

# First bite syndrome: the complication to keep in mind

## Zespół pierwszego ugryzienia: powikłanie, o którym warto pamiętać

### Authors' Contribution:

A – Study Design  
B – Data Collection  
C – Statistical Analysis  
D – Manuscript Preparation  
E – Literature Search  
F – Funds Collection

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### ABSTRACT:

**Introduction:** The First Bite Syndrome (FBS) is a rare late (1–2 months) post operation complication of surgery in the infratemporal fossa, parapharyngeal space and especially involving the deep lobe of parotid gland. Sometimes it can significantly worsen the patient's quality of life. Acute, sudden, short time pain in the parotid gland region with irradiation to the ear during the first bite a meal is a characteristic for this syndrome. The correct diagnosis and individual approach in choosing a treatment method is the key to success in treating this complication.

**Purpose:** The purpose of our article is to supplement scanty data on this complication in Polish literature.

### KEYWORDS:

headache, infratemporal fossa, painful bite, parapharyngeal space, parotidectomy, postoperative complication, salivary gland tumor

### STRESZCZENIE:

**Wprowadzenie:** Zespół pierwszego ugryzienia (FBS) jest rzadkim powikłaniem, występującym w późnym okresie po interwencji chirurgicznej (1–2 miesiące) w: dole podskroniowym, przestrzeni przygardłowej oraz – szczególnie – w okolicach głębokiego płata ślinianki przyusznej. Może on istotnie pogorszyć jakość życia pacjenta. Charakterystycznym objawem FBS jest ostry, nagły ból w okolicy ślinianki przyusznej z promieniowaniem do ucha w trakcie pierwszego ugryzienia podczas spożywania posiłku. Prawidłowe jego rozpoznanie oraz indywidualne podejście w wyborze metody leczenia jest kluczem do sukcesu w leczeniu tego powikłania.

**Cel:** Celem naszego artykułu jest uzupełnienie znikomych danych na temat tego powikłania w piśmiennictwie polskim.

### SŁOWA KLUCZOWE:

bolesne ugryzienie, ból głowy, dół podskroniowy, guz ślinianki, parotidektomia, powikłanie pooperacyjne, przestrzeń przygardłowa

## ABBREVIATION

FBS – First Bite Syndrom

## INTRODUCTION

First Bite Syndrome, or FBS is one of the complications that may occur in the late postoperative period after surgical intervention in the infratemporal fossa, the pharyngeal space and/or the deep lobe of parotid gland [1–5]. Cases of FBS have also been reported following ligation of the external carotid artery [6, 7] and surgery of the styloid process in Eagle syndrome [8]. There was also a report of a patient with FBS-like ailments who has not previously undergone any surgical intervention [9]. It is characterized by an outbreak of acute, sudden pain in the parotid region, which often radiates to the ipsilateral ear and occurs during the first bite of each meal. These conditions persist for a few seconds and disappear gradually dur-

ing further chewing. The most severe exacerbation of pain is usually with the first meal of the day or after a few hours without food. Pain symptoms vary in intensity and affect the patient's quality of life. The syndrome was first described by Haubrich in 1986.

## THEORY OF THE SYNDROME ORIGIN

The parotid gland receives double innervation: sympathetic and parasympathetic, which has a synergistic effect both systems cause the contraction of the myoepithelial cells of the salivary acini, which is confirmed by secretory studies of the parotid gland using electron microscopy. The theory of the origin of FBS is associated with the possible damage to sympathetic fibers innervating this salivary gland (which are branches of the upper cervical portion of the sympathetic trunk). Disturbance of the sympathetic nervous system may be the cause of hypersensitivity of the epithelial cells to the action of acetylcholine – a neurotransmitter of the parasymp-

pathetic system. The consequence is a very intense contraction of myoepithelial cells, which ultimately may be responsible for the pain caused by the first bite. During further chewing, the symptoms subside, but return at the first bite of the next meal. According to this theory, the condition for the formation of FBS is preserving even a small amount of salivary tissue after surgery. However, this theory has not been proven, because not all patients who suffered damage or transection of the sympathetic fibers of the upper cervical ganglion have experienced this complication [4, 13].

## EPIDEMIOLOGY

The FBS often remains unnoticed. However, it can sometimes interfere with the patients' daily lives and significantly impair their quality of life. In a study published by Linkova et al., they analyzed the postoperative course of patients after surgery performed due to tumors (benign and malignant) located in the zygomatic fossa, deep parotid lobe and the pharyngeal space. FBS syndrome was found to be a complication in 10% of patients, with an average onset of 97 days after surgery. In a study by Costales-Marcos et al., 5 patients with FBS syndrome were reported, which constituted 8% of the patients observed. The average time to onset of FBS was 2 months after surgery. In a study of Kawashima et al., FBS syndrome was found in 7% of patients undergoing surgery [3]. There were 35 publications on the FBS syndrome found in the literature available to the authors (Scopus database, PubMed) in the years 2002–2018, which described a total of 145 cases of this syndrome.

## DIAGNOSTIC PROCEDURE

FBS is recognized on the basis of an interview. Patients report pain of varying severity (VAS 3–7). It is usually sharp and sudden and occurs in the parotid region. It often radiates unilaterally towards the ear. Characteristic is the fact that the pain occurs with the first bite of each meal, persists for a few seconds and disappears gradually during further chewing. It has been observed that foods that cause increased salivation (sharp, spicy, acidic) cause more intense pain than mild, neutral foods. It was noted that some patients may experience short-term pain even when thinking about food. Because the above-described pain, particularly that of low intensity, is rarely reported by patients, a question concerning FBS should be a routine in postoperative follow-up tests.

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## TREATMENT

Although the exacerbation of symptoms decreases over time and patients report spontaneous resolution of pain, sometimes the intensity of the pain requires therapeutic intervention. There is currently no successful therapeutic method for FBS. The effectiveness of diet changes consisting in limiting or avoiding acidic, sharp, spicy foods has not been demonstrated. Nonsteroidal anti-inflammatory drugs have little therapeutic efficacy [14, 16]. Partial and complete resolution of FBS has been observed with antiepileptic drugs used to treat neuralgia and neuropathic pain (pregabalin, gabapentin and carbamazepine) [17]. In the study of Fiorini et al., the use of acupuncture in 2 patients with FBS resulted in complete relief of pain.

It was observed that radiotherapy of parotid gland (according to therapeutic indications) leads to complete disappearance of pain, but the use of this method of treatment as FBS therapy is contraindicated due to side effects. Some authors have attempted surgical treatment of FBS, which involved incisions performed on the tympanic or auriculotemporal nerve to reduce parasympathetic innervation. The results turned out to be unsatisfactory and the high risk of complications due to the invasiveness of treatment techniques disqualifies them. Based on the assumption that botulinum toxin type A inhibits the release of acetylcholine to synapses, which would lead to a decrease in the contraction of myoepithelial cells and pathological secretion from the glands, recently, the use of preparations of this toxin in the treatment of FBS has been started with good results.

## CONCLUSIONS

FBS is a rare complication that occurs in the late postoperative period after surgical intervention in the infratemporal fossa, parapharyngeal space and especially involving the deep lobe of parotid gland. It can significantly worsen the patient's quality of life. Due to the late onset of discomfort after surgery, pain in FBS may not be taken into account during follow-up visits. Patients with these conditions may be referred to neurologists, dentists or primary physicians and the disorders are often not associated with the surgery.

The lack of a universal and effective FBS treatment method requires an individual approach to the patient's problem, including pain intensity, invasiveness of the treatment method, contraindications to the chosen treatment method and patient preferences.

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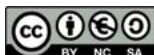
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