

*General Practice Series*

## ANTIBIOTICS IN SKIN DISEASES

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In theory it is always better to have bacteriological examination carried out before prescribing an antibiotic for therapy. In practice, this is seldom done, partly to save the patient expense, and partly to save time. One of the satisfactory features of antibiotic therapy is that it is usually possible within 2 or 3 days to judge if the results obtained justify continuing with that particular medication. There are some conditions, however, which require long-term administration of antibiotics, and here it is desirable, and indeed often essential, to have laboratory help in determining to which antibiotics the bacteria present are sensitive. At the same time it must be borne in mind that occasionally large doses of an antibiotic may produce a good result in contradistinction to what the *in vitro* tests would have led one to expect.<sup>1</sup>

*Impetigo Contagiosa*

While this common condition responds most dramatically to antibiotic therapy, it should be remembered that most cases will also respond, although over a longer period, to Ung. metallorum, so that in mild cases, where expense has to be considered carefully, as in out-patient clinics, the doctor need not feel unduly frustrated because he is unable to use an elegant preparation of an antibiotic ointment. If the lesions are on the exposed areas of a person who deals with the public, and it is essential for the patient to be cured as soon as possible, then one should start at once with an antibiotic ointment. My personal preference, admittedly largely on theoretical grounds, is to use for topical applications those antibiotics which are not so likely to be used internally,<sup>2</sup> hence ointments of graneodin, or neosporin, or neomycin or chloromycetin cream are my first choice.

If there is no marked improvement in about 3 days, a change should be made to one of the other broad spectrum antibiotics such as achromycin or terramycin ointments. All these should be applied twice daily. There are authorities<sup>3</sup> who insist on the removal of thick crusts before the antibiotic ointment is applied to the infected skin. Some years ago it was felt by many that erythromycin should not be used as a topical application in order to have it available as a life-saving drug for internal administration. With the development of yet other antibiotics which can deal with penicillin-resistant strains, this objection to its external use has fallen away.

The use of an antibiotic internally should be considered where the impetigo is widespread, or is present in an undernourished patient or a small child. Cultures should be done in these cases, if at all possible. Frazier and Blank<sup>4</sup> remind us that even a single lesion of impetigo may provide the portal of entry for pathogenic organisms, and acute glomerulo-nephritis may result. They state that it is undesirable

to rely on local treatment of the skin to destroy infection, and advocate systemic treatment through the use of suitable antibiotics given by mouth or parenterally. There are also suitable sulphonamide preparations for internal administration in this disorder, but this group of drugs is not recommended for external use since they often result in a sensitization dermatitis.

It is pertinent, here, to remember that impetigo is often a complication of pediculosis capitis and scabies, so that these infestations should always be considered before beginning to treat a patient with this disease.

A warning should also be given that penicillin creams and ointments are frequently responsible for sensitization dermatitis, and so should not be used. There is also great concern over the prevalence of penicillin resistant strains of bacteria, and it is felt that the haphazard use of topical penicillin may increase these strains.<sup>5</sup>

*Furunculosis*

The early administration of antibiotics may abort a boil, but surgical drainage is necessary when pus has formed. Difficulty is often experienced when the patient gets a series of boils. Each one may be dealt with as it arises with penicillin or a broad spectrum drug, but it becomes all too obvious that this treatment does not prevent the formation of new lesions. One must treat systemic disorders such as anaemia and diabetes if they are present. The frequent and regular use of a soap containing hexachlorophene should be advised<sup>6</sup> and cultures should be made from the nose, since it is thought that a bacterial reservoir in the nose may be responsible for the continued development of boils. A focus of infection may exist outside the nose and throat, and be the cause of recurrent boils in certain cases.

In the cases resistant to the above measures, and they are many, sulphonamides or a broad spectrum-antibiotic can be tried, possibly in small doses, but since they will have to be used over a long period, it is advisable to ask for laboratory help in choosing the drugs to be used.

*Sycosis Barbae*

Good results here may be obtained by using preparations of the hydroxyquinoline series e.g. quinolor, sterosan and vioform. Some patients have frequent relapses, and while these may respond to the same application, it is often necessary to change to the antibiotics. Once again it seems preferable to try chloromycetin cream, graneodin, neomycin or neosporin, but it is admitted that aureomycin, achromycin and terramycin ointments are usually equally efficacious.

*Acne Vulgaris*

This condition causes distress of mind to very many young people, and often to their parents as well. These

people have to be given every encouragement over many years and this requires tact, patience, understanding and skill of a high order in the doctor. In selected cases the use of oral antibiotics<sup>7</sup> in addition to the routine therapy usually prescribed, may be of considerable value. While penicillin is not so satisfactory in these cases, one may see patients whose morale is improved tremendously, not by their being cured, but by the improvement after the use of the broad-spectrum antibiotics, in the papular and pustular elements of their affliction. Baer and Witten,<sup>8</sup> quote an initial dose of 250 mg. 4 times a day for 4-7 days, and then gradual reduction of the dose provided that the medicament has proved beneficial. The dose is lowered gradually to find a maintenance level for perhaps even some months. I have seen great benefit from one 250 mg. capsule of achromycin or tetrax a day over a period of 3 months, without the prior loading doses. Some advocate short courses of the drugs, with rest periods in between. Unfortunately the expense of this treatment at present rules out its larger scale use in this country. It must be emphasized that this therapy does not by any means replace the standard measures of treatment.

#### Secondary Bacterial Infection

This occurs very frequently in many dermatological conditions, e.g. in all eczematous eruptions, and where lesions have been excoriated, as in papular urticaria, parasitic infestations, etc. At all times one attempts to treat the underlying cause, but satisfactory handling of the secondary bacterial infection does make the patient realize that he is being helped. It is notorious how depressed patients (and their general practitioners) sometimes become from long continued skin ailments, and control of the secondary infection alone may result in great improvement in morale of all concerned. Vioform 2-3% in a suitable base, may be as valuable and much cheaper than the antibiotics in these cases, but the use of all of these may produce visible improvement. The various preparations of the hydrocortisone series for topical use are often combined with antibiotics, and the success of these has borne out the part played by bacteria in the lesions, a part which is often not so apparent to the non-dermatologist.

#### Contact Dermatitis from Antibiotics

Penicillin and streptomycin are the two antibiotics which often cause a dermatitis from their application, either therapeutic or accidental, to the skin. It has been pointed out above that penicillin, used topically, frequently causes a hypersensitivity reaction. By the same token it can cause a similar reaction in those who administer injections of this drug. Streptomycin is equally liable to produce a dermatitis, and doctors should respect this quality in these two valuable drugs, and should see that proper precautions are taken to avoid reactions in nurses for whose medical welfare they are responsible. A contact dermatitis from these substances may appear either on the sides of the fingers or on the eyelids, and may later involve more of the face, the neck and forearms. Patch tests are usually of value in confirming the diagnosis. Many cases can be avoided by the use of syringes with needles which fit perfectly, so that none of the solution leaks out onto the fingers of the doctor or nurse. Further, any air bubbles in the syringe should be emptied back into the closed ampoule, and not sprayed out to form a mist in the air in front of the operator's face. The syringe,

the needle and the hands must be washed in running water immediately after giving each injection. The use of rubber gloves and goggles may be of value, and sometimes even masks are required.

Efforts can be made to desensitize these people by graduated doses of the drug administered either intradermally<sup>9</sup> or intramuscularly,<sup>10</sup> but even then one sees nurses who have to give up their posts in the tuberculosis service because of hypersensitivity to streptomycin.

#### Toxic Reactions from Antibiotics

The older practitioners will remember the early days of penicillin when this drug was injected with practically no fear at all of side-effects. Nowadays we see these effects with increasing frequency because many patients have had numerous courses of penicillin. Transient eruptions, resembling those of measles and scarlet fever, are not troublesome, but the urticaria which may begin 9 days after the last injection may plague the patient for up to 6 months or more. Angioneurotic oedema, exfoliative dermatitis, anaphylactic shock and death can occur. While antihistaminics and the oral steroids may be of value in the milder reactions, in the serious ones the intravenous use of adrenaline or a soluble steroid such as solucortef or soluble meticortelone may be life saving. The administration of penicillin by mouth cannot be relied upon to avoid reactions in the hypersensitive person.

A well-known toxic reaction of streptomycin is damage to the 8th nerve, more commonly the vestibular branch. Poor renal function may increase the likelihood of this complication.<sup>11</sup> As far as the skin is concerned, urticaria and morbilliform or scarlatiniform eruptions are fairly often seen.

The tetracyclines are still credited with a relatively low toxicity, but they sometimes cause gastro-intestinal disturbances. The incidence of this group of side-effects can be reduced by taking the antibiotic with food or with milk, but the use of aluminium hydroxide or the phosphate gels retard absorption and reduce the blood levels attained. Oral and anogenital reactions, which are only sometimes due to monilia, are well known, but far more serious is the staphylococcal enterocolitis due to the presence of tetracycline-resistant strains of staphylococcus aureus. Drug fever and skin eruptions have been reported in rare cases.

I am aware that there are many antibiotics which have not been mentioned in the foregoing, and which are probably equally efficacious, but it is not possible for one to have wide experience of them all.

It seems wise to emphasize that each time an antibiotic is prescribed the practitioner should conscientiously weigh up whether one is indeed necessary, and if so which is the one which is most likely to do good and the least likely to no harm.

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