

does not respond well to ordinary measures. They will probably furnish us a means of attacking post-operative foci, such as an infected ureter stump, which are difficult otherwise to clear up. In cystitis, in a limited number of cases, they offer a less troublesome, possibly a more rapid, therapy than that by irrigations and urinary antiseptics.

Clinical Department.

PERSISTENT VOMITING OF PREGNANCY.

BY F. W. JOHNSON, M.D.,

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DECEMBER, 1907, Mrs. A. H. entered the Carney Hospital two months pregnant. She had been vomiting pretty constantly for the three weeks previous to entering. At the time of entrance there was constant nausea, with inability to keep anything in the stomach. There was an appetite. The bowels were constipated. Water and all nourishment was stopped by the mouth. Every two hours a minim of iodine and creosote in ten minims of water were dropped on the tongue. In two days vomiting had ceased entirely and nourishment was begun by the mouth. There was no more vomiting and she went without further trouble to full term.

April, 1910, she again entered the hospital three months pregnant. For ten days there had been constant nausea and inability to retain anything in the stomach. Water and all nourishment was stopped by the mouth. Oxalate of cerium was tried with no good result; then 5 gr. of Burrough's Welcome & Co.'s thyroid extract was tried by the mouth every eight hours with little improvement. The extract seemed to cause nausea. Five gr. of the extract were then given subcutaneously every eight hours with immediate relief.

Medical Progress.

REPORT ON PROGRESS IN OTOTOLOGY.*

BY HARRIS PEYTON MOSHER, M.D., BOSTON.

(Continued from No. 11, p. 440.)

INTRACRANIAL COMPLICATIONS OF OTITIS MEDIA.

THE symptoms and treatment of brain abscess are given. In serous meningitis, which McKernon⁸ says is not an infrequent complication of extensive mastoid or sinus disease, lumbar puncture is given as an important aid in both diagnosis and treatment. In purulent leptomeningitis, early operation and drainage are the most hopeful measures. Cushing's suggestion of the use of urotropin to render sterile the micro-organisms is emphasized.

CEREBRAL ABSCESS.

Taylor⁷ discusses cerebral and cerebellar abscesses and particularly makes the point that, in these days of diagnostic lumbar puncture, great caution must be displayed in using it, in

* In compiling this Report on Progress in Otology for the last year the reviewer has made extended use of the *Index Medicus*; of nose, throat and ear literature compiled and published by the editor of the *Laryngoscope* in the issue of March, 1910. The reviewer wishes to thank Dr. Goldstein for his admirable and most useful publication.

⁸ J. F. McKernon: Jour. Am. Med. Asso., Jan. 9, 1909.

⁷ W. Taylor: Med. Press and Circ., Jan. 20, 1909.

the presence of cerebral or cerebellar abscess, lest the altered conditions of tension lead to rupture of the abscess into the membranes.

OTITIC BRAIN ABSCESS.

Sachs and Berg⁸ discuss in this article the difficulties of brain abscess with special reference to drainage. Localization is most common in the temporosphenoidal lobes or in the cerebellum. If in the former, there will be, in addition to general symptoms, headache, somnolence, nausea and vomiting and slight optic neuritis, some hemiparesis and impairment of speech perception. Sensory aphasia is a common accompaniment of otitic brain abscess in the temporosphenoidal lobes. Right temporosphenoidal abscess is sometimes associated with dysarthria, not with sensory aphasia. Abscess in the cerebellum, in addition to general abscess symptoms, may show cerebellar ataxia, diminution or increase of deep reflexes, abducens paresis, acoustic nerve symptoms and possibly cerebellar seizures. The motor area is rarely the seat of otitic brain abscess, wherefore the author's second case reported in this article is important because it proves that an undoubted otitic abscess may involve the motor area. The three main considerations from a surgical standpoint are: (1) A wide exposure of the area of the brain in which the abscess is supposed to lie. This is best done by raising an osteoplastic flap. (2) A most important consideration is the protection of the meninges against infection by the purulent contents of the abscess cavity. If this lies near to the cortex of the brain, or on it, it is more than likely that the meninges will be protected from infection by a barrier of natural adhesions that have formed before the operation is done. These are the most favorable cases for surgical interference. (3) Proper drainage of the abscess cavity. Here we must remember that there are two entirely different kinds of abscess cavities in the brain—one with soft walls that readily collapse when the contained pus is evacuated, and the other with rigid walls that show no tendency to fall together and that must be obliterated by the slow process of granulation. In the former, all that is required is the establishment of drainage by a thin slip of rubber tissue at the most dependent point of the cavity. In the latter, the drainage must be by a tube of some kind, whether rubber, decalcified bone or other material, according to the choice of the operator. This tube must be inserted at the lowest point of the abscess cavity, otherwise there is bound to be retention of pus.

CEREBRAL SURGERY.⁹

The special points of technic on which he lays stress are, first, the anesthesia, with the complete shutting off of the anesthetist from the operative field, which he accomplishes by means of an arrangement of the operative sheets that completely cuts off the anesthetist. He secures

⁸ B. Sachs and A. A. Berg: Med. Rec., Jan. 23, 1909.

⁹ H. Cushing: Jour. Am. Med. Asso., Jan. 10, 1909.

free respiration in the prone position by a special form of outrigger to the operative table. The continuous auscultation by the anesthetist of the cardiac and respiratory action is also provided for by a phonendoscope attached to the patient's chest by adhesive strips and connected with the anesthetist's ear by a device like the head gear of a telephone operator. This he considers especially important. The next thing mentioned is the subtemporal decompression trepanation as an early measure in case of possible brain tumor that cannot be exactly localized. This is performed in a safe area and is often of itself sufficient to relieve symptoms. If localizing signs appear later, the removal operation can be performed. While in tumors above the cerebellum lumbar drainage is invaluable, Cushing calls particular attention to the dangers of lumbar puncture in cases of subtentorial tumors, from forcing down the brain substance into the spinal canal. The possibility of an unsuspected cerebellar growth, he thinks, should always be kept in mind, and the puncture not made unless the dura is exposed and ready for immediate opening in case medullary symptoms supervene. This leads him to speak of the value of a bilateral opening with wide exposure in other cases of growths difficult of access, which is also useful in preventing compression or mutilation of cerebral tissue in operation. In the older high operations for removal of Gasserian ganglion, there was also much of compression and contusion of the temporal lobe, although no tumor was already compressing the brain, and Cushing gives special cautions for this procedure. He is able to report seventy-four operations with only two deaths, and he prefers the simple evulsion from the pons of the sensory root alone, leaving the ganglion in its bed with a half-inch gap between its hinder border and the original pontine attachment, a gap he thinks not likely to be bridged, even admitting the possibility of a central regeneration.

CRANIAL TECHNIC.

Dr. Hartley¹⁰ enumerates the following as the prime requisites for avoiding the dangers of shock and sepsis in operations on the brain: (1) Instruments which will open the skull quickly over any desired area and to any extent. These are the motor, saw and guard, osteotome, drill, fraise and measure. (2) A method of cranio-cerebral topography permitting an accurate exposure of the desired area. Chipault's is the best method, as it is adapted to the skull of all ages, races or individual peculiarities. (3) Osteoplastic flaps cut so that they will expose the desired area in the easiest manner. (4) The replacing of the bone flap in every possible case, or covering the defect with an accurately fitting foreign material (celluloid or aluminum). He prefers autoplasty when possible. (5) The most perfect hemostasis in the preliminary as well as in the final steps of the operation. The opera-

tion he divides into two steps, the first concerned only with the skull, the final with the dura and brain. All drugs should be given up several days before operating, and a record of pulse-rate and blood pressure should be taken twenty-four hours before operation. The patient's head is raised on the table between 15 and 30°, which Hartley has found sufficient to stop venous bleeding and lower arterial pressure. He has not been able to compare the effects of Crile's rubber suit and carotid compression or of Dabarn's sequestration-anemia with this, but if they will improve the arterial pressure better than elevation and with no greater danger of inducing sudden syncope, he will certainly use them. During the operation he would have the blood pressure recorded by the anesthetist by a sphygmomanometer on the arm, as a sudden fall will warn the operator of any impending sudden collapse and will probably enable us to avoid the 25% of sudden deaths following prolonged operation. The details of the operation are given and the necessity of careful hemostasis during the second stage emphasized, as well as the importance of avoiding infection of the lateral ventricles. Possible later complications are: (1) Shock, in prolonged operations with hemorrhage or after large tumors have been removed and the cerebral statics disturbed by the space left. In such case the acute cerebral edema of Von Bergmann occurs. To avoid this Hartley tampons and gives counter pressure through the flap. (2) Hyperpyrexia: This occurs after both severe and moderate handling of the brain, especially if the ventricles have been opened, and is due to toxicity of the neoplasm secretion, infection, or irritation of thermic centers in the bulb. (3) Encephalomeningitis may be due to injury or to infection from the patient's blood or without. It usually appears during the first month after operation, coming on slowly, with localized convulsions, contractures, paralysis, somnolence, mental torpor or delirium. (4) Hernia may be present at the time of operation as a tumor of the base or as a voluminous tumor of the centrum ovale, or at a later period in the form of encephalitis.

THE PHYSIOLOGY AND PSYCHOLOGY OF HEARING, WITH SPECIAL REFERENCE TO DEVELOPMENT OF SPEECH.¹¹

How are sound waves transmitted from the labyrinthine fluid to the auditory nerve, and what particular changes take place in them during this transmission? Helmholtz was the first to offer any definite solution to these problems, and for many years his resonance or piano-string theory was accepted as being the most satisfactory. At first he thought that the rods of Corti respond to different notes, as do the strings of a piano, but when it was shown that some animals have no rods, he transferred this function to the fibers of the basilar membrane. It was supposed that this membrane, because of its position and peculiar

¹⁰ F. Hartley: Jour. Am. Med. Asso., Jan. 9, 1909.

¹¹ G. Hudson-Makuen: Laryngoscope, vol. xx, no. 6, p. 612, June, 1910.

structure, served the purpose of receiving the sound waves, selecting them according to their adaptation to its transverse fibers, which increase in length from the base of the cochlea to its apex; that the high tones were perceived by the shorter fibers at the base and the lower ones by the correspondingly longer ones towards the apex, and that the responsive vibrations were taken up by the hair cells resting upon the membrane, where they were changed into impulses suitable for conduction by the auditory nerve to the hearing center of the brain.

This was an ingenious theory, but it has not stood the test of time, for neither in its structure nor in its size has the basilar membrane been found to meet the requirements which Helmholtz imposed upon it. The transverse fibers are not sufficiently numerous to produce the range of pitch that the human ear is capable of perceiving, and their disposition in relation to the longitudinal fibers and various blood vessels makes it physically impossible for them to vibrate after the manner of piano strings. Moreover, it has been found that the membrane does not extend to the lowermost part of the cochlea and that the hair cells in this region do not come in contact with it, and, therefore, cannot transmit its vibrations to the neuro-epithelial cells, where they are supposed to be transformed into nerve impulses.

This latter objection to the piano-string theory seems also to be opposed to the so-called telephone theory, which regards the basilar membrane as a kind of second drum membrane between which and the tectorial membrane the so-called "pressure patterns" are made which impart their vibratory motions to the hair cells. This theory supposes that the analysis of tone or the perception of pitch takes place in the cerebral cortex, while the piano-string theory locates this function in the cochlea.

In addition to the anatomical objections to the two basilar membrane theories which have mentioned, there seems to be good phylogenetic, ontogenetic and histological reasons for the entire abandonment of this membrane as a conspicuous factor in the transmission and perception of tone and for the substitution of the tectorial membrane in its stead. On account of the extreme delicacy of the tectorial membrane, however, the difficulties of demonstrating absolutely the exact manner in which it performs this function are almost insurmountable, and we can only say that it appears in all respects to be better adapted to the functions which have been described.

AURAL COMPLICATIONS IN THE EXANTHEMATA.

The author¹² concludes his paper as follows: In scarlet fever, children are quite liable to middle-ear inflammation which may or may not involve the mastoid cells. Adults are much less so, and rarely have mastoiditis. In measles, both adults and children are very susceptible to middle-ear involvements, and adults are especially in danger of mastoiditis. In cases where a tremendous aural discharge is present for more than two or three

weeks, the mastoid operation should be seriously considered as a means of providing drainage, since it is more efficient than a small pin-hole perforation in the delicate membrana tympani. Occasionally a case will arise in which the diagnosis may be difficult. If after carefully ruling out every other possible cause by exclusion, the mastoid remains in doubt, and the symptoms of the patient are at all serious, it is better to operate. The danger is greater from waiting. If after the acute symptoms of scarlet fever and measles have subsided, pus in the middle ear is kept active by profuse nasal or nasopharyngeal discharges, the physician should examine the patient for adenoids. If these growths are present, they should be removed. This procedure in the course of diphtheria, however, is questionable.

STUDY OF THE EUSTACHIAN TUBE IN ITS RELATION TO THE RADICAL MASTOID OPERATION.

Oppenheimer¹³ states that, in order to remove all sources of infection in the radical mastoid operation, the tympanic end of the Eustachian tube should be made surgically clean by causing its obliteration. This may be done at the time of the operation or during the after-treatment. When curetting the tube during the operation, small oval or round curettes should be used, so that they can pass into the mouth of the tube. As far as possible all diseased bone and diseased mucous membrane should be removed. Great care, however, should be exercised in doing this in the region of the carotid canal as dehiscences may be present and the artery injured seriously. If skin grafting be employed at the radical operation, the epidermis should be forced well into the tube so that the parts of the tube which have been deprived of their mucous membrane by the curetting will be thoroughly covered.

PURULENT DISEASES OF THE EUSTACHIAN TUBE.

The author¹⁴ concludes as follows: Those cases of middle-ear suppuration in which the perforation is situated in the anterior inferior part of the drum membrane, and which have been considered to be due to disease situated around the tympanic orifice of the tube, or to nasopharyngeal disease, are in reality due to suppuration of the tube itself and should be called "tuborrhoea." This condition is characterized by a wide open tube, due to relaxation. Such cases should be treated by irrigation of the tube through the Eustachian catheter. The relaxed tube is treated by passing a roughened bougie through it and by massaging it. Reinfection is apt to occur, but it responds readily to a repetition of the treatment.

THE ISTHMUS OF THE EUSTACHIAN TUBE. A CONTRIBUTION TO THE PATHOLOGY AND TREATMENT OF MIDDLE EAR DISEASES.

Yankauer,¹⁵ in an exhaustive article on the isthmus of the Eustachian tube, makes the follow-

¹² S. Oppenheimer: *Med. Rec.*, Dec. 25, 1909.

¹⁴ E. Urbantschitsch: *Monatsschr. für Ohrenh.*, vol. xliii, heft. 7, 1909.

¹⁵ Sidney Yankauer, M.D., New York: *Laryngoscope*, July, 1910, pp. 675-718.

¹³ C. R. C. Borden: *Ann. Otol., Rhinol. and Laryngol.*, September, 1909.

ing points: The pharyngeal portion of the Eustachian tube is homologous with the nasopharynx and must be considered a part of it. The tympanic portion of the tube is homologous with the tympanic cavity, and it should be regarded as a part of it. The portion of the Eustachian tube previously known as the bony portion could be called appropriately the pretympaanum. The most important part of the tube is the isthmus. This may be reached for diagnostic or operative purposes first from the pharyngeal side through the Eustachian catheter and, second, through the external auditory canal through an incision made for this purpose in the anterior inferior part of the drum membrane or through a perforation previously existing as a result of disease.

After making these statements Yankauer describes the method of reaching the Eustachian tube through the catheter and describes and figures his applicators and sounds. By means of an applicator he applies cocaine and adrenalin to the tube and then dilates with bougies if a stricture is present, or, if acute or subacute inflammation of the mucous membrane exists, applies argyrol in solutions as high as 50%. In acute inflammation of the middle ear he has opened up the Eustachian tube in this manner and medicated it and feels that he has aborted a certain number of cases of impending suppuration. Following this procedure he states that there is immediate cessation of the throbbing earache and tinnitus. If the inflammation be of a mild degree, or if the case is seen in its earliest stages, before redness and bulging of the drum membrane are present, the relief obtained will be permanent and the disease will be brought to an immediate and abrupt termination, often by one application. In the terminal stages of acute otitis media, when the discharge has ceased and the perforation has closed, but when deafness, tinnitus and fullness in the ears persist, the use of intratubal applications of argyrol yield prompt and definite results. In subacute inflammation of the middle ear, especially those cases characterized by serous or seromucous fluid in the tympanic cavity, cases which have hitherto been found to be obstinate under the usual methods of treatment, the application of argyrol has been found to be very efficacious. The writer has devised a routine plan of treatment of the isthmus of the tube, which may be summed up as follows: (1) The application of cocaine and adrenalin solution to the region just beyond the isthmus. (2) The passage of the largest possible sound and its retention for five or ten minutes. (3) The application of a 50% solution of argyrol to the region beyond the isthmus. (4) The inflation and deflation of the middle ear.

Feeling that strictures of the Eustachian tube could be dealt with best through the external auditory canal, and arguing from the fact that when the radical mastoid operation fails to cure suppuration the fault usually lies in a failure to close the Eustachian tube, Yankauer proceeded to close the tube at the isthmus in a number of cases of chronic suppuration of the middle ear. Some of the cases had been advised to have the radical

operation performed, but had refused. In these cases there was no operative middle-ear treatment beyond the removal of polyps, so that the procedure of closing off the Eustachian tube at the isthmus could be more easily carried out. Some 21 cases were operated upon, and of these 13 were cured. Of these, 12 were examined a month before the paper was written and were found to have remained well, 2 for three months, 1 for seven months, and the rest for one to two years. In many cases of chronic middle-ear suppuration, therefore, Yankauer believes that the tube is a more important factor in keeping up chronic middle-ear suppuration than necrosis of the ossicles or even disease of the mastoid antrum. His recorded cases certainly seem to bear out his view, and it is to be hoped that his results will be substantiated immediately by other observers.

Yankauer closes the Eustachian tube by working through the external auditory canal. By experimental work upon the cadaver he has devised appropriate instruments for the procedure.

The paper ends with a striking observation. After closure of the Eustachian tube at the isthmus, Yankauer found that existing perforations in the drum not only failed to heal, but actually grew larger. With this observation in mind he operated upon several cases of otosclerosis, hoping that by letting more sound waves in upon the stapes the hearing would improve. This he found to be true. The new point in his cases, however, was the fact that the perforations made in the drum did not close as they invariably did in the older experiments of a similar nature, but they remained open. This is an observation the clinical importance of which is very considerable.

(To be continued.)

Reports of Societies.

THE AMERICAN DERMATOLOGICAL ASSOCIATION.

THIRTY-FOURTH ANNUAL MEETING, HELD AT THE ARLINGTON HOTEL, WASHINGTON, D. C., MAY 3, 4 AND 5, 1910.

FIRST DAY, TUESDAY, MAY 3.

(Concluded from No. 11, p. 444.)

MYCOSIS FUNGOIDES, WITH REPORT OF A CASE.

DR. LUCIUS C. PARDEE and DR. ROBERT F. ZEIT, of Chicago. In summing up the various features presented in this report, the authors said there could scarcely be any doubt that the case was clinically one of mycosis fungoides. All the classical features of this disease, as described by numerous observers, were present. The premycotic or prefungoid stage was marked and extended over a known period of at least two years. The lesions at that time were typical of the well-known erythematous form and were accompanied by the usual intense pruritus. These were followed in the course of time by the formation of fungoid tumor masses on various portions of the body which macroscopically had the aspect ordinarily described as that of small round-