

Pediatric Acne

Clinical Patterns and Pearls



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KEYWORDS

• Neonatal • Infantile • Midchildhood • Preadolescent • Acne • Treatment • Adherence • Evaluation

KEY POINTS

- Neonatal acne, which may be clinically distinct from neonatal cephalic pustulosis, can present with true comedones.
- Infantile acne has the potential to cause scarring and may be a predictor of more severe adolescent acne.
- Midchildhood acne (ages 1–7 years) may herald the presence of a hyperandrogenic state (eg, underlying tumor, adrenal enzyme deficiency) and warrants prompt evaluation.
- Preadolescent acne presents at around 7 to 12 years of age; it is usually considered normal and may be the first sign of pubertal maturation.

INTRODUCTION

Rare is the patient who achieves adulthood without having had some degree of acne.^{1,2} Although the prevalence of acne may reach 95% in the adolescent population, acne should not be considered solely a teenage problem.^{3,4} In a poster presentation at the American Academy of Dermatology Annual Meeting (Boston, MA, August 2012), Sandoval and colleagues reported, as part of the National Ambulatory Medical Care Data Survey, some 55 million pediatric acne visits in a 6-year period. The data showed that neonatal/infantile acne compromised approximately 3% of visits overall; midchildhood acne accounted for 0.9% of cases; and preadolescent acne constituted 4.8% of total acne visits. In contrast with neonatal acne, for which pediatricians treated approximately 75% of cases, pediatricians and dermatologists treated preadolescent acne cases almost equally (38% and 34% of cases, respectively).

Managing patients with pediatric acne can be a challenge in daily clinical practice. The wide

spectrum of differential diagnoses, the possibility of underlying systemic disorders, and the potential for side effects from medications demand vigilance and should incite humility from even the most seasoned acneologist. However, acne management in this population comes with great reward for patients and providers alike. This article provides a practical approach to acne, reviewing the current perspectives on underlying causes, evaluation, and treatment from birth to preadolescence (**Fig. 1**).

PEDIATRIC PHYSIOLOGY

The stereotypical timing of pediatric acne onset reflects physiologic changes that normally occur as people develop from fetus to teenager. Starting in utero and continuing until about the first 6 to 12 months of life, both boys and girls produce high levels of dehydroepiandrosterone (DHEA) and its sulfated form (DHEAS), the result of a prominent zona reticularis in the fetal adrenal glands, which leads to stimulation of sebaceous

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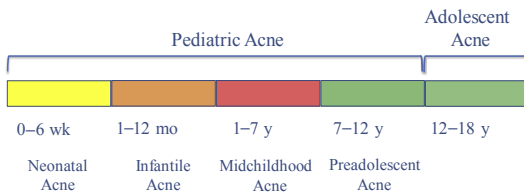


Fig. 1. Approximate age of onset of various pediatric acne types.

glands.⁵ In addition, boys during this time show increasing levels of luteinizing hormone (LH) and secrete high levels of testicular testosterone, helping to explain why acne occurs more frequently in boys than in girls during the first year of life.⁶⁻¹² At around 1 year of age, hormonal activity decreases with progressive involution of the fetal adrenal glands, highlighting that new-onset or persistent acne in this age group warrants evaluation for a more serious underlying medical disorder. With normal onset of adrenarche at around 7 years of age, DHEAS levels increase once again. This change correlates with the emergence of preadolescent acne, which may be the first sign of pubertal maturation.^{13,14}

NEONATAL ACNE

Neonatal acne may be present at birth or appear shortly thereafter, usually during the first 4 to 6 weeks of life (**Table 1**).¹⁵ Most commonly seen in boys, neonatal acne has been reported to affect up to 20% of newborns, although it is not certain

that all these eruptions are true acne.^{5,8,9} Clinical presentation within this age group is likely associated with several causal factors: increased sebum production, hormonal stimulation of sebaceous glands by both maternal (primarily through the placenta rather than via lactation) and neonatal androgens, and colonization of sebaceous glands by lipophilic species of the genus *Malassezia*.^{5,6}

The presence of small closed comedones typically limited to the face (forehead, nose, and cheeks) confirms the diagnosis of true neonatal acne. These acneiform lesions may progress to more extensive inflammatory forms with erythematous papules, pustules, and scarring cysts over the neck and upper trunk (**Fig. 2**).^{5,16,17}

A topical retinoid with or without benzoyl peroxide is typically all that is needed to help treat true neonatal acne. Referral to a pediatric dermatologist is warranted if acneiform lesions persist, especially in the clinical setting of scarring. In those rare cases when the diagnosis is unclear, a thorough family history helps to rule out an underlying acneiform drug reaction, and laboratory investigations may occasionally be required to exclude infectious causes.^{6,16-18} When an underlying cause of true virilization, such as congenital adrenal hyperplasia or virilizing tumor, is suspected a careful physical examination that includes developmental and growth parameters, blood pressure, and investigation for additional signs of hyperandrogenism, like precocious sexual maturation, should be performed.^{6,10,14,17-19} Complementary work-up assessing adrenal function and androgen excess with DHEAS and free

Table 1
Neonatal acne

Differential Diagnosis	Neonatal cephalic pustulosis; infectious agents; transient neonatal pustular melanosis; nevus comedonicus; erythema toxicum neonatorum; sebaceous gland hyperplasia; milia; miliaria; maternal medications (eg, lithium, phenytoin, corticosteroids); congenital adrenal hyperplasia; virilizing tumor; other underlying endocrinopathy
Age at Onset	In utero to ~6 wk
Morphology	Comedones Inflammatory papules Pustules Nodules/cysts Scarring
Distribution	Forehead Cheeks Nose Less commonly: neck, chest, back
Clinical Pearls	<ul style="list-style-type: none"> • Tends to resolve spontaneously • Topical retinoids may be helpful • Consider referral to a pediatric dermatologist if lesions persist or scarring becomes a concern

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