

# Herniation of Buccal Fat Pad Secondary to Trauma in the Oral Cavity - A Case Report

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## ABSTRACT

The traumatic intraoral herniation of buccal fat pad occurs in young children and is rare clinical entity. It frequently presents as expanding pedunculated mass of soft tissue emanating from buccal mucosa following minor trauma to buccal soft tissues. This article reports an interesting and rare lesion, wherein a tiny traumatic perforation of the buccal mucosa and buccinator muscle forced a large portion of the buccal fat pad to extrude into the oral cavity in a two-year-old female patient. Such a situation can alarm any clinician and reinforces the importance of careful history taking and thorough examination, before treating patients.

**Keywords:** Buccal fat pad; herniation; surgical removal.

## INTRODUCTION

The buccal fat pad (BFP) consists of a central body and four extensions; buccal, pterygoid, superficial, and deep temporal. The main body is situated deep along the posterior maxilla and upper fibers of the buccinator. The buccal extension is located superficially within the cheek, while the pterygoid and temporal extensions are more deeply situated.<sup>1</sup> Intraoral traumatic herniation of the BFP is characterised by the sudden appearance of a soft mass inside the oral cavity which appears to be originating from the soft tissues of the cheek.<sup>2</sup> This article reports a case of traumatic herniation of BFP in a two-year-old girl.

## CASE REPORT

A healthy two-year-old female patient was referred to the Department of Paedodontic and Preventive Dentistry from Paediatric emergency of BP Koirala

Institute of Health Sciences, Dharan, Nepal with the chief complaint of intra oral mass on right cheek for five days following blunt trauma with wooden stick while playing. The wooden stick was removed immediately by the mother with no remaining pieces inside the mouth. Initially the mother noticed bleeding from the mouth that eventually subsided and there was no mass protruding in the oral cavity at the time of injury. Later she noticed a large mass extending from the right buccal mucosa. On examination, there was mild extra oral swelling on the affected side and no difficulty in mouth opening (Figure 1). The child had discomfort while chewing food. Intraoral examination revealed the presence of a soft, non-tender, yellowish brown, fibrosed, freely mobile, pedunculated mass of size 2.5×2 cm<sup>2</sup> extending from the right buccal mucosa at the level of the occlusion of primary molars (Figure 2). There was presence of occlusal indentation on the mass. Based upon the history



**Figure 1: Extraoral view.**



**Figure 2: Intraoral view.**



**Figure 3: After removal of herniated tissue.**



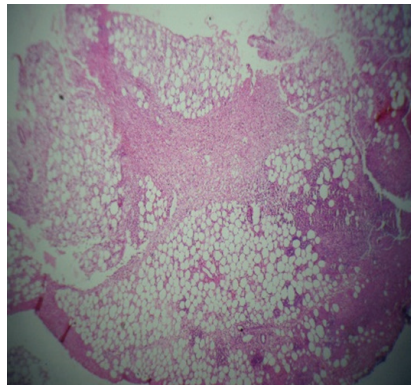
**Figure 4: After suture placement.**



**Figure 5: After suture removal.**



**Figure 6: Excised tissue.**



**Figure 7: Photomicrograph showing well-circumscribed lobules of mature fat cells separated by thin fibrous septa.**

given by mother and clinical examination, a provisional diagnosis of traumatic herniation of buccal fat pad was made. The differential diagnosis consisted of pyogenic granuloma, traumatic fibroma, haemangioma, infected lipoma, inflammatory pseudotumour, infected benign minor salivary gland tumor, foreign body granuloma and traumatic neuroma. After obtaining informed written consent from the patient's parents, the mass was excised intraorally at the base of the lesion

under local anaesthesia (Figure 3). Exploration for the presence of foreign bodies and irrigation was done before primary closure using 4-0 vicryl suture material (Figure 4). The patient was kept under antibiotics and analgesics and was examined after seven days. The postoperative course was uneventful (Figure 5). The excised mass (Figure 6) was sent for histopathological examination which confirmed the diagnosis of buccal fat pad showing inflammatory changes which revealed lobules of

mature adipocytes and necrotic debris along with mixed inflammatory cell infiltration predominantly neutrophils and lymphocytes invading the lobules and fibrous septa (Figure 7).

## DISCUSSION

The buccal fat pad (BFP) represents a specialised type of tissue that is distinct from subcutaneous fat which serves to line the masticatory space, separating the muscles of mastication from each other, from the zygomatic arch, and from the ramus of the mandible.<sup>1</sup>

The first case of traumatic herniation of the buccal fat pad was first reported by Clawson et al. in 1968, and then Brooke et al. reported another case and coined the term traumatic pseudolipoma.<sup>3,4</sup> The BFP, also known as the suckling pad, suctorial pad, or BFP of Bichat, refers to a group of encapsulated fat masses located within the buccal fascial spaces. The fatty nature of the BFP was first explained by Bichat in 1802. Maxillofacial trauma in children is the area where a careful evaluation and treatment planning is required. Paediatric patients are difficult to examine and history given by parents may not provide adequate information. As per the literature the traumatic herniation of BFP is very rare.<sup>5</sup>

The BFP is responsible for the fullness of the cheeks and is relatively large and prominent in neonates, infants and young children which aids in sucking functions.<sup>5</sup> It also helps in protection and cushioning for the facial neurovascular bundles and plays an important part in facial aesthetics. The volume of the buccal fat pad changes throughout a person's life; it could decrease in relation to facial growth from childhood, when it is large and prominent, to maturity.<sup>6</sup>

Intraoral traumatic herniation of the BFP is an unusual clinical entity that is characterised by the sudden appearance of a soft mass inside the oral cavity which appears to be originating from the soft tissues of the cheek. A traumatic perforation of the buccinator muscle and fascia can cause a large portion of the BFP to herniate into the oral cavity.<sup>2</sup> The size of herniated mass is very large when compared to the size of perforation because its major portion lies deep to the thin buccal mucous membrane and it is closely related to buccinator

muscle.<sup>6</sup> Herniation of the buccal fat pad means intraoral herniation of the buccal fat pad. On the other hand, in case of the outward prolapse of the lower portions of buccal fat pad, resulting in facial mass, it has been mentioned as pseudoherniation of the buccal fat pad, or "chipmunk cheek. It has been caused mainly by surgical trauma (e.g., facial plasty or liposuction) and has been reported in the plastic surgery literature.<sup>7</sup>

The traumatic herniation of BFP occurs frequently in the children, especially at the age between five months and five years, when they like keeping foreign bodies, like pencils and toothbrushes, in their mouths, or when they are exposed to direct intraoral trauma. The herniated BFP initially presents as a reddish or yellowish, and when thrombosis and necrosis occur, it gradually darkens to purple or dark blue.<sup>6</sup> The differential diagnosis includes pyogenic granuloma, inflammatory pseudotumor, foreign body granuloma, traumatic neuroma, lipoma, hemangioma, and salivary neoplasm.<sup>7</sup> However, the history of trauma, absence of prolapse before the injury, its occurrence in infants and young children, specific anatomic sites and location of perforation in mucosa, histopathological appearance of adipose tissue are the characteristic features important for diagnosing the condition.<sup>5</sup> All of the above mentioned features were present in this case.

The buccal fat pad had limited clinical importance for many years and was usually considered a surgical nuisance because of its accidental encounter either during various operations in the pterygomaxillary space or after injuries of the maxillofacial region. It is currently of interest in aesthetic surgery, such as buccal lipectomy in the adult, to modify the contour of the face. During the past few years reports have encouraged the use of buccal fat pad for reconstruction of oral defects. The easy mobilisation of the buccal fat pad, excellent blood supply and minimal donor site morbidity make it an ideal flap.<sup>8</sup>

There are two probable factors in the exclusive occurrence of the lesion in children. Firstly, the buccal fat pad is particularly prominent in neonates and infants, and has an increased risk of herniation. Secondly, children frequently hold foreign objects in their mouths and subsequently are prone to be traumatised by them.<sup>7</sup> As to the anatomic location

of this lesion, Matarasso suggested that a defect or weakness in the parotidomasseteric fascia of the region contributed to the occurrence.<sup>9</sup> Sucking action of an infant might encourage the herniation of fat pad through the wound into the mouth, and may also pose the risk of respiratory embarrassment. Majority of cases documented involved a foreign object in the mouth, which subsequently caused the penetrating injury through buccal mucosa and buccinator muscle.<sup>10</sup> In this case, traumatic herniation of buccal fat pad can be thought to be caused by wooden stick that the child was holding in the mouth while playing.

Treatment option depends on nature of presenting situation.<sup>5</sup> The treatment of the traumatic herniation of the buccal fat pad includes two surgical procedures.<sup>7</sup> When the case is reported immediately, preferably within four hours, and the protruded mass is small with minimal inflammatory change, the lesion is able to be repositioned immediately. If the mass is too large to replace in the limited laceration injury site or necrosis has appeared, it is recommended to surgically remove the mass from the base.<sup>1</sup> In both methods it is important not to traumatise the adjacent parotid papilla and duct.<sup>7</sup> In present case, patient had reported very late and the size was relatively large, hence, the mass was excised and at the same time it was ensured that no damage to the parotid papilla and Stensen duct was made.

Being relatively avascular, fatty tissue when damaged has a tendency to necrose or undergo atrophy. Infection and inflammatory reaction due to salivary contamination, bacterial aggregation and necrosis of the tissue due to occlusal trauma and delay in treatment can often complicate the situation.<sup>8</sup> Exploration for foreign bodies and irrigation are important before closing the wound which was done in current case. There have been no reports of recurrence of herniation or any other complications. In the present case also, no recurrence or any complication occurred.

Appearance of this lesion seem to be an alarming situation for any health care professional. A sound knowledge of specific site of occurrence of this lesion can help a professional in diagnosing and managing this lesion promptly.

## ACKNOWLEDGEMENT

We would like to thank Department of Oral Pathology, College of Dental Surgery, BP Koirala Institute of Health Sciences for rendering assistance in histology specimen preparation and staining.

**Conflict of interest:** None

JNDA

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