

Bilateral protrusion of the buccal fat pad into the mouth of an infant: report of a case

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The buccal fat pad is an anatomic structure, which contributes significantly to the prominence of the newborn's and infant's cheek. It is probably important in the suckling mechanism. In this article a case of unusual protrusion of this structure into the oral cavity of an infant is described. Besides the two-years of follow-up, a review of the literature is presented and a differential diagnosis is outlined.

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INTRODUCTION

The buccal fat pad was first described in 1732 by Heister,¹ who regarded it as a gland and named it the glandula molaris. Bichat² was the first to describe it as consisting of fat in 1801, it then became known as the boule de Bichat or Corpus Adiposum Buccae. Within the cheek, wedged between masseter and buccinator and related to the facial nerve and parotid duct, this anatomic structure is a biconvex pad of fatty, which contributes significantly to the prominence of the cheek of the newborn and of the infant.^{3,4}

It has a body and six extensions,⁵ and is completely enclosed within a distinctive capsule of varying thickness.^{6,7} Size, volume and aspect are different from one subject to another and between the right and left sides in the same individual.^{3,7} The cheek extensions are inconsistent or disappear with age,^{4,7} this is not a ball, except in the case of the fetus and newborn.⁷ It has an abundant blood supply, deriving from the branches of the facial and maxillary arteries.^{3,8} Most of the blood from the fat pad drains into the facial vein.³

The precise function of the fat pad is unknown. Some authors believe that the suckling capability of the buccinator muscle are enhanced by the fat pad, which may prevent collapse of the cheeks during suckling.^{3,4,6,8-10} So, this fatty body also has been termed the “suckling

pad”.^{6,10,11} It is possible that the difficulty in suckling by some premature and ill-developed infants may be due in part to the incomplete development of the suckling pad.³ However, Clawson *et al.*¹⁰ regarded the fat pad as purely a “filling-in” or cushioning tissue. Hull¹² suggested that it played a space-occupying role and Raczy *et al.*⁸ believe that it filled up the masseter-zygomaticus-buccinator space forming an amortizing and a slipping platform for the masticatory muscles in action.

Buccal fat pad is always under pressure. So, if a sudden force is applied or a small perforation of the buccal mucosa and buccinator muscle occurs, the buccal fat pad can extrude a large portion of its substance into the oral cavity.^{3,13-15} Children can suffer unusual oral trauma from a variety of objects held in the mouth. Many cases of traumatic herniation have been described, the patients ages ranging from 5 months to 12 years.^{6,10,11,13-23} In each case the buccal fat pad appears as a soft, yellowish or red/blue, pedunculated swelling. The mass may be increased in size dramatically by suckling,^{3,24} cause discomfort while chewing^{22,24} and potentially is able to embarrass respiration²⁰. This condition may be treated by repositioning the fat pad or by excision of the pedunculated mass.^{3,10,15,20,23} Wolford *et al.*¹⁴ suggested that a differential diagnosis of such a mass might include fibroma, neuroma, their malignant counterparts, or hemangioma.

This paper describes the clinical features and the treatment of a case of a two-month-old boy with an unusual protrusion of the buccal fat pad into the oral cavity. A differential diagnosis is outlined and the treatment proposed, a follow-up of two years, is discussed.

CASE REPORT

A two-month-old, Caucasian male presented to the pedodontic clinic of a public university in Rio de Janeiro, Brazil. His mother's main concern was the presence of “two balls in the baby's mouth every time he cried”. The medical history was uneventful and the mother denied occurrence of any trauma or accident. Breast-feeding was his only source of nutrients and oral hygiene procedures were not started.

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Figure 1. A) View of the oral cavity, left side, showing a swelling protruded through the buccal mucosa, during crying. B) View of the oral cavity, right side, showing a swelling protruded through the buccal mucosa similar to the one located in the left side, when the baby cried.



Figure 2. A) Upper alveolar ridge. B) Lower alveolar ridge.

Intraoral clinical examination revealed that the patient was edentulous and that there were no soft tissue alterations, neither in color, nor in texture. However, every time the baby cried, it could be verified that two yellowish-red swelling protruded through the buccal mucosa, one in each side of the mouth (Figures 1A, 1B), but no injury to the tissue or laceration could be seen.

The patient was referred to the Oral Pathology Department of the previously mentioned university. Bilateral swelling was diagnosed as a normal alteration of cheek muscles, as the baby had no control of them yet. The guardian was informed about the condition and was advised that it would probably disappear during development. For this reason, parents agreed to bring back the patient in periodic visits, scheduled every four months. Information about oral hygiene procedures was also given.

At the next visit, it was verified that alveolar ridges were visible (Figures 2A, 2B) and bilateral swelling was still present when the baby cried (Figures 3A, 3B), but disappeared soon after he stopped crying. Unfortunately, the mother was absent in the other scheduled visits and the authors lost contact with the patient for 1 year.

Fourteen months after his first appointment, the patient returned to the clinic. He had no suckling habits, but breast-feeding was still present. His mother was advised to discontinue it and to start the stimulation of

solid food ingestion, as the patient was sixteen-months-old. When he cried, bilateral swelling was still appearing, but the size was smaller (Figure 4). Primary incisors have already erupted and oral hygiene was adequate. Periodic visits with four months intervals were restored.

At the following appointment, parents reported that breast-feeding was not discontinued and that they noticed the size of the swelling was decreasing with time. However, they also verified its presence, while the child laughed and not only during his cries.

The follow-up has completed two years and at his last visit he was 26-months-old. Primary dentition was not completely erupted, since the second molars were absent (Figure 5). Despite author's advice, his mother has not discontinued breast-feeding and reported that the child was so resistant to eating food that she offered her breast every time he asked. Bilateral swelling was verified when the baby cried, but it appeared to be much smaller (Figures 6A, 6B). Once more, the mother was advised that the child needed to eat solid food in order to improve his chewing ability.

DISCUSSION

The buccal fat pad is an anatomic structure, related to cheek muscles¹⁻³, but its real function remains unknown.^{3,4,6,8-}

¹⁰ However, it is known that it could be responsible for the



Figure 3. A) View of the oral cavity, during crying, showing a swelling on the right side of the mouth. B) During crying, a swelling is also noted on the left side of the mouth.



Figure 4. Fourteen months after first appointment, swelling was still present but note the smaller size (left side).



Figure 5. View of the oral cavity showing primary dentition almost complete (Patient was 26-month-old).



Figure 6. A) During crying, a slight swelling appeared, but it was much smaller (left side). B) On the right side, the same situation: presence of a very slight swelling.

prominence of newborn and infant's cheek^{3,4} and that it is always under pressure.^{3,13-15} The literature on the occurrence of traumatic herniation of the buccal fat pad is extensive, and most of the cases reported patients less than 5 years.^{6,10,11,13-23} Two factors probably contribute to this apparently exclusive pediatric problem. One of them is that the buccal fat pad is relatively prominent in young children and

infants compared to adults^{3,4} and hence, carries an increased risk of herniation. And the other is that young children frequently place foreign objects in the mouths, predisposing them to intra-oral trauma.²⁰

The case reported could be regarded as showing typical clinical characteristics of traumatic herniation, considering not only location and aspects, but also other fea-

tures like the age. However, this hypothesis was discarded because the patient did not present a history of trauma or had suffered any accident and it was bilateral, while only one side of the mouth was affected in reported traumatic cases. Besides, in many cases of traumatic herniation a slight bleeding is present^{11,15,20,24} and it is necessary repositioning or to excise the pedunculated mass, since it could not disappear alone. In this case, bleeding was not observed and bilateral swelling was not constant, disappearing when patient stopped crying or laughing.

Differential diagnoses of intra-oral pedunculated swellings of the cheek include lipoma, neurofibroma, granular cell tumor, traumatic fibroma, pyogenic granuloma, hemangioma, salivary neoplasm,^{15,25} cavernous angioma²⁶ and sialolithiasis of the parotid gland.²⁷ Hemangiomas rarely occur in the buccal fat pad.²⁷ Once more, the spontaneous resolution of swelling contributed to discard these possibilities.

We suggested that due to muscles of the cheek incomplete maturation, the buccal fat pad could herniate into the oral cavity at the moments these muscles are needed, for example, every time the baby cries or laughs. So, once these actions have stopped, the muscle relaxed and swelling disappeared. Matarasso²⁸ has already suggested that a defect or weakness in the parotidomasseteric fascia of the region could contribute to the occurrence of herniation of fat pad. Assuming this was the case, the follow-up of the patient was proposed, as maturation of the muscles should occur during the development of the child. Besides this, it has been already reported that the buccal fat pad disappear with age.^{4,7}

It is also important to discuss the presence of breastfeeding until the age of 26 months, since some authors reported that traumatic herniation could be increased by suckling movements^{3,24} and others believed that the buccal fat pad is important in suckling mechanism.^{3,4,6,8-10} According to this, it could be assumed that bilateral swelling has persisted not only due to weakness of the muscles, but also due to the continued habit of breastfeeding that did not allow the reduction of the anatomic structure, the buccal fat pad.

On the other hand, the child was not being stimulated to chew solid food, which is very important to maturation of the muscles and should be another reason for bilateral protrusion of the buccal fat pad.

Guardians must be encouraged to bring the young children to the pediatric dentist as soon as possible. Early and periodic visits are necessary to promote oral health and to create a positive view of dentistry. It is also important to emphasize that this might be the only way to diagnose some oral developmental alteration, which must be distinguished from tumors and other malignant lesions. At the same time, pediatric dentists must know anatomic features very well, so that they could be prepared to face and treat conditions such this one reported in the case.

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