SAS Journal of Surgery
Abbreviated Key Title: SAS J Surg
ISSN 2454-5104
Journal homepage: https://www.saspublishers.com

OPEN ACCESS

Dermatology

Facial Lipoblasma in A Child: A Case Report of a Giant Lipoblastoma

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DOI: https://doi.org/10.36347/sasjs.2026.v12i05.005 | **Received:** 16.03.2026 | **Accepted:** 29.04.2026 | **Published:** 04.05.2026

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Abstract **Case Report**

Lipoblastoma is a benign soft tissue tumor that originates from embryonic white fat. It typically presents as a slow-growing mass, frequently appearing in the extremities and trunk of young children. Histological examination remains the gold standard for confirming the diagnosis of lipoblastoma; however, radiological evaluation can assist in identifying, assessing the extent, and characterizing the mass prior to excision. Although cases of lipoblastoma in the facial region are relatively rare, they may present as visible swelling in the buccal area, raising concerns among parents and practitioners. This condition can sometimes be mistaken for other pathologies, making diagnosis more challenging. Here, we report the case of a 4-year-old female patient presenting with a painless mass in the left buccal region. Imaging modalities suggested the presence of encapsulated fat within the mass. The patient subsequently underwent complete excision, and histopathological examination confirmed the diagnosis of lipoblastoma. This study highlights the possibility of lipoblastoma occurring in rarely affected regions, such as the face in children, and the role of imaging examinations in diagnosis and therapeutic options. This case underscores the importance of early recognition of this condition to prevent unnecessary interventions and ensure appropriate management.

Keywords: Lipoblastoma, Face, Buccal Fat Pad.

INTRODUCTION

Lipoblastoma is a benign mesenchymal tumor derived from embryonic fat, resulting from the proliferation of immature adipocytes (adipoblasts). Although rare, it primarily occurs in infants and young children, with a predilection for children under the age of 3 years [1,2]. The tumor most commonly locates in the subcutaneous tissues of the limbs and trunk; however, other unusual locations have been reported in the literature, including the face, neck, parotid gland, mediastinum, chest region, abdomen, scrotum [3], axillary region [4], and thoracic wall [5]. In our case, we report a rare location of a lipoblastoma in the Bichat fat pad in the left jugal region of a 4-year-old child.

PATIENT AND OBSERVATION

A 4-year-old child with no significant medical history. On clinical examination, she presented with a congenital left buccal subcutaneous mass, progressively increasing in size since birth. The mass was soft, with telangiectasia, non-tender, non-adherent to the deep plane, displacing the nose and retracting the ipsilateral labial commissure, with no other associated signs. (Fig. 1)

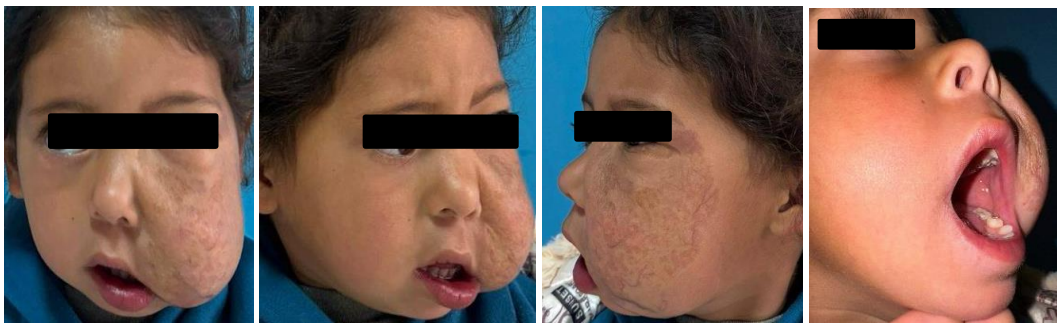

Fig. 1: Preoperative clinical appearance

Paraclinical examinations revealed:

Facial MRI:

A mass in the left Bichat fat pad, partially encapsulated, measuring approximately 44x38mm. It is hyperintense on T1 and T2, with complete suppression on fat saturation, showing the presence of internal septa. It enhances with contrast medium at the septa and displays serpiginous blood flow from the arteries. The mass is in contact with the masseter muscle, the intermaxillary commissure, the retromolar trigone, and the lateral pterygoid muscle. The other deep facial spaces are free of involvement. The appearance is highly suggestive of a lipoblastoma of the left Bichat fat pad. (Fig. 2)

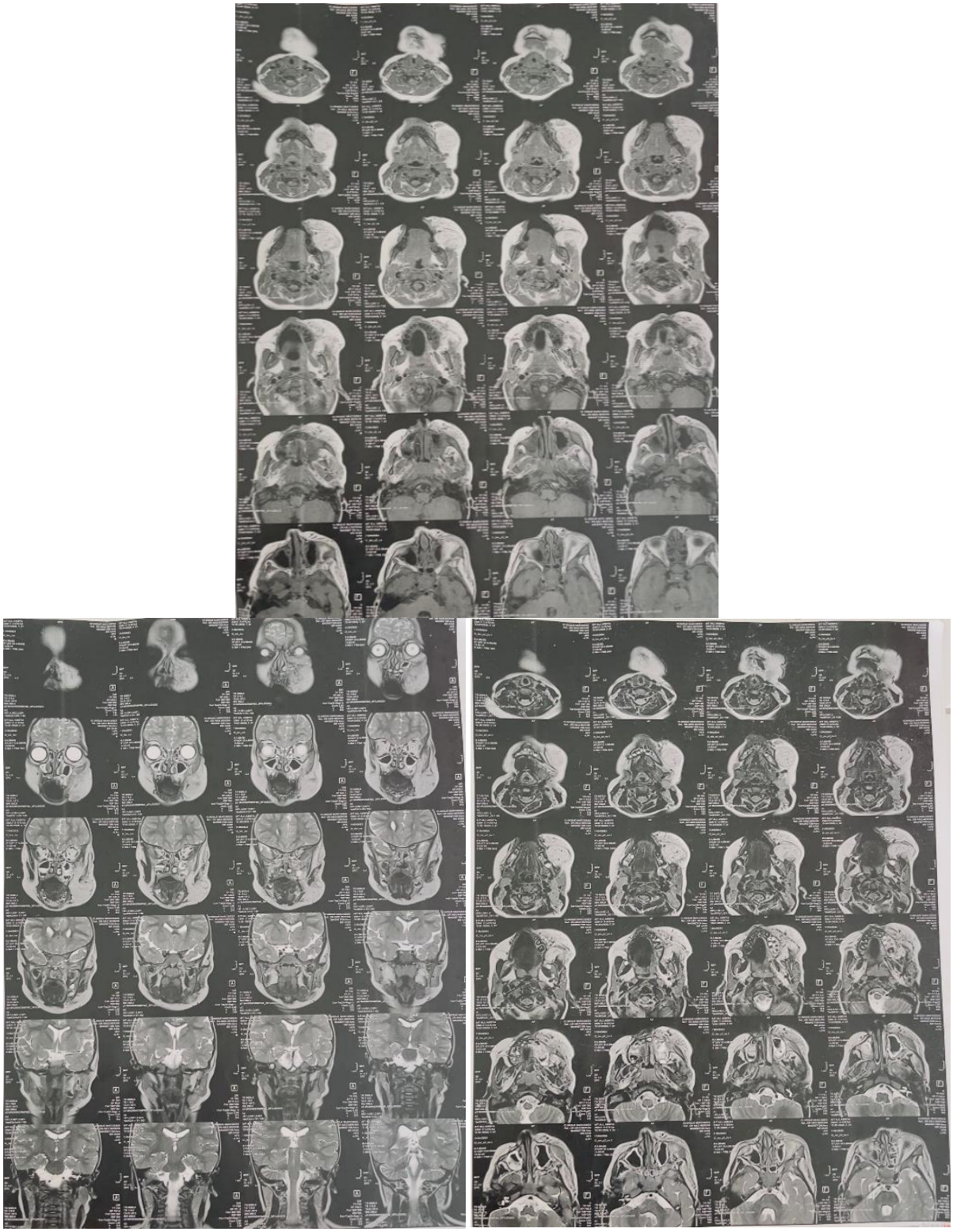

Fig. 2 : Preoperative facial MRI

A complete blood count, which was found to be normal After the pre-anesthetic consultation, surgical intervention was recommended to remove the excess adipose tissue. The procedure was performed under general anesthesia, allowing for the complete excision of the adipose mass, measuring 5/4/1 cm, as well as a biopsy of the superficial fat, via an intraoral approach (Fig. 3). The patient was monitored on an outpatient basis to prevent any postoperative complications.

Fig. 3 : Intraoperative photo of the excision

An histopathological examination of the excised specimen revealed hyperplastic adipose tissue, showing arterioles and veins with thickened smooth muscular walls, occasionally surrounded by capillary clusters. All of these clinical, paraclinical, and histopathological findings were in favor of a lipoblastoma.

The evolution was marked by a reduction in the size of the left buccal region, leaving a left buccal ptosis and significant skin laxity. (Fig. 4)

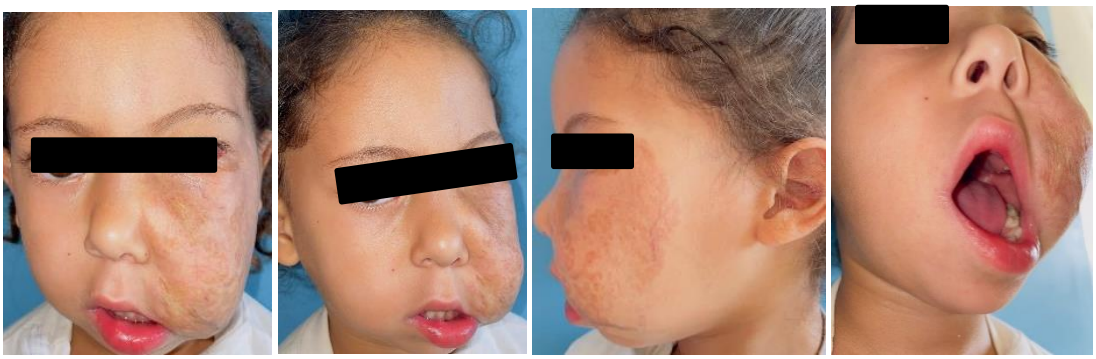

Fig. 4: Clinical appearance 8 months postoperatively

DISCUSSION

Lipoblastoma is a rare benign soft tissue tumor, primarily observed in young children. The term "lipoblastoma" was introduced by Jaffe in 1926. It most commonly affects the subcutaneous tissues of the limbs and trunk. Approximately 88% of cases are diagnosed before the age of 2, although some lipoblastomas may present at birth [5], as in the case of our patient. Lipoblastoma is often referred to as "infantile lipoma" due to its immature nature compared to adult lipomas. In 1973, Chung and Enzinger [6] identified two distinct forms of this tumor: the encapsulated lobulated lipoblastoma, and diffuse lipoblastomatosis, which is a non-encapsulated, deeper, and more infiltrative mass involving adjacent structures. The etiopathogenesis of lipoblastoma remains unknown; however, it has been hypothesized that this tumor could be caused by chromosomal abnormalities. Gisselson *et al.,* discovered that some patients with lipoblastoma have alterations in the PLAG1 oncogene on chromosome 8q12, which may lead to the transformation of mesenchymal progenitor cells into lipoblastomatous cells with varying degrees of proliferation and differentiation [7].

Lipoblastoma can be clinically difficult to differentiate from other lipomatous tumors, and the main differential diagnoses include lipoma, liposarcoma, and teratoma [8]. Lipoma is rare in young children and can be excluded when a tumor contains non-adipose components, while teratoma typically presents with calcifications [8]. Myxoid liposarcoma is extremely rare in children under the age of 10 years old [9]; however, it remains the most important differential diagnosis due to its similar clinical presentation [10,11]. Additionally, both lipoblastoma and myxoid liposarcoma present hyperintense components on T2-weighted MRI, corresponding to an abundant myxoid matrix, which complicates the differentiation of these two entities based solely on imaging [8].

Radiological imaging can be useful in assessing the extent of the disease and assisting in surgical excision planning ; however, its use is limited in differentiating lipomatous tumors [12]. MRI is the modality of choice for locating and characterizing lipoblastoma, as it is non-invasive and does not expose children to radiation [15,17,18]. It is useful for determining the anatomical extent, tissue involvement, and characteristics of te mass, while providing information on other tissue features, such as cystic components, vascularity, and enhancement after contrast administration [8,19]. MRI also allows for the analysis of the tumor's relationship with adjacent structures and vascular-nervous elements [17,18]. On MRI, lipoblastoma appears as a solid, lobulated fatty mass with heterogeneous hyperintense signals on both T1 and T2-weighted images, due to the variable proportions of adipocytes, myxoid tissue, and fibrous tissue [15,16,17,20]. Lipoblastoma appears hypointense on T1-weighted images with fat saturation and shows enhancement at the septa and solid components after contrast administration [13,14]. The signal intensity of the fatty component in lipoblastoma is positively correlated with the proportion of mature adipocytes, which exhibit higher signal intensity on T1-weighted images compared to lipoblasts [8,21].

The definitive diagnosis relies on histopathological examination. Compared to liposarcoma, lipoblastoma has a more lobulated architecture and more uniform growth pattern. Lipoblastoma does not show nuclear atypia or mitotic activity, and also it lacks the distinctive microcystic spaces frequently observed in liposarcomas [10,22]. Macroscopically, a typical lipoblastoma presents as a light yellow or cream-colored mass, often marbled with homogeneous gelatinous or pale pink myxoid areas [23]. The mass is also lobulated, encapsulated, and soft [22,23]. Microscopically, both the circumscribed and diffuse forms of lipoblastoma exhibit a lobular architecture composed of adipocytes to varying degrees, separated by fibrous septa often rich in capillaries and venules arranged in a plexiform pattern [8,11,22,23].

Lipoblastoma does not exhibit malignant characteristics; however, recurrences have been reported in 14% to 25% of cases, primarily due to incomplete excision [23,24]. If the patient is asymptomatic, simple clinical surveillance may be sufficient. However, in the case of rapid mass progression or the onset of symptoms, the treatment of choice remains complete surgical excision with preservation of adjacent tissues [19,25,26]. Postoperative follow-up is necessary to detect potential recurrences and monitor the size of incompletely resected lesions. MRI follow-up for a period of 5 years is recommended [24,26].

In our case report, a 4-year-old girl presented with a congenital left buccal subcutaneous mass, telangiectatic, increasing in size since birth and displacing adjacent structures. A radiological examination using MRI showed a mass in the left buccal fat pad, partially encapsulated, hyperintense on both T1 and T2, disappearing with fat saturation and showing internal septa. A complete excision of the mass was performed via an intraoral approach. The definitive diagnosis was established through histopathological examination, which revealed hyperplastic adipose tissue showing arterioles and veins with thickened smooth muscle walls. This diagnosis is consistent with the symptoms and radiological findings, demonstrating that lipoblastoma can also occur in the buccal fat pad, although it is more commonly observed in the limbs and trunk. In our case, the 8-month postoperative follow-up showed no signs of recurrence but revealed ptosis and laxity of the buccal skin, which will be treated in a second surgical procedure.

Conclusion

Lipoblastoma is a benign tumor derived from adipose tissue, primarily occurring in young children. Complete excision of the tumor is recommended, and accurate identification of the mass before surgery is crucial for optimizing surgical planning. MRI is the imaging modality of choice to confirm the presence of adipose tissue in the lesion and to assess anatomical relationships. In the case of our patient, the diagnosis of lipoblastoma was unusual due to its location in the buccal fat pad; however, the clinical symptoms and radiological imaging supported this diagnosis.

Patient Consent:

I, on behalf of all the authors, confirm that informed consent was fully obtained from the legal representative (the mother) for the publication of this study and associated images. The patient and her legal representative voluntarily participated in the study. They were informed that the results of the patient's radiological examinations would be published for scientific purposes.

Conflicts of Interest:

Declaration of competing interests: The authors declare that they have no financial interests or personal relationships that could have influenced the work presented in this article.

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