A NOTE AS TO WHEN INCISION OF THE TYMPANIC MEMBRANE SHOULD BE PERFORMED IN ACUTE INFLAMMATION OF THE MIDDLE EAR.

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I READ with great satisfaction, in the issue of the BRITISH MEDICAL JOURNAL of June 12th, on "acute otitis media in young infants presenting symptoms simulating those of meningitis," statements by Drs. Cheadle, Barlow, and Lees which are remarkable for the lucidity and care with which their views are expressed. I cannot but reflect how gratified the late Mr. Hinton would have been if his views and practices had been so fully recognised in his lifetime in a similar manner. Those who knew him will remember how persistently he advocated incision of the membrane in acute inflammation of the tympanic cavity, and how he became at one time enthusiastic on the subject of incision in cases of chronic catarrh when he suspected mucus in the tympanum. Without doubt he incised the membrane in these latter cases far more frequently than his more matured judgment approved of, and more than subsequent experience has justified, so that probably his enthusiasm in the latter class of cases may have prevented (and I believe did prevent) his correct views in the acute forms of inflammation being recognised at the time as they deserved to be. However, incision of the membrane when pus is believed to be within the tympanum has for many years been the established practice with surgeons. As far back as 1872, in a lecture delivered at St. George's Hospital, in advising that "so long as there is sufficient evidence of purulent matter in the tympanic cavity, there can be no question of the propriety of making an opening," and "to thus provide an exit for purulent matter in these cases is demanded by the recognised rules of surgery which guide us in similar instances," I was not enunciating any original view, but simply explaining the practice which has now for many years represented the routine amongst aural surgeons, so it was somewhat remarkable to find the observation of Mr. Field in the paper referred to (read at a meeting of the South Eastern Branch of the British Medical Association), that his attention was first drawn to this subject, in the case of infants, by the physicians. Still more startling is the statement that "I feel confident that every year, owing simply to the non-discovery of pent-up pus in the tympanic cavity, scores of children die or fall victims to chronic hydrocephalus, or complete idiocy." That they frequently die is of course well known, but if we are to accept this opinion in regard to hydrocephalus and complete idiocy, Mr. Field will, I am sure, forgive me saying that the accepted views of the pathology of hydrocephalus will have to be completely reconstructed, and at the same time additional idiot asylums to be constructed.

In my own experience I cannot recall a single instance in which inflammation of the tympanic cavity has produced either hydrocephalus or idiocy. Nor can I conceive the pathological processes which could lead to either when inflammation of the tympanum was the exciting cause, although of course I am familiar enough with its results in the way of meningitis, cerebral abscess, septicæmia, and deafness productive of deaf mutism.

Mr. Hinton was deeply impressed with the urgent necessity of affording relief by incising the membrane in the cases of young infants and children where the symptoms of otitis media simulate those of meningitis, and says "such cases are generally taken for affections of the brain, and all the time during which relief might be given and the ear saved from damage is lost." He then relates a case written by Dr. (now Sir Samuel) Wilks in great detail, of a child two years old, in which the inflammatory process within the tympanum lasted for four weeks before the membrane gave way first on one side, then on the other, with discharge and recovery. Before the discharge appeared the child "sometimes for a whole day did not sleep, and was wasted to a mere shadow." All the symptoms are mentioned—the restlessness, the throwing the head about, the screaming, temperature, etc.; but Dr. Wilks says "there were no symptoms

indicating any cerebral mischief," and Mr. Hinton writes, "it is a fortunate instance as regards its result: but how great a risk was run, and what, probably, needless pain endured!"

The real difficulty in these cases is to decide upon the precise period when the incision should be made. We are so often unaided by any physical signs in the membrane, and in dealing with an infant we cannot elicit the physical signs within the tympanum as we can do in the case of adults. Neither can we get the additional help by interrogation as regards sensations which point to fluid within the cavity of the tympanum. When there is added to this difficulty the additional one of the smallness of the parts (for it is an undoubted fact that the larger the canal and membrane the more complete is the illumination of the membrane, so is the greater facility of arriving at a correct estimate of the state of the tympanum), the subject is not without its difficulties. Let it be said at once that the physical appearances in the membrane are usually of no help in these cases, for they are often absent, and as frequently as not the most that can be seen to be abnormal are the appearances showing a closed Eustachian tube, and perhaps some congestion of the vessels.

In the case of infants, then, the constitutional symptoms and the demeanour of the little patient as indicating pain of an acute and agonising character, or pain prolonged over many days, are the sole evidences within our hands. The screaming, the turning about of the head, the sleeplessness, the general illness which oftentimes we are helpless to relieve, make these cases distressing beyond measure to those who are witnesses of them. Taken alone the heightened temperature is an insufficient guide, for in all cases of pain in the ear in children depending on slight inflammation or even congestion of the tympanum, the temperature at once rises considerably.

In the large proportion of cases leeches and hot fomentations will cut short inflammations of the tympanic cavity, but it would be safe to adopt the rule that when they do not (for if they relieve they do so at once) a vertical incision should be made in the posterior section of the membrane; a rule, of course, subject to the general aspect of the case.

As Dr. Barlow very justly observes, the operation does no harm, although there may not be any pus to provide an exit for, and it should not be forgotten that it was Hinton who demonstrated this. For in this lies the justification for the procedure, as nothing is more certain than that there may be pus within the tympanum associated with an absence of physical signs of its presence in the case of infants. In order to estimate properly the fact, in order also to estimate the exceeding difficulty of offering the same kind of relief in cases of scarlet fever, measles, typhoid, etc., the character of the various courses which inflammation of the tympanum pursues, must be studied closely.

In the infantile forms of this inflammation (not connected with the exanthemata) the process is often slow, subacute, the case dragging on day after day without the membrane giving way. I have quoted the case (by Sir S. Wilks) in which perforation by ulceration was delayed for four weeks as an example, although personally I have never known the membrane to resist for over two weeks. But when we come to consider the cases of scarlet fever, measles, or the like, we ought always, theoretically, to be able to prevent the ulcerative process by incising the membrane. Practically, however, this is more frequently than not quite impossible, and for this reason. Perhaps in the evening the ear is not involved, and before morning breaks the inflammation has commenced, and the membranes, or one membrane, is perforated, so rapid is the process. Or, again, in the desquamating stage the same rapid ulceration will take place. The damage will be done before the surgeon can be called in. And, indeed, the graver symptoms very naturally absorb the attention of the attendant. In the case of adults whose tympanic cavities are inflamed, the whole subject is inordinately more simple and relief more feasible. It is easy enough to estimate the presence or absence of secretion within the tympanum, for the passing of air into the tympanic cavity gives the characteristic moist *râle* (through the otoscope) indicative of secretion. Also when the pressure of fluid has been brought to work changes in the aspect of the membrane, such as a discoloration in a circumscribed spot,

or a generally sodden appearance, no further indication is required.

In passing, it may be said that when this sodden appearance is present, and the knife cuts not crisply but as if passing through soaked blotting-paper, the opening thus made is frequently permanent, or at any rate remains for long periods; for the membrane has become so disorganised as to impair its tendency to repair.

ACUTE SUPPURATIVE MIDDLE-EAR DISEASE IN INFANCY.

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I HAVE had during the last three months under my care four cases of acute suppurative middle-ear disease in young infants. The children were all under 6 months of age, and in none of the cases was there any history of specific fever, diphtheria, or injury to account for the onset of the disease.

The earliest symptoms were restlessness, vomiting, refusal of food, and feverishness. In 2 of the cases the abdomen had been carefully poulticed and teething powders administered under medical directions. One of the cases simulated acute meningitis, and in another no treatment had been applied to the ear until the child was brought to me suffering from complete unilateral facial paralysis. In this case the onset had been insidious, constitutional disturbance being less marked. The discharge had in all the cases been going on for some weeks previously; the pus was foetid and occasionally sanious.

It was, of course, impossible in infants so young to test the hearing power. Examination with the speculum showed that in three of the cases the disease was unilateral in the remaining one it was bilateral. The membrana tympani was perforated in all the cases, and in two Shrapnell's membrane was involved.

In the case attended by facial paralysis the whole of the tympanic membrane seemed to be destroyed, none of the ossicles were visible, and the middle ear was filled with highly vascular granulation tissue, from amongst which pus was freely oozing. Tenderness and "egg shell crackling" were well marked on pressure over the mastoid. There was also secondary corneal ulceration on the same side.

Under these circumstances I at once freely opened the mastoid antrum and scraped away a quantity of granulation tissue and *débris*, from which the bleeding was fairly free, and, finally, I gently syringed through a warm saturated solution of boracic acid, plugged the antrum, wound, and ear with iodoform gauze, and dressed with absorbent iodoform wool. There was no difficulty in opening the antrum, a mere shell of bone constituting the outer wall. The result was satisfactory; the discharge is rapidly ceasing, the granulation tissue has not returned, and the facial paralysis is slowly recovering.

In the other case of attic suppuration, I washed it out daily through the perforation by means of an intratympanic syringe, after previously removing a polypus. Izal lotion was used as being a comparatively unirritating but powerful antiseptic, after carefully drying out with iodoform wool a few crystals of acetanilide were insufflated. Acetanilide reduces the amount of discharge, keeps the cavity sweet, and does not form an impervious scab like iodoform.

In the remaining two cases, including the bilateral one, the perforation was situated below and behind the handle of the malleus and was of the "pinhole" type. Gentle daily irrigation with izal lotion, and insufflation of acetanilide resulted in a speedy cure.

These cases are, I think, of interest as showing how acute primary inflammation of the middle ear may give rise to grave errors of diagnosis, the case frequently being mistaken for one of acute primary meningitis, acute gastro-enteritis, or teething fits, and much valuable time may be lost whilst the abdomen is being carefully poulticed or the gums lanced.

The early symptoms which should suggest the ear as the cause of the illness are

1. The child constantly endeavours to rub the affected ear.

2. It utters a sharp cry of pain on pressure being made below the meatus.

3. It refuses to rest its head on the affected side.

The onset of convulsions usually indicates severe cerebral hyperæmia, retracted head, followed by coma; actual meningeal inflammation usually by extension. It is during the early stage that the greatest benefit follows from the use of Politzer's bag with warm instillations.

Field states that the bag is not requisite for young children—blowing into the nostrils through a piece of rubber tubing is amply sufficient. Paracentesis is indicated if there is bulging of the membrane. Poultices only tend to increase the suppuration and so promote rupture of the membrane.

The rapid cure which follows on the use of thorough cleanliness and mild antiseptics and astringents suggests that in the majority of these cases the disease is primarily an acute catarrhal inflammation of the mucous membrane of the middle ear, which owing to the tension of retained secretion becomes suppurative. In some no doubt is it primarily tuberculous.

Milligan in the *Medical Annual* for 1896 points out the extreme difficulty of microscopically demonstrating the presence of tubercle bacilli either in the discharge from the ear or in the scrapings removed after opening the mastoid, subcutaneous inoculations being usually required to establish a definite diagnosis.

The clinical signs which would suggest that the lesion had a tuberculous origin are: (1) A slow non-sthenic onset; (2) early glandular enlargement; (3) early facial paralysis; (4) resistance to the ordinary measures of treatment; (5) the presence of other tuberculous disease. These cases require the establishment of a free opening into the middle ear through the mastoid.

TWO CASES OF ABDOMINAL OPERATION IN EARLY CHILDHOOD.

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THE two following cases, in one of which I performed laparotomy for suppurating ovarian cyst in an infant, and in the other nephrectomy in a child under 4 years, will, I believe, be read with interest, partly because the first case is an example of an extremely rare condition in an infant, and partly because they show that abdominal operations may be undertaken even in very young children with good prospect of success.

CASE I. Suppurating Ovarian Cyst in an Infant aged 22 months: Removal: Recovery.—A. W., aged 1 year and 10 months, a pale, weakly child, with an enlarged abdomen, had been ill from birth, and for the last fourteen days had suffered from diarrhoea. She came under the care of my colleague Dr. Carpenter at the Evelina Hospital, to whose kindness I was indebted for the case. He noticed a swelling in the right iliac region, and on making a systematic rectal examination under chloroform, found a tumour about the size of a tangerine orange. It lay to the right of the uterus, with which it appeared to be connected, was freely movable, could be carried to the middle line, fluctuated, and no attachment could be detected above it. The right ovary could not be made out, but the left was normal in size and position.

There were well-marked Parrot's nodes around the bregma, and the spleen was distinctly enlarged. No other evidences of congenital syphilis existed. The child was admitted under my care on July 1st, 1895. A few days later Dr. Carpenter and myself made another examination under chloroform. When the abdominal muscles were relaxed by the anæsthetic, a tumour could be distinctly felt through the abdominal parietes. From its position, its relation to the uterus (which could be clearly made out through the rectum), and from the presence of fluctuation and some pyrexia a diagnosis of pyosalpinx was made. The child had slight bronchitis, and, as some suspicions of tuberculosis were entertained, it was decided to watch the case. Within the next few weeks she continued to suffer from cough, and had occasional rises of temperature. The highest point reached was 102.5° F. Later, her general condition having improved and the tumour being distinctly larger, it was decided to operate.

On August 13th, the child being under A.C.E., I opened the abdomen in the middle line and came down on a smooth elastic rounded swelling occupying the right side of the pelvis, and attached by many firm adhesions to the surrounding structures. Adhesions connecting it with the cæcum, the bladder, and the rectum were separated by tearing and by the use of the scalpel. After detaching the cyst it was drawn into the wound and punctured with a trocar, which let out some foul-smelling pus. After closing the puncture with forceps the pedicle was secured with silk in the usual manner close to the uterus, and the cyst removed. A glass drainage tube was inserted and the wound closed. There was little shock, no sickness, and no rise of temperature after the operation.