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## **FOREIGN BODY IN THE TONGUE AS A RESULT OF ACCIDENTAL GUNSHOT FROM HUNTING RIFLE**

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**Abstract:**

Gunshots are one of the many causes of urgent admission of patients due to necessity of removing foreign bodies and bleeding control. A 63 y.o. patient was referred to the Department of Oral Surgery due to an accidental gunshot, which occurred in early adolescence and caused numerous post-gunshot injuries. The decision to waive surgical removal of foreign body was dictated by major risk of complications, such as: major bleeding from tongue vessels and probability of function loss. Also the lack of symptoms sustained such decision. Patient was informed about the necessity of performing the surgery in case of any pain, inflammation or necessity of proper interpretation of radiological examination (CT, MRI).

**Key words:** foreign body, OPG, CBCT, gunshot wound

Foreign bodies are structures such as metal, glass, wood, plastic or own tissues, which are displaced beyond their physiological area, for example completely luxated teeth or fractured bone fragments. Most common causes of foreign bodies in the facial area are traumas and iatrogenic complications, usually after poor endodontic treatment (1). Among most popular traumas are traffic accidents, work accidents, gunshots, falls from a certain height and assaults (2). Most common foreign bodies among patients referred to the oral surgeon are: broken files, dental burs, fragments of extracted crowns or roots, amalgam fillings and fragments of broken surgical instruments – elevators, forceps, excavators (6, 11, 12).

Many methods of imaging the foreign bodies are used, such as CT, MRI and ultrasound examination, depending on the material the foreign body is made of (7, 8, 9). Radiological examination is best for finding metal elements, but also new dental materials and highly mineralized tissues such as teeth are very good visible. CT shows same foreign objects as standard radiological examination, but is of higher use in visualization of soft tissues and allows for better localization (8, 9). An examination that is especially useful in finding and localizing objects of small dimensions is MRI. However it is not recommended for metal objects, due to the possibility of uncontrollable displacement under the influence of strong magnetic field. In many cases, for finding foreign objects, an ultrasound is used. It is best examination in case of objects made of wood, which are relatively often found in clinical practice (8, 9).

#### Case report.

The 63-year-old male was referred to the Department of Oral Surgery due to a large artifact that shadowed the maxillary teeth on OPG (fig. 1). The history of chief complaint revealed that at the age of 19 the patient was accidentally shot out of a hunting rifle. At the day of the accident, the surgical removal of numerous foreign objects was performed (namely from liver, upper limbs, chest skin). After revising the oral cavity, bleeding and fractured tooth 26 were found, according to the patient. No further pursuit of leftover objects was conducted. After several days the patient was discharged home. No present documentation and considerable length of time do not allow for the factual evaluation if the patient was informed about the leftover object or was it just overseen.

Performing detailed physical examination allowed for finding a very faint scar on the skin of left cheek (fig. 6), tongue's scar (fig. 7), no teeth 26 and 27 present (fig. 1). In medical history the patient does not remember the circumstances in which the teeth were lost, but he associates it with gunshot. The foreign body of the tongue was not palpable; applying strong force causes discomfort but not qualified as pain, according to patient. CBCT was performed and revealed foreign body of 13x14x15mm size with sharp, irregular edges (fig. 2, 3, 4, 5).

In described case the surgical removal of foreign object was waived. The exceeding risk of complications and possibility of compromised function, prevailed over the benefits of removal, especially as no pain or discomfort are present.

#### Discussion.

Contemporary practice instructs to remove the foreign object from the body due to the possibility of complications, such as inflammation, loss of function, artifacts that prevent from assessing the radiological image. Removing such an object from facial part of the skull can be technically easy if it is located superficially, but can also cause major difficulties. In case of deep or tough to predict localization and when during the surgery a risk of injuring major anatomical structures occurs, it is essential to visualize the object (9, 10).

Fragment of bullet in patient's tongue is present there for over four decades and in no way affects its function. It does not affect the articulation, restricts mobility or limits the mastication. It also does not cause any pain.

In presented case, the artifact on the OPG needs to be differentiated with tongue piercing. Patient's concerns were unequivocally confirmed by the result of CBCT. 3d imaging

and possibility of rendering does not leave any doubt for the object being highly contrasting (density of 3095 j.H. according to InVivo, Gendex Kavo 2017) and can may correspond to metal shrapnel.

High energy of the bullet in the gunshot wound causes numerous injuries to soft and hard tissues. Important feature of such wounds is the entry wound, canal of the bullet's trajectory and exit wound (3). If the bullet's energy is high and its trajectory does not include hard tissues such as bone, which in turn decelerates the kinetic energy, most often the bullet leaves the body by itself via the exit wound. Whereas when the trajectory includes hard tissues such as bone or teeth, it may change and often causes the bullet or its fragment to stuck in soft tissues. Such situation promotes inflammation. Buckshot wounds are less dangerous than the regular gunshot ones, but due to substantial mass of the shells, the kinetic energy is high, and injuries to tissues severe (16,17).

The bullets entering the tissues are not sterile, thus can implant live bacteria. Shells can also infect the wound with dust, ground, fragments of clothing and other contamination. In case of buckshot gun, the shells are numerous and may cause many potential infections (16). Surgery combined with extensive excision, cleaning of the wound, copious rinsing with antiseptics and removal of the bullets, foreign objects and necrotic tissues is essential in every case of gunshot accident, especially in case of buckshot wound (17). Treatment is usually long and burdensome. In described case surgical treatment was only applied to the abdominal cavity and skin, completely avoiding the oral cavity.

Numerous articles indicate, that a foreign object not causing any pain or disturbing symptoms, especially inflammation; is usually found by accident during planned radiological examination (11, 12). CBCT allows for visualization of soft tissues and bones and determining the exact location (13). After locating the large object on OPG and eliminating the possibility of tongue piercing as a cause, the patient was sent for CBCT.

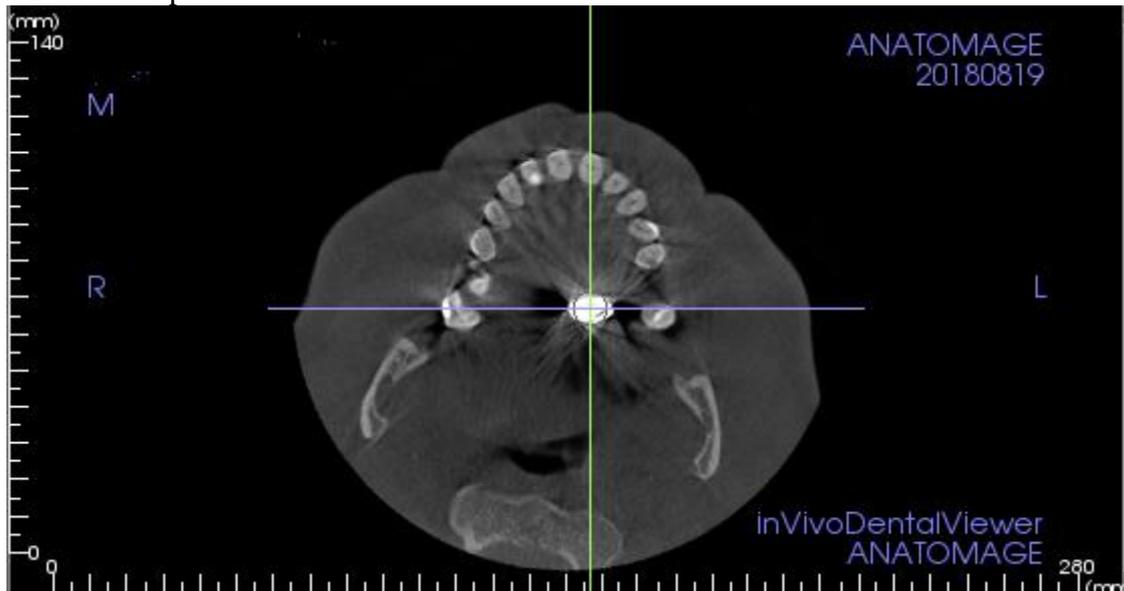
Foreign body located in the tongue can be a potential threat due to the possibility of causing inflammation an its consequences. Also the potential negative impact of such an object on results of necessary radiological examination of the head must not be forgotten (14, 15). The described above patient was has been informed about the necessity of removing the object in case of pain, inflammation or the need for performing and proper interpreting the detailed radiological examination of the head, such as CT or MRI.

**Figures:**

1. OPG



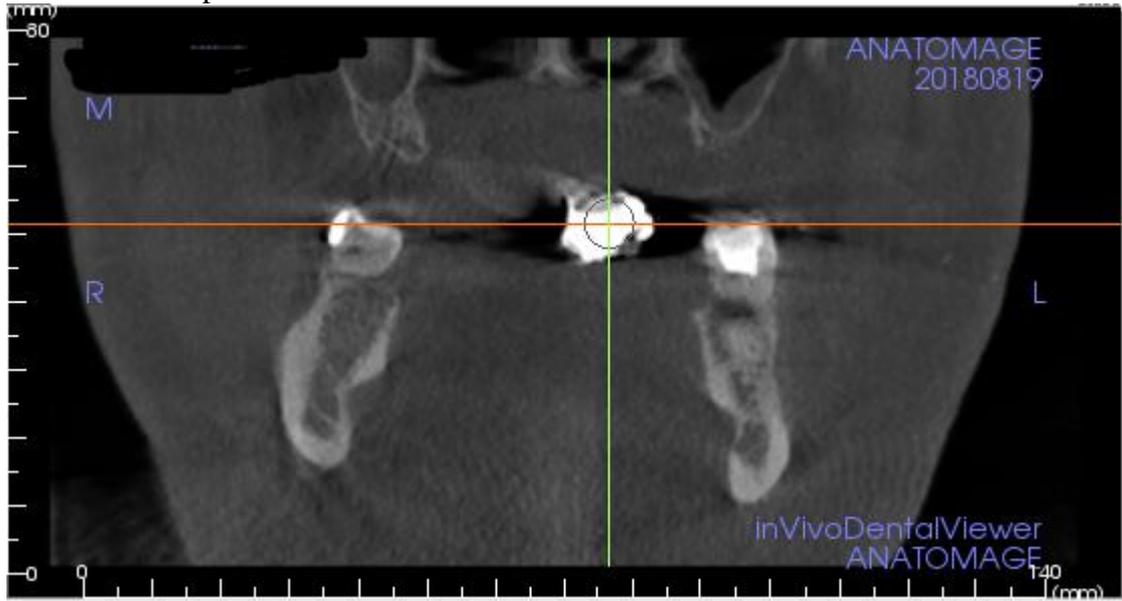
2. CBCT axial plane.



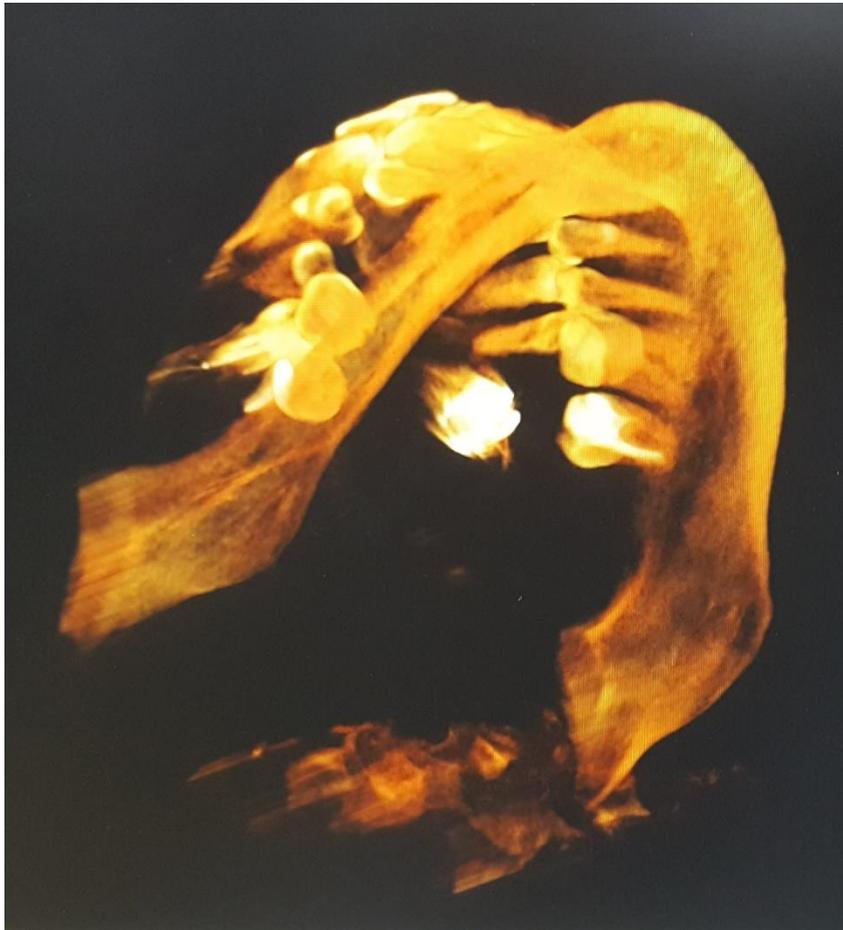
3. CBCT saggital plane.



4. CBCT coronal plane.



5. 3D reconstruction



6. Scar of the left cheek.



7. Scar of the tongue.



## References:

1. Różyło T.K. i wsp.: Jatrogenne ciała obce w obrębie twarzoczaszki. *Ann. Univ. Mariae Curie-Skłodowska, Lublin-Polonia*, 1998, LIII, 26, 205-211.
2. Nienartowicz J., Kołosowski W., Wnukiewicz J.: Ciało obce penetrujące przez policzek do jamy ustnej – opis przypadku. *Czas. Stomatol.*, 2006, LIX, 9, 649-652.
3. Gaszyński W. Piotrowski D, Samborska-Sablik A., Hołyński J.; *Medycyna ratunkowa i medycyna katastrof*; 2009, Uniwersytet Medyczny w Łodzi, 7, 335-340.
4. Stelmach R., Osica P., Janas-Naze A.; A foreign body in the soft tissues after molar tooth extraction as an iatrogenic complication - a case report. *Journal of Education, Health and Sport*. 2017;7(8):974-983.
5. Stępczyński M., Szyperska A.M., Janas A.: Ciało obce jako powikłanie powstałe po usunięciu zęba. *Por. Stomat.*, 2009, 9, 390-393
6. Osica P., Chiżyński A., Stelmach R., Ratajek-Gruda M., Janas A.: Obecność ciał obcych pochodzenia jatrogennego w zatoce szczękowej. *J. Health.Sci.*, 2014, 4, 328 - 336
7. Eggers G. i wsp.: X-ray-based volumetric imaging of foreign bodies: a comparison of computed tomography and digital volume tomography. *J. Oral Maxillofac. Surg.*, 2007, 65,9, 1880-1885.
8. Santos T. i wsp.: Current approach in the management of patients with foreign bodies in the maxillofacial region. *J. Oral Maxillofac. Surg.*, 2011, 69, 9, 2376-2382.
9. Ratajek-Gruda M. i wsp.: Ciało obce zlokalizowane w wardze dolnej po urazie twarzy. *Magazyn Stomatologiczny nr 9/2012*, 94-96
10. Eggers G., Haag C., Hassfeld S.: Image-guided removal of foreign bodies. *Br. J. Oral Maxillofac. Surg.*, 2005, 43, 5, 404-409
11. Dudek D., Segiet o., Reichman-Warmusz E., Wałach K., Matusek M., Helewski K., Osińska-Chybińska P., Sołtykiewicz K.: Powikłania Jatrogenne w chirurgii stomatologicznej – przegląd piśmiennictwa i opis przypadku. *Dental Tribune*, 2015, 2, 12-16
12. Selvi F., Enoz M., Yazgin I., Cakarer S., Keskin C. Do asymptomatic foreign bodies in the maxillary sinus always need to be removed?. *B-ENT*, 2008, 4, 243-247.
13. Deniz Y., Zengin AZ., Karii R.: An unusual foreign body in the maxillary sinus: Dental impression material. *Niger J Clin Pract*, 2017, 19, 198-300.
14. Shafiei F, Honda E, Takahashi H, Sasaki T. Artifacts from dental casting alloys in magnetic resonance imaging. *J Dent Res* 2003;82:602-6
15. Costa ALE Appenzeller S, Yasuda C-L, Pereira FR, Zanardi VA, Cendes F. Artifacts in brain magnetic resonance imaging due to metallic dental objects. *Med Oral Patol Oral Cir Bucal* 2009;14:278-82
16. Witkowski Z., Lasek J., Kopiszka K., Stasiak M. Obrażenia ciała w następstwie postrzałów: aspekty epidemiologiczne i kliniczne. *Wiad. Lek.* 2006; 59: 341–345.
17. Bowyer G.W., Rossiter N.D. Management of gunshot wounds of the limbs. *J. Bone Joint Surg.* 1997; 79: 1031–1036