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Case Report

Cutaneous hamartoma overlying the frontal bone – a rare paediatric case report

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ABSTRACT

Hamartomas are benign malformations composed of disorganized mature tissues native to their site of origin. Their occurrence in the supraorbital region is extremely rare and may mimic inflammatory or neoplastic lesions, leading to diagnostic challenges, particularly in paediatric patients. Aim of the study was to report a rare case of a supraorbital cutaneous hamartoma in a child, outlining the clinical features, diagnostic evaluation, surgical management, and histopathological confirmation. An 11-year-old female presented with a 9-month history of a tender, mobile swelling over the left supraorbital region. Clinical examination, ultrasonography, computed tomography (CT), magnetic resonance imaging (MRI), and routine laboratory investigations were performed. The lesion was excised surgically under general anaesthesia, and the specimen was sent for histopathological evaluation. Ultrasonography revealed a hypoechoic collection; CT identified a soft tissue swelling with a calcific fragment, while MRI showed mild local oedema without intracranial extension. Surgical excision revealed a cystic lesion containing a bony fragment. Histopathology demonstrated fibro adipose, fibromuscular, and fibro-collagenous tissues with vascular and neural bundles, confirming a hamartoma. The postoperative course was uneventful, with no recurrence noted at 4-week follow-up. Supraorbital cutaneous hamartomas are exceedingly rare in paediatric patients and may clinically resemble other benign or inflammatory lesions. A combination of imaging and histopathology is essential for accurate diagnosis. Complete surgical excision is curative and prevents recurrence. Long-term follow-up is advisable to monitor for late recurrence or syndromic associations.

Keywords: Hamartoma, Supraorbital swelling, Paediatric cutaneous lesion, Histopathology, Case report

INTRODUCTION

Swellings in the supraorbital region of paediatric patients represent a diagnostic challenge, as they may arise from congenital, inflammatory, traumatic, or neoplastic causes. Owing to the proximity of this region to the frontal sinus, orbit, and intracranial structures, persistent swellings require a systematic evaluation, particularly when conservative measures fail. Although many lesions resolve with observation or medical therapy, chronic or atypical presentations warrant further assessment to exclude serious pathology. Surgical exploration and histopathological examination remain essential for differentiating benign conditions from malignancy or rare developmental anomalies such as hamartomas.[1]

Hamartomas are benign developmental malformations composed of disorganized but mature tissues native to their anatomical site.[2] Their pathogenesis is linked to aberrant embryological development and, in some cases,

genetic alterations such as PTEN mutations associated with syndromes including Cowden and Bannayan-Riley-Ruvalcaba syndromes.[3,4] While hamartomas are reported in various anatomical locations, including the oral cavity and skin, their occurrence in the scalp or supraorbital region is distinctly uncommon.[2,5,6]

Given their rarity, supraorbital hamartomas may mimic more common congenital or inflammatory lesions, underscoring the importance of histopathological confirmation. Characteristic microscopic findings—such as mature fibro-adipose, vascular, and neural elements—help distinguish these lesions from other scalp pathologies.[7] This case highlights the clinical presentation, diagnostic approach, and management of a paediatric supraorbital hamartoma, contributing to the limited literature on this unusual site of occurrence.

CASE REPORT

An 11-year-old female patient presented to the Otorhinolaryngology Outpatient Department at Pt. B. D. Sharma Postgraduate Institute of Medical Sciences, Rohtak, with a chief complaint of a progressively noticeable swelling in the left supraorbital region, persisting over the past 9 months. The patient reported localized, persistent pain over the lesion, which prompted clinical consultation.

Examination

A thorough general physical examination was unremarkable, with no abnormalities detected across cardiovascular, respiratory, or neurological systems. Local examination of the swelling, performed under strict aseptic precautions, revealed a well-circumscribed, rounded mass measuring approximately 1×1 cm, situated just superior to the left supraorbital notch. The lesion was firm in consistency, non-adherent to underlying structures, freely mobile, with a smooth surface contour, and elicited tenderness on palpation.

There was no evidence of overlying cutaneous changes such as erythema, ulceration, or discharge. Additionally, the patient denied any constitutional symptoms including pyrexia, involuntary weight loss, or neurological deficits, thereby supporting the impression of a localized, non-systemic pathology.

Investigations

The diagnostic workup included a high-resolution ultrasonography, which revealed a hypoechoic fluid collection measuring 1.5×0.6 cm at the site of the complaint, containing an internal linear echogenic structure approximately 1.5 mm in length. Clinical correlation was recommended. A computed tomography (CT) scan of the head was subsequently performed and depicted below in Figure 1a and b, which demonstrated a diffuse, ill-defined soft tissue swelling in the midline frontal region, measuring 1.8×2.7×8 mm; additionally, a small calcific or osseous fragment was noted, measuring 3.6×2 mm, with an attenuation value of 400 Hounsfield units. There was no radiological evidence of intracranial extension.

Magnetic resonance imaging (MRI) of the brain revealed mild soft tissue oedema in the left frontal region, without any abnormal parenchymal or meningeal enhancement, intracranial haemorrhage, or evidence of a temporal abscess.

Comprehensive haematological and biochemical investigations revealed a haemoglobin concentration of 12.5 g/dl, a total leukocyte count of 8.6×10^3/µl, and a platelet count of 1.4×10^5/µl. Renal function parameters were within normal limits, with a blood urea nitrogen (BUN) level of 15 mg/dl and a serum creatinine level of 0.6 mg/dl. Coagulation profile was within normal range, with no evidence of coagulopathy.

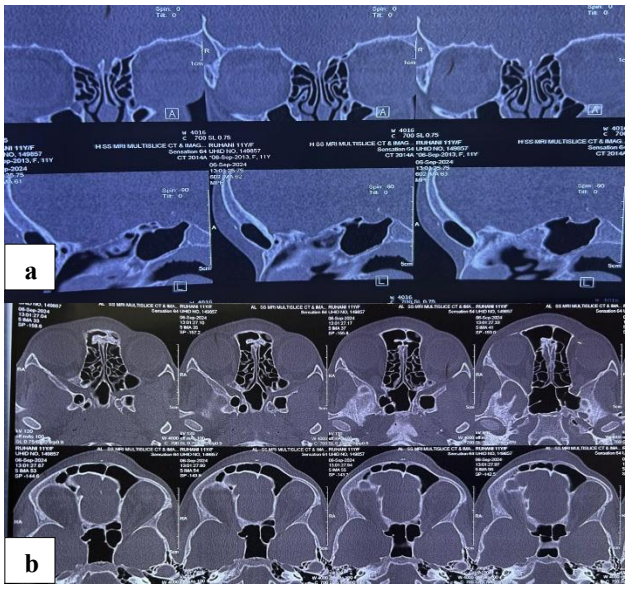

Figure 1: (a) Pre-operative coronal and sagittal CT images showing frontal soft tissue swelling, and (b) axial CT image demonstrating a calcific bony fragment in the lesion.

Management

The therapeutic intervention was initiated under general anaesthesia. The lesion was carefully outlined using a surgical skin marker to ensure accurate localization. A precise blunt dissection was performed through the cutaneous and muscular layers, exposing a cystic lesion situated beneath the periosteum—an anatomically significant plane in the supraorbital region. The cyst wall was intentionally punctured to allow for drainage of its contents, and associated bony fragment measuring 4 mm in length and 3 mm in width, was meticulously removed to mitigate any compressive effects. Intra-operative measurements are displayed below in Figure 2a and b.

Subsequently, the surrounding fibrous tissue encapsulating the lesion was carefully dissected and excised in toto, and then submitted for histopathological examination to determine the definitive nature of the pathology. Intraoperative haemostasis was meticulously maintained to prevent postoperative bleeding. Layered closure was performed using 3-0 vicryl and prolene sutures, ensuring optimal anatomical approximation and promoting effective wound healing.

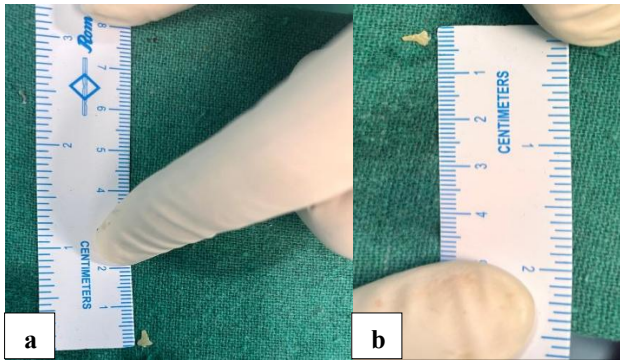

Figure 2: Intra-operative measurement of the (a) length of the bony fragment excised, and (b) width of the bony fragment excised.

The patient tolerated the surgical procedure well, with no intraoperative or immediate postoperative complications such as infection, haemorrhage, or neurological deficits. She was discharged in stable condition, with normal vital parameters—including blood pressure, pulse rate, and respiratory rate—and a satisfactory general health status, suggestive of a favourable postoperative recovery.

At the 1- and 4-week follow-up assessments, clinical examination demonstrated the absence of lesion recurrence, accompanied by a well-healing scar mark in the left supraorbital region, as depicted in Figure 3a and b. The patient reported complete resolution of the pain associated with the swelling, which had been the initial presenting symptom. These findings collectively affirm the effectiveness of the surgical intervention.

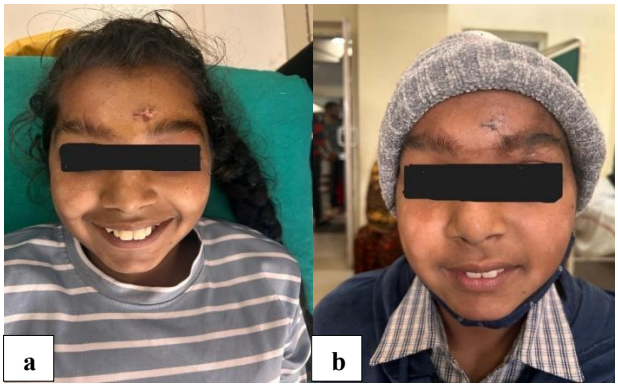

Figure 3: Post-operative photograph at (a) 1 week follow up, and (b) 4 week follow up.

The histopathological report from the excised tissue revealed a composite of fibro adipose, fibromuscular, and fibro collagenous tissues, interspersed with proliferating vascular and neural bundles. These findings were consistent with a hamartomatous lesion, with an additional recommendation for clinical correlation given by the pathologist.

DISCUSSION

Cutaneous hamartomas are uncommon lesions composed of disorganized, mature tissues native to their site of origin. Their occurrence in the supraorbital region is rare, and such presentations may mimic inflammatory, traumatic, or neoplastic conditions, posing diagnostic challenges.[8,9] In this case, the prolonged course and associated tenderness initially suggested alternative pathologies, emphasizing the need for a high index of suspicion.

Histopathology remains the cornerstone for confirming hamartomas, typically demonstrating a composite of fibro-adipose, fibromuscular, and vascular elements.[10] The findings in our patient were consistent with this pattern. Paediatric hamartomas may remain asymptomatic for long periods and become clinically evident only when secondary inflammation or gradual enlargement occurs.[11] Imaging modalities, including ultrasonography, CT, and MRI, are valuable in delineating the lesion and excluding intracranial extension.[12,16] The presence of a calcific fragment in this case further supported the need for surgical intervention.

Although hamartomas may be associated with syndromes such as PTEN hamartoma tumour syndrome, the absence of syndromic stigmata in our patient made such an association unlikely.[13] Nevertheless, careful follow-up is encouraged, especially in atypical presentations. Mechanical factors related to the supraorbital notch may contribute to localized tenderness, and chronic pressure may lead to focal bony changes.[14,15]

Complete surgical excision remains the treatment of choice for symptomatic cutaneous hamartomas and generally yields excellent outcomes.[17] The absence of recurrence at early follow-up in our patient reflects the effectiveness of this approach. However, long-term surveillance is advisable, as late recurrence has been described in paediatric cutaneous lesions.[18]

CONCLUSION

This case describes a rare supraorbital cutaneous hamartoma in a paediatric patient, a condition that may clinically resemble inflammatory, congenital, or neoplastic lesions. The lesion's prolonged course and tenderness highlighted the need for detailed evaluation beyond initial clinical assessment. Multimodal imaging, including ultrasonography and CT, proved valuable in identifying the soft-tissue component and associated bony

fragment, consistent with reported diagnostic challenges in similar scalp lesions.

Histopathology confirmed a hamartomatous lesion composed of fibro-adipose, fibromuscular, and vascular elements, in alignment with characteristic microscopic features described in the literature. Although hamartomas can be associated with syndromes such as PTEN hamartoma tumour syndrome, no syndromic stigmata were noted in this patient. Mechanical factors related to the supraorbital region may also influence symptom presentation, as suggested in previous scalp lesion studies.

Complete surgical excision remains the preferred management for symptomatic paediatric head-and-neck lesions, providing excellent outcomes and low recurrence rates. The absence of recurrence during early follow-up in this case aligns with documented postoperative results in paediatric cutaneous lesions. Continued surveillance, however, is recommended to identify any late recurrence or underlying syndromic associations.

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