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irregular white patches of membrane and red raw areas; various areas of mucosa became affected. The eyes became affected and the patient is now blind: eyeballs shrivelled: closure of nostrils. Duration five years.

Demonstration of Specimens showing Comparative Anatomy of the Membranous Labyrinth—Dr A. A. GRAY.

Model to Demonstrate Movements of Endolymph in the Semicircular Canals during Rotation Tests—Dr J. D. LITHGOW.

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The Innervation of the Tensor Veli Palati and Levator Veli Palati Muscles. A. R. RICH. (*Johns Hopkins Hospital Bulletin*, Sept. 1920.)

While studying the physiological relation of the palatal muscles to the Eustachian tube (see abstract in *Journal of Laryngology and Otology* last month), the author discovered in the literature dealing with the nerve supplies of those muscles so great a variety of conflicting opinions that he proceeded to investigate the matter by experiments on dogs.

The tensor veli palati and levator veli palati muscles having been exposed, with their nerve supplies intact, by dissection in the living animal, the various cranial nerves were stimulated within the skull while the naked muscles were observed, and it was determined that:—

1. The fifth nerve is the only cranial nerve which supplies motor fibres to the tensor veli palati muscle. The failure of most clinical observers to detect paralysis of the palate in cases of disease of the fifth nerve arises from the fact that the tensor veli palati exerts, ordinarily, no effect upon the soft palate that can be detected by oral examination.

2. The method of intracranial stimulation, combined with experimental paralysis of the muscle produced by nerve section, places the motor supply of the levator veli palati muscle in the so-called bulbar portion of the eleventh nerve, or rather, in the inferior rootlets of the tenth nerve, since the bulbar portion of the eleventh nerve has been shown to be really an integral part of the vagus.

DOUGLAS GUTHRIE.

Abstracts

Lateral Sinus Thrombosis. CHRISTIAN R. HOLMES and HENRY M. GOODYEAR. (*The Laryngoscope*, 1920, Vol. xxx., p. 1.)

CASE I.—Male, aged 23 years, chronic suppurative otitis media since measles at 5 years. No mastoid tenderness. Anterior perforation, posterior half red and bulging. Myringotomy done. Temperature 103.6. On the fourth day chilly sensation. Temperature 104, with profuse sweat. Leucocytes 25,400; 81 per cent. polymorphonuclears. Blood culture sterile. Radical mastoidectomy; cholesteatoma in antrum; no exposure of sinus. Second day after operation temperature 104.2; severe chill. This recurred several times before further operation was performed. Dura over the temporal lobe was found to be necrotic and perforated. An intradural abscess was drained. Exploration of the sinus was not attempted. The hectic temperature continued. On the fourth day following the operation, patient suddenly developed pain in the left upper abdomen. Autopsy; superficial cerebral abscess, involving the temporal and occipital areas. Double lateral sinus thrombosis which had extended from the left side. The left jugular bulb showed necrosis. Septic infarction of lung. Streptococcus hæmolyticus was obtained from all lesions.

CASE II.—Male, 28 years, admitted with cough, pain in chest, and temperature 103°. Drum-head red and bulging; myringotomy. No mastoid tenderness. Two days later temperature 100.4°, tenderness over the antrum. Second myringotomy. Simple mastoidectomy. Perisinus abscess. Sinus was not opened but presented a grey colour. The following afternoon temperature rose to 102°; chilly sensations; sudden onset of delirium; breathing became stertorous and death occurred. Necropsy revealed a fibrino-purulent thrombus of the right lateral sinus. Here again the streptococcus hæmolyticus was the infective organism.

CASE III.—Male, aged 23, cough, pain in chest for three days, temperature 104.2°. Bronchial pneumonia. Within seven days temperature normal and lungs rapidly cleared. Eleven days after admission pain in right ear, temperature of 103°; myringotomy. Two days later mastoid tenderness with œdema and sagging. Simple mastoidectomy (streptococcus hæmolyticus); sinus covered with granulations. Eleven days later, temperature rose to 104°, with pain in the abdomen. During the next few days temperature rose each afternoon to 103°. Blood culture sterile. Chilly sensations occurred and profuse sweats. Blood culture at last showed hæmolytic streptococcus. Jugular ligation and section was done, followed by exenteration of a thrombus from the sinus. On the day following, headache developed. For twelve days the patient kept under morphin. Pulse slow, nausea and vomiting. Seven days after the jugular resection there was evidence of marked engorgement of

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both of the discs. Sight blurred. Later headache ceased. Holmes and Goodyear think that the headache was due to perisinus inflammation, because upon moving the gauge plugs in the region of the jugular bulb excruciating pain occurred in the occipital and temporal region.

CASE IV.—Male, aged 21 years; sore throat. Tonsils inflamed (hæmolytic streptococci). Five days after admission, pain in left ear; myringotomy; temperature 104°. Simple mastoidectomy; perisinus abscess; grey area in the wall of the sinus. Twelve hours later signs of meningeal irritation (restlessness and delirium). Blood culture showed hæmolytic streptococcus. Jugular ligation followed by exposure of the sinus. Thrombosis extended to torcular. During the next two days the temperature rose to 105° and 106°. Metastatic abscesses over right elbow and back of the right hand. Pericarditis developed, followed by bronchial pneumonia and pleural effusion. Recovery.

CASE V.—Male, aged 26 years; acute coryza, and tonsillitis (hæmolytic streptococci); broncho-pneumonia developed with pain in right ear and mastoid tenderness. Myringotomy. Mastoid tenderness continued; temperature rose to 104°. Simple mastoidectomy; sinus normal. Temperature remained 103°. Blood culture showed hæmolytic streptococcus. A severe chill occurred. Second operation revealed perisinus abscess. Internal jugular ligated. The thrombosis did not appear to completely occlude the vessel. Next day severe chill with temperature of 106.6°. The temperature, however, gradually dropped. Uneventful recovery.

J. S. FRASER.

Some Remarks on Cranial Sinus Thrombosis in Children.

S. OPPENHEIMER. (*Archives of Pediatrics*, Jan. 1920.)

The greatest problem of this disease is not the etiology or operative treatment, but the diagnosis.

There are two varieties of thrombosis, the primary or marasmic which occurs in weakly individuals at the extremes of life, and is seldom diagnosed outside of the post-mortem room, and the secondary or infective variety which is most frequently the result of an ear lesion.

The lateral sinus, usually on the right side, is most commonly involved, and males are more susceptible than females.

As regards the relative frequency, about 35 per cent. of all intracranial complications of otitic origin are of the nature of sinus thrombosis.

The writer proceeds to describe the anatomical arrangement of the cerebral veins, and of the temporal bone in early life. The jugular bulb lies close to the tympanic floor, and infection may readily pass through the dehiscences in the bone.

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The symptoms are fairly constant, but may be masked by those of the acute infectious disease of which the otitis is a complication. Chief of all symptoms is a sudden and rapid rise of temperature to above 104°, followed by an equally precipitous decline. There is no distinct rigor, but the hands and feet may be cold as the temperature rises.

The temperature, however, is a less reliable guide in the child than in the adult, and may be steadily high rather than remittent. In suspected cases a two-hourly chart should be kept, lest a sudden rise and fall be missed, especially as the general condition of the patient in the intervals may be so good as to throw one off one's guard.

Epistaxis is frequent, and another sign of diagnostic import is the presence of post-mastoidal oedema, the result of blocking of the emissary vein.

A high temperature, continuing for several days after a mastoid operation, demands prompt exploration of the lateral sinus. Too much stress must not be laid upon a negative blood culture. The streptococcus was the infecting organism in each of the author's 150 cases. When suggestive symptoms were present after a mastoid operation at which the pneumococcus was found to be the infecting agent, sinus thrombosis was never found, but some other complication, such as pneumonia, accounted for the fever.

Prognosis depends upon the stage at which the disease has been recognised. The earlier the operation, the lower the mortality. When the torcular or bulb has been involved, or metastases have appeared, the outlook is very grave.

To secure good results, the pediatrician must co-operate with the otologist in establishing an early diagnosis. DOUGLAS GUTHRIE.

Cerebellar Abscess. CLARENCE KEELER. (*The Laryngoscope*, 1920, Vol. xxx., p. 143.)

Male, aged 35, in childhood had measles complicated by purulent otitis media (right). The discharge has been constant since 1914 and accompanied by dizziness. In April 1919 there was paralysis of the muscles of the right eye, the right side of the face and tongue, and of the right leg. Upon admission, temperature 97-98. The paralysis had disappeared but he was suffering from severe occipital headache, projectile vomiting, and had a peculiar enunciation. Some atrophy of the right leg. Knee-jerk more marked on the right side. Disc margins slightly blurred. X-ray shows the mastoid sclerotic with a bone defect in the antral region communicating with the meatus. The right labyrinth and the eighth nerve were functionally dead. Spontaneous nystagmus to right, left, up and down. Spontaneous past-pointing 3 inches to the right and 2 inches high. He falls backward and

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to the right. Stimulation of the horizontal semicircular canals by rotation showed he was unable to past-point inward with his right and left arm, indicating involvement of the inward pointing centres of the right and left arms in the corresponding cerebellar hemispheres (left centre involved by pressure). *Operation*—Radical mastoid with evacuation of a cerebellar abscess. The labyrinth appeared in the wound as a sequestrum. The lateral sinus had become obliterated. Recovery.

J. S. FRASER.

The Surgical Treatment of Brain Abscess. A. W. ADSON (Mayo Clinic). (*Journ. Amer. Med. Assoc.*, 21st August 1920.)

This paper is a study of 26 cases of brain abscess occurring in the Mayo Clinic in the last five years. The diagnosis was verified by operation or post-mortem in 23 cases. Of 17 non-surgical cases 7 died during the period of observation, and 7 had previous operations for lung abscess, bronchiectasis, etc. Two of these recovered. Nine cases were operated on, and of these 5 recovered while 4 died soon after the operation.

With regard to the causes, 5 were due to otitis media, 6 to frontal sinusitis, 2 to frontal sinusitis with osteomyelitis, 4 to injury to the skull, 5 to chronic empyema, and 4 to septic lung conditions. As regards situation 14 were located in the frontal lobes, 4 in the temporal, 2 in the temporo-sphenoidal, 1 in the occipital lobe, 2 in the cerebellum, 1 in the mid brain, 1 under the temporal lobe, and 1 on the cortex accompanied by encephalitis. The leucocyte count for the whole series averaged 16,000. Examination of the cerebro-spinal fluid showed a normal cell count of 2 to 5 lymphocytes to a cubic millimeter, except when the case was complicated by meningitis or encephalitis. Choked optic discs were present in 9 cases. Local tenderness was present in 12 cases, in 4 of which it was not over the abscess, while in 8 it was a confirmatory symptom. Partial or complete paralysis of one or more nerves was present in 14. Fifteen were mentally affected. Duration of symptoms varied from three days to three years. Judging by the results of these 26 cases the prognosis is most favourable when the symptoms have lasted about six months. The abscess at this stage is generally well encapsulated. "During the initial stage the process is more likely to be encephalitis or meningitis than cell destruction and pus formation; therefore very little can be accomplished by surgical intervention, as the encephalitis frequently continues and produces death." Similarly, in the terminal stage meningitis or encephalitis are generally present and the condition is practically hopeless. Operation in the middle or quiescent stage is recommended, if at all possible.

J. K. MILNE DICKIE.

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Treatment of Brain Abscess. SHARPE. (*The Laryngoscope*, 1920, Vol. xxx., p. 376.)

Sharpe holds that if we are absolutely certain that the abscess formation lies directly beneath the affected dura, and that this area of the dura is adherent to the underlying cerebral cortex, then the ideal method of operative drainage is naturally through the site of original infection. In a large percentage of patients, however, the local operation does not disclose any definite signs of a subdural lesion, and the dura is not adherent to the underlying cerebral cortex. In such cases it is distinctly dangerous to open or to puncture the dura and to explore in the hope that the abscess can be successfully drained. In these patients exploration of the temporo-sphenoidal lobe should be made through the "clean" subtemporal route as in the operation of subtemporal decompression and drainage. The vertical incision should be used. If the abscess is not found, then the exploration has been performed with little or no danger of meningitis or encephalitis. As an efficient means of drainage, Sharpe recommends the double glass tubes, one tube within the other, so that the outer tube always remains in place in the abscess cavity while the inner tube can be removed and used as a means of suction-drainage. Sharpe advises a similar procedure in the case of cerebellar abscess. The mortality of brain abscess is high; without operation practically 100 per cent., and with operation, 60 per cent. and even higher. The diagnosis and accurate localisation are most difficult, and for these reasons the operation of drainage must almost always be considered as an exploratory procedure.

J. S. FRASER.

In What Position should a Patient with Brain Abscess be placed after Operation? O. MUCK. (*Z. f. Ohrenheilk*, Bd. 79, H. 1-2, 1920.)

Muck, as the result of numerous observations, concludes that the position of the head is of great importance in the after-treatment of brain abscess cases. If the patient is in the half-sitting position turning the head to one side will cause the brain wound to close, while turning it in the other direction causes the wound to gape. The author explains this by interference with the venous return from one side of the brain through twisting the neck. He cites a case in which a large amount of pus was expelled from the cavity by turning the head first to one side and then to the other during the dressing. If the case is being treated with tube drains it is recommended that he be kept with his head high, at any rate for some hours daily, and that his head be turned gently to one side and then to the other. When the patient is lying down with the head low turning the head has no effect on the brain wound.

J. K. MILNE DICKIE.

Pharynx

Experimental Observations on the Treatment of Brain Abscess. JOHN M'COY. (*The Laryngoscope*, 1920, Vol. xxx., p. 75.)

The methods employed at present for the protection of the meninges are mainly two: (1) MacEwen's, *i.e.*, packing a layer of gauze all around the margins of the dural exposure, between the bone and the dura; (2) the cofferdam dressing; the dura is incised and iodoform gauze packed beneath the dural flaps. M'Coy experimented on dogs. Thus far, subdural injections of paraffin appear to give a better type of adhesion than gauze pressure because more accurate. Such injections do not seem to produce cerebral irritation. M'Coy proposes to continue the experiments.

J. S. FRASER.

Temporo-Sphenoidal Abscess. JOHN LESHURE. (*The Laryngoscope*, 1920, Vol. xxx., p. 80.)

Male, aged 21, chronic suppurative otitis media (right). For six months frontal and occipital headache. Examination revealed polypus and foul discharge. Middle ear deafness. Rotation nystagmus normal, and eye grounds normal. Polypus removed. Five weeks later headache returned. Radical operation: no necrosis of tegmen. Temperature between 99° and 100° F. until the ninth day, when it rose to 102°. Pulse from 80 to 90. Patient stuporous. Kernig and Babinski signs present. Optic neuritis on right side. Clear fluid on lumbar puncture. Immediately after lumbar puncture the patient ceased to breathe, although the pulse continued good. Artificial respiration was kept up for nearly three hours. Incision of the right temporo-sphenoidal lobe evacuated about 30 c.c. of greenish pus mixed with cerebro-spinal fluid. As the patient's heart had now ceased, digital exploration revealed the fact that the abscess had ruptured into the right lateral ventricle. Autopsy was not permitted. Leshure states that the persistent headache should have aroused suspicion of deep-seated trouble. Further, there was slight facial paralysis of the same side. The patient was constantly attempting to brush away from his face some fancied source of irritation, and stated that he frequently felt as though he were "in a dream." Leshure wishes to emphasise the danger of doing a lumbar puncture before evacuating the brain abscess.

J. S. FRASER.

PHARYNX.

Mixed Tumours of the Throat, Mouth, and Face. G. B. NEW. (*Journ. Amer. Med. Assoc.*, 11th September 1920, p. 732.)

The author has reviewed 68 cases of mixed tumours occurring at the Mayo Clinic from 1912-18.

The situations of the tumours were:—Larynx, 1; pharynx, 4;

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palate, 3; upper lip, 3; sublingual region, 1; cheek, 1; submaxillary region, 5; parotid, 50—total, 68.

The patients usually attended for recent increase in size of the tumour. Thirty-three of the tumours had been present for more than five years, and the others for periods varying from ten years to forty years. Thirty-three males and 35 females were affected.

The tumour presents a hard nodular surface with the feel of a malignant growth, and such tumours in the pharynx are usually located laterally bulging the posterior pharyngeal wall and the palate.

Owing to the slow growth of the tumours the patients become accustomed to the gradual diminution of the air and swallowing space and do not complain of dyspnoea or dysphagia. Tracheotomy was required in 1 case only. The glands are rarely involved, but occasionally a mixed tumour becomes sarcomatous and is very malignant in type.

The etiology of mixed tumours is obscure. Some observers classify them as endotheliomata, others believe they arise from the glandular structure of the salivary glands or develop from embryonic tissue. Grossly they present a definite capsule, are smooth, lobulated, and easily shelled out by enucleation. The slowly-growing tumours are hard, while the rapidly-growing ones are soft. Microscopically they consist of connective tissue, epithelium in the form of tubules and cartilage. The percentage of recurrence following complete removal is very small. This paper is also extensively illustrated.

E. D. D. DAVIS.

The Effect of Tonsillectomy on the Recurrence of Acute Rheumatic Fever and Chorea. W. S. LAWRENCE. (*Journ. Amer. Med. Assoc.*, 16th October 1920.)

This investigation deals with 85 children, each of whom had presented some rheumatic manifestation prior to operation. The tonsils were the seat of recurrent inflammation in 73 per cent. of those children, and were enlarged in 82 per cent. In all cases the cervical lymphatic glands were enlarged, and after operation were palpable in only 59 per cent.

One or more attacks of acute rheumatic fever had occurred in 42 cases, before removal of the tonsils. After operation there was no recurrence in 35 cases (84 per cent.). Patients who suffered from chorea (40 in number) had no recurrence in 50 per cent. of cases, while 77 per cent. of those who showed myositis or joint pains prior to operation had no return of the trouble. All the children were carefully observed for over three years, so as to ensure accuracy of results. Nutrition and general health improved and infections were less common after the tonsils had been removed.

DOUGLAS GUTHRIE.

Peroral Endoscopy

Tonsillectomy under Local Anæsthesia. CULLOM. (*The Laryngoscope*, 1920, Vol. xxx., p. 419.)

Cullom states that though the great majority of patients complain of absolutely no pain, a few complain of varying degrees of pain. Two pairs of forceps are locked—one on each tonsil. With a few quick strokes of the knife, the left tonsil is freed from its attachments, especial care being used to free the supratonsillar region, as it is essential that the snare should get well behind the superior pole. The left tonsil being freed, the right tonsil is quickly freed in like manner. The assistant now hands the surgeon a snare, and at one stroke he removes the right tonsil. While the surgeon is removing the right tonsil the assistant slips the loop of the other snare over the forceps attached to the left tonsil. Practically all patients think that they have had only one tonsil removed. Most cases of delayed bleeding are cases that have never stopped bleeding. There are, however, patients with a delayed coagulation time. If pressure by forceps and the skin clip fail, the author's tonsil clamp is applied, and left in position for an hour. Cullom has operated on many patients over sixty and a number over seventy, and has eliminated mere age as a contra-indication to operation. In the great majority of cases the bleeding has been from the tonsillar branch of the facial artery, which may pierce the capsule at any point. The spurting from this vessel is nearly always upward. Cullom's cases of secondary bleeding have all come on the fifth day. In twenty-four years he has had six cases.

The article is illustrated.

J. S. FRASER.

PERORAL ENDOSCOPY

The Physical Signs of Foreign Bodies in the Bronchi. THOMAS M'CRÆ. (*Amer. Journ. of Med. Sciences*, March 1920.)

The writer has had exceptional opportunities for studying such cases, having been accustomed to work in conjunction with Dr Chevalier Jackson. He believes that the occurrence of foreign bodies in the lung is much more frequent than is generally supposed. This is shown by the fact that of late years the number of cases occurring in Philadelphia alone has shown a remarkable increase. The explanation of this fact is that the medical men in Philadelphia are now on the lookout for such cases and refer them promptly for extraction. The clinical features vary enormously. Small metallic bodies which do not obstruct the air passages give rise to very few symptoms. Peanuts and certain other vegetable materials on the other hand cause a marked inflammatory reaction, leading rapidly to a fatal issue. One sign only is constantly present, namely, decreased expansion of

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the affected side of the chest. When secondary changes have occurred in the lung from plugging of one of the bronchi a localised area of dullness may be detected. Certain cases also give a sign designated by Jackson as the "asthmatoïd wheeze." This may be heard by listening at the patient's open mouth and may sometimes be elicited only at the end of forced expiration. As regards diagnosis, a negative history is of no value since people occasionally inspire foreign bodies without noticing the occurrence. A positive history, on the other hand, should never be disregarded, and the possibility of a foreign body in the lung should be kept in mind in all cases of chronic pulmonary infection of obscure origin.

J. K. MILNE DICKIE.

Œsophageal Obstruction in Young Children. H. T. ASHBY. (*The British Journal of Children's Diseases*, Nos. 202-204, Vol. xvii., October to December 1920).

Ashby records five cases of lower œsophageal obstruction. The symptoms started and were progressive from the time when solid food was given. Liquids were well retained. The site of stricture in these cases is found to be about one inch above the stomach. In forming the diagnosis the X-rays and bismuth were conclusive. One illustrative case is fully cited.

Pathologically the author considers the affection to be spasmodic in origin, the original spasm being succeeded by an actual fibrotic hypertrophy. He believes that it has a close analogy to hypertrophic stenosis of the pylorus.

The treatment adopted consisted in giving liquid food at times when the spasm was severe. Bougies were of necessity passed every two or three weeks with or without anæsthesia. In a typical case Ashby would in future do an early gastrostomy and so give the hypersensitive strictured area of the gullet a thorough physiological rest.

JAMES B. HORGAN.