

DISEASES OF THE EXTERNAL EAR

By

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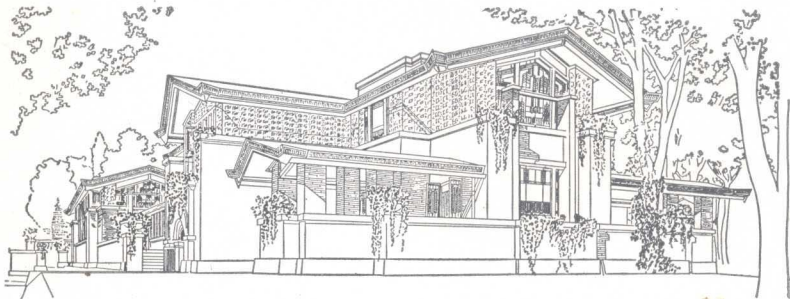
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Dedicated to

Nancy

Ben Jr.

Alice

Preface

PATIENTS suffering with infections of the external auditory canal comprise a large part of routine ear, nose and throat practice. These cases constitute from 5 to 20% of outpatient clinic practice. At some Armed Forces installations in the United States, as many as 50 to 100 patients are seen each day with complaints resulting from infections involving the external ear.

These patients are often difficult to treat. There are reports describing hospitalization of some of them for as long as 8 months. It may be assumed that for many of these patients, the length of care might have been shortened and hospitalization avoided if proper treatment had been instituted by the otologist, dermatologist or general practitioner.

The otologist is well qualified to examine the ear canal but, most frequently, has had insufficient training to differentiate the broad spectrum of skin diseases. On the other hand, the general practitioner and the dermatologist are usually unable to properly examine and cleanse the external auditory canal. However, the training of the latter place them in a better position to differentiate between various types of inflammatory skin diseases. A situation has developed, as the result of this overlap, whereby a large percentage of those afflicted with external ear diseases receives incorrect, or at best, inadequate treatment.

Because there is not a clear understanding of the underlying basis for these diseases, no sound scientific therapeutic approach has evolved. Each year some new bacteriostatic and fungistatic formulation is presented to the medical profession as a cure-all for diseases of the ear canal. As a consequence of uncritical evaluation of clinical findings, many reports in the literature describe excellent results from various and sundry therapeutic mixtures only to find them discarded in a short time.

This is a report of approximately 5 years of coordinated laboratory and clinical research oriented to throw some light on this widely prevalent and aggravating group of diseases. Its

purpose is to present a review of the information in the literature and some pertinent experimental data, much of which has not been published, and to suggest practical applications of this knowledge.

The work represents, we believe, a further step in the understanding of the etiologic factors responsible for the bacteriologic, chemical and pathologic changes observed in external ear diseases. Such knowledge should eventually lead to effective prophylaxis and improved therapeutic technics.

It is our considered opinion that if interest and support can be sustained in basic chemical and pathological studies, diseases of the external ear, to a large degree, can be prevented or easily controlled.

B. H. S.

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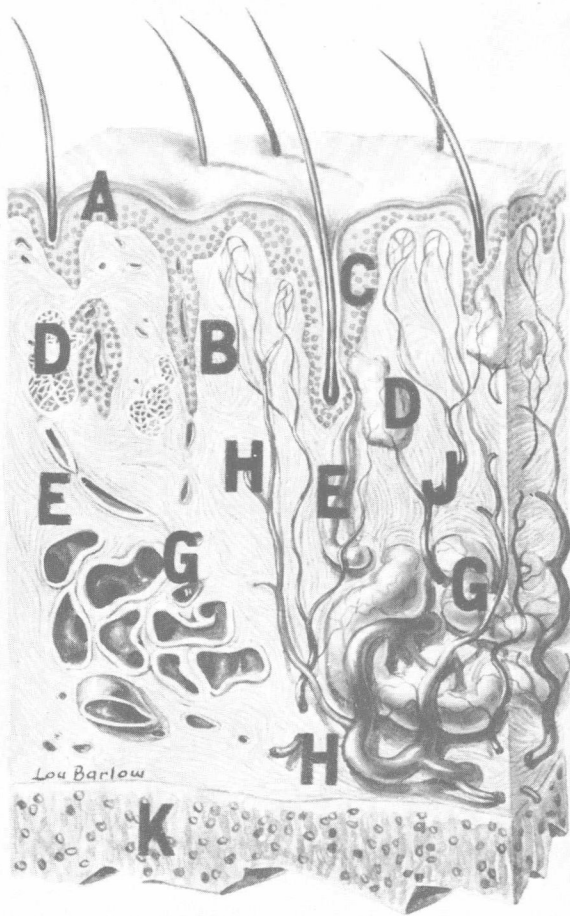
B. H. S.

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CODED REPRESENTATION OF PLATE B

Figurative reconstruction of serial sections of normal human skin from the external auditory canal. A—Epidermis. B—Rete peg. C—Apopilosebaceous unit. D—Sebaceous gland. E—Duct of apocrine gland. G—Apocrine acini. H—Veins. J—Arteries. K—Cartilage. (Sophian and Senturia.)

Introduction

IT HAS been recognized by physicians for centuries that the discharging ear indicates disease. Since the etiology of these diseases was unknown and there was little understanding of their pathogenesis, treatment was uncertain and haphazard.

In the middle of the Nineteenth Century the medical profession became aware of the fact that fungi might cause aural disease. Meyer in 1844, Pacini in 1851 and Schwartze in 1867 reported cases of *Aspergillus* infection of the external ear (1-3). Wreden, in 1868, presented 6 cases and shortly afterwards published a monograph containing a very complete description of the appearance of the fungi present in 14 cases (4).

The work of Davaine, Henle, Koch and Pasteur in the field of microbiology overshadowed mycology for the remainder of the century and interest was centered on the bacterial doctrine of infection. In the first part of the Twentieth Century the interest in mycology was rekindled by the writing of Sabouraud (5) and Castellani and Chalmers (6). A rapid increase in the number of reports dealing with fungous infections of the external ear appeared in the United States particularly by Southern otologists.

More recently, however, many writers expressed the opinion that the majority of infections of the external auditory canal were primarily bacterial infections of the skin lining the external ear canal (7-12). Otomycosis actually represented only a small percentage of these cases.

Very recently, attention was called to another swing of the pendulum. As a consequence of the overuse of antibiotic-corticoid formulations for the treatment of ear diseases, there has been a rapid increase in the incidence of superimposed otomycosis (13).

Regardless of the etiology, it is clear that external otitis is a widely prevalent disease. Thus Gill (14) estimated that otitis externa accounted for from 5 to 40% of all cases encountered in otologic practice, the wide variation in figures being due to geographic differences. Johnston (15) wrote that inflammatory conditions of the external auditory canal and pinna were responsible for about one-third of the cases seen by the otologist, especially in the southern coastal areas of the United States. Vaheri and Savolainen (16) in Finland stated that external otitis comprised an appreciable proportion of the cases treated there in otologic outpatient clinics.

Jamieson (17) reported on the frequency of external otitis in an army population of 70,000 troops. Out of the 8,431 new outpatients receiving

ear, nose and throat treatment, 9.3% had external otitis. Among 2,382 inpatients, 8.1% were diagnosed as having infection of the external ear. One hundred eighty-two patients were given an average of 16 days of treatment. Conley (18) reported that of 2,290 admissions to a general hospital for all causes, 4.3% had external ear diseases. In an Army Air Forces Medical Manual, it was stated that as many as 10% of a command might be on sick call with this disabling complaint.

According to Gordon (19), external otitis ranked second among illnesses causing loss of time from duty on Guam. Nelson (20) reported that 50% or more of the ear, nose and throat patients seen in the South Pacific had external otitis. Forty-eight per cent of all cases seen by Daggett (21) on Malta suffered from external otitis, with some patients requiring 20 to 35 days for cure.

Inflammatory diseases of the external ear appear to have a world-wide distribution, but in some areas the incidence is higher than in others. Cases of external ear infections have been reported in China (22), New Guinea (10), the Middle East (21), the Panama Canal Zone (23), the Philippines (12), Canada (24, 25), England (17), Brazil (26), Hawaii (27), Puerto Rico (28) and Finland (16). Punt (29), while in Austria and northern Italy, observed cases of otitis externa granulosa, otitis externa and many cases of chronic otitis media with secondary external otitis. Clark (30) stated that otitis externa in India was an extremely common condition among both Europeans and Indians, and Way *et al.* (31) studied patients with external otitis in Germany. Davis (32), reporting a series of 22 patients who were examined and treated at an advanced base in the South Pacific, commented on the prevalence of fungous infections of the external ear.

In the northern portion of the United States there are only occasional cases of acute diffuse external otitis. Hayes and Hall (33), however, described external otitis in the Pennsylvania-New York area, which is usually considered a temperate zone. Salvin and Lewis (34) reported patients with external otitis from Bethesda, Maryland, and Way *et al.* (31) presented their findings in the San Francisco, California area. On the other hand, in the southern areas of this country, during the hot humid weather, typical cases of diffuse external otitis constitute a large part of otologic practice. A thorough review of reports emanating from the United States will be presented in subsequent chapters.

It is clear from the above, that disease of the external ear constitutes a world-wide problem. The pendulum has swung between the bacterial and mycotic theories of etiology and there remain strong proponents of each concept. The evidence and the arguments of these partisans will be considered in the chapter on microbiology.

The high incidence and wide distribution of external ear disorders make it desirable to examine the many factors which contribute to the production of external otitis, and to investigate the various conditions which are associated with this group of aggravating diseases. By such examination and investigation it is hoped that practical results will be obtained which may improve the understanding of prophylaxis and provide a better approach to therapy.

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