ABC of Dermatology

P K BUXTON

ACNE AND ROSACEA

Acne goes with adolescence, a term derived from the Greek for the "acme" or prime of life. The young girl who is desperately aware of the smallest comedo and the otherwise handsome young man, with his face or back a battle field of acne cysts and scars, are familiar to us all.

What is acne?

Acne lesions develop from the sebaceous glands associated with hair follicles—on the face, external auditory meatus, back, chest, and anogenital area. (Sebaceous glands are also found on the eyelids and mucosa, prepuce and cervix, where they are not associated with hair follicles.) The sebaceous gland contains holocrine cells that secrete triglycerides, fatty acids wax esters, and sterols as "sebum." The main changes in acne are:

- (a) an increase in sebum secretion;
- (b) thickening of the keratin lining of the sebaceous duct, to produce blackheads or comedones. The colour of blackheads is due to melanin, not dirt;
- (c) an increase in *Propionibacterium acnes* bacteria in the duct;
- (d) an increase in free fatty acids;
- (e) inflammation around the sebaceous gland; probably as a result of the release of bacterial enzymes.

Underlying causes

There are various underlying causes of these changes.

Hormones—Androgenic hormones increase the size of sebaceous glands and the amount of sebum in both male and female adolescents. Oestrogens have the opposite effect in prepubertal boys and eunuchs. In some women with acne there is lowering of the concentration of sex hormone binding globulin and a consequent increase in free testosterone concentrations. There is probably also a variable increase in androgen sensitivity. Oral contraceptives containing more than 50 µg ethinyloestradiol can make acne worse and the combined type may lower sex hormone binding globulin concentrations, leading to increased free testosterone. Infantile acne occurs in the first few months of life and may last some years. Apart from rare causes, such as adrenal hyperplasia or virilising tumours, transplacental stimulation of the adrenal gland is thought to result in the release of adrenal androgens—but this does not explain why the lesions persist. It is more common in boys.

Fluid retention—The premenstrual exacerbation of acne is thought to be due to fluid retention leading to increased hydration of and swelling of the duct. Sweating also makes acne worse, possibly by the same mechanism.

Hormones—the cause of all the trouble

Androgens increase the size of sebaceous glands
increase sebum secretion

Androgenic adrenocorticosteroids have the same effect

Oestrogens have the opposite effect

Diet—In some patients acne is made worse by chocolate, nuts, and coffee or fizzy drinks.

Seasons—Acne often improves with natural sunlight and is worse in winter. The effect of artificial ultraviolet light is unpredictable.

External factors—Oils, whether vegetable oils in the case of cooks in hot kitchens or mineral oils in engineering, can cause "oil folliculitis," leading to acne like lesions. Other acnegenic substances include coal tar, dicophane (DDT), cutting oils, and halogenated hydrocarbons (polychlorinated biphenols and related chemicals). Cosmetic acne is seen in adult women who have used cosmetics containing comedogenic oils over many years.

Iatrogenic—Corticosteroids, both topical and systemic, can cause increased keratinisation of the pilosebaceous duct. Androgens, gonadotrophins, and corticotrophin can induce acne in adolescence. Oral contraceptives of the combined type can induce acne, and antiepileptic drugs are reputed to cause acne.

Types of acne

Acne keloidalis.

Acne vulgaris

Acne vulgaris, the common type of acne, occurs during puberty and affects the comedogenic areas of the face, back, and chest. There may be a familial tendency to acne. Acne vulgaris is slightly more common in boys, 30-40% of whom have acne between the ages of 18 and 19. In girls the peak incidence is between 16 and 18 years. Adult acne is a variant, affecting 1% of men and 5% of women aged 40. Acne keloidalis is a type of scarring acne seen on the neck in men.

Patients with acne often complain of excessive greasiness of the skin, with "blackheads," "pimples," or "plukes" developing. These may be associated with inflammatory papules and pustules developing into larger cysts and nodules. Resolving lesions leave inflammatory macules and scarring. Scars may be atrophic, sometimes with "ice pick" lesions or keloid formation. Keloids consist of hypertrophic scar tissue and occur predominantly on the neck, upper back, and shoulders and over the sternum.

Infantile acne—Localised acne lesions occur on the face in the first few months of life. They clear spontaneously but may last for some years. There is said to be an associated increased tendency to severe adolescent acne.

Acne conglobata.

Acne fulminans.

Acne conglobata—This is a severe form of acne, more common in boys and in tropical climates. It is extensive, affecting the trunk, face, and limbs. In "acne fulminans" there is associated systemic illness with malaise, fever, and joint pains. It appears to be associated with a hypersensitivity to *P. acnes*. Another variant is pyoderma faciale, which produces erythematous and necrotic lesions and occurs mainly in adult women.

Acne vulgaris

affects comedogenic areas
occurs mainly in puberty,
in boys more than girls
familial tendency

Infantile acne

face only
clears spontaneously

Severe acne

acne conglobata
pyoderma faciale
Gram negative folliculitis

Occupational acne

oils
coal and tar
chlorinated phenols
DDT and weedkillers

Steroids

systemic or topical

Hormones

combined type of oral contraceptives
androgenic hormones

Acne vulgaris.

Gram negative folliculitis.

Gram negative folliculitis occurs with a proliferation of organisms such as *klebsiella*, *proteus*, *pseudomonas*, and *Escherichia coli*.

Occupational—Acne like lesions occur as a result of long term contact with oils or tar as mentioned above. This usually occurs as a result of lubricating, cutting, or crude oil soaking through clothing. In chloracne there are prominent comedones on the face and neck. It is caused by exposure to polychlorotriphenyl and related compounds and also to weedkiller and dicophane.

Treatment of acne

Before and after treatment with tetracycline.

In most adolescents acne clears spontaneously with minimal scarring. Reassurance and explanation along the following lines helps greatly.

- (1) The lesions can be expected to clear in time.
- (2) It is not infectious.
- (3) The less the sufferer is self conscious and worries the less other people will take any notice of his or her acne.

It helps to give a simple regimen to follow, enabling patients to take some positive steps to clear their skin and also an alternative to picking their spots.

I advise patients with acne to hold a hot wet flannel on the face (a much simpler alternative to the commercial "facial saunas"), followed by gentle rubbing in of a plain soap. Savlon solution, diluted 10 times with water, is an excellent alternative for controlling greasy skin.

There are many proprietary preparations, most of which act as keratolytics, dissolving the keratin plug of the comedone. They can also cause considerable dryness and scaling of the skin.

Benzoyl peroxide in concentrations of 1% to 10% comes as lotions, creams, gels, and washes. Resorcinol, sulphur, and salicylic acid preparations are also available.

Vitamin A acid as a cream or gel is helpful in some patients.

Ultraviolet light therapy is less effective than natural sunlight but is helpful for extensive acne.

Oral treatment—The mainstay of treatment is oxytetracycline, which should be given for a week at 1 g daily then 500 mg (250 mg twice daily) on an empty stomach. Minocycline or doxycycline are alternatives that can be taken with food. Perseverance with treatment is important, and it may take some months to produce an appreciable improvement. Erythromycin is an alternative to tetracycline, and co-trimoxazole can be used for Gram negative folliculitis. Tetracycline might theoretically interfere with the action of progesterone types of birth control pill and should not be given in pregnancy.

Topical antibiotics—Erythromycin, the tetracyclines, and clindamycin have been used topically. There is the theoretical risk of producing colonies of resistant organisms.

Before and after treatment with ultraviolet light.

Keloid scars.

Remember the following points

- (1) Avoid topical steroids
- (2) Persevere with one antibiotic not short courses of different types
- (3) Do not prescribe a tetracycline for children and pregnant women
- (4) Oxytetracycline must be taken on an empty stomach half an hour before meals

Ultraviolet light is a helpful additional treatment in the winter months.

Synthetic retinoids—For severe cases resistant to other treatments these drugs, which can be prescribed only in hospital, are very effective and clear most cases in a few months. 13-*cis*-Retinoic acid (isotretinoin) is usually used for acne. They are teratogenic, so there must be no question of pregnancy, and can cause liver changes with raised serum lipid values.

Residual lesions, keloid scars, cysts, and persistent nodules can be treated by injection with triamcinolone or freezing with liquid nitrogen. For severe scarring dermabrasion can produce good cosmetic results. This is usually carried out in a plastic surgery unit.

Treatment of acne*First line*

- (1) Encourage positive attitudes
- (2) Avoid environmental and occupational factors
- (3) Topical treatment
Benzoyl peroxide
Salicylic acid
- (4) A tetracycline by mouth for several months

Second line

- (1) Topical vitamin A acid
- (2) Topical antibiotics
- (3) Ultraviolet light

Third line

- Oral retinoids for 3-4 months (hospitals only)

Rosacea

Rosacea is a persistent eruption occurring on the forehead and cheeks. It is more common in women than men.

There is erythema with prominent blood vessels. Pustules, papules, and oedema occur. Rhinophyma, with thickened erythematous skin of the nose and enlarged follicles, is a variant. Conjunctivitis and blepharitis may be associated. It is usually made worse by sunlight.

Rosacea.

Blepharitis.

Pyoderma faciale.

Rhinophyma.

Lupus erythematosus.

Perioral dermatitis.

Rosacea should be distinguished from:

Acne, in which there are blackheads, a wider distribution, and improvement with sunlight. Acne, however, may coexist with rosacea—hence the older term “acne rosacea”;

Seborrhoeic eczema, in which there are no pustules and eczematous changes are present;

Lupus erythematosus, which shows light sensitivity, erythema, and scarring but no pustules;

Perioral dermatitis, which occurs in women with pustules and erythema around the mouth and on the chin. There is usually a premenstrual exacerbation. Treatment is with oral tetracyclines.

Treatment

The treatment of rosacea is with long term courses of oxytetracycline, which may need to be repeated. Topical treatment along the lines of that for acne is also helpful. Topical steroids should not be used as they have minimal effect and cause a severe rebound erythema, which is difficult to clear. Avoiding hot and spicy foods may help.

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Conversations with Consultants

Listening to consultants: Dr K the cardiologist

TONY SMITH

This is the first in a series of interviews recorded with NHS consultants. They were asked a series of specific questions and then invited to comment generally on their working conditions and job satisfaction.

Dr K—— is a cardiologist in a London teaching hospital—which, in common with all hospitals in inner London, is in a RAWP losing district.

Compared with five years ago I am disappointed. Technological advances in cardiology have made it possible for us to do a lot more for our patients, yet we don't have the where with all to do it. We have sorted out so many things, like who should have operations and who shouldn't. So we know precisely what to do for our patients and we can't do it. The technology has gone too far ahead of the budget. I've been a consultant 10 years and it was great at first, but recently I have felt that practising medicine is like constantly walking up hill; and there is always something in your way.

This feeling is most acute in the high tech specialties, since that is where many of the big advances have been made. But these are also

the costliest. For example, in cardiac surgery we know that if we put in an internal mammary artery graft during a coronary bypass operation the prognosis is substantially better than with a vein graft. But the operation is technically more difficult, and you need two consultant surgeons. In this hospital we have only one operating theatre for our cardiac surgery. So with two surgeons and one theatre they cannot physically do any more.

We know we have a low operative mortality, we know whom to operate on and what to do, and we are delayed in doing it. We are constantly faced with having a waiting list for surgery of a year—and that means people will die on the waiting list.

In a similar way, we only have one cardiac catheter laboratory. We have doctors able to do investigational cardiology and interventional cardiology like angioplasty; and yet we've only got one lab. That's a state of affairs that is just not heard of in the United States.

Difficult choices

Let me explain what this means in practical terms. If I am in the middle of a procedure in the lab and somebody comes in acutely ill the only way I can get that patient into the lab for an angioplasty (or whatever) is by cancelling the rest of my list. That's the only practical way of doing it—but it means dumping all the other patients for that day. And they may have been waiting five months