

# Unique Appearance of Face after Simultaneous Buccal and Temporal Space Infection

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## ABSTRACT

**Introduction:** Space infection of face usually occurs due to odontogenic causes. When buccal space infection left untreated can progress to adjacent spaces. When enters temporal space results in unique appearance of face like a dumbbell. This article reviews infection of temporo-buccal space with their early diagnosis and proper management.

**Case Report:** A case of simultaneous infection of buccal and temporal was evaluated (Fig 1 and 2) and drained extra orally for temporal space while intraorally for buccal space with extraction of offending tooth in same appointment.

**Discussion:** The simultaneous involvement of both buccal and temporal space infection produces a characteristic “dumbbell shaped appearance of face” resulting in pain and trismus. Both the spaces should be drain immediately to avoid further spread of infection into deep spaces.

**Key Words:** Buccal space, temporal space, Dumbbell shape Swelling,

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## INTRODUCTION

The simultaneous involvement of buccal and temporal space infection is very uncommon. It usually occurs due to progress of buccal space infection into temporal spaces resulting in a unique swelling of face termed as “Dumbbell shaped swelling” because of its dumbbell like appearance.

Dumbbell shaped swelling of face is one of the characteristic feature of simultaneous involvement of temporal and buccal spaces.

Most common etiology of these space infections is odontogenic in origin. So the early diagnosis and intervention of dental infection like caries and periodontal problems by dentist can prevent the occurrence of this infection. Moreover, further spread of infection and complication can also be avoided by taking prompt decision to drain or refer to oral and maxillofacial surgeon.

The purpose this paper is to provide knowledge of anatomy and path physiology of these spaces for accurate diagnosis and correct treatment.

## DISCUSSION

Shapiro states that “The facial spaces are potential areas between layers of fascia, normally filled by loose connective tissue and are readily breaks down when invaded by infection”. But as such facial space is a misnomer term. There are no voids in the tissue in actual reality.

The buccal space is present between facial skin and subcutaneous tissue lateral and the buccinators muscle medially. Anteriorly it ends at the modiolus and posteriorly over the anterior border of masseter muscle. Superiorly it is limited by

zygomatic arch and inferiorly by lower border of mandible. This space contains parotid duct, anterior and transverse facial vessels and buccal fat pad. Through buccal fat pad, buccal space infection spread to superficial temporal space.

The temporal space is found posterior and superior to meseteric and pterygo mandibular spaces and divided into two compartments by temporalis muscle into superficial and deep temporal pouches. Superficial temporal pouch lies between the temporal fascia and temporalis muscle while deep temporal pouch lies deep to temporalis muscle and skull. Below zygomatic arch both these spaces communicates directly with the infratemporal space.

Temporal space infection usually occurs secondary to other spaces mainly infratemporal and buccal space infection. So combined symptoms will be seen. When superficial temporal space involved, it produce swelling limiting superiorly and laterally by the outline of temporal fascia and inferiorly by the zygomatic arch while buccal space infection results in dome shaped swelling on anterior aspect of cheek beginning at the lower border of mandible, extending upwards to the level of zygomatic arch.

So, simultaneous involvement of both temporal and buccal spaces produce a characteristic “dumbbell shape appearance of face” which is caused by the lack of swelling over the zygomatic arch, caused by the dense attachment of the superficial fascia to the zygomatic arch. The limiting distensibility of temporal fascia results in severe pain. Trismus also present due to inflammation of temporalis muscle.

Accurate diagnosis and adequate treatment leads to successful patient care. Early diagnosis can be made by aspiration with 18 gauge needle on 10ml syringe extra orally for temporal space infection and intraorally for buccal space infection. Ultrasonography may be used to evaluate the abscess. CT scan imaging of masticatory space is useful in confirmatory diagnosis even if infection in its early stage.

The management of peritonsillar abscess requires both the incision and drainage and selection of empirical antibiotics followed by therapeutic antibiotics. Incision and Drainage should be done in upright position and a good suction should always be there to prevent aspiration of pus. Proper fluid therapy should be started immediately because patients were unable to take orally sufficiently. Incision and drainage is most important to decompress the space and to prevent further spread.

There are multiple approaches to drain the temporal spaces like intraoral through Sicher's intraoral incision which is just medial to the upper extent of anterior border of the mandibular ramus. If hemostat is passed superiorly along the lateral aspect of coronoid process it will enter the superficial temporal space and if passed medially will enter deep temporal space.

Usually temporal space abscess are a result of upward extension of infratemporal space, so an intraoral incision provides more dependent drainage. It also prevents the fibers of temporalis muscle from contracting against the drain which can impede the flow of pus from deep temporal space.

Extra oral approach used when patient has severe trismus as it may not be possible to approach intraorally. A small horizontal incision is given parallel to the zygomatic branch of facial nerve superior to zygomatic arch, posterior to junction of frontal and temporal processes of zygoma. Buccal space is drained through intraoral approach.

Dumbbell shaped swelling is itself a rare entity and usually occurs due to simultaneous buccal and temporal space involvement. These space infections should be drained immediately to prevent development of cavernous sinus thrombosis. If drainage is delayed, it can lead to necrosis of temporalis muscle and surface of skull as well as further spread of infection into deep spaces.

## **REFERENCES**

- [1]. Shapiro, H.H: Applied anatomy of head and neck, Philadelphia, 1947, J.B. Lippincott Co.
- [2]. Daniel M. Laskin, Oral and Maxillofacial Surgery, Mosbey: Vol 11; 2003.
- [3]. Topazian, Goldberg, Hupp, Oral and maxillofacial Infections, Saunders: 4<sup>th</sup> Edition; 2002.
- [4]. Contemporary of Oral and maxillofacial Surgery; Elsevier, 4<sup>th</sup> Edition; 2005.
- [5]. Neelima Anil Malik, Text book of Oral and maxillofacial Surgery; Jaypee: First Edition; Reprint 2007.
- [6]. Gustav O. Kruger; T.B. of Oral and maxillofacial Surgery, Jaypee, 6<sup>th</sup> Edition; 1990.
- [7]. Killy and Kay's Outline of oral surgery; Part 1, 2<sup>nd</sup> Edition; Reprint 2002.

**FIGURE LEGEND PAGE**



**Figure 1: A female patient with swelling at temporal and cheek region (Frontal view).**



**Figure 2: Lateral view of same patient.**