NEW YORK OTOLOGICAL SOCIETY.

Stated Meeting, November 22, 1910.

DR. JAMES F. MCKERNON IN THE CHAIR.

PRESENTATION OF PATIENTS

Mastoid Operation for Persistent Pain in Mastoid Region.

DR. THOMAS J. HARRIS presented a patient whose history had been detailed by him at the last meeting of the society. The patient, a young woman, was under his care at that time for persistent mastoid pain and tenderness, for which an exploratory operation was proposed. The case evoked considerable discussion by the members of the society, and a further report was promised. The history was briefly repeated.

The patient, perfectly well in other respects, was seized last winter with very severe pain in both mastoids, the pain not being confined to the mastoid regions, but proceeding down behind the ear and up into the head. The ear presented nothing abnormal. The drum membranes were normal, there was no sagging of the canal and there was no temperature. The case presented every feature of one the symptoms of which would subside very promptly. The patient was put upon anti-rheumatic and constitutional treatment, and all the remedies known to the speaker for such cases. The symptoms increased in severity very gradually, and shortly after the May meeting of the society the patient was sent to the hospital. She was generally prostrated at the time, was unable to sleep and had the same pain behind the ears, extending into the canal, over the side of the head and into the occiput. An exploratory operation was advised, and the last of May or first of June the mastoid of one side was opened by the classical Schwartze operation. A considerable number of large pneumatic cells were found. These cells, unlike those of a case reported at the last meeting by Dr. Berens, were not filled with osteophytic deposits. The mastoid was thoroughly cleared out and the wound closed with the excep-

tion of a small drainage point at the lower part. This healed without discharge in ten days. The symptoms entirely disappeared except a little stiffness in the neck. There was more pain on the other side, and the patient insisted upon having the left mastoid opened. At the end of ten days this was done, whereupon almost the identical picture was found upon the left as had been previously found upon the right side. She was discharged in about ten days. Since that time there has been no pain whatever on either side until this fall, when she returned complaining of some pain in the mastoid region, or rather just above the mastoid. This disappeared entirely under constitutional treatment. The pain was not nearly so severe as that experienced before operation.

The case was an excellent one for primary closure of the wound. A large amount of bone was removed, and only the primary dressing was employed.

There was at no time any alteration in the hearing. The speaker felt fairly sure at the time of operation that he was dealing with a neurotic individual, and that virtually nothing would be found in the mastoid, but he felt justified in performing an exploratory operation. In looking over the literature of these cases he found the immediate results such as he had obtained, and that later on there was a recurrence of pain in some cases.

DR. GRUENING said the classical Schwartze operation consisted in the opening of the antrum. Dr. Harris had done more than that. The speaker called attention to a series of forty or fifty cases from Mount Sinai Hospital published in 1891, which had been very severely criticized in the *Archiv für Ohrenheilkunde*, the statement being made that the whole cortex should not have been removed. It would have been a mistake in the case presented not to have closed the wound. Dr. Harris did not present the case as a paradigm of those reported by Dr. Blake, who closes his infective cases. Dr. H. Knapp had published some cases in which the bone was a hard, solid mass, with no cells. He finally entered the antrum, which was small. Recovery followed the operation.

DR. HARRIS, in closing the discussion, accepted Dr. Gruening's suggestion that the operation performed in the case reported was not the classical Schwartze, as he had unwittingly

said, but the more extensive operation to which Dr. Gruening referred as having been performed in the series of cases mentioned.

Replying to Dr. Whiting's remarks, the speaker said operation was undertaken in this case with the greatest reluctance, and only after several weeks of treatment. Aspirin intensified the symptoms. The patient's physician saw her becoming a nervous wreck, with pain so intense that morphin was the only thing that would give relief, and operation was undertaken only as a last resort. From the standpoint that one does not know what is in a mastoid until one has looked into it, and that the operation, properly performed, is not a dangerous one, he would certainly proceed in a similar case just as he had in this one.

Result of Plastic Operation.

DR. JOHN B. RAE presented a patient to show the result of a plastic operation. The patient is a girl of 10 years, who six years ago underwent a simple mastoid operation on the right side. The postauricular wound did not close and has remained open in spite of two subsequent operations described by the parents as "scraping the bone."

When seen by the writer the patient exhibited a deep sinus behind the right ear. This was large enough to admit the tip of a finger, had no apparent communication with the aditus and was dermatized and dry. The opening evidently corresponded to the enlarged antrum, and examination of the roof of the cavity revealed the fact that the tegmen was completely gone and that the space was roofed in by exposed dura. The middle ear was dry and the hearing good.

Operation.—An incision was made from above to the edge of the middle point of the cavity, was then carried posteriorly around the margin of the opening to the middle line below and from there was carried directly downwards. The isolation of the cavity was completed by joining the two vertical incisions by rimming the opening anteriorly. The edges of the flaps were raised quite freely. The lining of the cavity itself was then very readily dissected out, coming away like the blind end of a glove finger and carrying with it an epithelial layer from the exposed dura.

The bone cavity showed a small black area posteriorly and

the whole exposed bone was freshened with a curette, no attempt, however, being made to establish communication with the middle ear. The whole field was then carefully cleansed and the cavity allowed to fill with blood from the margins of the flap. When coagulation was complete, the wound was sutured from end to end and a dressing applied. The wound was inspected from day to day and healed by first intention. The sutures and dressings were removed within a week and the result is apparently as good as it can be.

Three months later there is a very slight depression in the scar corresponding to the former cavity.

DISCUSSION.

DR. GRUENING asked whether, with the dura exposed and the cavity dry, it was absolutely necessary to scrape the dura and the cavity, and whether it would not have been possible to get a good result without the blood clot. He had obtained primary union without scraping the bone. The dura was not exposed in his cases.

DR. DENCH suggested an osteoplastic operation for the relief of these very depressed cavities. The soft parts are dissected out, and, with a small chisel, a quadrilateral flap of bone is taken from the mastoid opening, being divided above and below and left hinged in front.

Encephalitis Following Middle Ear Abscess.

DR. H. A. ALDERTON presented a patient whose history was reported at a previous meeting of the society. The patient, a boy 8 years of age, had been referred to him by Dr. Margulies of Brooklyn. One month previously an abscess had developed in the left ear, and since that time the boy had earache once or twice weekly. There was no discharge. The posterior superior wall of the canal was sagging; there was no pus in the canal; the drum membrane was congested and thickened; there was tenderness over three points of the mastoid, viz., the antrum, tip and posterior border; the temperature was $99\frac{1}{10}$, the pulse 94. The drum membrane was incised and irrigation and purgation ordered. The local condition did not improve, and four days later the usual mastoid operation was

performed. The bone was found to be full of cells containing pus and granulation tissue, especially the vertical cells under the mastoid antrum. The patient did well for two weeks, though he ran a temperature of between normal and 100° and at times complained of some headache. On the 30th of March he was suddenly taken with convulsive seizures involving the left side of the body and the jaw, nystagmus, horizontal and to the left, apparent paralysis of the right side of the body, and complete unconsciousness. The temperature was $100\frac{2}{5}^{\circ}$, pulse 100 and respiration 26. This condition followed an attack of severe headache, and lasted from 12:45 p. m. to 2:30 p. m., when he was taken to the operating room.

At the second operation the dura was exposed over the mastoid antrum superiorly and over the sinus and cerebellum posteriorly. The dura was merely congested. After recovery from the anesthetic the convulsions and paralysis disappeared and the patient was in much better condition, though still complaining of headache. The temperature was $100\frac{4}{10}^{\circ}$, pulse 84 and respiration 24. The headache, with restlessness, continued to manifest itself during the following days. On April 5th the patient complained of nausea, but did not vomit; on the 11th he was drowsy and heavy all the afternoon; on the 14th he was nauseated and vomited. On the 15th the temperature became subnormal— 97° —pulse 50-60, respiration 26. There was suppression of urine for twelve hours, and constipation. About 4:30 a. m. he had a severe spasm and was unconscious for about half an hour. Upon recovery of consciousness the pain in the head was just as severe as before. Involuntary urination, another period of unconsciousness, and a continuation of subnormal temperature and pulse marked the next few days. On the 20th the patient became conscious and more comfortable, complained of hunger on the 21st and 22d, and had good nights. Pulse and temperature returned to normal, and from this time on he progressed to apparent complete recovery.

Blood examinations at the time of the first operation showed polynuclears, 78%; leucocytes, 15,187; hemoglobin, 83%. March 31st, polynuclears, 81%; leucocytes, 18,382; hemoglobin, 79%.

Urinalysis, March 15th, showed specific gravity, 1028; trace of albumin; indican very excessive; occasional casts.

Remarks of the pathologist: "Marked intestinal fermentation and mild parenchymatous irritation." On March 31st the specific gravity was 1012; no albumin present. Remarks: "Aside from the low urea percentage and specific gravity sample is practically normal."

Report of oculist, April 15th, was as follows: Oculomotor muscles normal in action; pupils respond normally. Right eye: Retinal veins rather too full and slight tortuosity of some of the arteries. Nothing significant. Left eye: A suggestion of optic neuritis; a beginning optic neuritis.

The patient was seen by a neurologist on April 15th and the diagnosis made by him was brain abscess, not localizable. Operation was recommended and refused.

From that time on the patient's condition improved, no further symptoms having appeared. He has had some trouble with his eyes, but he has improved in every way. The wound is more disfiguring than usual because it was kept open on account of the exposed dura. A wet bichlorid dressing was employed.

DISCUSSION.

DR. DENCH asked to what Dr. Alderton attributed the improvement, and whether he considered the condition one of serous meningitis. He cited a case which came under his care two years ago. The child was *in extremis* when first seen by him, and he refused to operate. The meningeal symptoms continued, the patient became blind and deaf. The Babinski sign was present at the time. He operated five weeks later, exposing a considerable area of the dura over the temporosphenoidal lobe and cerebellum. The temperature fell the next day and the child made a complete recovery of sight and hearing.,

One ordinarily supposes that exposure of the dura does not decompress the brain, but he was inclined to think that if the decompression operation were done more frequently there would be a larger proportion of successes in these cases.

The speaker agreed with Dr. Rae that removal of the bone may compensate for the pressure.

DR. RAE suggested the possibility of there still being a latent abscess present in this case.

DR. ALDERTON, in closing the discussion, said he was inclined to think the condition one of encephalitis. If it had been serous meningitis, as suggested by Dr. Dench, there would have been more tension than existed in this case.

Replying to a question by Dr. Gruening as to whether the bone was diseased, the speaker said the bone over the temporosphenoidal lobe was affected.

In response to a question by Dr. Harris concerning lumbar puncture, Dr. Alderton said none was made. He had operated as a last resort, and it was after this that the subnormal temperature and pulse developed. The patient was then seen by the neurologist, who made the diagnosis of brain abscess, and further operation was refused.

The nystagmus was horizontal toward the side affected. He had not examined the patient as to high tones, as suggested by Dr. Whiting.

Typhoid or Malarial Fever Mistaken for Mastoid Abscess.

DR. WILLIAM COWEN gave the history of a girl, 12 years of age, who had spent all but the last six months of her life in Arabia, and who, when he first saw her, was suffering from acute otitis media. Her temperature was 104° , there was no mastoid tenderness or bulging. He was called in consultation on account of the temperature. He decided to wait. The next morning the temperature dropped to 102° , running up again to 104° in the afternoon. He then decided to operate. He removed the cortex, and explored the tip, but found nothing. Two days later the temperature rose again, and for two weeks it had been fluctuating between 102° and 104° . The case was then gone over medically, and the spleen was found to be excessively large, extending below the free border of the ribs. The condition was supposed to be either typhoid fever or malaria, but there could be got no evidence of the plasmodium, and the Widal test was negative. No blood culture was made. The temperature evidently had nothing to do with the mastoid, and the case illustrated the importance of not being hurried into surgery until the symptoms are more compelling. He had never seen a spleen of that size in a septic case.

Temporosphenoïdal Abscess Complicating a Chronic Purulent Otitis Media, With a Septic Temperature Range as the Only Symptom of a Diseased State.

DR. ROBERT LEWIS, JR. Mary McN., æt. 8 years, was admitted to my service in the New York Eye and Ear Infirmary on December 25th, 1909. The aural history of her case was as follows: There was an acute purulent inflammation of the right middle ear, complicating scarlet fever two years ago. A polypus was removed from the middle ear in March, 1909; this was followed by a cessation of the discharge for a time. The otorrhea reappeared in September and lasted until ten days previous to her admission to the infirmary, when it suddenly ceased. One week previous to her admission to the infirmary the patient complained of a severe pain in the ear, accompanied by headache. This continued up to the date of her admission into the hospital.

Examination of the patient on admission showed a normal condition of the heart, lungs and kidneys. The temperature was 102° F., the pulse was 108, the respiration was 26.

The external auditory canal was so stenosed as to prevent a view of the drum membrane. Evidences of a subperiosteal abscess were present and tenderness over the mastoid process was very acute.

Operation.—The subperiosteal abscess was evacuated, and a small cortical perforation was found in the mastoid process. The antrum was filled with a cholesteatomatous mass. The radical mastoid operation was performed. Following the operation the temperature was below 101.2° F. for the next eight days; on the tenth day it rose to 102.4° F. and on the twelfth day it rose to 105.2° F. During the next nine days rose on four occasions to between 104° and 105.2° F.

The morning of the twenty-second day after the operation it fell to normal and remained below 99° F. until 8 p. m. of the twenty-fourth day, when it began to rise and reached 105.2° F. at 4 a. m. of the twenty-fifth day. The rise of temperature was preceded by a chill.

During this time she was seen by Dr. Walter B. James and Dr. Walter Lester Carr, the consulting physicians of the infirmary. They could find no lesion to account for her variable temperature.

The patient had no headache, no drowsiness, no stupor; on the contrary was very bright, even when awakened from a

sound sleep. The eye grounds were normal, and the reflexes were normal. Widal test was negative. No tubercle bacilli were found in the stools. Smears from the aural discharge showed a mixed infection. January 15th the blood culture was negative.

Blood Count.	Jan. 5th.	8th.	12th.	17th.
Red B. C.....	4,800,000	4,800,000	4,000,000	4,020,000
White B. C.....	25,200	7,400	16,000	8,200
Small Mononuclear....	7.5	16.	9.4	35.2
Large Mononuclear....	2.5	6.	2.6	7.6
Transitional	0.	1.8	1.0	.6
Polynuclear	89.5	75.8	87.	56.
Eosinophile	0.	.2	0.	.6
Mast cells.....	.5	.2	0.	0.

On only two occasions was the pulse slower than seemed compatible with the temperature curve.

On January 18th she complained of slight headache. She was weak and emaciated. There was no symptom of a definite lesion in any organ, nor of a general dyscrasia. Except for the temperature the girl would have been sent home. The wound had done well with the exception of a small area in the upper posterior portion of the excavated mastoid cells. This area was about the size of the diameter of an ordinary lead pencil and would not cover over with granulations and looked dark. I determined to explore this point, so on January 18th I reopened the wound and explored the bone in the vicinity of this dark area. As I went further into the bone the dark area increased in size, and as I entered the middle fossa there was a gush of pus. The opening in the bone was enlarged and about three ounces of foul pus was evacuated. The abscess cavity extended fully two inches into the brain substance, measuring from the dura upward, inward and backward. The cavity had well-defined walls. It had ruptured through the dura mater, but a plastic lymph around the opening confined it to a limited area.

Following the operation the temperature never rose above 100° F. except on February 6th, when it rose to 103° F. for a short time.

I believe the abscess which was found had been present for some time and that the radical operation had kindled into

action a latent process. Of course the fact that the abscess had well defined walls made the chances of recovery infinitely better.

I used a rubber drain for 24 or 48 hours and after that depended entirely upon a gauze drain.

The patient made a rapid recovery.

Late Mastoiditis Following Scarlet Fever With Perisinus Abscess and Sinus Thrombosis.

DR. H. A. ALDERTON presented the history of a girl, 6 years of age, who had been ill for forty-nine days following the inception of an attack of scarlet fever. She was admitted to the Kingston Avenue Hospital on November 1, 1910. Her general condition was then very poor, she was markedly emaciated and poorly nourished. The body and soles of the feet showed a scarlatiniform desquamation. There was a patch of unorganized membrane on the left tonsil, no discharge from the nose and no conjunctivitis. The left ear was normal; from the right ear there was a profuse bloody discharge; the drum membrane was almost entirely gone; the manubrium was present. The soft tissues of the right mastoid were swollen, reddened and tender, with projection outwards of the auricle. The heart sounds were muffled; the first sound was not of good muscular quality; the second pulmonic and aortic sounds were slightly accentuated; the rate was irregular. There was no appreciable enlargement of the heart. The percussion note of the lungs was normal; breath sounds normal; no rales heard. Abdomen and extremities normal. Glands of the neck were palpable. The pulse was irregular and of poor tension. Urine negative; throat culture negative. For two days following admission her temperature ran from $99\frac{4}{5}^{\circ}$ to $100\frac{2}{5}^{\circ}$; pulse 104 to 124; respirations 26 to 28.

Operation upon the right mastoid, November 3, 1910, showed the bone to be in a condition of dry necrosis from tip to antrum, except for an area posteriorly directly over the sigmoid sinus, where the cells were broken down and the cavity formed contained thick offensive pus which pulsated. Exposure of the sigmoid sinus, by following up the pus tract, disclosed a perisinus abscess lying far down toward the bulb of the jugular; pus was also escaping from a perforation in the outer wall of the sigmoid sinus just above where it begins

to turn inward and downward to reach the bulb. Enlargement of the opening in the sinus wall, and careful probing of the caliber, showed either an organized thrombotic occlusion above or an agglutination of the sinus walls, or both; below the sound failed to reach the bottom of the abscess cavity within the sinus. Because of the poor general condition of the patient, ligation of the jugular was not attempted, especially in view of the apparently walled-off character of the sinus abscess and the absence of clinical signs of systemic infection.

The condition of the patient had steadily improved since the operation, and the mastoid wound was healthily granulating except for a small area of exposed bone within the antrum. This would probably need curettage to living tissue.

The only reason for reporting the case was as an example of late mastoiditis following scarlet fever, and that two days previous to operation the temperature gave no indications of sinus involvement.

Improvement of Symptoms in Spite of Presence of Pathogenic Bacteria in the Blood.

DR. SHEPPARD called attention to a case now under the care of Dr. Stickle and himself at the Jewish Hospital, Brooklyn. The patient, a man 40 years of age, came into the hospital three weeks ago complaining of pain in the ear. There was only slight mastoid tenderness, but a thickened, reddened condition with bulging of Shrapnell's membrane were noted. Tympanic cavity comparatively dry on incision of the membrane. Douching was at once resorted to, and the temperature fell to 100°, varying during the next three days from 100° in the morning to 104° in the afternoon. The mastoid tenderness immediately disappeared. A blood culture was taken, on which, for some reason, no report was received for several days, announcement finally being made of the presence of large numbers of the bacillus streptococcus mucosus capsulatus. In the meantime the temperature (always taken per rectum) suggested the diagnosis of typhoid fever. No positive Widal reaction could be obtained. Before the blood culture report was received the patient's condition had improved so much that it was decided to wait for another culture to be made. Report upon this was to the effect that there were more germs in the blood than were found with the first culture. The man was

feeling so well that he wanted to go home, but he was kept in the hospital much against his will. Blood counts were made every day, the last one showing seven to eight thousand leucocytes, and 63 per cent polymorphonuclears. The germs are still in the blood and the patient still begs to go home.

DISCUSSION.

DR. DENCH said the case was a unique one. All such cases in the New York Eye and Ear Infirmary had died in spite of operation.

DR. GRUENING emphasized the importance of considering the clinical symptoms and not depending entirely upon the blood culture. At Mount Sinai Hospital the physicians are in touch with the otologic department and they know the symptoms to which sinus thrombosis gives rise. In the class of people who come to the hospital for treatment the ear symptoms are ignored for a time until additional symptoms appear. The ear may not discharge any more, but the patients may have chills and fever, when they are admitted to the medical ward. The physicians would make the diagnosis of sinus thrombosis from the history and clinical symptoms, and not rely solely on the blood culture. So if the medical men make these diagnoses it is because they have the benefit of the otologic service and know the symptoms of sinus thrombosis. In some of the European papers it has been stated that in America no operation for sinus thrombosis is made until the result of the blood culture has been ascertained. In a series of cases which the speaker had reported, he distinctly stated that he did not wait for the blood culture. If the clinical symptoms are positive and the blood culture is negative he would operate. A positive blood culture may be of much significance in obscure cases without definite clinical symptoms.

DR. DUEL considered the presentation of the cases of Dr. Sheppard and Dr. Whiting to fairly represent the position held by most otologists with reference to bacteremia. In one case the patient had a suppurating ear, with clinical symptoms which showed him to be in a serious condition; examination of the blood showing the presence of bacteremia; the whole evidence leading to operation for sinus thrombosis, with re-

covery of the patient. In the other case there were no clinical symptoms, and the mere presence of bacteremia had not warranted an operation. A number of cases had been reported by him and others in which cultures had revealed bacteremia. Despite this fact there had been no clinical symptoms of sinus thrombosis, and the patients had recovered without operation. In other cases there had been evidences of bacteremia, with clinical symptoms of sinus thrombosis; operation had been performed, and the patients had recovered. In many cases where bacteremia is present, where the thrombus occludes one of the smaller veins, the patient can combat the systemic infection himself without operation. The clinical symptoms in such cases are evidences of whether or not the patient is combating the condition successfully. Bacteremia is undoubtedly present in many cases where sinus thrombosis has not taken place. It is fair to suppose that bacteria are in the vein long before thrombosis occurs. Inflammation of the vein wall is necessary for clot formation, and this is caused by the presence of bacteria. These may be swept into the circulation before any clot is formed. While a bacteremia when present may usually be demonstrated by the removal of, say, ten cubic centimeters of blood from the median cephalic vein of the arm, this amount might not be sufficient to show its presence, while removal of twenty cubic centimeters (or five hundred, if this were practicable) would demonstrate it. A certain amount of bacteremia is bound to occur in any suppuration. If the infection causes a sufficient amount of inflammation to lead to a phlebitis resulting in the formation of a clot, and this subsequently breaks down, throwing large numbers of bacteria into the circulation, the patient may be overwhelmed; then the necessity of operation arises. In the case reported by Dr. Sheppard, where the bacteremia was not sufficient to cause clinical symptoms, the speaker saw no reason for operating.

DR. KENEFICK recognized Dr. Whiting's case at Mt. Sinai Hospital as the woman on his service at the New York Eye and Ear Infirmary, who was removed from the infirmary as a case of pneumonia. The patient had had ear trouble for almost three weeks, for which she had used camphorated oil, but the structures in the fundus presented no evidence of involvement of the mastoid or of the lateral sinus. Just as he was about to operate on account of the sleepless nights and the three

weeks of acute middle ear suppuration, the patient was taken from the infirmary.

DR. SHEPPARD, in closing the discussion, added that a short time before the patient came under his care he had had some intranasal operation in the dispensary. He still had pus in his nose when he entered the hospital, and there was room for doubt whether the infection had taken place from the nose, through the ophthalmic veins, or through the lateral sinus. This had been a deterrent factor in the matter of operation.

Answering a question by Dr. Haskin the speaker said the vaccine treatment had not been employed. In consultation with the pathologist concerning the matter, the latter stated that the germ was one of a low order of vitality, that the leucocytes were taking care of it, and that in such cases vaccine treatment is contraindicated.