The first symptoms of deafness appeared on the 28th day of neomycin treatment: these symptoms became more severe. Neomycin therapy was discontinued on the 35th day. Nevertheless the deafness progressed, and by August 8 (60 days after the beginning of neomycin therapy) audiograms revealed a total loss of cochlear function.

Neomycin was discontinued on June 9. The patient was discharged from hospital two weeks later and has remained well. His deafness is complete, but there are no symptoms referable to the cardiovascular system, and the heart size has remained unchanged over the last six months.

Discussion

It is generally accepted that bactericidal antibiotics are needed for the treatment of subacute bacterial endocarditis. In this case the bactericidally synergic combination of penicillin and streptomycin, which is usually successful in the treatment of *Str. faecalis* endocarditis (Hunter, 1946; Cates, Christie, and Garrod, 1951; Robbins and Tompsett, 1951), was inapplicable owing to the high degree of resistance of the organism to streptomycin. The less complete bactericidal action of penicillin proved inadequate. The alternative combination of penicillin and neomycin proved to be completely bactericidal, and the clinical result justified the confidence placed in it. It is possible that a shorter course might have effected a cure, with less or no damage to hearing, but when a patient has relapsed after one long and apparently successful course, there is natural reluctance to curtail another.

A minor feature of interest in this case is the origin of the infection. *Str. faecalis* endocarditis occurs in young women as a complication of septic abortion and in older men as a consequence of infection of the urinary tract. In this patient, dilatation of a urethral stricture precipitated it, as in Case 1 of the series described by Robbins and Tompsett (1951). This is evidently a hazardous procedure in men with heart valves predisposed to infection, and, should it have to be repeated in our patient, protection with a bactericidal antibiotic, possibly vancomycin in preference to further neomycin, will have to be provided.

Summary

Infection of the aortic valve following dilatation of a urethral stricture in a man aged 47 was caused by a strain of *Str. faecalis* highly resistant to streptomycin, although of normal sensitivity to other antibiotics except tetracycline. A long course of penicillin in large doses was followed by relapse.

Only a mixture of penicillin with neomycin was found to be completely bactericidal for this organism. These antibiotics were accordingly given, and the patient was alive and well seven months later, but totally deaf.

We are indebted to Dr. A. W. Spence, under whose care the patient was treated, for permission to publish this case.

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RECURRENT PHLYCTENULAR KERATO-CONJUNCTIVITIS TREATED BY DESENSITIZATION TO TUBERCULIN

BY

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Though usually a benign and transient phenomenon, phlyctenular conjunctivitis can be distressing and disabling, particularly when the cornea is involved. In mild cases local treatment may suffice, but it often fails when there are more severe manifestations. Since phlyctenules are allergic phenomena, most often to tuberculo-protein, the antituberculous drugs have often been given in treatment with apparent success. In the case described below they had no effect, and more fundamental treatment had to be undertaken.

Case Report

A boy aged 11 was seen in March, 1957. Since the age of 6 he had had four or five attacks of phlyctenular kerato-conjunctivitis a year. These attacks had been distressing and he had lost several months of attendance at school each year. Treatment had always been on general lines, and he had never been given antituberculous chemotherapy. Both eyes had been equally affected, and small scars had remained in each cornea at the centre and at the limbus, though these had not affected vision. In the most recent attack a phlyctenule had appeared in each eye, and there were moderate blepharospasm and photophobia and also some general disturbance. No lesions of the retina or choroid were present. A radiograph of the chest showed a very large calcified paratracheal gland and two small calcified lesions in the right upper lobe; a radiograph taken in 1952 had shown identical changes. A Mantoux test in 1955 had been positive to 0.1 T.U. (1:100,000); this was repeated in 1957 in the same dilution, and was again positive, the induration measuring 10 by 8 mm.

The presence of these calcified tuberculous pulmonary lesions and the marked sensitivity to tuberculin indicated that the phlyctenular kerato-conjunctivitis was an allergic response to tuberculo-protein. The patient was admitted to hospital for a trial of chemotherapy and was given para-aminosalicylic acid (P.A.S.), 5 g., and isoniazid, 100 mg., twice daily from March 21. Cortisone eyedrops were given daily. Both phlyctenules gradually subsided, but after five weeks the right phlyctenule reappeared, accompanied by blepharospasm and photophobia, though chemotherapy was still being given.

Tuberculo-protein is present in the bodies even of dead bacilli, and therefore it was thought that further chemotherapy by itself might well be ineffective. It was rational to abolish the allergic state by desensitization to the offending allergen, tuberculo-protein. The phlyctenules had recurred so often over five years and the patient's life had been disturbed so much that it was reasonable to attempt the rather prolonged treatment needed.

In severe allergic states desensitization may be greatly eased and speeded by a cover of corticosteroids (Pines, 1957). The patient was therefore given prednisolone, 5 mg. three times daily, while P.A.S. and isoniazid were continued to guard against the very remote possibility of reactivation of the pulmonary tuberculosis. 0.1 ml. of old tuberculin, 1:100,000 dilution, was given intramuscularly without reaction; afterwards the dose was approximately doubled daily without incident. On the twelfth day he had a slight headache, fever, and vomiting with 1 ml. of old tuberculin, 1:1,000. The prednisolone was increased to 5 mg. four times daily and desensitization was continued. A mild reaction followed the injection of 0.75 ml. of old tuberculin

1:100, but there was none with 0.4 ml. The dose was then increased by 0.1 to 0.2 ml. daily, but a further reaction occurred with 0.4 ml. of pure old tuberculin. 0.1 ml. of the same strength was given without incident and the dose was increased by 0.05 ml. daily.

After seven weeks 1 ml. of old tuberculin was given without incident, and this was continued daily while the prednisolone was gradually withdrawn over the next two weeks. The injections of pure tuberculin gave no reaction intramuscularly or intradermally when the prednisolone was withdrawn, and he was discharged 10 weeks after desensitization had begun. P.A.S. and isoniazid were discontinued soon after. During the whole course of treatment no fresh phlyctenules appeared.

To maintain the desensitized state, 1 ml. of pure old tuberculin was given intramuscularly each week. It was intended to continue the tuberculin injections for a year, to ensure that no phlyctenules recurred. In April, 1958, the patient had to be admitted to another hospital after breaking his ankle, and inadvertently no further injections were given. When he was seen in May, he was well and tuberculin injections were not started again. He had had 1 ml. weekly for nine months. He was seen again in November, 1958, and remained well. A Heaf test at this time showed slight return of sensitivity to tuberculin (grade 1). There had been no attack of phlyctenular kerato-conjunctivitis for one and a half years since April, 1957. Before treatment there had usually been seven or eight attacks during a similar period of time.

Discussion

The treatment of severe and recurrent phlyctenular kerato-conjunctivitis has usually been on empirical lines. Most authorities recommend general hygienic and nutritive measures. Antituberculous chemotherapy has been said to be curative (Woods, 1951; Arruda, 1953). It certainly had no effect alone in the above case; further, the hypersensitivity which is responsible for phlyctenular kerato-conjunctivitis may persist even when only dead tubercle bacilli remain. Local treatment with cortisone has a palliative value but does not prevent further attacks. Courses of tuberculin have been recommended (Duke-Elder, 1938), and desensitization has sometimes been attempted (Woods, 1949, 1951).

In the above case it was rational to desensitize to the offending allergen, tuberculo-protein. Probably the prednisolone which was also given depressed tuberculin sensitivity and allowed the patient to be desensitized quickly and easily. There were several reactions to tuberculin during treatment, so that it is unlikely that systemic corticosteroids given alone would have prevented further attacks of kerato-conjunctivitis, while they could have suppressed tuberculin sensitivity only temporarily. It is possible that the attacks may have ceased spontaneously, but this seems very unlikely, given the five years of frequent recurrences, with the appearance of three fresh phlyctenules shortly before desensitization was begun.

Desensitization to tuberculin can be recommended only in patients with severe and recurrent phlyctenules. The treatment usually takes at least several weeks, and reactions can be unpleasant or even dangerous, particularly in inexperienced hands. In mild cases there may be only few recurrences or complications and local treatment is sufficient. In the above case there were frequent recurrences over five years and much disturbance of normal life. These justified the 10 weeks in hospital that were needed to obtain what appears to be permanent cure.

Summary

A boy aged 11 had had more than 20 attacks of phlyctenular kerato-conjunctivitis. These were manifestations of hypersensitivity to tuberculo-protein, because there were calcified tuberculous pulmonary lesions and the tuberculin test was positive to O.T. 0.1 unit (1:100,000). Local and general treatment, and also antituberculous drugs, had not prevented recurrences. He was slowly desensitized to tuberculin under a cover of prednisolone, and 1 ml. of tuberculin was given weekly for nine months to maintain the desensitized state. No phlyctenules have appeared since treatment started and for the nine months since it was stopped.

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MONILIAL GRANULOMA

BY

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This report deals with a case of monilial granuloma, a severe therapy-resistant mycotic infection, due to *Candida albicans*. The mycological and histopathological findings are also discussed.

Case Report

A 5-year-old girl was seen in May, 1957, with growths on the scalp which had first been noticed towards the end of April, 1957. During the preceding eight months she had been treated for malnutrition and oral thrush at a children's hospital. Her history, and that of her family, could not be elicited.

Examination showed a malnourished pale child. The anterior two-thirds of the scalp (Fig. 1) was covered with thick, hard, greyish-yellow crusts, which when removed revealed a granulating, freely bleeding base. The crusts were round, concave, and saucer-like, and adhered fairly closely to the skin, and here and there they were pierced by single hairs. The eruption on the scalp was diagnosed as staphylococcal impetigo, favus, and chronic lupoid sycosis prior to the receipt of the microscopical and cultural findings. Lesions without crusts were seen on the neck, shoulders, and upper part of the back and chest. The commissures of the mouth were fissured and the mucous membrane was covered with a thick greyish-white exudate. The nail of the left middle finger was affected.

On December 11, 1956, she was Mantoux positive—6 mm. X-ray examination of the chest on March 7 and August 17, 1957, and on May 9, 1958, showed no abnormalities.

Mycological Findings.—Potassium hydroxide preparation of scrapings taken from the scalp and neck lesions revealed a tremendous amount of fine, straight, poorly refractile hyphae. There were also larger circular bodies with thick walls, obviously chlamydospores, which were attached to short curved hyphae (Fig. 2). The hair, under potassium hydroxide, contained no hyphae, spores, or air bubbles. The preparations from the mouth contained a considerable number of interwoven filaments. Culture on Sabouraud's dextrose agar yielded a growth of flat, smooth, whitish