

Acne Vulgaris: An Attack on the Skin and the Psyche



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"I don't look in mirrors.... I am like a vampire-I shy away from mirrors. I comb my hair using my silhouette on the wall to show the outline of my head. I have not looked myself in the eyes in years, and it is painful not to be able to do that, and that is a direct result of acne, the acne scarring." -- Acne sufferer

(AcneNet, 2006)

"There is no single disease which causes more psychic trauma, more maladjustment between parents and children, more general insecurity and feelings of inferiority and greater sums of psychic suffering than does acne vulgaris."

--Sulzberger & Zaldems, 1948

(AcneNet, 2006)

Acne is commonly viewed as a transitory cosmetic grievance that afflicts adolescents. It is almost a rite of passage at this stage of life, as common as mood swings and voice changes. Acne vulgaris, however, can last well beyond adolescence, and its repercussions often make it a much more terrible disease than many suppose. This article reviews the connection between acne and depression, as well as discusses community awareness, acne formation, and treatment options.

EPIDEMIOLOGY AND PSYCHOLOGICAL IMPLICATIONS OF ACNE VULGARIS

Acne vulgaris affects roughly 80% of female and 90% of male adolescents. It is generally worse in adolescent males and tends to subside as people reach their late 20s, however, 3 % of men and 12 % of women over the age of 30 are still plagued by the disease (Erlach &

Kahn, 2004). Furthermore, 20% of newborns develop acne, 25% of sufferers will have permanent scars and only 16% of adolescents seek medical treatment for their skin (Arnold, 2006).

Acne is not just a disorder that affects the skin; its psychological affect is also well documented.

A recent study on depression done by the University of Western Ontario's Department of Psychiatry surveyed 480 patients with dermatological disorders such as localized hair loss, eczema, acne, and psoriasis. They found that 5.6% of patients with non-cystic facial acne had suicidal ideation. Out of all the cosmetically disfiguring disorders studied, only patients with severe psoriasis were more likely to have suicidal thoughts. The patients with psoriasis and mild to moderate acne also rated highest on the Carroll Rating Scale for Depression, both scoring within the range of clinical depression (Gupta & Gupta, 1998). An American survey of 479 acne patients between the ages of 16 and 63 found that acne severity was significantly associated with poorer social interactions and lower quality of life (Krejci-Manwaring et al., 2006). In a study done in Oxford, 111 acne patients reported psychological, social, and emotional problems equal in severity to patients with back pain, arthritis, epilepsy, and chronic disabling asthma. They concluded that acne is not a trivial disease and should be treated accordingly (Mallon et al., 1999).

In rare cases, patients can develop acne dysmorphia, a form of Body Dysmorphic Disorder (BDD), whereby the patient develops an obsession with the condition of their skin, sometimes checking their face in the mirror obsessively. A Turkish study involving 159 acne patients discovered that 8.8% were diagnosed with BDD, and 21.4% of patients with acne and BDD were found to have associated psychiatric disorders. All of the patients were unaware of their treatment options (Yazici et al., 2004). Seeking treatment for acne has shown to significantly improve the mood and psychological function of most patients (Krowchuck et al., 1991).

MEDICAL CARE

Studies suggest that patients have limited knowledge of acne and its treatment. For example, in a survey of Croatian acne patients, 66% thought that the disease would improve immediately after the first treatment (Brajac et al., 2004). A British study found that less than one-third of patients with definite acne (12+ lesions) had sought medical help (Smithard et al., 2001). Acne patients from low-income households and rural areas are less likely to receive intense treatment such as dermatological referrals and oral isotretinoin (Haider et al., 2006).

ACNE FORMATION

Several factors contribute to acne formation. High concentrations of male sex hormones (androgens) result in overactive sebaceous glands. A high rate of keratin formation in the skin's outer layer blocks the openings of the sebaceous glands when the keratinized cells die. This results in a blocked plug (comedone) and a buildup of sebum under the skin, creating a perfect environment for the proliferation of *Propionibacterium acnes* (*P. acnes*) bacteria. The plugs may become blackheads if they are pushed to the surface and oxidized to a black colour, or whiteheads, which remain beneath the surface. The surrounding skin becomes inflamed as the immune system attempts to fight the bacterium. A superficial, elevated area of inflammation is classified as a papule, while an elevation with a central area of pus is called a pustule (Figure 1). A nodule or cyst is a deeper, raised area which may be draining. The severity of acne is classified as follows: mild if less than 30 non-inflammatory comedones are present, moderate if 30-125 lesions consisting of papules and pustules are present, and severe if more than 125 lesions consisting of nodules and cysts are present.

ASSESSMENT AND MANAGEMENT

Assessment

One evidence-based guideline recommends that on any office visit, whether acne-related or not, the physician should inquire about acne and its impact on the patient's mood and social life. Before treatment is undertaken, the physician should look for underlying contributing factors. Acne can be exacerbated by medical conditions that cause excess androgen such as polycystic ovarian disease. Cosmetics that block pores also contribute to this condition if they are oil-based.

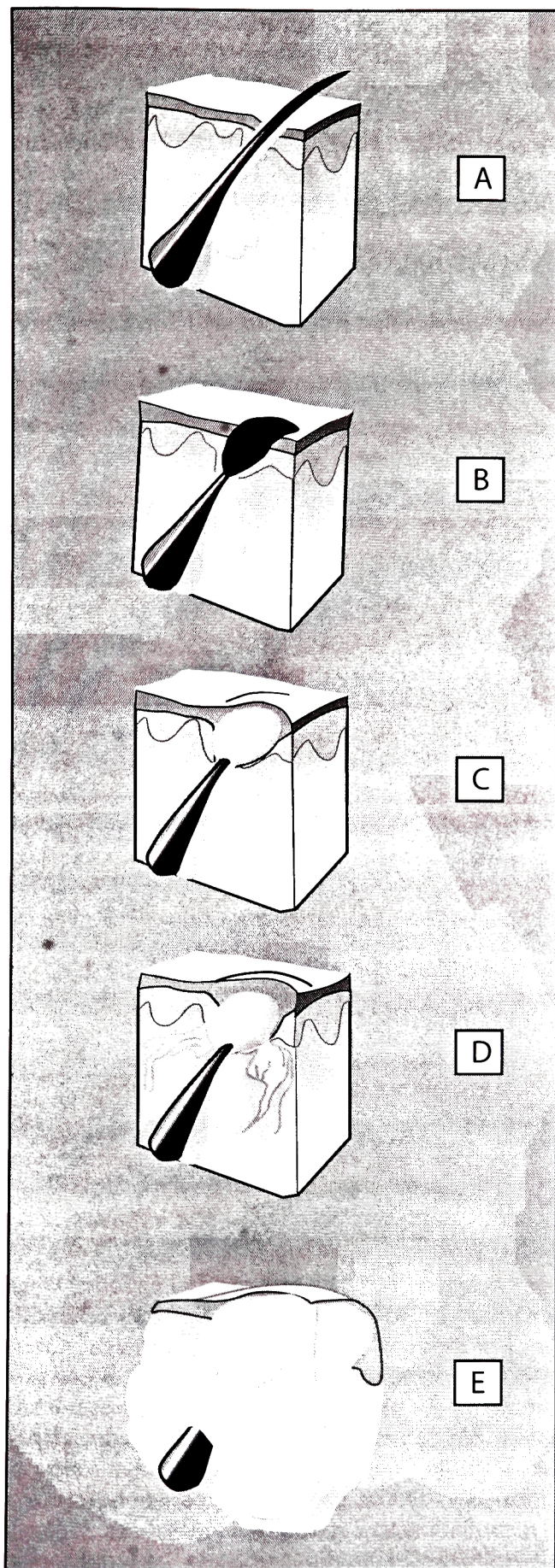


Figure 1: Stages of acne. (A) Normal follicle (B) open comedone (black-head) (C) closed comedone (whitehead) (D) papule (E) pustule (Johnson & Nunley, 2000).

Management

The physician should work with the patient to develop a treatment plan. The goals of the plan are to clear the acne, avoid scarring, and reduce psychological distress. There are a wide variety of treatment options available. Mild cases of acne may be treated with over-the-counter products such as salicylic acid and benzoyl peroxide. Salicylic acid, a beta-hydroxy acid, is keratolytic. It softens and sheds the outer layer of the skin to prevent the clogging of pores. Benzoyl peroxide is an antibacterial cream with mild keratolytic properties. Alpha-hydroxy acids, such as glycolic acid and mandelic acid, may also be useful in shedding the outer layer of the epidermis and improving skin texture and tone.

Antibacterial topicals such as clindamycin and erythromycin are equally effective. In one study, a 1% clindamycin solution was efficacious in treating inflammatory acne as one tetracycline capsule taken twice daily (Griffith, 2004). Topical retinoids such as tretinoin, adapalene, and tazorotene work best on comedonal acne. Topical creams are generally less invasive and irritating than gels. Combinations of the aforementioned drugs may also be used. Oral antibiotics such as tetracycline, minocycline, and doxycycline are effective against Propionibacteria. Possible side effects include photosensitivity, antibiotic resistance, and overgrowth of yeast. The usual course of treatment is eight to twelve weeks. If the acne relapses while tapering, the dose should be increased provided that there are no side effects.

Oral contraceptives are anti-androgenic and pro-estrogenic, resulting in decreased production of sebum. The most effective combinations are cyproterone acetate (Diane-35) and drospirenone and ethinyl estradiol (Yasmin). Spironolactone, a potassium-sparing diuretic, is a potent anti-androgen. In women, it is often taken with oral contraceptives because it causes irregular periods and feminization of the fetus. Overall, evidence suggests that oral antibiotics are about as effective as hormonal agents. Treatment plans should be tailored to the individual. A woman in her late twenties most likely has hormonally induced acne, and should receive either oral contraceptives or spironolactone. An adolescent male, however, would receive oral antibiotics since spironolactone can cause breast enlargement.

Accutane (isotretinoin) is a synthetic derivative of vitamin A. Its exact mechanism of action is unknown, but it appears to alter DNA transcription causing decreased sebaceous secretion. It also suppresses keratin production and *P. acnes* growth in the skin ducts. Accutane remains the most effective treatment

but also has the highest risk for adverse events such as birth defects afflicting the brain and heart, thus, this drug is reserved for severe nodulo-cystic acne. The link between Accutane and depression or suicide is controversial. As of 2003, the American Food and Drug Administration had received 173 reports of suicide in patients taking Accutane (Hull & D'Arcy, 2003). Accutane may decrease brain metabolism in the orbitofrontal cortex, an area of the brain that controls depressive symptoms (Bremner et al., 2005). Yet, there have also been many studies showing no connection between Accutane usage and depression. One review of nine studies, however, found a prevalence

SOCIAL SIDE EFFECTS FOR ACNE SUFFERERS

- Refusal to make eye contact
- Difficulty forming and keeping relationships
- Heavy use of makeup and hair growth to cover face
- Shyness and introversion
- Social reclusion
- Social phobia
- Decreased self confidence
- Refusal to play sports requiring changing rooms, where truncal acne is exposed
- Refusal to go to school resulting in poor academic performance
- Increased sick days
- Reduced career choice due to appearance
- Less success in job applications
- Anger and aggression
- Depression
- Excessive spending for treatments

Table 1: A list of the following side effects reported from acne sufferers (AcneNet, 2006).

of depression of 1 to 11% in Accutane patients which was similar to suicide rates for the oral antibiotic control groups. The study concluded that Accutane was not associated with an increase in depression (Marquleing et al., 2005). Depression and suicidal ideation are common in adolescents, particularly in those with severe acne, and no solid conclusion can be formed as to the relationship between Accutane and its psychiatric effects (Stragan & Raimer, 2006).

Other therapeutic options include alpha-hydroxy acid and microdermabrasion, both used to reduce scarring and comedonal acne. Comedones

can also be manually removed using an extractor. Phototherapy has produced promising results in several controlled trials (Charakida et al., 2004). Zinc and pantothenic acid were found to be effective, but further research is required before they can be recommended for routine use.




Figure 2: A patient with treatment-resistant cystic acne. (Koo & Lebwohl, 2001).

PSYCHOLOGICAL MANAGEMENT

The physician should enquire about the impact of the patient's acne on his or her mood and social interaction (Table 1). Dr. Karen Scully, a former assistant professor in the Department of Medicine at McMaster University, states: "As health professionals, the link between acne and depression should be a wake-up call to us. We need to be asking teenagers about their emotional state when we're treating their acne. Parents should be asking too" (Doctor's Guide, 2000). Patients should be encouraged to comply with treatment, as it often takes several months for its full effects to become apparent. Patients should be reassured that the physician will work systematically to find the most effective and safe treatment option and also remain encouraged to focus on the positive results of treatment rather than agonize over every breakout. Judicious use of make-up for social occasions can help encourage social engagement. Patients with clinically significant anxiety or depression may require referral to a pediatrician or adolescent psychiatrist.

FUTURE MANAGEMENT OF ACNE

Acne is a common skin disorder caused by overproduction of sebum, and bacterial growth in plugged pores. Studies have demonstrated that acne can affect more than just the patient's skin. Many

acne patients do not seek prompt medical attention despite evidence that medical treatment is effective at clearing acne, preventing scarring and improving psychological outcomes. Treatment options include benzoyl peroxide, topical retinoids and antibiotics, oral antibiotics, oral contraceptives and spironolactone, and oral isotretinoin. When physicians examine adolescents, acne should be one of the things to look for and ask the patient about. If parents express concern about their adolescent's mood or social interaction, the physician should consider acne as a possible contributing factor. It should be identified and treated promptly, and psychological support must be a factor in the treatment plan. Failure to identify and treat acne could mean missing a potentially crucial factor in the patient's mental and social health. Acne can be more than just a transient disease. If it causes depression in people at a young age, it has the potential to affect the outcome of their entire lives (Figure 2). With acne, the mental scars may be just as devastating as the physical scars. 

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