

Acne is a skin disease that can have profound consequences, cosmetic and social, for the sufferer

Acne

causes and clinical features

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Acne has been described as “an inflammatory disease, characterised by embarrassment, shame, guilt, anxiety, depression, frustration, anger and pimples”,¹ underlining the fact that both the skin disease and its profound psychological impact need to be taken into account. Most acne sufferers self-diagnose and self-treat with over-the-counter products. However, disappointment with treatment is common and numerous internet sites provide advice of varying quality. Community pharmacies can play a key role in helping people to manage acne effectively — and understanding acne is the first step to providing effective advice and support.

Epidemiology

Acne vulgaris — or common acne — affects approximately 80% of young adults between the ages of 12 and 24 years. The incidence of acne peaks at 18 years of age and it usually continues for four or five years. Acne also affects 8% of adults aged 25 to 34 years and 3% of adults aged 35 to 44 years. Experts believe that the prevalence of acne among older people is increasing, although the reasons for this are uncertain.²

Clinical features

The clinical picture of acne can vary considerably from a few mild lesions on the face to widespread, inflamed lesions affecting the face, chest and upper back (Figure 1, p164).

The clinical features comprise comedones (whiteheads and blackheads), papules, pustules and nodules appearing over the face, upper chest and back. The skin is often reddened and greasy in appearance.

Whiteheads (closed comedones) are flesh-coloured bumps with no visible opening while blackheads (open comedones) have openings that contain blackish, oxidised material (see Figure 2, p164). Pustules contain white or



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yellowish pus. Papules are small, round or oval, inflamed (red) bumps in the skin. Nodules occur with the most severe disease; they are poorly demarcated swellings that are usually red and tender.

Complications

In the medium-to-long term there can be post-inflammatory pigmentation (darkened patches where lesions have healed) which can last for many months before fading. Scarring can also occur with severe acne. Scars on the face are typically atrophic — pits or depressions in the skin, often called “ice-pick” scars (see Figure 3, p164). Keloid or hypertrophic scars can also occur in susceptible individuals on the chest and shoulders. The scarring of acne responds poorly to treatment and so early treatment to avoid scar formation is critical.

Other conditions can include some of the features of acne (see “Differential diagnoses”, p164), but the presence of comedones confirms the diagnosis of acne.

SUMMARY

Acne vulgaris is a chronic skin condition which involves inflammation of the pilosebaceous unit — the hair follicle and the sebaceous gland. It affects the areas where there are most sebaceous glands, that is the face, chest and upper back and shoulders.

It is commonly associated with adolescence and is often diagnosed by sufferers or their families. Topical treatments are used for mild-to-moderate acne but systemic treatments are needed for moderate-to-severe disease.

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Differential diagnoses

Rosacea	Most commonly seen in people over the age of 30 years and is associated with telangiectasia and flushing
Folliculitis and boils	Infection of hair follicles; diagnosis could be confirmed by taking swabs for microbiological analysis, which usually reveals <i>Staphylococcus aureus</i>
Sycosis barbae	Persistent folliculitis of the beard area
Milia	Small keratin cysts, most commonly around the eyes
Peri-oral dermatitis	Erythema and small papules around the mouth, nasolabial folds, and sometimes the lower eyelids
Acneiform eruption	Seen commonly during treatment with endothelial growth factor inhibitors such as cetuximab

Causes

It is generally recognised that four factors are involved in the pathogenesis of acne:

- Increased sebum secretion
- Abnormal follicular differentiation (follicular hyperkeratosis)
- *Propionibacterium acnes*
- Inflammation

The primary lesion in acne is the microcomedo, which cannot be seen or felt on clinical examination. The microcomedo can develop into a closed comedo, open comedo, papule, pustule, nodule or cyst (Figure 4, p166).

It is believed that a series of events occurs more or less simultaneously resulting in microcomedo formation. Increased sebum secretion occurs, driven by androgens at puberty in both young men and women. In conjunction there is follicular hyperkeratinisation — rapid proliferation and shedding of skin cells lining the sebaceous follicles. Skin cells and inflammatory debris plug the opening of the follicle and sebum accumulates causing minor swelling. The resulting lipid-rich, anaerobic environment provides the conditions in which *P acnes* can flourish.

P acnes is an anaerobic bacterium that forms part of the normal cutaneous flora in adults. Colonisation by *P acnes* leads to visible inflammation with swelling, redness, pain and release of inflammatory mediators into surrounding skin. Inflamed follicles can rupture and extend the process into the surrounding tissue resulting in the formation of characteristic acne papules and nodules.

Acne can be triggered or exacerbated by a number of factors. These include:

- Mechanical obstruction, eg, helmets, collars
- Greasy cosmetics, eg, hair pomade, massage oil



Figure 1: Severe acne on a man's upper back



Figure 2: Acne affecting an adolescent's face, showing pattern of blackheads

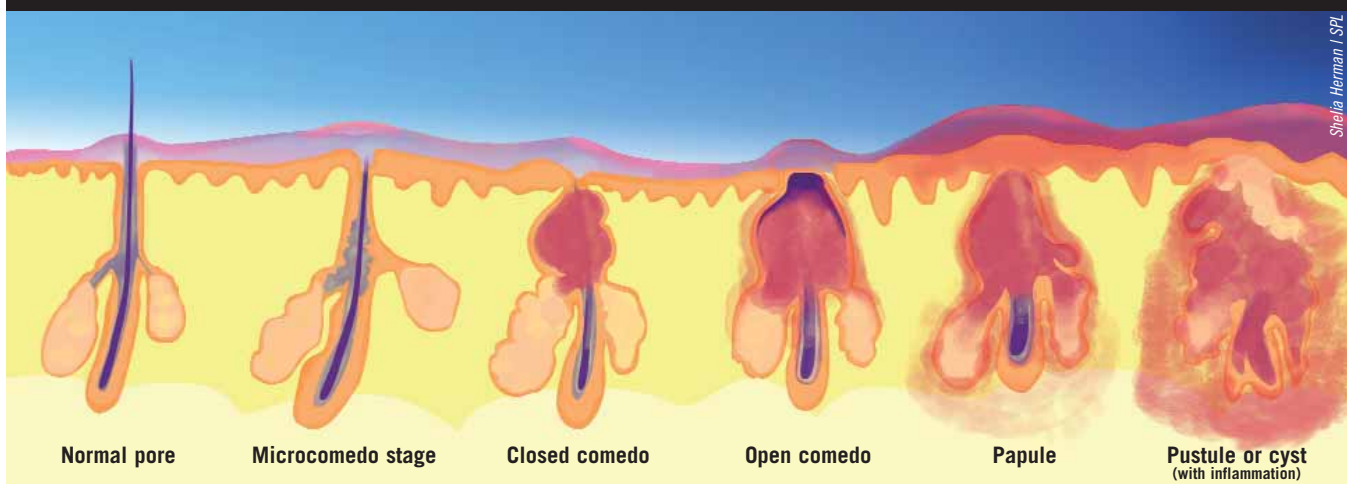


Figure 3: Scarring of a 38-year-old woman's face caused by persistent acne

- Systemic or topical corticosteroids
- Androgens (eg, from an androgen-secreting tumour or anabolic steroids)
- Progestogen-only oral contraceptives

Most cases of acne can be diagnosed clinically. Laboratory investigations are only necessary if signs and symptoms suggest hyperandrogenism. For some young

Figure 4: The pathogenesis of acne



Sheila Herman / SPL

women acne is a feature of polycystic ovary disease. Such women are also likely to have evidence of hyperandrogenism, such as irregular periods and hirsutism.

Classification of acne

The severity of acne can be assessed in terms of lesion site, type and number, the development of scars, the effect on the patient emotionally, and whether the lesions undermine confidence and self-esteem, or interfere with work/school or relationships. Many dermatologists would argue in favour of a holistic assessment that takes into account both the severity of the disease and the impact that it has on the patient.

There is no international agreement on acne classification. For research purposes the “Leeds acne grading technique” is often used.³ This involves counting lesions and categorising them as inflammatory or non-inflammatory. Sometimes inflammation status is considered when assessing patients for treatment (see accompanying article, p168):

- Non-inflammatory acne — comedones alone
- Inflammatory acne — comedones, pustules, papules, with or without nodules

For descriptive purposes clinicians can use the following terms:²

- Mild acne — defined as non-inflammatory lesions (comedones), a few inflammatory (papulopustular) lesions, or both
- Moderate acne — defined as more inflammatory lesions, occasional nodules, or both, and mild scarring
- Severe acne — defined as widespread inflammatory lesions, nodules, or both, and scarring; moderate acne that has not settled with six months of treatment; or acne of any severity with serious psychological upset

Psychosocial impact of acne

The cosmetic appearance of acne, or acne scarring, can cause significant psychological problems, including anxiety, depression and low self-esteem. Studies have shown that people with acne have levels of social and psychological disability that are equivalent to those seen with more “serious” diseases such as asthma, epilepsy and diabetes.

Younger people with acne often experience bullying and stigmatisation from their peers. Sometimes this is

Descriptions of clinical variations of acne

Clinical variants of acne (adapted from NHS Clinical Knowledge Summaries⁴) include:

Acne conglobata — very severe acne where inflammatory lesions predominate and run together, often accompanied by exudate or bleeding. This form of acne can cause extensive scarring.

Acne fulminans — sudden severe inflammatory reaction that precipitates deep ulcerations and erosions, sometimes with systemic effects (eg, fever). It requires urgent referral.

Acne excoriée — mainly affects young women and is characterised by exacerbation and perpetuation of acne by “picking” at lesions. It is primarily a psychological or emotional problem.

Acne mechanica — caused secondarily to pressure, friction or rubbing. Use of the garment responsible should be avoided (eg, mask or hat).

Acne cosmetica — caused by contact of the skin with comedogenic products.

Chloracne — caused by occupational exposure to halogenated hydrocarbons. It is characterised by the presence of numerous large comedones.

Gram-negative acne — occurs in people who have received antibiotics over an extended period. It may be resistant to treatment and referral to a specialist is necessary.

Common questions

Is acne caused by poor hygiene?

Acne is not caused by poor hygiene and it is not improved by vigorous cleansing. Excessive washing and use of abrasive cleansers can make acne worse. The black tip of a comedo is oxidised sebum, not dirt, and it cannot be removed by scrubbing

Does diet affect acne?

Diet has little or no effect on acne. No direct link has been found between acne and chocolate, dairy products, shellfish or fatty foods

Will cosmetics make acne worse?

It is best to avoid heavy, greasy make-up, but products that are oil-free and non-comedogenic are satisfactory and products such as cover creams (concealer) and green-tinted foundation can be useful

Does stress aggravate acne?

Patients often find that stress aggravates acne and this has been confirmed in studies

Does acne flare before a period?

A premenstrual acne flare occurs in about 60% of females with acne

Does sunshine help?

Many patients report benefit from sunshine. However, studies show sunlight probably has little effect on acne

Is acne infectious?

Acne is not infectious and cannot be passed on to other people. *Propionibacterium acnes* is naturally present on skin but colonises follicles in acne

because of the inaccurate belief (see Box above) that acne is due to bad diet or poor personal hygiene.

Acne has also been cited as a significant factor in some teenage suicides. A recent UK study of teenagers showed that 11% were moderately to severely affected by their acne.⁵ Detailed analysis of the responses suggested that three or four of the 200 respondents were at high risk of clinical depression because of their acne.

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