

Tongue abscess: a rare condition. A report of two cases and a summary of 66 reported cases

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Abstract

Tongue (lingual) abscess is a rare condition, which, potentially compromise the airway acutely and may lead to death in the misdiagnosed cases. The incidence of such cases has been extensively reduced since the introduction of antibiotics era and most of our current knowledge is based, mainly, on a limited number of case reports. Here, we reviewed the current available data related to tongue abscess using the Pub-Med database and present two new cases which were treated at our institute. In total, 66 cases (43 case reports and 8 case series) were fall within the inclusion criteria and were discussed in the current study. The presenting symptoms included mainly, but not limited, pain and swelling of the tongue. In extreme cases, airway securing by tracheostomy procedure is considered. Most of cases were treated by needle aspiration and/or surgical incision and drainage with excellent outcome. No specific bacterial signature was noticed. To conclude, lingual abscess must be recognized promptly, followed by securing airway and surgical drainage.

Keywords: lingual abscess, tongue abscess, glossal abscess.

Introduction

The tongue (lingual) abscess is a rare but a potentially life-threatening condition in the misdiagnosed cases in both; early and older patients [1,2]. To date, limited number of cases have been reported in the literature since its first description in 1923. Indeed, most of relevant current clinical data, related to its etiology, pathophysiology, clinical manifestations and management, is based, widely, on clinical case reports [3]. However, because of the limited number of the available case reports and case series, the incidence of tongue abscess, the age of onset, the sexual predominance, its diagnosis, complications and strategy of treatment are widely unidentified [4]. Moreover, these variables may also differ among different sites within the tongue. As additional cases are described and clinical outcome reported, the biological behavior and clinical insights of tongue abscess continues to be elucidated. The aim of this study is to present, for the first time, two cases of solitary tongue abscess among Israeli patients and summarize what is currently known of this rare entity and create a library/cohort of cases for further evaluation..

Methods

The PubMed databases were used to collect all reports of tongue abscess. To identify suitable papers, searches were performed by searching the terms ‘Lingual abscesses, ‘Tongue abscess” or ‘Glossal abscess”. The search was conducted with no language restriction up to April 20, 2020. Papers were selected for further consideration based on abstract screening by two reviewers. Subsequently, full- text papers were revised, and relevant papers were discussed, accordingly. In addition, references in the publications were screened and cross-referenced for more cases. The extracted data included demographic characteristics, presenting signs and symptoms, radiographic findings, histological and microbial signature, treatment, recurrence, and follow-up. The same data related to our reported cases were, also extracted

and described, as well. The institutional review board of Poriya Medical Center hospital approved the study protocol..

Results

Search strategy and demographic characteristics: The initial search in the PubMed resulted in 297 papers. Following the first-stage screening of titles, abstracts and references lists, 93 articles qualified for full-text screening (considered potentially suitable by at least one reviewer). However, 24 studies were excluded as they were in non- English language. After full-text reading, 51 papers (43 case reports and 8 case series) met the defined inclusion criteria. In total, 66 cases were reported in the literature since 1923. The cases and their features are listed in Supplementary Table 1. There was a predominance of male’s patients among 65 cases (43/65). Tongue abscess seems to occur, most often, in the fourth decade of life, with an average patient age of 41 years (range 0–82 years). Although cases have been documented in multiple countries, no reports have been documented in Israel.

Clinical manifestations (presenting clinical symptoms) and radiology: Two case reports were documented based post-mortem examination, which showed that both patients died because of tongue abscess complication, and, therefore, their clinical manifestations and radiological features were not reported [1,2]. Of the 64 patients for whom clinical symptoms were reported (Table 1), 44 specified pain and swelling of tongue (69%). Other symptoms included dysphagia (n=29), odynophagia (n=26), difficulty in speech (n=23), dyspnea (n=9), drooling (n=9), otalgia (n=9). In addition, two patients reported inability to close their mouth due to the tongue swelling; two patients reported malaise and one case presented with trismus. The duration of the clinical symptoms prior seeking care was specified for 53 patients and ranged between several hours and four months (mean of 10 days). Of the 52 patients for whom the sites of the abscess development were reported, the most frequent site of occurrence of tongue abscess was found to be the posterior third (n=29), followed by the

Symptom	No. of Cases (Percentage)
Swelling And/Or Pain	44/64 (69%)
Dysphagia	29/64 (45%)
Odynophagia	26/64 (41%)
Difficulty In Speech	23/64 (36%)
Dyspnea	9/64 (14%)
Drooling	9/64 (14%)
Otalgia	9/64 (14%)
Inability To Close Mouth	2/64 (3%)
Trismus	1 (2%)
Malaise	2/64 (3%)

Table 1: The table lists the different reported clinical symptoms among 64 cases.

middle third (n=13) and anterior third (n=10). The most preferred imaging modality was to be the Computer Tomography (CT) (n=33/42) followed Magnetic Resonance Imaging (MRI) (n=5/42) and US (n=4/42).

Microbiology

While microbial data of 31 cases were not reported, 35 showed no specific pattern of pathologic organisms; most of bacteria that have been reported were of the normal oral microbiota and include, mainly: *Streptococcus spp.*, *Staphylococcus spp.*, *Fusobacterium nucleatum* and other anaerobic species.

Strategy of treatment

Spontaneous resolving of lingual abscess was noticed among four cases after removing of the causative agents. Surgical approach by either needle aspiration and/or surgical incision was the treatment of choice in most of reported cases. Of 44 cases where type of anesthesia was reported, 25 the cases were treated under general anesthesia [3-18], while 19 were treated with local anesthesia [3,19-26]. In five cases, an impending airway obstruction was identified, requiring tracheostomy [3,14,27,28].

Case reports

Case 1

A 62-year's old man referred to our department with a complaint of a painful swelling within the posterior third of tongue with drooling, odynophagia and voice change that had progressively worsen during the last 3 days with no respond to P.O. antibiotic treatment. The patient had no history of any irritation or trauma to the tongue. The medical history was irrelevant. At his presentation time, vital signs were within the normal range with a WBC count of 13,000/m³ [3]. Clinical examination revealed ipsi-lateral cervical lymphadenitis, involving both submandibular and jugulodigastric group of lymph nodes, with no other abnormalities extra-orally. In the intraoral examination, there was a spherical-shaped swelling, measured proximately 2×2 cm, within the left posterior third of the tongue (Figure 1A and 1B). The swelling was very tender and firm in consistency. There were no signs of fluctuation, compressibility, and reducibility while the overlying tongue mucosa was intact but with white color. In addition, poor oral hygiene was observed with no signs of trauma and irritation. CT was performed, and a lingual abscess was diagnosed (Figure 1B and 1C). Aspiration was performed with a large-bore needle through the posterior dorsal surface of the left tongue resulting in drainage of a large

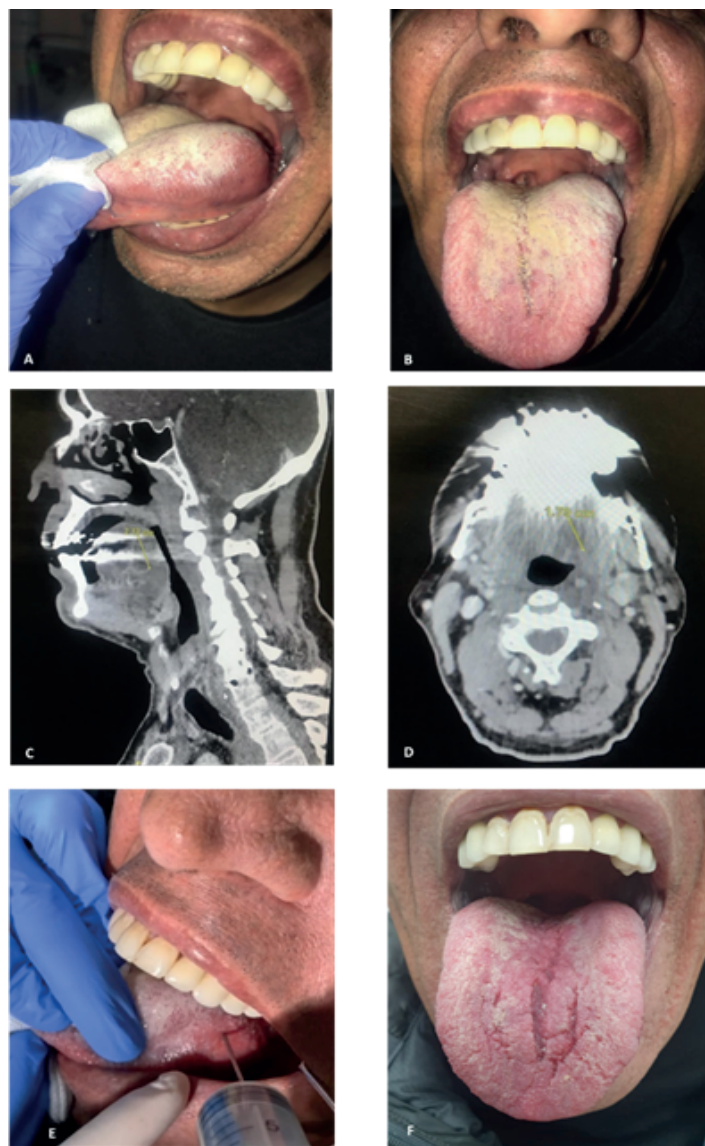


Figure 1: A and B) Swelling of the tongue at first patient presentation. C and D) Sagittal and Axial CT with contrast at level of tongue. Lingual abscess is demonstrated as rim-enhanced lesion with central hypo-dense cavity. E) large-bore needle aspiration showed isolated pus from the tongue swelling. F) Presentation of the patient after 5 days with complete recovery.

quantity of pus (Figure 1E). Immediate improvement of symptoms was noticed. Postoperatively, the patient was treated for 2 days with 1000 mg of penicillin V thrice daily in conjunction with IV. Dexamethasone sodium phosphate in a tapering down version. Two days later, the patient was discharged with further 5 days of P.O. Penicillin V. After the third day of treatment, the swelling reduced, and within 5 days, the swelling had totally regressed, and the patient was able to swallow comfortably. No bacterial growth was observed in the pus culture.

Case 2

A 64-year-old woman was admitted to our department after one month of increasing swelling of the right tongue. No other complaints (such as pain, dyspnea, drooling, odynophagia



Figure 2: Swelling of the middle third of the tongue at first patient presentation.

and voice change) were reported. She had a medical history of Type 2 Diabetes (T2D), obesity and hyperlipidemia. There was no history of trauma nor irritation to the tongue. Vital signs of the patient were within the normal range. In the physical examination, no abnormalities were observed extra-orally. In the intra-oral examination, a marked round-shaped swelling (~1.5 cm) combined with induration were noted within the middle third of the tongue (Figure 2). The swelling was well defined, tender and slightly firm in its consistency. There were no signs of fluctuation and compressibility and the overlying tongue mucosa was intact with normal color. Inflammatory, neoplastic, and developmental processes were considered in the differential diagnosis and surgical exploration was performed under local anesthesia. Once an incision was performed during the surgical exploration, ~2 ml of pus were drained. Moreover, a biopsy was taken for histopathological examination, which showed inflammatory granulation tissue. She was discharged from the hospital with P.O. Penicillin V treatment and continued with this regimen for an additional 7 days. The swelling was completely resolved with no recurrence to date.

Discussion and conclusion

A lingual abscess is a rare but potentially life-threatening disorder. Since the introduction of antibiotics, the incidence of posterior tongue abscesses has significantly decreased; however, this condition is often missed on physical examination or misdiagnosed as another condition. Here we describe two cases of tongue abscess and summarize the available scientific data upon this entity. To our knowledge, this the first case report of tongue abscess among Israeli patients.

Based on the literature, trauma form different origin (i.e., tongue piercing, penetration of foreign bodies, recent local injection, brush bristle and others) combined with poor oral hygiene is most likely the major cause of tongue abscess development

[5,6,13,16,17,19,20,23,29-34]. Despite this, infection and spontaneous abscess development with an unknown etiology was widely considered and reported. Theoretically, lingual trauma provides a mechanism for the introduction of pathogens into the otherwise resistant tongue. This may lead to breakdown of the protective system of the tongue that include the thick and tough keratinizing epithelium of the tongue, the paucity of submucosal areolar tissue, the density of the muscular compartment and the rich vasculature [12]. In the two reported cases in this study, there was no history of trauma from any origin. The authors speculate that the development of tongue abscess in the current cases was due to combination of poor oral hygiene and local trauma such as tongue biting, where the patients were not even aware for its occurrence. However, because of the rarity of tongue abscess condition and because of the variability of the existing data, the evidence upon the current suggested mechanism, the incidence, and predisposing factors are still limited.

Regarding the diagnosis of tongue abscess, based on the available literature and our cases, the majority of patients with tongue abscess may represent with acute swelling and/or pain of the tongue. However, other symptoms such dysphagia, odynophagia, difficulty in speech, dyspnea, drooling and otalgia may present in some patient as a separate symptom or in a combination pattern. Therefore, clinician should include the development tongue abscess in his differential diagnosis when treating these patients. Duration of the swelling onset is also of important role when diagnosis of tongue abscess is established. Indeed, the differential diagnosis of acute glossal swelling, in which swelling present during some hours to days, is a relatively simple task. Apart from anaphylactic reactions, such clinical presentation is very rare and may include, mainly, idiopathic lingual artery aneurysm that should be excluded prior to the incision and drainage [35,36] Lingua. However, differential diagnosis of the non-acute glossal swelling cases may be more challenging task. These may include congenital and acquired macroglossia, which can be further subdivided into hypertrophic, infective, inflammatory and neoplastic pathologies. One case in the current study admitted to our department after one month of lingual swelling that was, interestingly, without other complaints. In such cases, neoplastic pathology should be included in the differential diagnosis, and histological biopsy of the swelling should be taken under consideration. Furthermore, a significant problem may occur in the diagnosis of tongue abscess among infants. This is because acute obstruction to the upper aerodigestive tract in infancy is usually caused by inhalation of a foreign body, such as part of a toy or a portion of food and is less likely due to lingual abscess [2,37]. However, the misdiagnosis in this situation is a dramatic event that may eventually lead to a sudden infant death. Noteworthy, even radiological examination was not performed in one case of the current study; the authors believe that radiology examination may be a helpful tool in the diagnosis establishment.

Even though four cases were showed spontaneous resolving of the tongue abscess after removing of the causative agent, surgical approach with needle aspiration and/or incision and drainage still considered as the first modality to choose in such condition. Moreover, in the advanced cases, where an impending airway obstruction is identified, tracheostomy procedure should be considered.

In conclusion, tongue abscess must be recognized, promptly, and treated as an emergency condition, especially when dyspnea and dysphagia present. However, more studies and case reports/series are needed to establish and clear algorithm of treatment for both, infant and adult patients.

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