between them. The blood of an infected individual usually shows an increase of eosinophile corpuscles but as eosinophilia is met with under other pathological conditions neither this circumstance nor that of a deficiency of hæmoglobin in the blood can do more than point to the necessity of making a microscopical examination of the fæces. Dr. A. E. Boycott regards eosinophilia in a coal miner as extremely suggestive of ankylostomiasis. In the case of a workman from abroad applying for work at a British mine, especially metalliferous, and with a temperature above 65° F., inquiries should be directed as to where he has come from and if known to be an infected area it would be safer before giving him work to have his fæces microscopically examined.

Newcastle-upon-Tyne.

A CASE OF EXTRADURAL ABSCESS COMPLICATING ACUTE MIDDLE-EAR CATARRH WITH- OUT PERFORATION OF THE MEM- BRANA TYMPANI; OPERA- TION; RECOVERY.

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CASES of the following type are of sufficient interest and importance to be put on record, for the whole issue depends on their prompt recognition and treatment.

A little girl, aged seven years, had an attack of earache on Sept. 9th, 1901. She was not a robust child, being subject to occasional attacks of bronchitis and about a year before had passed through an attack of pneumonia. She had never suffered from earache before and I was not asked to see her till the 12th. She then appeared to be suffering from a subacute middle-ear catarrh on the left side and was treated with sedative drops (carbolic acid and opium in glycerine), hot fomentations, and an aperient. The throat appeared to be normal and the temperature was normal or only slightly raised. The next few days showed little change in her condition except that while the earache improved somewhat she became subject to considerable pain of a neuralgic character over the left side of the head and especially the left side of the forehead. Meanwhile, the temperature ranged from normal to 100·4° F. On the 17th there were considerable pain over the parietal region and diffuse tenderness on both parietal and occipital regions of the left side; there was tenderness also over the mastoid process but no redness or swelling. The head was held stiffly inclined towards the left shoulder and she would lie only on the left side with the head supported on a low pillow. The temperature was 100·2°. She had slept well. There was no pain in the ear itself. Hearing was considerably impaired, showing $\frac{2}{5}$ by the watch, the other ear being normal. The meatus was somewhat narrowed and the membrana tympani was grey and opaque. There were no bulging and no perforation to be seen. There was no history of discharge from the ear or any sign of such in the meatus. The hair was cut over the whole of the left side, revealing some swelling below and behind the tip of the mastoid and extending up and back to the parietal region. The tenderness although present over the whole side of the head was most marked over the tip of the mastoid and the swelling below it. On the 18th she was seen by Dr. T. E. Hayward in consultation. The child had passed a good night and was found sitting up in bed amusing herself. Her temperature was 100° and her pulse was 140. Pain was much less than before and there was only some dull aching over the side of the head. The swelling was more marked; it was somewhat sausage-shaped and extended from below the tip of the mastoid up and back to the parieto-occipital region; the upper part was the most prominent and showed fluctuation, its centre being two inches behind the attachment of the auricle and on a level with its upper border. Tenderness was more or less present over the whole side of the head but most marked over the tip of the mastoid and over the fluctuating area referred to. On the 19th she passed a restless night and looked less lively. Her temperature was 99·5° and her pulse was 120. Slight wheezing bronchitis was present. There had been no vomiting or rigor and no mental dulness. The headache and the swelling were as before, only the latter had extended so that

there was now some œdema over the mastoid. The hearing power in the left ear had diminished, the watch being heard only on contact. The meatus was much swollen deeply so that the membrana could hardly be seen. The pupils were normal. There was no optic neuritis. On the 20th the patient had chloroform administered by Dr. Hayward and the abscess was opened by a vertical incision through its lower part. Non-fetid pus escaped. The abscess was sub-pericranial and the bone appeared to be normal. Careful search was made for a track leading towards the tip of the mastoid on the supposition that there might be an unusual form of Bezold's perforation with the pus tracking up and back along the digastric groove instead of following its more usual course down the neck. No such track, however, was found. The mastoid antrum was then opened in the usual manner with the chisel and while doing so a minute opening was made into the groove for the lateral sinus. A tiny jet of pus immediately spouted forth evidently under considerable pressure and continued to flow in a pulsating stream synchronous with the heart beats. As the abscess emptied itself the wall of the sinus rose up close to the bone. The aperture was enlarged and with due precautions the portion of bone overlying the abscess was completely removed with the chisel. Thus the sinus was laid bare over an oval area rather larger than a shilling. The sinus wall looked congested and thickened but no lymph or granulation was present. The antrum contained no pus. Drainage was provided by strips of gauze introduced under the bridge of the scalp between the mastoid incision and that for the abscess. The subsequent progress of the case was uneventful. The temperature fell to normal within 48 hours and healing was complete within six weeks, when hearing power was found to be equal in both ears and bony repair had taken place over the exposed sinus.

That intracranial complications, and especially extradural abscess, may follow an acute otitis media is a well-recognised fact, but in the great majority of such cases the otitis has reached the suppurative stage and resulted in a perforation of the membrana tympani. Unfortunately, in the present case none of the pus was preserved for bacteriological examination, but the clinical features are strongly suggestive of the pneumococcus as the cause. Lientert has shown that the type of otitis media associated with the pneumococcus is characterised by a somewhat mild course as regards the ear itself but with a marked tendency to the production of extradural abscess. The probability here is further increased by the fact that the patient had passed through an attack of pneumonia within the last year so that doubtless a potential source of otitic infection was still present in her respiratory tract. A pneumococcal infection will sometimes resolve and sometimes suppurate, the result depending largely on the vascularity and general vitality of the tissue attacked. Thus in the lung resolution is the rule, but in the pleural sac suppuration frequently follows, particularly in children. If we now regard the middle ear with its attic, antrum, and mastoid cells as the analogue of the lobule of lung with its air vesicles, it is evident that in a middle-ear catarrh with extradural abscess we have a process closely comparable with a pneumonia and its subsequent empyema.

Of greater practical importance, however, is the question of diagnosis, especially so in acute cases, as the condition is then so much more likely to be overlooked. An extradural abscess uncomplicated by other intracranial affection may present a variety of symptoms such as severe pain, high fever, vomiting, optic neuritis, and, if large, pressure symptoms such as various paralyses, slow cerebation, and coma. We may even find repeated severe rigors with high temperature due to simple extra-sinus abscess, without sinus thrombosis as in cases recorded by Barr. On the other hand, any one or practically every one of those symptoms may be absent. Two features, however, of special diagnostic value, both illustrated in the above case, may be mentioned. The first and most suggestive, as shown by Grunert, is the marked incongruity between the subjective symptoms and the objective ear condition—e.g., severe pain in the ear or over the side of the head but with no acute inflammatory signs on the membrana tympani or mastoid process. The second is the formation of an abscess under the scalp the origin of which can only be explained on the supposition that it has found its way from the interior of the skull. The diagnostic value of this sub-pericranial abscess receives little attention in English text-books of otology. Possibly its occurrence is rare but in a case like the present where the membrana tympani is intact its presence affords

the only direct evidence of intracranial suppuration. As to the treatment little need be said. The obvious indication is to evacuate the pus and to provide free drainage by operative means.

Subsequent note.—The patient made an excellent recovery from the operation and was quite well for a year after. I was then asked to see her again. She was suffering from slight earache and had an abscess of considerable size over the mastoid, raising up the linear scar of the old operation wound. There was but little discomfort referred to the ear itself and there was no perforation or discharge. I carefully cleaned the skin over the abscess and with due precautions withdrew a sample of the pus for bacteriological examination. It was reported to contain pneumococci. The abscess was opened and healed readily. I have reason to know that the patient remained in good health for about two years afterwards. Her medical history then showed the following interesting sequence of events occurring at intervals of a year: (1) an attack of pneumonia of moderate severity (September, 1900); (2) an attack of acute catarrh of the middle ear with extradural abscess having the clinical characters of a pneumococcal infection as detailed above (September, 1901); and (3) slight earache with large abscess over the mastoid of pneumococcal origin and evidently due to infection through the middle ear and antrum (October, 1902). Apart from the interest of the individual manifestations this history shows the remarkable tendency to recurrence of pneumococcal infection or perhaps more correctly the persistence of the infection in a latent form with periodical outbreaks.

Oldham.

NOTE ON MERCURIAL INJECTIONS IN NERVOUS DISEASES OF SYPHILITIC ORIGIN.¹

BY DR. MAURICE FAURE,

LA MALOU.

(Translated for THE LANCET.)

PERSONS suffering from nervous diseases are very sensitive to certain methods of medical treatment and the generally accepted restrictions with respect to the use of mercurial remedies are specially applicable to such patients. I will here detail in a collective form some of these restrictions, the soundness of which has, in my estimation, been confirmed by prolonged observation of a large number of patients presenting nervous symptoms of syphilitic origin.

Injections of soluble salts (Note 1) given either every day or three times a week are the most recommendable form of treatment, for in this way the amounts administered can be determined with more precision than by other methods. Pills and other preparations to be swallowed often produce, even when taken in small quantities, intestinal troubles in nervous diseases. With inunction (*frictions*), grey oil, and injections of insoluble salts it cannot be exactly known how much of the remedy has been absorbed and in what space of time. This being so, the patient's general state may, when the limit of toleration has been exceeded, undergo a sudden and transient deterioration, leaving behind it a long-continued aggravation of the nervous troubles, the relief of which was hoped for. It is desirable to avoid routine practice and the giving of the same mercurial salt to all patients suffering from nervous diseases. In the selection of a method of treatment the medical man ought to be guided not by his preconceived ideas but by prolonged observation of the patient. Individual idiosyncrasies with respect to toleration ought to be ascertained. In general, the familiar preparations of benzoate, biniodide, and perchloride of mercury agree well when given in ordinary doses, while cacodylate, hermophenyl, and other organic compounds agree even better but seem to be less active in equivalent doses (Note 2) and may be reserved for delicate patients. By varying the nature as well as the doses of the salts administered remedies which cannot be tolerated continuously may be tolerated for a limited time (Note 3).

The therapeutic result is not proportionate to the quantity of mercury administered, some preparations being more active than others. Two facts may here be mentioned—

namely, (1) that patients who have not derived any benefit from a given preparation or from small doses have improved under the use of another preparation or of larger doses; and (2) that patients who have become worse when treated with a certain salt or with large doses have improved when a different salt or small doses were substituted (Note 4).

In the case of a young patient suffering from nervous disease whose general state is in other respects normal and in whom the lesion is recent and quite local (a gumma, for instance) mercurial treatment may be used with the same intensity as in any syphilitic manifestation whatever. With middle-aged patients not in very good condition and having disseminated lesions (such as disease of the cerebro-spinal vessels, tabes, and general paralysis) mercurial treatment ought to be commenced cautiously and watched with close attention. Moreover, the patient might have secondary infections of certain viscera, such as the bladder or intestines, associated with paralysis or atony of the organs in question. Though these conditions are of infective origin mercury has no remedial action on them and the temporary lowering of the general health which a too energetic mercurial treatment may bring about renders these infective processes more active. With elderly persons presenting nervous symptoms of syphilitic origin greater circumspection is required; the state of the kidneys must be carefully investigated by means of a complete analysis of the urine and observation of the renal efficiency.

The duration of the treatment and the doses employed will naturally depend on the effect produced, on the state of the patient, on the special object in view, and the like; they cannot be pre-arranged on a uniform system for all cases. These precautions, the greater part of which are to be found in the teaching of Fournier, are the best guarantee of therapeutic success. After having been for a long time employed in an inadequate manner for the relief of nervous symptoms of syphilitic origin mercurial treatment is at present often carried on more actively than is good for patients suffering from nervous diseases. It is desirable that these extremes should be avoided and that preparations and doses conforming to each individual's powers of resistance should be selected in order to insure the success of mercurial treatment in nervous diseases of syphilitic origin.

Note 1.—All our injections are intra-muscular. When this plan is adopted there is little or no induration and pain is of exceptional occurrence. The injection ought to be given very slowly and followed by gentle massage. The place for injection is the buttock and the average depth is four centimetres.

Note 2.—The equivalence of doses in the case of different salts is ascertained from the amount of mercury in each salt, assuming, of course, that the chemical valency of the mercury is the same in the groups which are compared. A centigramme of mercury per day is the average dose; there are patients who cannot take so much but many can take more than that.

Note 3.—Our series of injections of soluble salts vary from 6 to 20 administrations. The series is repeated after a pause of equal duration to make up a total of from 40 to 80 injections for a course of treatment to be spread over one or two years. With insoluble salts we have made weekly injections numbering from 6 to 12, and after an interval of some weeks another series is recommenced. There is no definite limit except the tolerance of the patient.

Note 4.—An intensive treatment is not necessarily a heroic treatment, for intensity may be obtained insidiously by very prolonged administration and the use of average doses frequently repeated. It is necessary to give the patient all the mercury that is required for the cure of the disease without giving him enough to produce toxic symptoms.

DIPHTHERIA IN BRADFORD.—Dr. W. Arnold Evans, medical officer of health of Bradford, in a report on the prevalence of diphtheria presented to the health committee of that city, states that the disease showed a gradual increase during the period from 1900 to 1903, followed by a remarkable rise in 1904. In 1903 there were 196 cases, with 52 deaths, while for the ten months up to the end of October, 1904, there have been 678 cases with 119 deaths. By far the larger number—namely, 517 cases out of the 678—occurred in children between three and 13 years of age. The children attending St. Stephen's schools in West Bowling have been especially liable to be attacked.

¹ A communication to the Seventh French Congress of Medicine, Oct. 24th to 27th, 1904.