Case Report

Traumatic Intraoral Herniation of the Buccal Pad of Fat in Pediatric Patients: Report of Two Cases

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Abstract

Intraoral herniation of the buccal pad of fat is commonly occurring in the pediatric group of population. It frequently presents as an expanding pedunculated nontender, soft, nonpulsatile yellowish mass in the buccal mucosa at the level of the maxillary occlusal plane. The most common cause is traumatic injury. This article presents two such cases where extrusion of the pad of fat successfully managed by surgical excision.

Keywords: Buccal pad of fat, extrusion/herniation, pediatric patient, trauma

Introduction

The buccal fat pad (BFP) was first described in the early medical literature by Heister in 1732,[1] Bichat in 1802,[2] and Stuzin *et al*.[3] though detailed anatomic description was published by Scammon[4] first, followed by Goughran.[5]

The buccal fat is a mass of specialized fatty tissue which is distinct from subcutaneous fat and lines the masticatory space, separating the masticatory muscles from each other, from the zygomatic arch, and from the ramus of the mandible. BFP is surrounded by a fascial envelope and in infants prevent indrawing of the cheeks during suckling. The buccal fat consists of a central body and four extensions-buccal, pterygoid, superficial, and deep temporal [Figure 1]. The average weight of BFP is 9.3 g and average volume is 9.6 mL.[3]

The main body is situated above the parotid duct, deep along the posterior maxilla, and upper fibers of the buccinator. The buccal extension is the most superficial, encapsulated by the parotidomassetric fascia and enters the cheek below the parotid duct. It extends along the anterior border of the masseter and descends into the mandibular retromolar region.[3] The pterygoid and temporal extensions are more deeply situated. The BFP is relatively large in infants; therefore, a minor tear of the buccinator muscle can allow a herniation into the oral cavity. In this article, two cases of this condition are presented.

Case Reports

Case report 1

A 4-year-old male patient reported to the department with a large intraoral mass. He had fallen with toothbrush in his mouth, about 7 h before. His father reported bleeding from the right buccal mucosa, and there was no mass protruding in the oral cavity at the time of injury. Later, on they noted a mass increasing in size protruding from the right buccal mucosa. Intraoral examination revealed a reddish, soft-pedunculated nontender mass, projecting from the right buccal mucosa and protruding in between the occlusal surfaces of maxillary and mandibular posterior teeth [Figure 2]. Hence, the patient was unable to close his mouth and was unable to eat since morning. The clinical diagnosis made was herniation of the BFP. The patient was placed under routine blood examination,

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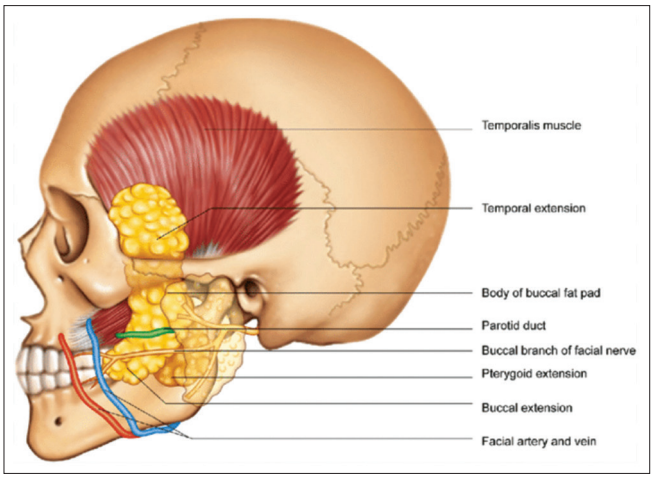

Figure 1: Anatomy of BFP.

Figure 2: Case – 1: Pre-Operative photograpy.

Figure 3: Case – 1: Per-Operative photograpy.

Figure 4: Case – 1: Post-Operative photograpy (Immediate).

antibiotic coverage, soft diet, and recalled the next day. Under local anesthesia, the mass was grasped with artery forceps [Figure 3], and the base of the mass was easily excised with minimal bleeding. 3-0 silk suture was placed to close the wound primarily [Figures 4 and 5]. The patient was examined after 5 days, and the postoperative course was uneventful [Figure 6]. The mass floated when placed in 10% formalin, indicating the presence of adipose tissue. On microscopic examination, well-circumscribed lobules of mature fat cells separated by thin fibrous septa could be seen [Figure 7]. Hence, the final diagnosis was herniation of BFP.

Case report 2

A 3-year-old boy reported to the Department of Pedodontics and Preventive Dentistry, with an intraoral mass on the left buccal mucosa. Two weeks before his presentation, the child had fallen while playing and had blunt trauma to the left side of the face, which resulted in bleeding from the mouth that subsided spontaneously. Later, his mother noticed a small mass, and the child had discomfort while chewing food. Intraoral examination revealed the presence of a soft-pedunculated nontender projection with normal color of mucosa from the left buccal mucosa at the level of the occlusion of primary molars [Figure 8]. Based on these findings and history, a provisional diagnosis of traumatic herniation of the BFP was made. After routine blood investigation and antibiotic coverage, the lesion was excised in the same manner under local anesthesia [Figures 9 and 10]. Antibiotics, anti-inflammatory drugs, and an antiseptic mouth rinse were prescribed. The swelling subsided postoperatively, and healing was uneventful [Figure 11]. The histopathological examination of the tissue confirmed the earlier made provisional diagnosis of the buccal pad fat herniation [Figure 12].

Discussion

The BFP was first described by Heister in 1732 who believed that the structure was glandular in nature. The true fatty nature of the BFP was then established by Xavier Bichat in 1802. The buccal extension is located superficially in the cheek and extends anteriorly from the space between the buccinator and masseter muscles. Herniation of buccal pad of fat may be

Figure 5: Excised mass.

Figure 6: Case – 1: Post-Operative photograpy (7 days).

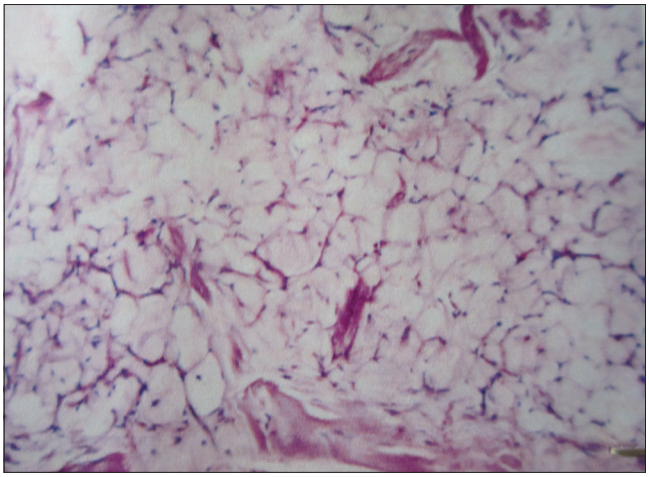

Figure 7: Histopathological photography.

Figure 8: Case – 2: Pre-Operative photograpy.

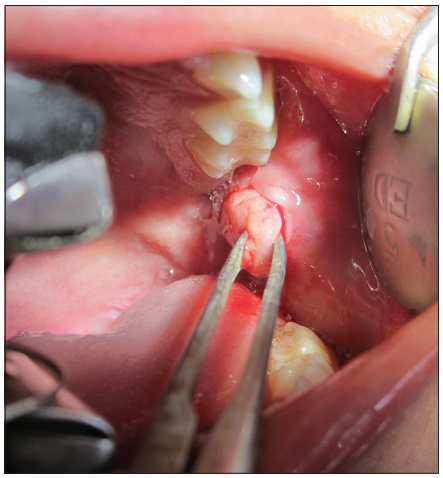

Figure 9: Case – 2: Per-Operative photograpy.

Figure 10: Case – 2: Post-Operative photograpy (Immediate).

intraoral or extraoral (mentioned as pseudoherniation of the BFP or "chipmunk cheek," mainly caused by surgical trauma[6]). There is also a reported case of herniation of BFP into maxillary sinus associated with the fracture of the lateral wall of the maxillary sinus after blow to the face.[7] The first reported case of traumatic herniation of the BFP was by Clawson *et al*. in 1968,[8] and then Brooke and MacGregor reported another case and coined the term traumatic pseudolipoma.[9]

Figure 11: Case – 2: Post-Operative photograpy (7 days).

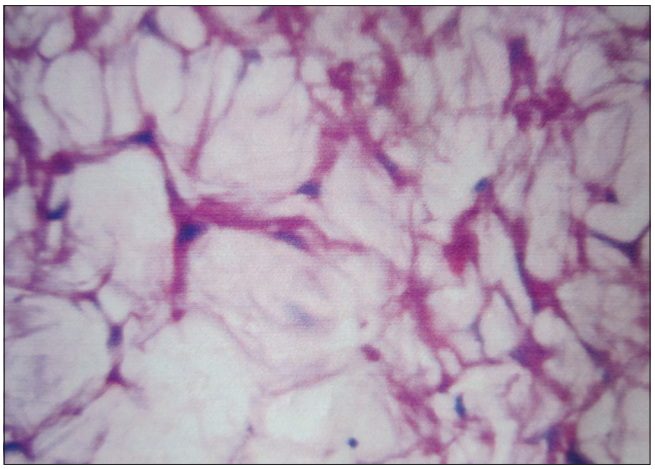

Figure 12: Histopathological photography.

Review of literature revealed that traumatic herniation of BFP occurs more frequently in infants and young children ranging from 4 months to 4 years (median age is 20 months).[10] The probable factors in the exclusive occurrence of the lesion in children are:

1. The BFP is relatively large in infants (referred to as the suckling pad) and has an increased risk of herniation
2. Children frequently hold foreign objects in their mouths and subsequently are prone to be traumatized by them
3. Matarasso suggested that a defect or weakness in the parotidomasseteric fascia of the region contributed to the occurrence.[6]

Injuries are usually by external blunt injury (such as a blow on the face, struck face on a flat surface) or after a fall with a foreign object within the mouth (such as the toothbrush, spoon, pencil, and chopstick).

The clinical differential diagnosis may be pyogenic granuloma, traumatic fibroma (inflammatory hyperplasia), foreign-body granuloma, traumatic neuroma, lipoma, hemangioma, and salivary neoplasm.[11] However, the characteristic features such as the history of trauma, absence of lesion before the injury, specific age group, particular anatomic location, pale-yellowish appearance, and the histopathology are important for diagnosing the condition.

Histopathology reveals a connective tissue stroma with groups of mature adipocytes without cellular atypia or metaplasia, without epithelial lining, with a varying degree of inflammatory cell infiltration. Necrotic changes along with bacterial proliferation may be seen on the surface.[12]

There are two types of treatment modality for the traumatic herniation of the BFP as follows:

1. Repositioning followed by primary closure (when the case is reported immediately within 5 h, protruded mass is small, with minimal inflammatory changes)[13]
2. Surgical excision without traumatizing adjacent parotid papilla and duct (when the case is reported after 4 h, mass is too large to be repositioned, presented with supra added necrosis and fibrosis).[14]

In our case, the patient had reported late; hence, the mass was excised. There have been no reported cases of recurrence.[6,14,15]

Conclusion

Almost all cases of herniation of the BFP occur after a fall with a foreign object, causing trauma to the mouth. Screening of the oral cavity, detailed history taking, diagnosis and management of the case should be done carefully. In conclusion, we would like to emphasize that children should always be supervised when brushing their teeth and should not be allowed to walk or run with any object in their mouth.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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