ON DIFFUSE INFLAMMATION OF THE EXTERNAL AUDITORY CANAL.

By E. CRESSWELL BABER, M.B.Lond.,

Surgeon to the Brighton and Sussex Throat and Ear Dispensary.

INFLAMMATION of the structures forming the walls of the external auditory canal may be of two varieties—circumscribed and diffuse. In the circumscribed form, the inflammatory action is limited to certain portions of the canal, and results in what is commonly known as abscesses, or boils, in the meatus.

In the diffuse variety, the inflammation, on the contrary, although it may commence in a limited portion of the canal, has a tendency to become diffused over a large extent of its walls, and may affect not only the whole of the auditory canal, but also the outer surface of the membrane tympani.

It is the latter form only (*otitis externa diffusa*) on which I propose to make a few practical remarks to-day, based on the notes of about a dozen cases of the affection which have been under my care during the last few years.

Diffuse inflammation of the external auditory canal may be broadly divided into the *acute* and *chronic* varieties; but as the one form frequently passes over into the other, they may with advantage be considered together. The disease is farther divided into *primary*, when it occurs independently of disease of the middle ear, and *secondary*, when it takes place in the course of an already existing tympanic affection. The degree to which the soft structures of the auditory canal may be affected, varies from a simple erythema of the cutis lining the canal to a periostitis, representing the severest form of the disease. It is, in fact, usually impossible to say with certainty in what structure the inflammation has its seat.

Causes.—The causes of this disease are cold, wounds, or injuries to the meatus (especially the impaction of foreign bodies, irritation with ear-picks, pins, etc.), the exanthemata, acute inflammation of the middle ear, eczema of the auricle, erysipelas of the head, etc. One variety of the secondary form of the disease occurs on slight provocation in cases of chronic purulent inflammation of the middle ear, probably from the irritable state of the meatus, induced by the long-continued discharge. A very obstinate case of primary diffuse external otitis of both ears related below, was under my care some time since, in which the gouty diathesis appeared to be the exciting cause. Special forms of the disease, attributable to diphtheria, syphilis, vegetable fungi, and pemphigus, are described by authors. From want of time, I shall be unable to allude to these any further in this short paper.

Symptoms.—The most prominent *subjective symptoms* of the acute form are pain, tinnitus, and deafness. The pain is often very intense, keeping the patient awake at night. It is increased by movement of the jaw, which may prevent his swallowing solids. The deafness is not usually very great, if the meatus be not quite occluded, and the middle ear be unaffected. When a case of acute diffuse inflammation of the auditory canal first comes under observation, the *objective symptoms* are usually uniform swelling and redness of the walls of the meatus; often, indeed, to such an extent that the smallest speculum cannot be introduced, and, therefore, a view of the deeper parts is unobtainable. There is also great tenderness, on pressure over the tragus, or on the walls of the meatus. The tissues around the external orifice are often swollen, and the glands below the ear may be enlarged.

In the course of time, or in a milder case at the commencement of the attack, a small speculum can be carefully introduced between the swollen walls, and the membrana tympani inspected. This structure is often only recognisable by its position, for nothing can be seen of hammer or light spot, owing to the outer coat of the drumhead participating (from continuity of tissue) in the inflammation of the cutis of the meatus. In these cases I have found a speculum, of which the inner end is more flattened than a Gruber's speculum (measuring $5\frac{1}{2}$ by nearly 4 millimètres in diameter), useful in obtaining a view of the deeper parts. The returning view of the membrana tympani is very interesting in these cases. The appearance, first, of the small process of the hammer, followed by that of its handle, and of the cone of light in the normal position, may often be observed in the space of a few days. In an acute case, in a short time a secretion takes place from the walls of the canal, and in chronic cases it is often large in quantity, being sometimes yellow and creamy, at other times black and tenacious (perhaps an altered secretion of the ceruminous glands). Complications may occur, in the form of abscesses and granulations on the walls

of the canal, and of periostitis of the mastoid process. Some authorities consider that perforation of the membrane frequently occurs from without inward, in diffuse inflammation affecting the inner portion of the meatus. I have not myself observed this result.

Diagnosis.—The disease under consideration can only be confounded with boils in the meatus, when they encroach very much on its lumen, and with eczema. The presence of eczema in other parts of the body, and the watery nature of the discharge in this disease, will usually suffice to make the diagnosis clear. It is not, however, always possible to distinguish between the two affections, nor is it practically of importance to do so, as their treatment is very similar. The point of chief consequence in these cases is to ascertain the state of the middle ear, as to whether the membrane be perforated or not. If the parts be too swollen to allow a satisfactory inspection of the membrane, the diagnosis must be made by inflation of the tympanum by the usual methods, combined with auscultation. The extent to which the hearing remains impaired after the canal has been fairly cleaned, is often a good indication of the implication or not of the tympanic cavity.

Treatment.—In the acute stage, the application of one or more leeches just in front of the tragus, or below the ear, and the instillation of an anodyne solution are, one or both of them, required for the relief of the pain. In prescribing a leech, it is advisable to mark with ink the exact spot where it is to be applied, or one may subsequently find that it has been applied at some distance from the ear, without, of course, having the desired effect. Before using the leech, the patient should be directed to plug the ear with cotton-wool, and it is well to show him how to stop the hæmorrhage from the bite when required, as leech-bites close to the ear are apt to bleed rather freely. Local depletion by incision of the walls of the meatus is recommended by some authors. I have not employed it in this affection, as I have found leeching answer all the purposes, whilst it is decidedly less formidable to the patient. If leeching, however, failed to relieve the pain, and there appeared any risk of the bone becoming implicated, I should certainly advise incision. For anodyne drops, I prefer a strong solution of morphia, as recommended by Burnett. Four grains of acetate of morphia to two drachms of water, of which five to ten drops are to be instilled, lukewarm, into the ear every hour or so. Burnett recommends sulphate of morphia. I happen to have used the acetate, and have found it answer very well. For children, especially if the membrane be perforate, I use a weaker solution; and in adults I do not employ the solution of full strength unless the pain be very severe; but I have found the pain yield to the strong solution when a weaker one had no effect. Foreign bodies in the meatus, of course, require removal, although this is not always practicable until the inflammation has subsided. The ear should be cleansed as far as possible, either by a gentle stream of water from a syringe, or a Clarke's aural douche, or by small mops of wool on a cotton-holder, under good illumination with the head mirror. The cotton-holder consists essentially of a straight piece of wire, slightly roughened near the tip, around which any absorbent cotton-wool, such as Strutt's, is twisted. Scales of loosened epidermis may be removed either by angular forceps or by the aural scoop.

In the chronic stage the cleansing is very important, and is, I think, best done by the surgeon with cotton-wool as often as practicable, for too much syringing only increases the swelling and irritation of the meatus. In addition, the instillation, two or three times daily, of a few drops of a weak solution of glycerine of borax (half a drachm to $7\frac{1}{2}$ drachms of water) is very useful. After a trial of several varieties of drops, I have found this mildly alkaline solution the most serviceable. Some simple ointment, containing morphia if necessary, may be inserted on a long-shaped plug of wool at night; and by plugs thus carefully inserted, a dilatation of the canal may often be effected. Granulations, if large, must be removed by Wilde's snare, and subsequently touched with some caustic (such as nitrate of silver or chromic acid). Weak solutions of lead are recommended by some authors, and others speak highly of the instillation of strong solutions of nitrate of silver for arresting the discharge.

Prognosis.—In the acute form of the affection, occurring from cold or injury, unless the inflammation spread to the bone, the prognosis is favourable, and, under suitable treatment, complete recovery ensues in a few weeks. The chronic forms are apt to be more obstinate; but, under persevering treatment, the result, as far as I have seen, is almost always satisfactory. I allude, of course, to cases in which the membrana tympani is not perforated, and the bone is unaffected.

The following case (much condensed from my notes) shows the obstinate character of some of these cases, and the necessity for perseverance if a good result is to be obtained.

A middle-aged lady, the wife of a medical man, became affected with discharge from the ears and deafness, in August 1878. She was of

* Read before the East Sussex District of the South-Eastern Branch.

gouty diathesis, and had for years suffered from uric acid gravel in the urine. On November 7th of the same year, the hearing distance for the watch was one inch with the *right*, and three inches with the *left ear*. The right meatus was swollen, and contained bright yellow discharge. The left was more swollen, but contained less discharge. Both tympanic membranes appeared red and swollen, so that the malleus could only be indistinctly made out on the right side—not at all on the left. After removal of the discharge, no perforation-sound was obtained in either ear on inflation. Treatment, consisting locally of frequent cleansing, the application of iodine to the mastoid processes, insertion into the auditory canals of Gruber's gelatine globules (containing sulphate of zinc and tannin), instillation of drops of bicarbonate of soda, and of tannin and opium, and the internal administration of anti-gouty remedies, was employed for four months without much effect, the walls of the meatus still remaining much swollen, and discharging. Drops of glycerine of borax were then ordered on March 6th, and on March 26th, the ears felt much better, and there was only a very little discharge in each meatus, of a thick, white character. On April 16th, there was no fluid discharge in the ears; only a few scales. The small process of the hammer was coming into view on both membranes, and the latter were resuming their normal grey colour. On May 8th, the right meatus was clear, and the left only contained a small quantity of thick, blackish material. Both membranes were normal, with the exception of being slightly dull on the surface, and there was scarcely any swelling of the canals. The hearing also (the patient rejoiced) was as good as it ever had been. Eleven months after this date this lady was again seen, and it was found that the ears had continued quite well.

The borax drops certainly appear to have acted very satisfactorily in this case; but it is possible that the removal of the patient from this town to London, to different surroundings, which took place about the time that these drops were commenced, had a good effect on the disease.

I will conclude with a very brief account of an acute case, of which the course contrasts markedly with that just described.

Elizabeth H., aged 23, was admitted a patient at the Throat and Ear Dispensary on January 31st, 1879. The history was, that sixteen days before, after a very bad cold in the head, violent pain began in the left ear, which had been aching ever since. Deafness came on in the left ear at the same time; also a noise like something drumming or spinning. Her own voice sounded louder in the left ear. She had previously never had anything the matter with the left ear. Movement of the lower jaw produced pain, rendering her unable to eat solids. The watch was only heard in the left ear, on contact with the auricle, temple, and mastoid; and the tuning-fork applied to the median line was heard louder on the *left* side. There were tenderness and swelling in front of the left tragus, and the left mastoid was slightly tender on pressure, but not swollen. The walls of the meatus were much swollen. One of Gruber's morphia globules was inserted into the left ear. The patient was seen again at seven o'clock the same evening, when it was found that the pain became easier after insertion of the globule, but had grown worse again. Ten drops of a solution of morphia (one grain to one drachm) were ordered to be instilled into the ear every hour, until the pain was relieved. The following day (February 1st) she reported that she had had a better night, and the pain was easier. Much sodden epidermis was removed from the canal; but even after removal of this the drumhead was not visible. Morphia ointment was inserted on cotton-wool, and a leech ordered to the front of the tragus. On Politizing, there was no perforation-sound. The mastoid process was not tender. To make a long story short, the swelling of the walls of the meatus gradually subsided, the pain ceased, and the membrana tympani began to resume its natural appearance. On February 7th (*i.e.*, a week after she was first seen), the hammer was first slightly visible, and the hearing for the watch had risen to nine inches. On the 19th, the watch was heard at a distance of three feet, and a whisper could be repeated across the room, so that the hearing was practically restored. A few days after this, the patient ceased attending, the left membrana tympani still being slightly dull, and the hammer indistinct. There was evidence in this case that the tympanum was also slightly affected; and indeed it is probable that, in such an acute case, affecting the ossous meatus, the middle ear would, to a certain extent, participate in the congestion.

In conclusion, I must ask your indulgence for the necessarily imperfect character of this sketch; but, without unduly prolonging the paper, I was unable to enter into further details. I trust, however, that I have touched on most of the practical points connected with the subject.

THE honorary membership of the New York Medico-Legal Society has been conferred on Mr. Jabez Hogg, Consulting Surgeon to the Royal Westminster Ophthalmic Hospital.

EXTRACTION OF CATARACT.

By P. H. MULES, M.D.,

Surgeon to the Manchester Royal Eye Hospital.

IN publishing these notes of all the cases operated on by me during the past two years, I trust no apology is needed. I am indebted to Mr. A. Hill Griffith for verifying all save the first nine, which were completed before his connection with our hospital; and for his care in testing the vision, and corroborating the results.

The operation known as the "modified linear of von Gräfe", with such further modifications as the nature of the complication demanded, has been adopted in each case.

The first portion of the table refers to complicated, the remainder to uncomplicated, cases. Of the complicated cases—including cases of locomotor ataxy; diabetes (very feeble, one eye lost from spontaneous irido-choroiditis); sympathetic cataract, with matted iris (rheumatoid arthritis bedridden, and double senile cataract); besides nine others of less apparent gravity—all recovered satisfactorily. Of the uncomplicated, the sixty-ninth (aged 78) was lost by panophthalmitis; the remainder gave satisfactory results.

Vitreous humour was lost in two of the uncomplicated cases, and in two of the complicated, making four losses of vitreous humour in seventy-seven cases, two of which were unavoidable. Secondary capsular troubles were needed in seven cases, but it is probable that distant vision of many would have improved if the films had been systematically divided. Iritis attacked six eyes, which were treated satisfactorily, the vision being respectively 1 and 6.12; 1 and 6.18; and 1 and 6.12. The wound was enlarged with scissors for the passage of the lens in six cases. This appears infinitely preferable to the introduction of traction-instruments, or excessive pressure for the extrusion of the lens. The spoon was used in four cases. Closed pupil recurred in the sympathetic case, when iridotomy gave 10 J. + 18 D. The pupil was enlarged three times: once for arrest of glaucoma; once to obtain a pupil opposite a clear portion of cornea; once to lower the pupil in a case of ptosis.

The number of patients operated on was seventy-two. Five double extractions brings the number of operations to seventy-seven. Of these, fifty-nine read No. 1 Jäger (brilliant), seven read 2 to 6 Jäger (bourgeois), eight read 6 to 20 Jäger; two count fingers; and in one vision was lost. Thus, out of seventy-seven extractions, seventy-six were surgically successful, and more or less visually so; sixty-six having good distant vision.

Cylindrical lenses were only occasionally added to the sphericals, their cost precluding their general adoption.

The comparative absence of iritis may appear to be somewhat unusual. This may be fairly attributed to the manner in which the iridectomy is performed, and to the care with which the wounded iris is freed from cortex and capsule.

The method of performing the iridectomy which I find best is not new; but, as it is in direct opposition to the views of one of our latest writers, I am tempted to give it *in extenso*. The iris is grasped by forceps as near as possible to either angle of the wound, gently stretched, cut through about four-fifths of its length; the forceps, with the cut iris in its grasp, being immediately carried over to the opposite angle of the wound, the iris is again gently stretched, and the iridectomy completed. By this manoeuvre, all fear of entangling the iris in the wound, either before or during the extrusion of the lens, may be dismissed. The coloboma is perfect—small at the pupillary margin, broad at the base. Weiss's forceps-scissors are particularly handy for this operation. The objections to this mode of performing the iridectomy can only be theoretical; as in my own practice, and others, incarcerated iris was an element of danger and trouble, oftentimes necessitating removal of small portions from each angle of the wound; whilst, since its adoption, I have not had one case of disentangling or removal. The final clearing of the pupil from cortex, admirably described by von Gräfe, is the most difficult as well as the most important part of the operation, and is conducted by the points of the fingers after removal of the speculum.

The subsequent treatment is adapted to the requirements of each case, great care being taken not to expose the wound, or to raise the upper lid for the first few days, all examination being conducted by depressing the lower lid. The hospital happily rejoices in trustworthy and intelligent nurses, who have been long there, and to whose promptitude in relieving the earlier discomforts may be attributed the com-