referred to the Center of Maxillofacial Surgery and Dentistry with 4-day complaints: salivary colics and tissues enlargement in the area of right submandibular gland. Bimanual palpation revealed enlarged, firm and painful right submandibular gland. Upon the intraoral examination clear saliva milked from the orifices of both Whartons' ducts. Sublingual mucosa also showed no signs of inflammation.

Preoperative ultrasonography was performed by an experienced (29 yrs) physician of ultrasound investigation (Lilia Savchuk) using 12-3 MHz linear probe (model HD11 XE, Philips). Gray scale (*synonym*: B-mode) sonograms (Fig 1) showed 2-times enlarged right submandibular gland with a significantly dilated intraglandular duct system and 0.8×0.3 -cm foreign body inside. Foreign body visualized as hyperechoic linear structure without artifact of acoustic shadowing typical for sialoliths.



FIGURE 1. Preoperative gray scale sonogram shows an enlarged right submandibular gland (*arrowheads*) with a significantly dilated intraglandular duct system (*arrow*) and 0.8×0.3 -cm foreign body inside, which is indicated by "+" calipers and visualized as hyperechoic linear structure without artifact of acoustic shadowing typical for sialoliths.

Under the local anesthesia, a ductotomy in the posterior part of the right Wharton's duct was performed and the foreign body was extracted. After removal, the foreign body underwent precise investigation by a surgeon (Oleksandr Nozhenko) which revealed a 0.8-cm long green vegetal nidus (looked like a stem of a

plant) with a multiple areas of attached calcifications (Fig 2). Intramuscular injections of ceftriaxone 1g × 2 times per day and intraoral probiotics were prescribed simultaneously with rinsing by antiseptic solution during next 5 days after surgery. Post-operative period was smooth (i.e., uneventful recovery).

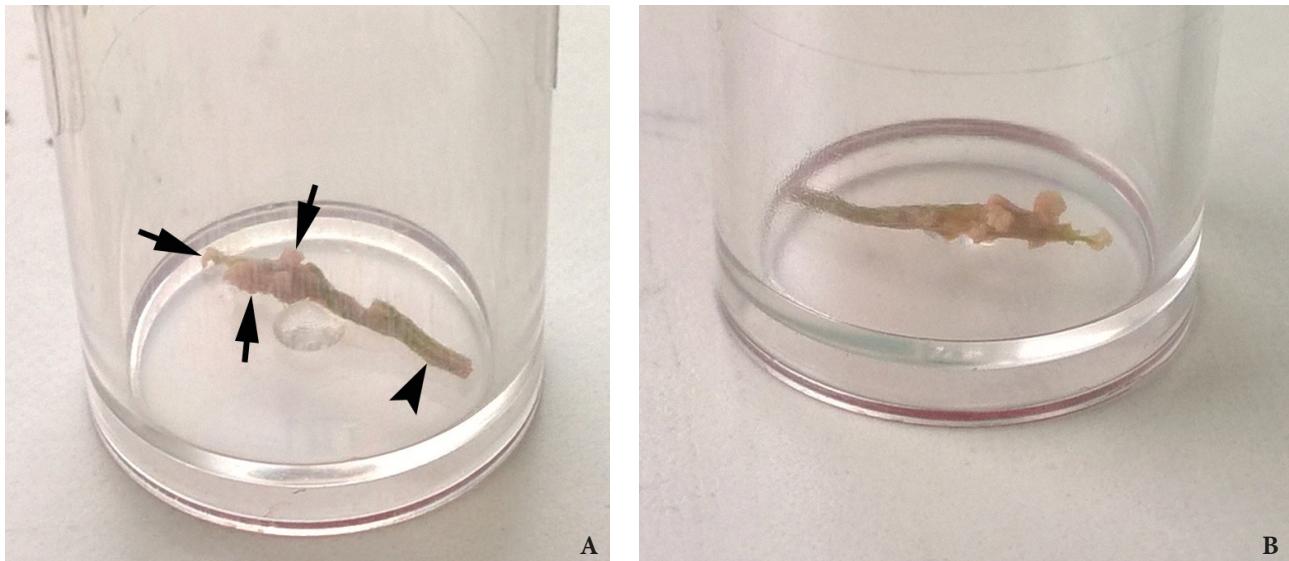


FIGURE 2. Foreign body after removal: A magnified view from different sides (A, B). A 0.8-cm long green vegetal nidus (arrowhead) with a rough surface and multiple areas of attached calcifications (arrows).

DISCUSSION

Mechanical blockage of the ductal system and stasis of salivation describes the development of obstructive sialadenitis. If the foreign body intrusion was unrecognized by the patient and does not immediately cause complaints in a patient or patient received symptomatic treatment, the foreign body prolonged intraductal stay potentially can provoke formation of attached calcification around the foreign body's nidus and develop of foreign body-induced sialolithiasis.

Case studies indicate that foreign bodies can also penetrate parotid gland ducts without¹² or with development of foreign body-induced sialolith¹³.

In contrary to smooth surface-foreign bodies, the bodies with irregular surface, like particles of the plants and fish bones, are more likely to transform into sialoliths.

Some of the particles originated from human body, like fingernail^{2,14} and hair^{5,15}. Others were intruded upon eating the food, like fish bones.^{6,7,16-18} And a lot of foreign bodies of completely unexpected

origin like metal wire¹⁹, blade of grass²⁰ or thorn⁴.

A thorough study of Loring W. Pratt showed the fundamental analysis of 15 literature sources from 1897 to 1968.¹⁰ Which revealed, among more than 37 cases with foreign bodies of the Wharton's duct¹⁰, two patients with foreign bodies covered by calcifications^{21,22}. The oldest article reached the year 1897 when was reported a patient with sialitis (an old name of "sialadenitis") induced by a blade of grass without a stone formation.²³

Reported, that foreign bodies can lead to the immediate insignificant complaints (the patients can feel an injection under the tongue at the moment of foreign body intrusion),¹ and continue to behave as a "silent foreign body"⁴ even up to 12 months.

In some cases even a 3.5 cm long thin wooden splinter can migrate to the posterior part of the Wharton's with signs of obstructive sialadenitis but without sialolith formation around foreign body even after the 18 months of complaints.¹¹ In other cases a prolonged foreign body intraductal stay can lead to the development of foreign body-induced sialolithiasis. As during the period of an

intraductal localization of some foreign bodies with a rough surface, the salivary stones are formed by the precipitation of calcified structures around a foreign body-nucleus. We agreed with opinion of Derin et al¹⁸ who used another term for nidus – a scaffold. They describe intraductal fishbone which served as a scaffold for sialolith.¹⁸

In our opinion, a foreign body-induced sialolith formation is a more threatening condition for the course of obstructive sialadenitis. Because of a foreign body's volume increases due to the permanent precipitation of calcified structures around it. This

fact provokes even severe blockage of the gland and stasis of the saliva. What also accelerate degenerative changes of the glandular tissue and increase the risk of exacerbation of the chronic obstructive sialadenitis.

Table 1 depicts completely different particles which served as a nidus upon foreign body-induced sialolith formation. To the table were gathered the cases which were published during last 124 years presenting the foreign body-induced sialolithiasis of the submandibular glands. The table was compiled based on our literature search and analysis of Loring W. Pratt, M.D. for the 1897-1968 period.

TABLE 1. Articles Describing the Foreign Body-Induced Sialoliths of the Submandibular Glands.

#	Type of the Foreign Body (i.e. Nucleus That is Made of Foreign Body)	No. of Patients	Year of Publication	Title of the Article
1	Blade of grass	1	1937	Salivary calculus containing a foreign body. ²¹
2	Tooth brush bristle	1	1959	Tooth brush bristle as a nucleus for calculus formation in the hilum of the submaxillary gland. ²²
3	Vegetable matter with calcium incrustation	1	1967	Unusual foreign body etiology of sialadenitis. ²⁴
4	Pine needle	1	1968	Foreign body of Wharton's duct with calculus formation. ¹⁰
5	Broom straw	1		
6	Blade of grass	1	1982	Submandibular salivary duct calculus secondary to a foreign body. ²⁰
7	Metal wire	1	1984	A sialolithiasis formed around a metal wire in the submandibular salivary duct. ¹⁹
8	Vegetal nidus	1	2001	Retrograde theory in sialolithiasis formation. ³
9	Shrapnel	1	2003	Shrapnel-induced sialolith—a rare etiology for sialadenitis: Case report. ²⁵
10	Thorn	1	2005	Case of foreign body in Wharton's duct causing sialolithiasis. ⁴
11	Fish bone	1	2009	Fish bone-induced sialolith. ⁹
12	Facial hair	1	2014	Unusual case of a sialolith: a case report. ¹⁵
13	Fish bone	13	2014	Foreign body induced sialolithiasis treated by sialoendoscopic intervention. ⁷
14	Fish bone	1	2015	Fish bone induced sialolith in Wharton duct. ¹⁸
15	Fish bone	1	2018	Sialendoscopic removal of fish bone-induced sialoliths in the duct of the submandibular gland. ⁶
16	Vegetal nidus (stem of a plant)	1	2020	Foreign body retrograde migration to the intraglandular duct of the submandibular gland with a developing of foreign body-induced sialolithiasis: analysis of ultrasonography, surgery, and literature published during last 124 years.

The hair is perfectly described in 2009`s sialoendoscopy report as a cause of obstructive sialadenitis of the submandibular gland.⁵ In 2014 the first case study presented a facial hair which served as a nidus for ~6-mm salivary stone formation.¹⁵

The same situation is with metallic foreign bodies. In some cases they are founded as a cause of obstructive sialadenitis without signs of sialolith formation,⁸ in others – sialolith forms around a metal wire¹⁹ or shrapnel²⁵.

We supported the opinion of Sreetharan and Philip – ultrasound investigation may be a very good first line diagnostic modality.¹² Upon ultrasonography sialoliths is usually visualized as hyperechoic semilunar bodies with an artifact of acoustic shadowing. Mucous plugs at ultrasound presented as a round shape isoechoic intraductal bodies without acoustic shadowing.²⁶

2017`s retrospective study of 659 salivary glands (486 submandibular and 173 parotid) revealed that sensitivity is of 94.7% and specificity of 97.4% for sonography in the patients with sialolithiasis.⁹

In our case the foreign body visualized as hyperechoic linear structure and the artifact of acoustic shadowing was not noted due to the partial calcifications around the vegetal nidus.

Summarizing the analysis of the published cases, the foreign body-induced sialolithiasis goes through 4 consecutive stages:

1. Calcium incrustations into foreign body (incrustations are visible only microscopically).²⁴
2. Partially covered nidus (when calcifications are attached to different parts of the foreign body) (Fig 2).¹⁵ It can be considered as intermediate stage of sialolith formation.
3. Fully covered nidus (when cortex of calcifications covers the nidus from all sides).
4. Growth of sialolith`s cortex (this stage is pointed out based on the different sizes of sialoliths with the same size nidus).

And our case clearly shows that it`s important to remember that those 4 stages should be distinguished. As upon the first stage, the organic foreign body can be completely invisible at X-ray/computed tomography (in case of vegetal origin of foreign body) or showed no acoustic shadowing upon ultrasound.

Conclusion of two possible ways of pathological process development after intrusion of foreign body into the Wharton`s duct is represented in Figure 3.

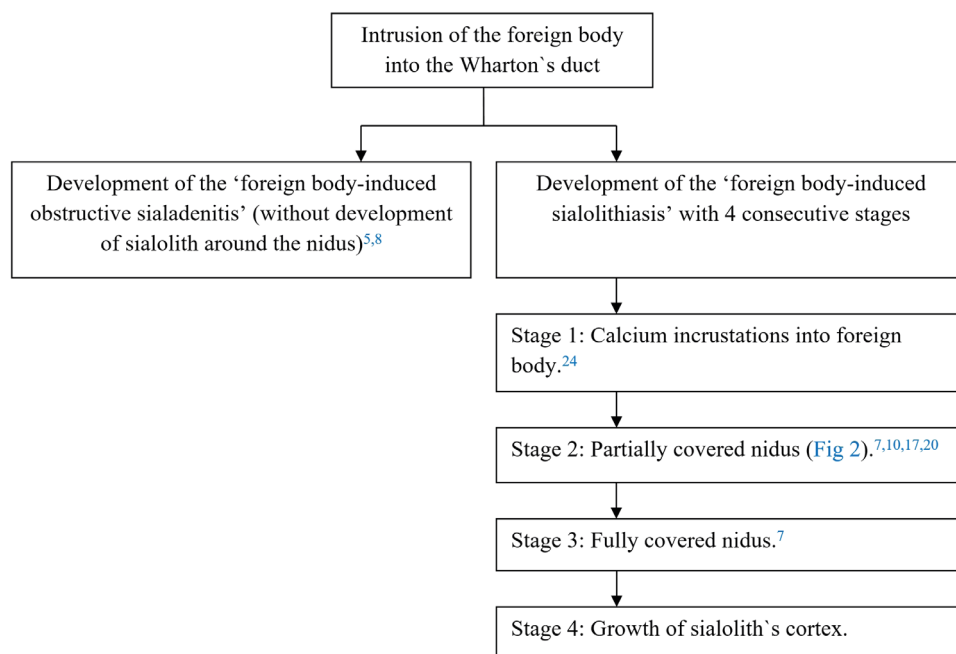


FIGURE 3. Flowchart displaying two possible ways of pathological process development inside the submandibular gland system after intrusion of the foreign body into the Wharton`s duct.

CONCLUSIONS

Our paper summarizes the analysis of 28 cases with foreign body-induced sialolithiasis (27 cases from literature and a case of our team). Literature review which was based on the studies published during the last 124 years gave a possibility to classify the development of the 'foreign body-induced sialolithiasis' in 4 consecutive stages. Our case of the foreign body-induced sialolithiasis represents a second stage of this pathologic process when nidus is partially covered by calcinations. The report is heightened by the analysis of ultrasound features and macroscopic images.

PATIENT CONSENT

Not needed.

CONFLICT OF INTERESTS

The authors declare no conflict of interest.

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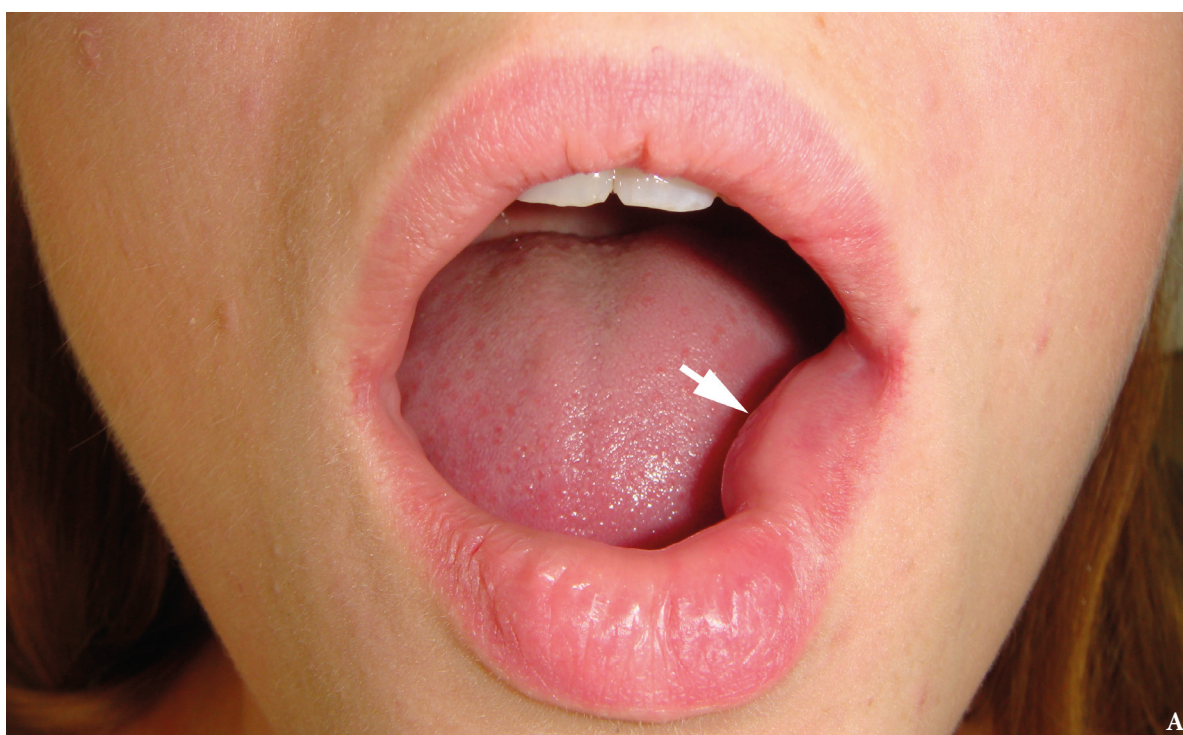
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Images in Oral and Maxillofacial Surgery
Camilo Mosquera, DDS, *Editor*

Large Mucocele in the Labial and Buccal Mucosa

Beka Beridze^a & Olha S. Cherniak^b



A 26-year-old woman presented to the maxillofacial surgery clinic with painless oval shape lesion (Panel A, arrow) arisen from the lower lip and extended to the buccal mucosa. According to the patient, the mass arose after repeated trauma (biting) of the mucosa (Panel B, arrowhead) approximately 3 months ago. Once the patient

^aPhD, Assistant Professor, Department of Dentistry and Maxillofacial Surgery, Batumi Shota Rustaveli State University, Batumi, Georgia

PhD Student, Department of Maxillofacial Surgery, Shupyk National Medical Academy of Postgraduate Education, Kyiv, Ukraine (position at moment of material collection)
beni-denti@mail.ru

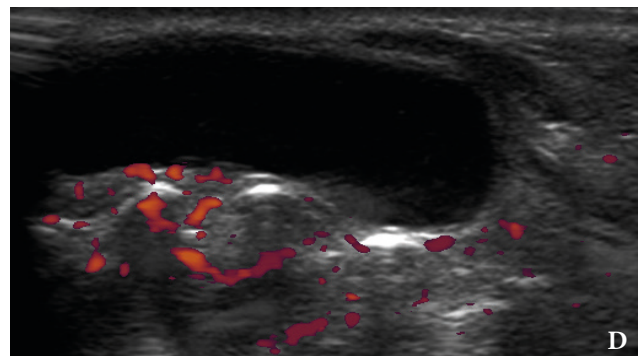
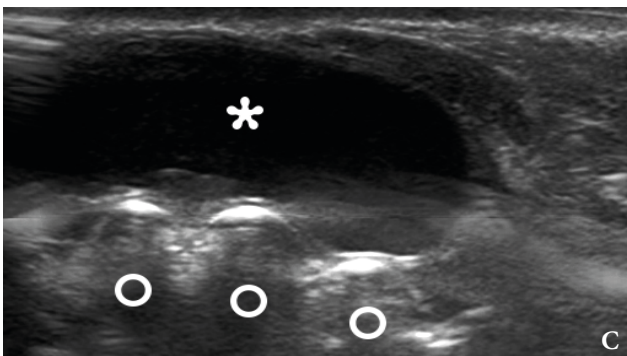
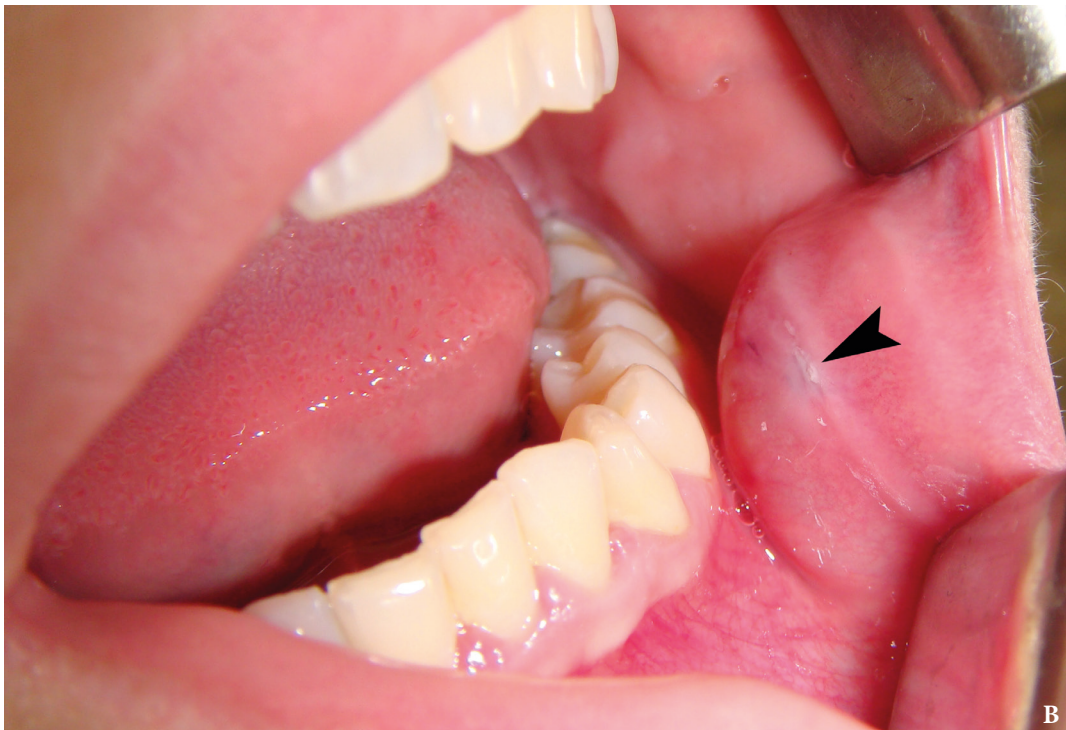
^bHead, Department of Ultrasound, Regional Diagnostic Center, Kyiv Regional Clinical Hospital, Kyiv, Ukraine
cherniak.os@gmail.com

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noted that when she bit the mass, it's emptied, but then began to grow again. Upon intraoral examination the lesion measured 1 × 1.8 cm in size. Palpation showed its soft and spongy texture. No bluish pattern of the surface was noted. B-mode (Panel C) and power Doppler (Panel D) ultrasound demonstrated cystic, avascular lesion measuring 1.71 × 0.92 cm with echogenic content (*asterisk*), no signs of echogenic debris, and distinct margins. Acoustic shadowing behind the hyperechogenic vestibular surface of the lower teeth is labeled by *circles*. The depth of the cropped sonograms is 1.56 cm.

Mucocele of the oral cavity (*synonyms*: oral mucocele, mucous cyst, retention cyst, retention cyst of the minor salivary gland, mucous retention cyst) is a cystic lesion of the minor salivary gland due to its duct alternation/inflammation and subsequent accumulation of saliva. Differential diagnostics of mucocele is usually performed with other similar oral masses: lipomas, lymphangiomas, and hemangiomas. Removal of mucocele includes the excision of mucous cyst associated overlying mucosa, own glandular tissue and other minor salivary glands which are visualized in the wound. Histopathologically, two types of oral mucocele are distinguished: retention and the more often, extravasation variant.

Summarizing, despite the majority of mucocele cases presented with mucosa surface color ranged from deep blue to light blue, our case clearly shows a mucocele with a pink color of mucosa above. Recurrence is a complication usually associated with a violation of the operation technique. ■ DTJournal



Images in Oral and Maxillofacial Surgery
Camilo Mosquera, DDS, *Editor*

I Giant Parotid Pleomorphic Adenoma

Valentyn H. Demidov^a, & Vasyl A. Rybak^b

A 49-year-old woman was referred to the maxillofacial surgery center with a gigantic mass (Panels A, *arrow*) in the right parotid area. Patient noticed mass's appearance 3 years ago with painless rapid growth during last year. No loss of function of the facial muscles was noted. No pathologic lymph nodes were also noted clinically and on the multi-slice computed tomography (MSCT), which revealed a large mass with lobulated borders in the right parotid area, displacing masseter muscle and upper portion of the sternocleidomastoid muscle. Pre- (Panels B and D) and post-contrast (Panels C and E) MSCT was performed according to the radiological protocol. Axial scans of the contrast-enhanced MSCT (Panels C and E) clearly demonstrate the polymorphic structure of the mass helping establishing the diagnosis of parotid pleomorphic adenoma.

Pleomorphic adenoma is a benign encapsulated tumor with a cellular polymorphism due to which this tumor is also named as a "mixed tumor." Very often these tumors have incomplete/'not true' capsule with a finger-like extensions into the glandular tissue. This anatomical feature requires from the surgeons to avoid a tumor's enucleation and perform the partial/total resection of the surrounding parotid tissue (parotidectomy)



together with a mass. In cases of intratumoral localization of some branches of a facial nerve, the partial/total facial nerve sacrifice is indicated.

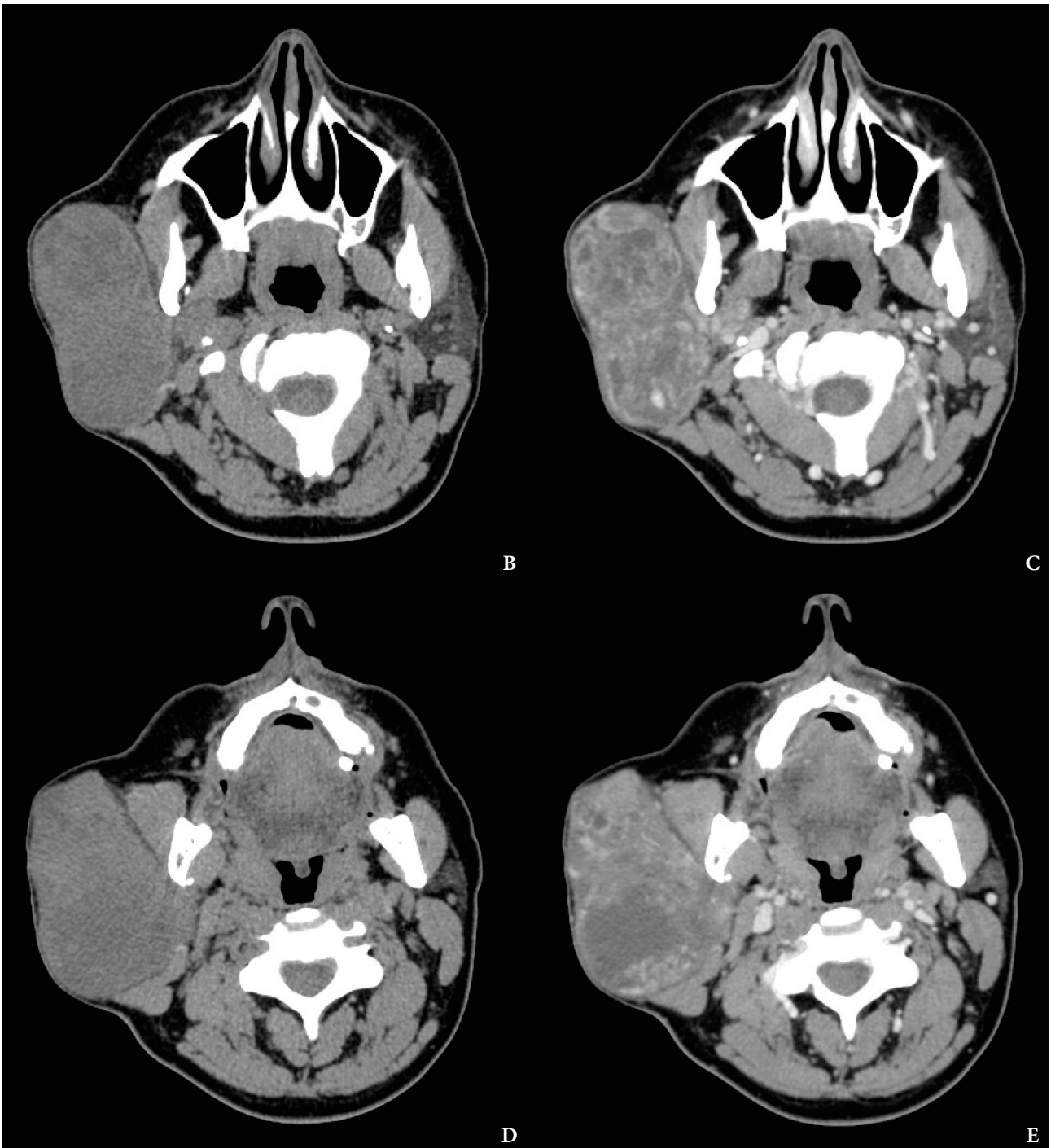
^aOral Surgeon, Center of Maxillofacial Surgery and Dentistry, Kyiv Regional Clinical Hospital, Kyiv, Ukraine
valentyn.demidov@ukr.net

^bPhD, Oral Surgeon; Head, Center of Maxillofacial Surgery and Dentistry, Kyiv Regional Clinical Hospital, Kyiv, Ukraine (position at moment of material collection)
rybak.jaws@gmail.com

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Such a radical treatment helps to reach two tasks: to avoid recurrence and to avoid possible malignant transformation of the recurrent pleomorphic adenoma.

The gigantic mass was removed under general anesthesia simultaneously performing right total parotidectomy with facial nerve preservation. The histopathology report proved the preoperative diagnosis.

The reported case supports the world statistics of this type of tumors: female predilection, most commonly occur in the parotid glands, mostly in its superficial lobe. ■ DTJournal



Post Scriptum Editorial

Joining Forces of Two North American Associations

Ievgen I. Fesenko

In the 75 years of its existence, it has continued to grow along with the specialty to become the premier journal in its field.¹

—Daniel M. Laskin

Professor and Chairman Emeritus, United States

Readers of one of the most famous professional publications, the *Journal of Oral and Maxillofacial Surgery (JOMS)*, could notice that from January issue of 2020 the emblem of the American Association of Oral and Maxillofacial Surgeons (AAOMS) on the cover page joined the emblem of the Canadian Association of Oral and Maxillofacial Surgeons (CAOMS).

After the 77 years of *JOMS* existence, which included 4-step gradual evolution of its title,¹ the new journal's step included the joining efforts of two main professional non-profit organizations of the United States and Canada.

Till 2020, the Editorial Board page of the *JOMS* had one position, namely in the International Editorial Board section, for the professionals from Canada. During last 12 months, the position is led by David A. Walker,² DDS MS, FRCD(C), Dip ABOMS, FADSA who serves as Assistant Professor, University of Toronto and who made an enormous contribution

to the CAOMS.

Thanks to the new step, in January 2020 a new founding position appeared, CAOMS – *JOMS* Liaison, which is led by Carl Bouchard, DMD, MSc, FRCD(C) from Québec, Canada.² Term “Liaison” originated from French and now means a communication or cooperation which facilitates a close working relationship between people or organizations.³ Dr. Bouchard serves both as a reviewer of the *JOMS* during almost a full last 11 years, and an Associate Professor of Oral and Maxillofacial Surgery at Laval University.⁴ Thus Dr. Bouchard, knowing all publication's traditions of the *JOMS* and carrying surgical experience of the francophone region of Canada, will definitely help journal to reach the new highs of impact factor number and potentiate the journal's science. Moreover, his experience as author in 26 English-/French-language publications (including 6 book chapters), which permanently make an impact on the global development of oral and maxillofacial surgery, will help to grow the *JOMS* and both associations.⁵

We deeply believe that fusion of traditions and advantages of two great communities on pages of one journal (with 2018 impact factor 1.781) shows a great example for other journals and will significantly potentiate the results and growth of the specialty.

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Managing Editor, *DTJournal.org*; Kyiv, Ukraine
i.i.fesenko@dtjournal.org

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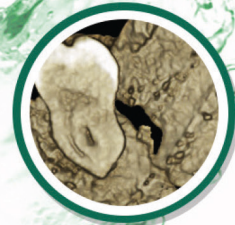
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04119, Kiev, Melnikova str. 83D, of. 404.

Tel.: (044) 538-01-26

Fax: (044) 538-01-27

