TUBERCULOSIS OF THE MIDDLE EAR, AS MET WITH IN ADULTS IN A SANATORIUM.*

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In Childhood and Adult Life.—Tuberculous otitis media has very different characters in infancy and childhood from those which it manifests in the adult. My contribution to this debate concerns only the disease as met with in the phthisical patients at an open-air sanatorium.

Clinical Materials.—For the last nineteen years I have had the opportunity of examining the ears of all patients admitted to King Edward VII. Sanatorium, Midhurst. I am not to-day giving the record of all these years, as I hope to publish later a complete record of twenty years’ experience.

To-day I submit (1) the records of my first ten years’ service (1911-1921); (2) the notes of the last four years (1926-1930), and (3) the conclusions which may possibly be drawn from these two collections.

Statistics.—In 1924 I published a brochure entitled Tuberculosis of the Larynx: Ten Years’ Experience in a Sanatorium, and therein I devoted one section to tuberculosis of the middle ear. At that date, statistics showed that amongst 2541 patients with tuberculosis of the lung, there were eleven with the disease in the ear (= 0.043 per cent.). Of these, amongst 1535 men there were five aural cases (= 0.039 per cent.), and amongst 1006 women there was only one case (= 0.09 per cent.)

In the later, four years’, series (1926-1930), hitherto unpublished, 766 patients were investigated in regard to the ears, and I found fourteen cases of aural tuberculosis (= 1.82 per cent.). Eleven of these were found in 460 males (= 2.38 per cent.), and three cases in 306 females (= 0.98 per cent.).

A Rare Complication.—With regard to these figures it is just possible that—after publication of my booklet in 1924—I may have kept a keener outlook for this painless and insidious complication, hence the rise of its record from 0.043 per cent. to 1.82 per cent. Anyhow, we are quite entitled to conclude from these figures that middle-ear suppuration is not a common complication of infection by the tubercle bacillus, but is met with in less than 2 per cent. of the cases admitted to a sanatorium.

* Contribution to a discussion on “Tuberculosis of the Ear,” Royal Society of Medicine, Section of Otology, 6th February 1931. For discussion, see p. 477.
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Sex Distribution.—With regard to sex distribution, both series of figures agree in suggesting that the lesion is more common in men than in women, and Schwabach and Hegetschweiler support this. Still, here again, statistics may mislead us. It was formerly held that tuberculosis was more common in the male than in the female larynx. Morell Mackenzie gave the proportion as 2.7 men to one woman. As late as 1913, Collet concluded that “according to all statistics, laryngeal tuberculosis is more common among men than women; certain figures show that it is even three to three and a half times more frequent in man.” In my publication in 1924, I demonstrated that when women are exposed to the same conditions as men they are just as subject to tuberculosis in the larynx. (As a comparison of the frequency of incidence of laryngeal complication, I found tuberculosis in the larynx in 477 cases out of 2541 admitted, i.e., a proportion of 18.77 per cent.)

The difference may be due to the fact that women are apt to apply for sanatorium help earlier than men, that they are better patients in following medical advice, and that their resistance to disease is better, as shown by the lesser mortality among females “as observed in all countries where vital statistics are available” (Fishberg).

Tuberculosis in Ear and Larynx.—Again, these two series of observations illustrate how figures may mislead us in regard to another matter in the incidence of aural tuberculosis. In 1924 I found six cases with this ear lesion among 477 cases of tuberculous laryngitis, whilst among 2064 cases with pulmonary disease (but without a laryngeal extension) there were only five cases. Therefore ventured on the opinion that “this invasion of the middle ear may be regarded as much more frequently met with in adult tuberculous subjects who have tubercle in the larynx, than in those in whom it is limited to the lungs.”

In the later contribution from my case records of 1926-1930, amongst my 14 aural cases there were only two with tuberculous in the larynx, and one in which it was suspected in the trachea. This series, therefore, shows no preponderance of aural extension in laryngeal cases.

Clinical Symptoms.—These 25 cases gave unusual opportunities for watching the progress of the disease. Besides—as in several instances the ear mischief developed after the patient had been admitted—the somewhat rare opportunity was afforded of observing the onset and early development
of the affection. In both groups of cases the local clinical symptoms were identical.

In all cases the most striking symptoms are the absence of pain, fever, or free discharge. The patient first complains only of deafness or of a dull sensation in his ear. The early and rapid onset of deafness is very marked. It may even happen that the first thing to attract the patient's attention is some moisture or a slight discharge. There is no throbbing, distension, or tenderness. One patient reported that a year before I saw him he felt "a click" in his ear, without any pain, followed by a thick, scanty discharge which persisted. In another case the patient had been in the sanatorium two and a half months before he became conscious of deafness and a feeling of dullness—but no pain—in one ear. This had persisted for three weeks when I saw him with a grey bulging of the postero-superior segment and a small yellow point in the centre of it. A month later the discomfort had ceased, with the onset of a moderate, thick discharge. This discharge still persists—i.e., after more than two years—but, treated with hydrogen peroxide, it is now reduced to a small amount of clear mucus, which escapes through a small, posterior perforation. The rest of the drum is grey, thick, and retracted and the hearing remains much impaired. Moisture and deafness persist, although the patient's general condition—much helped by an artificial pneumothorax—is good, the lung activity arrested, and the tubercle bacilli have disappeared from the sputum. They were never discovered in the aural discharge.

In other cases the drum, if examined before perforation, is seen to have lost its concave, glistening, and translucent appearance. It is at first flat and then bulging, opaque, thickened, dull and sodden-looking. There is no congestion or tension about it, and hence no pain or throbbing. The drum never requires incision; it gives way without the usual "earache," and the patient would often be unaware of the rupture were it not that he notices a discharge. This is not blood-stained; it may be watery or curdy; the perforation through which it has escaped is generally filled and concealed by a thick white discharge of a milky or mortar-like appearance. This has a sickly or slightly fetid odour. The discharge is never abundant; it does not—particularly if cleansed once or twice a day—run out of the ear or stain the pillow. When it has been cleared away the opening in the
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Drum is still ill-defined. It is generally in the lower segment posteriorly, but may be discovered in the antero-inferior quadrant.

The unfortunate student or candidate for the D.L.O.* is, I find, very often expected to say, at examination, that a tuberculous otitis media is characterised by "multiple perforations." Twice in my 25 cases I have seen a double perforation; in each case there was a large anterior and a smaller posterior perforation.

I have never observed caries, discharge of the ossicles, facial paralysis, or mastoid tenderness, nor have I seen any extension to the temporal bone, lateral sinus, meninges or brain.

Presence of Bacilli.—As is well known, it is difficult to detect bacilli in the discharge from a tuberculous otitis media. In my first group of 11 cases I have no reliable records; the examinations were neglected or undertaken spasmodically. But, thanks to the zeal and care of the last two resident pathologists, Dr. Doris Stone and Dr. Sybil Robinson, the discharge in the 14 cases of my last series (1926-1930) has been investigated in every instance. In 11 cases the results of examination were negative. In 3 cases the bacilli were found. In one case there was no mention as to their number; in one it was reported that there were "two or three in a smear," and in the third they were "fairly numerous." It is noteworthy that, in one case, the bacilli were discovered only at the third examination. In all these 14 cases there were bacilli in the sputum.

In glancing through the literature I find that some otologists always found tubercle bacilli in the discharge, while others agree that they are only occasionally discovered. The tubercle bacilli are doubtless much fewer in this lesion than they are in other regions—the larynx, for instance—and still more so in the nose. The discharge is always scanty and, especially after treatment is begun, it is difficult in such a sensitive region to obtain a satisfactory amount of pus.

Animal inoculations, which were tried in some cases, did not yield better results.

Advanced Disease.—What may happen in the ears in cases more advanced than those we treat in a sanatorium I cannot say, but Politzer examined the temporal bones of patients who had died from phthisis and found that destruction was not limited to the drum and the lining of the tympanic cavity.

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According to him the ossicles are deprived of their mucosa and so loosened that they fall out, even if touched lightly. The osseous framework of the temporal bone may become necrotic to a varying degree and the labyrinth exposed. When the disease is extensive the petrous bone is entirely or partially necrotic and broken up in several pieces; the carotid canal, the lateral sinus, the mastoid process, and the external meatus are involved in the tubercular destruction, and the dura mater covering the temporal bone is infiltrated, discoloured, and perforated.4

Local Treatment.—This has been very simple, consisting of the application of hydrogen peroxide drops, saline syringing, and occasional Politzer inflations.

Results.—In 3 cases out of the 25 the perforation in the drum closed within one month, two months, and "a few months," with restoration of the hearing. In one case one ear was attacked and healed, and the other ear, two years later, followed an exactly similar course. This patient, whose larynx had been healed by the galvano-cautery, was shown before the Section of Laryngology in 1917.5

In the remaining 22 cases, however, i.e. in the majority, the otorrhœa and the deafness persisted during the several months they were in the sanatorium. In regard to the 14 cases of my second series (1926-1930) sufficient time has not elapsed to give the end-results. But in my first series (1911-1921) I was able to follow the after-history and reach conclusions which show that this complication is of evil omen, and that the end of patients suffering from it is disastrous. In 1924, i.e. within three years of the date when my statistics were made up, we found that out of the 11 cases of tuberculous otitis media, eight patients were dead, two were in homes for advanced cases, and one was “very ill.”

Prognostic Value.—It was not the ear complication which killed these patients. Operation for this local lesion would have done no good, and would probably have hastened their end. This heavy mortality demonstrates that, just as in the case of tuberculosis in the larynx, invasion of the middle ear indicates that the infection is a severe one, or that the patient's resistance is a low one, or both. Anyhow, it helps to forecast the possible future and enables us to be of assistance to the sufferer in warning him that his case will be a long one, and demands all the care that can possibly be bestowed upon it.

Conclusions.—In such a kaleidoscopic disease as tuberculosis
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it is a little rash to venture on generalisations, but I think the following conclusions are justified:—

(1) Tuberculosis of the middle ear is a comparatively rare complication of the infection. It occurs in less than 2 per cent. of the cases admitted into a sanatorium.

(2) The painless onset of a scanty, thick otorrhoea and marked deafness, in an adult, should suggest a tuberculous origin.

(3) Tubercle bacilli in the aural discharge can be detected only in a minority of cases.

(4) Confirmation of a provisional diagnosis should be sought by a careful, general examination of the patient (sputum, chest, temperature, X-ray, etc.).

(5) This form of otitis media occasionally heals, in certain cases, under simple measures with sanatorium treatment.

(6) It is best treated in a sanatorium where a patient could have the benefit of general care, as well as such measures as artificial pneumothorax, phrenic avulsion, thoracoplasty, and so forth, which have proved helpful in the treatment of tuberculosis of the larynx.

(7) Active local measures are rarely called for, and might be disastrous, because

(8) It is a complication which indicates a severe infection.

(9) Its discovery justifies a grave prognosis.

In dieser Mitteilung nimmt der Verfasser die Fälle des Midhurst Sanatoriums zur basis seiner Schrift. Er stellt darin fest dass Ohren Tuberkulose in einem Sanatorium eine seltene Komplikation ist. Die Klinischen Symptome werden besprochen und die Behauptung dass Perforation in dieser krankheit gewöhnlich mehrfach sind wird bezweifelt. Diese Komplikation hält der Verfasser als eine sehr ernste in Sanatorium Fällen.

Les malades au sanatorium de Midhurst forment la base de cet article. L'auteur trouve que dans un sanatorium les cas de tuberculose de l'oreille sont rares. Les symptômes sont discutés et l'on exprime le doute que les perforations dans cette maladie soient toujours multiples. II considère cette complication comme très grave d'après les cas étudié dans le sanatorium.