

# Evaluation and Management of Acne



Paul A. Botros, MD<sup>a,\*</sup>, Gary Tsai, MD<sup>a</sup>, George G.A. Pujalte, MD<sup>b</sup>

## KEYWORDS

• Acne • Evaluation • Management • Treatment • Retinoid • Sports medicine

## KEY POINTS

- Acne vulgaris is a common disorder of the pilosebaceous follicles that affects adolescents and can persist into adulthood.
- The psychological and economic impact is significant and may prove challenging to address in the clinical setting.
- The diagnosis of acne vulgaris can be made from the patient's history and physical examination and can be effectively treated in the primary care setting.

## INTRODUCTION

Acne vulgaris, commonly known as acne, is the most common skin condition affecting up to 95% of adolescents and young adults in the United States.<sup>1,2</sup> It typically begins at puberty. It is estimated that acne affects 9.4% of the global population.<sup>3</sup> Clinical presentations can vary drastically among patients, with mild to severe disease. Patients, particularly adolescents, may therefore experience significant social and emotional symptoms of embarrassment with associated psychological symptoms of depression or anxiety that affect social lives.<sup>4</sup> Fortunately, there are several acne treatments available,<sup>1</sup> but diagnosis and treatment guidelines are lacking and variations exist across specialties.<sup>4</sup> This article reviews the epidemiology and pathophysiology and also discusses how primary care clinicians can appropriately diagnose patients with acne.

## EPIDEMIOLOGY

Acne usually begins at puberty and affects adolescents of both genders. It is most common at ages 12 to 25 years.<sup>5</sup> More than 85% of teenagers experience some

---

Disclosure Statement: The authors have nothing to disclose.

<sup>a</sup> Department of Family and Community Medicine, Penn State Milton S. Hershey Medical Center, Hershey, PA 17033, USA; <sup>b</sup> Family Medicine and Sports Medicine, Department of Family Medicine, Mayo Clinic, 4500 San Pablo Road, Jacksonville, FL 32224, USA

\* Corresponding author. 736 Ferris Way, Hershey, PA 17033.

E-mail address: [PBOTROS@HMC.PSU.EDU](mailto:PBOTROS@HMC.PSU.EDU)

Prim Care Clin Office Pract 42 (2015) 465–471

<http://dx.doi.org/10.1016/j.pop.2015.07.007>

[primarycare.theclinics.com](http://primarycare.theclinics.com)

0095-4543/15/\$ – see front matter © 2015 Elsevier Inc. All rights reserved.

form of acne.<sup>6</sup> Although acne tends to resolve before the age of 30 years, it may persist into adulthood. Prevalence studies in adults 20 years or older have shown that women were being affected at higher rates than men.<sup>6</sup> It is a chronic disease that can persist for many years. There is limited amount of research about what specific factors predict whether it will last into adulthood.<sup>7</sup>

## **PATHOPHYSIOLOGY**

Acne vulgaris is a disease of pilosebaceous follicles.<sup>7</sup> Studies indicate that pathogenesis of acne involves 4 main processes:

1. Androgen-induced increase in sebum production, usually around puberty
2. Altered keratinization of the sebaceous duct, leading to comedone formation
3. Inflammation around the sebaceous gland
4. Bacterial colonization of hair follicles on the face, neck, chest, and back by *Propionibacterium acnes*.<sup>7</sup>

Current therapies target these 4 factors for acute control of flare-ups and long-term maintenance.<sup>8</sup> The sequence of events and how these factors interact remain unclear, but there are various underlying causes of these changes. Increased androgen production leads to abnormal epithelial desquamation and follicular obstruction, which leads to the formation of the microcomedone, the precursor lesion in acne.<sup>9</sup> Studies have shown that immune changes and inflammation may stimulate pilosebaceous vasculature before keratinization, which is led by CD4<sup>+</sup> lymphocytes and macrophages. It has been hypothesized that interleukin (IL) 1a induces cytokines to activate local endothelial cells, which in turn upregulate inflammatory vascular makers such as E-selectin, vascular cell adhesion molecule 1, intercellular adhesion molecule 1, and HLA-DR around pilosebaceous follicles. This is due to a linoleic acid deficiency caused by excess sebum and agitation of barrier function within the follicle.<sup>10,11</sup>

Comedones form as a result of increased cell division and cohesion of cells lining the follicular lumen. When cells accumulate abnormally, mix with sebum, and partially obstruct the follicular opening, they form a closed comedone, or whitehead. If the follicular opening is larger, keratin buildup becomes more visible and may darken to form an open comedone, or blackhead. *Propionibacterium acnes* colonizes different pilosebaceous units and leads to inflammation via the production of inflammatory mediators, activating toll-like receptor-2, which results in the production of proinflammatory cytokines such as IL-12 and IL-8, leading to the formation of inflammatory papules and pustules.<sup>4,12</sup> Improved understanding of acne development suggests that acne is a disease consisting of a combination of the innate and adaptive immune systems, as well as inflammatory events. Treatment, therefore, targets both immune system activation and inflammatory pathways.<sup>10</sup>

## **DIAGNOSIS**

Acne is diagnosed by the identification of lesions on the skin on physical examination.<sup>5</sup> However, before initiating treatment, it is important to assess and evaluate a patient by obtaining a standard history of present illness and review medications and prescriptions that the patient has been taking. Any hormonal influences caused by medications may affect natural hormonal processes, leading to possible acne. The patient should be assessed by asking about the duration of symptoms, locations on the body, variations of weather exposure, and stressors. In addition, any information regarding current treatments for acne and failures may be helpful in guiding treatment.

Download English Version:

<https://daneshyari.com/en/article/3821007>

Download Persian Version:

<https://daneshyari.com/article/3821007>

[Daneshyari.com](https://daneshyari.com)