EXTERNAL OTITIS

By R. B. LUMSDEN (Edinburgh)

A REVIEW of the literature suggests that during the last few years there has been considerable revival of interest in this condition, and that it might be profitable to attempt to explain the reasons for this, and to summarize the main lessons to be learned.

Much of the *recent* literature comes from otologists who have seen war service in different parts of the world and who, under unfamiliar conditions, mainly climatic, have encountered marked differences in the clinical and bacteriological features of external otitis. This in turn frequently led to the employment of methods of treatment different from those employed in the writers' normal home conditions. The *first* thing, therefore, that we learn from such a review is that we should not be too hopeful of attaining results comparable with those obtained with some particular method of treatment, under climatic conditions, and in the presence of clinical features, with which we are quite unfamiliar.

The *second* important aspect concerns the use of the sulpha drugs and the antibiotics; this being accompanied by detailed studies of the bacteriology of external ear infections.

The *third* feature to which one would refer is perhaps less obvious, but I venture to suggest that it enhances the value of contributions from Service otologists. This arises from the fact that large numbers of cases were of necessity treated personally, and as in-patients, by those otologists, who were thus afforded the opportunity of observing them exceptionally closely.

Bearing this in mind, it is interesting to note the frequency with which the greatest emphasis is put on *regular, painstakingly thorough cleansing of the meatus* (Collins, 1943, Clark, 1946). Brain (1942) points out that, since the external auditory meatus is badly ventilated, it must be carefully dried by expert swabbing or by a *jet of warm air*. This latter suggestion seems worthy of further trial. Daggett (1942), writing of "Desquamative Otitis Externa in Malta", states: "The success of treatment . . . is primarily dependent on the patient, individual, daily attention of a medical officer who has experience of intra-aural manipulation. Because without personal attention, cases do badly." Though it refers to a type of case which is not normally seen in this country, this passage

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stimulates one to review our *methods of applying treatment*, as distinct from the therapeutic materials employed.

In order to assess these, we should ask ourselves the following questions: (1) Who carries out the treatment recommended? (2) Does that person understand the rationale of the treatment? (3) Is he or she adequately equipped and trained to carry it out efficiently?

Collins (1943) and Daggett (1942) advocated the setting up of Army Aural Treatment Centres and it was my good fortune to observe the successful functioning of many such centres (Lumsden, 1946). Men, whose normal occupations ranged from chiropody to labouring and who on selection showed aptitude for such employment, were instructed in the use of the forehead mirror and aural speculum, and in intra-aural manipulation.

It is suggested that in too many clinics, routine treatment is carried out by nurses who have only the vaguest conception of what they are trying to treat and who may never even have seen inside an ear. Treatment under such circumstances cannot be one hundred per cent. efficient. The treatment of external otitis ought to be more efficiently applied by giving to nurses instruction in the use of the forehead mirror and by insisting that all treatment should be carried out under direct vision.

A further aspect of the subject which seems worthy of more consideration concerns the *choice of vehicle* in which therapeutic substances are applied. In an interesting communication, Senturia and Daubly (1947) describe an investigation in which they made preparations of streptomycin and penicillin in appropriate concentrations in different vehicles. These preparations were tested against organisms isolated from patients with external otitis, the sensitivity of which had been ascertained. When streptomycin, penicillin, or mixtures of the two were incorporated in *water-insoluble* vehicles (e.g. lanolin) the antibacterial action was inhibited. When incorporated in *water-soluble* vehicles (e.g. glycerine), antibacterial action was unimpaired.

The *pityrosporon* has repeatedly been described as the most common cause of infective meatitis (Barber, 1931, Graham Brown, 1937), and *seborrhœic dermatitis* has taken a prominent place in previous discussions in this Society. Ewart Martin (1938) has aptly said that " otitis externa is purely a skin complaint which, but for the curiosity of its position, would come under the care of the dermatologist ". We, therefore, do well to remember the following injunctions delivered by dermatologists: (1) That " thorough treatment of the infected scalp, which is the organism's headquarters, cannot be too strongly insisted upon " (Barber, 1931, Brain, 1942, Lumsden, 1945). (2) To remember the possibility of over-treatment with antiseptics (Hellier, 1941), and the value of such preparations as calamine liniment and ichthyol (MacCormac, 1938). (3) To treat not only the seborrhœic make-up or diathesis, but also to

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deal with any sepsis present in the ear, nose or throat, to which seborrhœic subjects are regarded as being prone (Hellier, 1941, Ingram, 1939).

A survey of the subject of *otomycosis* reveals conflicting views regarding its *incidence*, which again appears to involve the question of geographical distribution, being more prevalent in tropical and sub-tropical climates.

The *Aspergillus* (*flavus and niger*) is generally regarded as being the fungus most commonly found in the ear. In a recent Medical Research Council Memorandum (1949), however, reference is made to *Absidia corymbifera*, the pathogenic status of which is stated to be rather doubtful, but which " is perhaps a primary parasite in certain ear infections in man ". *A Survey of Fungus Diseases in Great Britain* was published by Duncan in 1945. He found *Candida albicans*—the fungus associated with *Moniliasis*, in three cases of acute mycotic otitis. These appeared to have been secondary to a staphylococcal otitis media which responded to local application of penicillin, leaving the hitherto dormant *Candida* fungus to dominate the field. He also found an aerobic type of *Actinomyces* in a case of chronic otitis externa contracted in North Africa. Duncan (1945) concludes " that fungous diseases, both indigenous and imported, are not less important in Great Britain than in other countries ".

In the records of Edinburgh Royal Infirmary during the last ten years, only two cases have been found in which a diagnosis of otomycosis was made, *Aspergillus niger* being present in both. Both complained of mild degrees of pain, discharge and deafness, one—an Asiatic, having had similar slight recurrences for 10 years. In this case a black fungus was observed in the deep meatus and the condition cleared up rapidly with salicylic acid and rectified spirit. The other had marked swelling of both meati which contained material resembling wet blotting paper, and various methods of treatment were employed over a period of two months before the condition resolved.

A comprehensive review of the literature is presented by Conley (1948), who arrives at the following general conclusions: (1) The frequency and prevalence of otomycosis have been over-estimated. (2) Uncertainty exists as to whether the fungi commonly observed in the ear are pathogenic. Many mycologists consider them to be *contaminants*, and that too little attention has been paid to the pathogenic bacteria present in the exudate along with the fungus. It has been suggested that the fungus contributes to the condition by maintaining the infection and some of the symptoms. Conley pointed out that the signs and symptoms described as typical of this condition are also characteristic of bacterial infection. Referring to the *Aspergillus*, Graham Brown (1937) pointed out that it may inhabit the meatus without causing any morbid changes in the tissues and that it may cause no symptoms except perhaps slight hearing impairment. He

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reminds us that it requires warmth and moisture for growth and that oils and fatty matter favour this.

My own experience of this condition amounts to about half-a-dozen cases seen in the Middle East. Unfortunately no records have been retained, but the majority came from India and complained of no ear symptoms, the condition only being discovered during routine examination. The appearance alone left one in little doubt regarding the nature of the discovery. On the other hand, the clinical features presented by the one or two cases with active infection were in no way exceptional, and only prolonged failure to respond to treatment led to a search for a fungus.

With regard to *treatment*, the first step should consist of thorough cleansing. Aspiration has been employed for this purpose (Conley, 1948).

McBurney and Searcy (1936) compared the fungicidal effect of 69 substances, alone or in combination. Combinations containing 2 per cent. thymol were 2½ times more effective against Aspergilli than those without thymol. Packs of 1 per cent. thymol have been recommended, either in meta-cresyl acetate (Conley, 1948); or in 70 per cent. alcohol, sometimes followed by insufflation of thymol iodide powder for a few days and potassium iodide orally, up to 30 gr. daily for a month (Whalen, 1938). Amstutz (1934) prepared potato cultures of *Aspergillus niger* from a case of otomycosis. These were treated experimentally with various antiseptics. Alcohol solutions were found to have an inhibiting and even a fungicidal effect. Along with other authorities, he recommends instillations of 2 per cent. salicylic acid in 95 per cent. alcohol. My own cases responded to this method of treatment.

Little information has been obtained regarding the value of *sulphonamide compounds or antibiotics* in this condition. It has been stated that sulphonamides are not impressive (Gill, 1942). On the other hand, it has been found that sulphanilamide is fungistatic for *Aspergillus* among other fungi (Senturia and Wolf, 1945). Penicillin appears to be of value in the treatment of actinomycosis caused by the aerobic as well as by the anaerobic species of *Actinomyces* (Duncan, 1945). But it has been observed that some fungi which are resistant to penicillin may be stimulated to greater activity by this antibiotic (Keeney, *et al.*, 1944).

It would appear that we remain in doubt regarding the value of sulpha drugs and antibiotics in this condition, but that considerable reliance can be placed on salicylic acid or thymol in alcohol.

In conclusion: in order to progress towards a truer assessment of the frequency and significance of fungus infections of the ear, it is suggested that bacteriological investigations of external otitis should include routine examination for the presence of fungi.

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