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Case Report

Infantile hemangioma with cleft lip in a term female infant born to a mother with pregnancy-induced hypertension

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ABSTRACT

Infantile hemangioma (IH) is the most common benign vascular tumor in infancy, affecting approximately 4–10% of neonates, with a higher prevalence in females and premature infants. Although typically self-limiting, IHs can lead to complications such as ulceration, disfigurement, or functional impairment—particularly when located near vital anatomical structures. This case reports a case of a 40-day-old term female infant presenting with multiple reddish raised lesions over the upper lip and right shoulder, clinically diagnosed as infantile hemangiomas. The infant was born to a mother with pregnancy-induced hypertension (PIH), managed antenatally with labetalol. Examination revealed a central ulcerated lesion on the upper lip and a smaller non-ulcerated lesion over the right shoulder. A congenital cleft lip was also noted, without cleft palate involvement. Systemic evaluations including abdominal and cranial ultrasound, echocardiography, and 12-lead electrocardiogram (ECG) were within normal limits. Topical becaplermin 0.01% gel was applied twice daily for two weeks to promote ulcer healing, followed by oral atenolol at a dose of 0.25 mg/kg/dose twice daily. The treatment was well tolerated, with no adverse effects. Significant regression of both lesions was observed over the following weeks. Although PHACE syndrome was initially suspected due to facial involvement and cleft lip, it was ruled out based on normal neuroimaging and cardiac assessments. This case highlights the successful use of atenolol as a safe and effective alternative to propranolol in the treatment of complicated IHs. Early diagnosis, comprehensive evaluation to exclude syndromic associations, and timely therapy are essential to avoid complications and ensure favorable outcomes.

Keywords: Infantile hemangioma, Ulceration, Cleft lip, Pregnancy-induced hypertension, Atenolol, Beta-blockers, Vascular tumors, PHACE syndrome

INTRODUCTION

Infantile hemangiomas (IHs) are the most common benign vascular tumors in infancy, with an estimated prevalence of 4–10% among neonates. They typically appear within the first few weeks of life and undergo a characteristic triphasic progression: rapid proliferation during infancy, a plateau phase, and eventual spontaneous involution over several years.[1-3] Histologically, IHs are distinguished by their unique GLUT-1 positivity, which is not found in other vascular malformations, making it a reliable diagnostic marker.[1]

The majority of IHs are uncomplicated and regress without intervention. However, a subset, particularly those located on the face, lips, or anogenital area, may ulcerate or interfere with vital functions such as feeding or vision. Ulceration is the most common complication, occurring in up to 16% of cases, especially when lesions are exposed to friction, maceration, or rapid growth.[4]

A growing body of literature has identified multiple risk factors for IH, including female sex, low birth weight, prematurity, and maternal conditions such as pregnancy-induced hypertension (PIH). PIH may disrupt normal placental vascular development and fetal oxygenation, thereby promoting aberrant angiogenesis in the developing fetus.[4,5]

IHs involving the face, especially when accompanied by structural anomalies such as cleft lip or palate, should prompt evaluation for PHACE syndrome—a neurocutaneous disorder encompassing posterior fossa malformations, hemangioma, arterial anomalies, cardiac defects, and eye abnormalities.[6] Although PHACE is rare, it is clinically significant due to the potential for life-threatening cardiovascular or neurological involvement.

The therapeutic landscape for IH changed dramatically after the serendipitous discovery of propranolol's effectiveness in shrinking these lesions.[1] Since then, oral propranolol (2–3 mg/kg/day) has become the first-line treatment for complicated IHs.[2,3] However, atenolol, a selective β1-blocker, has gained interest as a safer alternative, offering a longer half-life, minimal central nervous system penetration, and reduced risk of bronchospasm or hypoglycemia.[7,8]

In cases of ulcerated IH, topical agents may be used to accelerate wound healing. Becaplermin, a recombinant human platelet-derived growth factor (rhPDGF-BB), promotes tissue repair by enhancing granulation and epithelialization, and has shown benefit in controlled trials for ulcerated hemangiomas.[9]

Additionally, topical timolol may offer adjunctive therapy in superficial lesions, though its use in ulcerated or deep IHs is limited.[10] In this context, we present a rare case of ulcerated facial IH with coexisting cleft lip in a term infant born to a mother with PIH, managed effectively with topical becaplermin and oral atenolol.

This case emphasizes the importance of comprehensive evaluation for syndromic associations and supports atenolol as a viable therapeutic option in selected patients.

CASE REPORT

A 40-day-old female infant was brought to the pediatric outpatient clinic with complaints of reddish, raised lesions over the face and right shoulder, first noticed on the 10th day of life. The infant was born at term via an uncomplicated normal vaginal delivery, with a birth weight of 2.17 kg, appropriate for gestational age.

There was a significant antenatal history of pregnancy-induced hypertension (PIH) in the mother, a 25-year-old second gravida (G2P1), which had been medically managed with oral labetalol. The parents were third-degree consanguineous (Figures 1a and b).

Clinical examination

On examination, the infant was alert, active, afebrile, and hemodynamically stable.

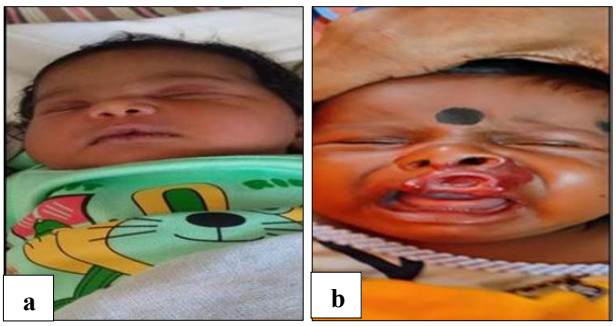

Figure 1: (a) Normal baby, and (b) ulcerated lesion on upper lip after 40 days of life.

Local examination revealed two lesions: a dull red, well-demarcated plaque over the upper lip extending to the left nostril measuring 0.5×0.4 cm, with central ulceration and a smaller, non-ulcerated lesion measuring 0.4×0.3 cm was present over the right upper arm. In addition, the infant had a congenital cleft lip, without involvement of the hard or soft palate.

Systemic evaluation

Abdominal and cranial ultrasonography were normal, echocardiography revealed normal cardiac anatomy and function, and 12-lead electrocardiogram (ECG) showed normal sinus rhythm, with no evidence of conduction abnormalities or bradycardia.

Diagnosis

Based on clinical presentation and distribution, a diagnosis of infantile hemangiomas with ulceration was made. Given the presence of a facial hemangioma and cleft lip, the possibility of PHACE syndrome was considered. However, this was ruled out following a normal neuroimaging profile and absence of cardiovascular or cerebrovascular anomalies on detailed evaluation.

The infant was initially managed with topical becaplermin 0.01% gel, applied twice daily over the ulcerated facial lesion for a period of two weeks. Notable wound healing and epithelialization were observed at the end of this period (Table 1). Subsequently, oral atenolol was initiated at a dose of 0.25 mg/kg/dose, twice daily, administered after dilution in water. Continuous monitoring of heart rate and blood pressure was performed during initiation and subsequent follow-ups. The infant demonstrated good cardiovascular stability throughout the course.

Over the following weeks, both the ulcerated and non-ulcerated lesions showed marked regression. The patient remained clinically stable, with no adverse effects

observed. Nutritional intake, growth parameters, and developmental milestones were appropriate for age. The congenital cleft lip was referred to the plastic surgery department for surgical correction and multidisciplinary follow-up (Figure 2).

Table 1: Clinical summary and treatment response.

Feature	Observation
Age at presentation	40 days
Lesion sites	Upper lip (ulcerated), right shoulder
Lesion size (cm)	0.5×0.4 (lip), 0.4×0.3 (shoulder)
Associated anomaly	Cleft lip
Initial topical therapy	Becaplermin 0.01% gel (2 weeks)
Systemic therapy	Oral atenolol (0.25 mg/kg BID)
Treatment outcome	Regression of both lesions
Adverse events	None reported
Additional intervention	Referred for cleft lip surgery

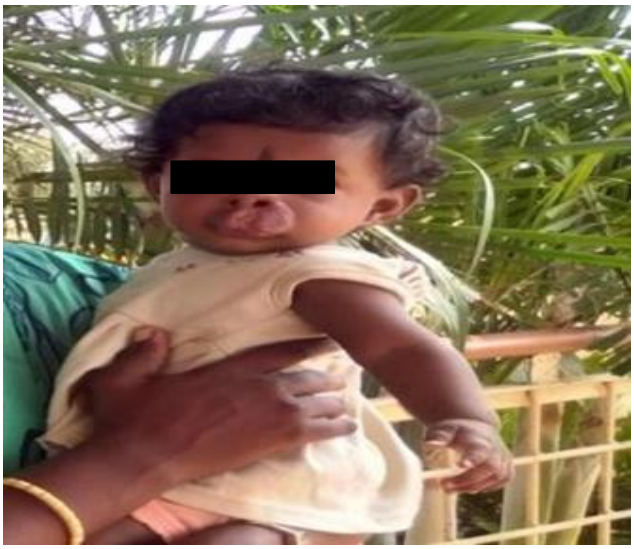

Figure 2: Regression of lesion after treatment.

DISCUSSION

Infantile hemangiomas typically become apparent between 1 to 2 weeks of life, undergoing a predictable sequence of proliferation, stabilization, and involution.[1,4] In this case, the lesions appeared early and involved both the upper lip and right shoulder, with central ulceration on the facial lesion a complication frequently linked to mechanical irritation, moisture, and rapid cellular turnover.[4]

The presence of ulceration in IH significantly impacts quality of life due to pain, risk of secondary infection, and delayed healing. For such presentations, topical therapies, including becaplermin gel, have demonstrated utility in accelerating wound closure and reducing healing time, as supported by randomized trials.[9]

Given the concurrent finding of a cleft lip, the possibility of PHACE syndrome was initially considered. However, the absence of associated structural, neurological, and cardiovascular anomalies ruled out the diagnosis per established consensus guidelines.[6]

PIH has been implicated as a maternal risk factor for the development of IH, potentially through mechanisms involving fetal hypoxia or dysregulated angiogenesis.[4,5] This correlation was notable in our case, as the mother had documented PIH managed pharmacologically.

While oral propranolol remains the first-line treatment for problematic IHs, particularly at a dose of 2–3 mg/kg/day, recent studies have shown that oral atenolol, a cardio-selective β1-blocker, may be equally effective with a more favourable safety profile.[2,3,7,8] In this case, atenolol was well tolerated, with no observed bradycardia, hypotension, or feeding difficulties supporting emerging literature advocating its use as an alternative, especially in ulcerated or cosmetically sensitive lesions.[7,8]

CONCLUSION

This case highlights the successful management of ulcerated infantile hemangiomas using a combination of topical becaplermin and oral atenolol in a term infant presenting with a cleft lip and born to a mother with PIH. The therapeutic response was favorable, with significant lesion regression and no reported adverse effects.

Atenolol, as a cardio-selective beta-blocker, emerges as a viable and well-tolerated alternative to propranolol, particularly in infants at greater risk for complications such as bradycardia or bronchospasm. The case further underscores the importance of early diagnosis, timely intervention, and comprehensive evaluation, especially to rule out syndromic associations such as PHACE syndrome.

Prompt recognition and individualized therapy are critical in preventing ulcer-related complications, promoting effective healing, and ensuring optimal cosmetic and functional outcomes in affected infants.

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