upon the septum, especially upon the tubercle, and if all other possible causes of headache have been eliminated, partial removal of the hypertrophied bone should be advised, since in many such cases complete relief is given.

A NOTE ON RHINITIS CASEOSA.

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(From the Physiological Laboratory, King's College, London.)

A CASE of this interesting condition is reported by Mr. W. H. Kelson in the *BRITISH MEDICAL JOURNAL* for December 31st, 1904. The author gives an account of the cheesy material removed, which in his case consisted of a mass which was structureless except for a faint striation. It was composed of fatty material, and contained no cholesterin and no remains of epithelium.

Recently a case occurred in King's College Hospital, under the care of Mr. Arthur Cheatle, to whom I am indebted for an opportunity of examining this interesting deposit. The clinical features of the case were in no marked way different from those of Mr. Kelson's case, but the deposit differed very considerably.

It was a putty-like material with a very offensive faecal smell. It was yellowish in colour, and I expected to find that it was largely fatty in nature. On the contrary, however, it contained practically no fat. It gave only the very slightest reaction with osmic acid, and the ethereal extract left no greasy stain when evaporated.

The extract with chloroform contained cholesterin in small quantity, which gave Salkowski's test, and consequently was true cholesterin, not iso-cholesterin. On incineration, there was an extraordinarily large residue, mainly calcium phosphate.

On microscopical examination the deposit was seen to consist of a mass of needle-shaped crystals of calcium phosphate. These were embedded in a granular mass of detritus, none of the granules of which could be stained black with osmic acid. Staining with methylene blue gave no evidence of epithelial cells or other organized residue, but with iodine and sulphuric acid I was able to stain several hyphae of an unrecognizable fungus.

In discussing the etiology of this condition Mr. Kelson dismisses tuberculosis as a cause, and the subsequent rapid cure of these cases is certainly not suggestive of tuberculosis. The theory of its analogy with cholesteatoma is also difficult to reconcile with the absence of any epithelial remnants. The other theory suggested by Mr. Kelson is that it is a condition of chronic suppuration with retention. On the one hand the nature of the deposit in the case under my own notice is certainly very different from that of inspissated pus, while there is no evidence that there has ever been retention of pus, the deposit being found free in the nasal cavity.

There is, however, another condition which may be somewhat analogous—namely, the chronic catarrh which in the gall bladder is accompanied by the formation of calculi containing calcium compounds and cholesterin. Is it not possible that in rhinitis caseosa we have another mucous membrane in a state of chronic catarrh in which a similar process is taking place, leading to the formation of these pultaceous masses, secondary decomposition being responsible for the offensive odour?

CHRONIC SUPPURATIVE OTITIS MEDIA: THE NECESSITY OF EARLY, SYSTEMATIC, AND ENERGETIC TREATMENT.

By HENRY SMURTHWAITE, M.D.,
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It is not my intention to enter at length into the origin of the disease of chronic suppurative otitis media. The greatest percentage of cases arise during childhood, and apart from the specific febrile diseases—of which scarlet fever claims the largest number—chronic catarrhal conditions in the middle ear is the starting point, the latter being dependent on adenoid vegetations in the postnasal space. Subsequently micro-organisms find their way up the Eustachian tube, or, it may be, by the blood or lymph channels, to the middle ear, and there set up conditions which result in acute inflamma-

tion of the lining membrane, with, finally, pus formation and perforation of the membrana tympani, the same tending to become chronic from lack of appropriate treatment.

In looking back over a period of years, facts stand out clearly before my view, and now in the light of riper experience I can unhesitatingly say that many a valuable life to the State might have been saved had early energetic treatment, systematically carried out, been adopted. But I think you will all agree with me that many of these cases of "running ears" have been left to cure themselves as best they could, or at most only a half-hearted endeavour to stay the mischief has been attempted. Of course, unfortunately most of such cases are to be found among the poor who have to battle with insufficiency of food and general unhygienic surroundings; nevertheless, this should make us not the less earnest in our efforts.

I am quite confident were I to go round the National Board schools in this town and examine the ears of the children attending those schools, I should find a large number suffering from discharging ears of a more or less mild or severe type; and, what is more, a large percentage of these cases were under no form of treatment whatever, their parents having no idea of its existence, or attached no importance to the same from pure ignorance of its possible danger.

When so much is nowadays being written and talked about the physical degeneration of the race, surely it is high time the State appointed medical men, as in Germany and America, to periodically examine children attending the national schools, who, apart from their recognizing and preventing the dissemination of the infectious diseases, would nip in the bud many early cases of suppurative ear disease which, if untreated, might ultimately terminate fatally, or lead to a more or less permanent deafness.

INFECTION BY WAY OF THE AUDITORY NERVE.

As certain facts bearing on my last remarks, I may instance 3 cases of death in the Royal Infirmary during the present year, the primary cause of which being directly attributable to old-standing and untreated middle-ear disease. In 2 of these cases the immediate cause of death was cerebral abscess, while in the third the patient died from acute septic lepto-meningitis. It is not generally recognized that septic mischief in the middle ear can reach the brain or its coverings by way of the labyrinth and auditory nerve, but that such is a fact this case fully illustrates.

CASE I.

The patient, with a pustular discharge from the ear, and showing signs of sinus thrombosis, was operated on, but on opening up the lateral sinus it was found quite patent. The mastoid and antrum were thoroughly cleared out, the wound dressed, and the patient sent back to bed. The following day death supervened, the patient having never regained consciousness from the time she was brought into hospital. At the necropsy it was found that, although the sinus and brain were quite healthy, there was pus in the subarachnoid space, which, while not extending over the convexities, was most marked on the cisterna basillia. Injection of the vessels was not a prominent feature, this stage evidently having given place to pus formation, of which there was a large quantity. No doubt, had this patient survived a few days longer, a cerebellar abscess would have resulted, for the pus was gravitating to the posterior fossa, and would, sooner or later, have burst through on to the surface of the brain, which point I suggested at the International Congress at Bordeaux this year when recording the case. Through the courtesy of Mr. Leech, whose patient the case had been, I made sections of the petrous bone, and by this means was able to trace pus from the labyrinth along the lymph sheaths of the auditory nerve to the meninges by way of the internal auditory canal. The semicircular canals were full of pus, the same having found its way into the vestibule through a perforation in the foramen rotundum.

This is an instructive case, and should make us bear in mind that we have not always got to the seat of the disease, apart from cerebral or cerebellar abscess, after the performance of the radical operation and opening up of the lateral sinus.

Otologists are now convinced, from the number of cases recently reported, that suppurative labyrinthitis, secondary to septic middle-ear disease, is of much more frequent occurrence than was formerly supposed to be the case. Either the round or oval window may be perforated, or a necrosis of the horizontal semicircular canal's bony wall may exist, and thus a propagation of infection from the middle ear to the labyrinth is possible, but the mode of origin of septic labyrinthitis in the greatest percentage of cases, according to statistics, is through direct communication between the middle ear and vestibule from perforation of the fenestrae rather than necrosis of the bony walls.

OTHER CHANNELS OF INFECTION.

On looking at the tympanic cavity, with its thin osseous walls, we can easily understand how readily perforation can result when once necrosis takes place, and thus a direct road for the extension of septic mischief to the meninges is opened up, with the formation of the subdural abscess. The parts of the temporal bone which most frequently become perforated are naturally the thinnest, and thus we find the tegmen tympani, on which part of the temporal lobe rests, is the seat in a large majority of cases, such perforation varying from a pin's head to possibly the whole of the tegmen and roof of the mastoid antrum. The petro-mastoid canal is a direct channel between the antrum and petrous bone, and is, as Dr. Mouret in a communication to the International Congress of Otology at Bordeaux this year tells us, a vestige of the hollow which exists in the newborn infant, and a channel of infection from the antrum. Occasionally the posterior surface of the petrous bone is the seat of perforation, resulting in the formation of a cerebellar abscess.

Lastly, a fatal sinus phlebitis may be set up by a carious opening of the mastoid directly into the membranous sinus, although this may occur without any signs of such opening, the infection, as already stated, in all probability reaching the sinus by way of the lymph or blood vessels. Politzer says when there are no apparent signs of necrosis the infection may be carried to the brain by the migration of bacteria along the interstices of the connective-tissue bands which accompany the anastomotic blood vessels of the brain and tympanic cavity.

CAUSES OF THE PERSISTENCE OF CHRONIC SUPPURATION.

The reason we fail to clear up the discharge in some of our cases is that often one treatment is adopted in all cases alike, no consideration being taken of the causes which enter into the maintenance of such discharge. For instance, syringing the ear out daily with some simple antiseptic solution might cure one case, whereas the same procedure in another would have no marked beneficial effect. Hence, in our treatment we should first examine our case thoroughly and seek for and remove the cause.

A large percentage of chronic suppurative cases are nothing more than a catarrh of the membrane of the middle ear, which has become septic, there being no other complication. Provided there is no impediment to the free entrance of air up the Eustachian tube, the discharge will more often than not soon cease with the daily use of a Politzer's bag, and syringing out the ear with warm boracic lotion. But, unfortunately, all our cases are not so plain sailing, for granulations, polypi, or small areas of necrosis in the walls of the tympanic cavity or of the ossicles may exist. More often than not in children there is a mass of adenoid tissue in the posterior nares, or the tonsils are chronically enlarged, either of which latter in itself is sufficient to keep up the discharge, however often we cleanse out the ear by syringing. A couple of illustrations will suffice to show the truth of this assertion:

CASE II.

A male patient, age 20 years, came to me in June, 1903, complaining of a mucopurulent discharge from his right ear, which had persisted for some six years, in spite of syringing it out more or less daily with boracic lotion. On examining the ear I saw a large perforation in the antero-inferior segment of the membrana tympani through which a thick discharge flowed. Clearing away the discharge revealed neither granulations nor polypi, and as the discharge was sweet I had no reason to suspect dead bone. Inspection of the throat showed a very much hypertrophied right tonsil, so much so that it reached the middle line of the pharynx, and which he informed me had troubled him concurrently with his ear trouble. I removed the tonsil and ordered the continuation of the lotion, the thorough drying out the ear with absorbent cotton-wool, and final insufflation of boracic powder, with the result that the discharge stopped in a fortnight, and up to the present has not returned; what is more, the perforation in the drum has now closed. In this case the enlarged tonsil was acting as a plug to the Eustachian tube.

CASE III.

The other case was a girl, aged 14 years, who was sent home from school with a discharge from the left ear, following an acute otitis some three weeks before. I adopted the same local ear treatment as in the above, but at the end of eight days the discharge was as copious and thick as the first day I saw her. At the first visit I had pointed out to the parents the probability of my having to clear out the posterior nares, as the Eustachian tube was quite occluded by a mass of adenoid tissue which could be easily felt with the finger. This I did at the end of the above-stated period, and each successive day the discharge diminished, finally disappearing at the end of ten days.

The treatment of suppuration in the tympanic cavity is much the same as in any other part of the body, namely, to

establish thorough drainage, allowing the wound, as it were, to heal from within outwards.

Often or not there is only a pin-point perforation in the membrane, which is not large enough to allow a free outflow of the discharge. In such a case we should enlarge the opening, so that the solutions we use for cleansing purposes may readily come in contact with the middle ear and freely flow out again. It is only by such means we can hope to make this cavity aseptic.

This is especially indicated when there are cholesteatomatous masses in the cavity, which it is almost impossible to remove either by syringing or with forceps through a small opening. Such masses, if allowed to remain, keep up the discharge, and in time, by degrees enlarging, may block up the whole tympanic cavity and antrum, absorbing the bone, and finally cause a possible fatal cerebral complication, through perforation of the osseous walls.

In long-standing cases unhealthy granulations spring from the edges of the perforation, may block up the outlet; or polypi, varying in size from a small pea to an olive, which very often originate in the attic, and gradually enlarging project through the perforation into the external auditory canal, are so a source of obstruction.

Granulations and small polypi are best removed with a ring knife, whereas larger polypi can easily be cleared out by means of the cold snare.

CASE IV.

I removed from a woman's ear a polypus some six months ago which blocked up the whole external auditory canal, partially protruding from the meatus. From its large size I was easily able to get the snare well back to its root and so entirely remove the same.

This can be done almost painlessly if one instils a 20 per cent. solution of cocaine into the ear some fifteen minutes previous to the operation, or, better still, if a pledget of cotton-wool, soaked in such solution, be placed well up to the pedicle of the polypus.

It is wonderful how quickly the discharge often ceases after the removal of these polypi, especially if we have been successful in detaching a small piece of necrosed bone to which the pedicle is often attached. When the granulations are only small the best remedy is undoubtedly the instillation of a warm solution of boracic acid (gr. x) and rectified spirit (3iv) in an ounce of water. The spirit has a tendency to shrivel up these granulations. Sometimes caries of one or other ossicle is the cause of a protracted ear suppuration, and nothing short of ossiculectomy will prove of permanent benefit.

Put briefly, any obstruction to the easy outflow of the discharge, whether it be granulations, polypi, or cholesteatomata in the middle ear, sodden desquamated epithelium in the external auditory canal, or caries of the ossicles, are the main causes of a persisting suppuration in the great majority of cases; deep-seated caries in the tympanic walls, antrum, or mastoid cells causing the remainder.

The simple drying out of the external auditory canal and middle ear as far as possible, without any previous syringing, followed by insufflation of boracic acid powder, gives most satisfactory results in selected cases. If the Eustachian tube is patent, the perforation large, there being merely a septic discharge, with none of the complications previously mentioned, then by this treatment, thoroughly carried out, we can oftener than not look to a favourable result.

At the early part of 1904 I adopted this treatment on a series of ten children selected from the poor, who lived under hygienic conditions, to say the least of it, not of the best; yet, in 8 out of the 10 cases, the discharge ceased in from ten days to three weeks. The ear must be thoroughly dried out each day, or, if the discharge be excessive, night and morning with pledgets of absorbent cotton-wool. When the external auditory canal is clear use a Politzer bag, then wipe out again any further discharge which may have been forced out of the tympanic cavity into the canal. When most of the discharge is removed insufflate fine boracic powder (precipitated), the finer the better, for there is more chance of the particles coming in contact with the mucous membrane in the tympanum. Some of the powder must reach the middle ear, and not remain as a mere plug at the meatus or middle of the canal, for here it would only dam back the discharge.

Boracic acid, besides its mild antiseptic properties, has a strong affinity for moisture, hence its value in this form of ear disease.

Of course, should the discharge be too excessive for the powder to thoroughly absorb, we may have to resort to syringing with warm boracic lotion, to which, if the discharge

is foul, carbolic acid may be added. But the treatment I personally prefer in such cases is to wash out the tympanum through the Eustachian tube with boracic lotion, and after cleansing and drying the external auditory canal, to instil 10 drops of a solution of rectified spirit and carbolic acid (acid. carbol. gr. v, spt. vin. rect. ℥ iv, aq. ad ℥ j) into the ear, allowing it to remain fifteen minutes, and then to remove by means of absorbent cotton-wool the remaining moisture—which I consider is an important part of the treatment—and finally insufflate a fine powder of boracic acid. With the exception of washing out the tympanum through the Eustachian tube, which can be done every second or third day according to the amount of the discharge, the above treatment should be carried out daily or twice daily, but the object being to keep the parts as dry as possible.

A treatment which I used in the clinic of Politzer in certain cases, and which I have since adopted with very good results, is to irrigate the ear with a normal saline solution once a week, while a solution of hydrogen peroxide, spiritus vini rectificatus, and boracic acid is instilled every third day. The patient can carry out this treatment himself.

To deal successfully with cases of purulent discharge from the ear time and trouble are necessary, and as the patients, as a rule, have to carry out the greater part of the treatment themselves, it is most important to instruct them how to do it thoroughly. If we are to look for success this time and trouble must be given; a half-hearted treatment is worse than useless, and it is just because the parents in many cases do not carry out our instructions that we are doomed to disappointment.

If such a discharge is allowed to persist, complications which I have already mentioned may possibly arise, for, as Wilde has said, we can never say when, where, or how a discharge from the ear will end.

The struggle for existence in the race for life is sufficiently difficult for the majority of the physically fit without having an additional handicap imposed in the form of a deprivation more or less of the faculty of hearing; we should, therefore, do all in our power to instil into the poor the possible danger and consequences of a discharge from the ear, and the necessity of early treatment on its first appearance.

Case after case comes to me with the same old history—that during childhood they had a discharge from one or other ear, getting better or worse alternately, and that nothing much was thought about it, as it was supposed that the child would grow out of it. If such cases do eventually heal up, cicatricial adhesion about the ossicles and fenestrae are left, the hearing power being materially affected, in many cases beyond repair.

Prophylaxis is always better than cure, and if we take the mischief in time—that is, in early childhood or youth—we shall have done much for the hearing power of those who are to take their share, however small that share may be, in the future building of the empire.

THE TREATMENT OF POST-NASAL ADENOIDS.

By JOHN WARD COUSINS, F.R.C.S., M.D. LOND.,
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POST-NASAL adenoids occur very frequently in children; they are variable in size, soft, and readily bleed on pressure. They develop on all the walls of the naso-pharynx, blocking the orifices of the Eustachian tubes and the posterior nasal apertures, causing habitual mouth breathing, repeated attacks of chronic nasal catarrh, deafness from disturbance of the middle ear, and also mental and physical depression. The indications for operative interference can generally be recognized more by the persistency and urgency of the symptoms than by the examination of the nose and throat. The removal of these growths can be undertaken without any risk, provided there is no active disorder or any impairment of the health.

After an attack of tonsillitis or catarrhal inflammation of the naso-pharynx, it is always desirable to defer the operation for a few days.

Some surgeons use curettes of many forms, while others prefer a steel finger-nail or post-nasal forceps. For children the best instrument is the sterilized finger-nail, as it can be safely employed both to define and remove the growths in the obscure recesses of the naso-pharynx, guided by the sense of touch. I very seldom use any curette, although it is some-

times necessary in the removal of the firmer adenoids which are found in older patients. In my operations upon children I use only the simple contrivances represented in Fig. 1, and

Fig. 1.

with these I have cleared the naso-pharynx in hundreds of cases, and I have had very seldom—if ever—occasion to repeat the treatment. The mouth gag is a short rod of hard wood carrying a wooden ring to regulate its insertion between the teeth, and one end of it is larger than the other to suit the capacity of different mouths. The metal rings are simple protectors of the forefingers of the operator, and the nasal probes are made of flexible metal, and are of great utility in clearing the posterior nasal apertures.

After preparing the patient by the frequent application of some deodorizing mouth-wash, I always carefully examine the teeth and remove any loose tooth before the introduction of the gag. An anaesthetic is of great assistance in clearing the naso-pharynx, but it requires very careful administration. I prefer A.C.E. or chloroform, but whatever anaesthetic is employed it must only be continued to arrest corneal sensibility, and always short of suspending the reflex actions of coughing and swallowing. As soon as the patient is ready, the head is brought well over the edge of the table, and is there supported by the hands of a nurse or the arm of the surgeon; at the same time the shoulders are raised on a pillow. The nasal probes are passed through the inferior meatuses into the pharynx; the gag is fixed in the right angle of the mouth and the left forefinger is introduced into the pharyngeal fossa, and with it the sides and roof, the Eustachian orifice, and the posterior nasal apertures are rapidly cleared. The gag is then shifted to the left angle of the mouth and the operation is repeated on the right side with the right forefinger (see Fig. 2).

Fig. 2.

The probes are now freely applied around the posterior orifices, and rubbed over the inferior nasal passages. In many cases the haemorrhage is free, and it is necessary to have some sponges at hand to wipe the blood out of the mouth and pharynx. After clearing away the adenoids I always excise the tonsils if they are unhealthy and enlarged. Transient shock sometimes follows the operation, and cases of troublesome haemorrhage have been reported caused by tearing the mucous surface with forceps.

After the patient has recovered from the anaesthetic the improvement in the hearing power and breathing is often very marked. As a general rule I order rest, and light and soft food for a few days.

THE BRAINS OF EMINENT PERSONS.—A society having for its object the education of the public to the advantages which may be secured from the scientific study of the brains of eminent persons has been organized in America. A Committee—consisting of Professor B. G. Wilder, Dr. E. A. Spitzka, and Dr. Alexander Herdlicker—has been formed for the purpose of drawing up a form of bequest in conformity with legal requirements whereby persons may during their lifetime devise their brains to the society.