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A REPORT OF THREE CASES

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ACUTE DISEASES OF THE EAR.

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AURAL SURGEON TO THE NEW YORK EYE AND EAR INFIRMARY.

Boyle

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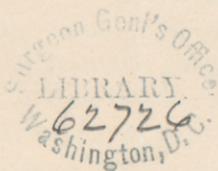
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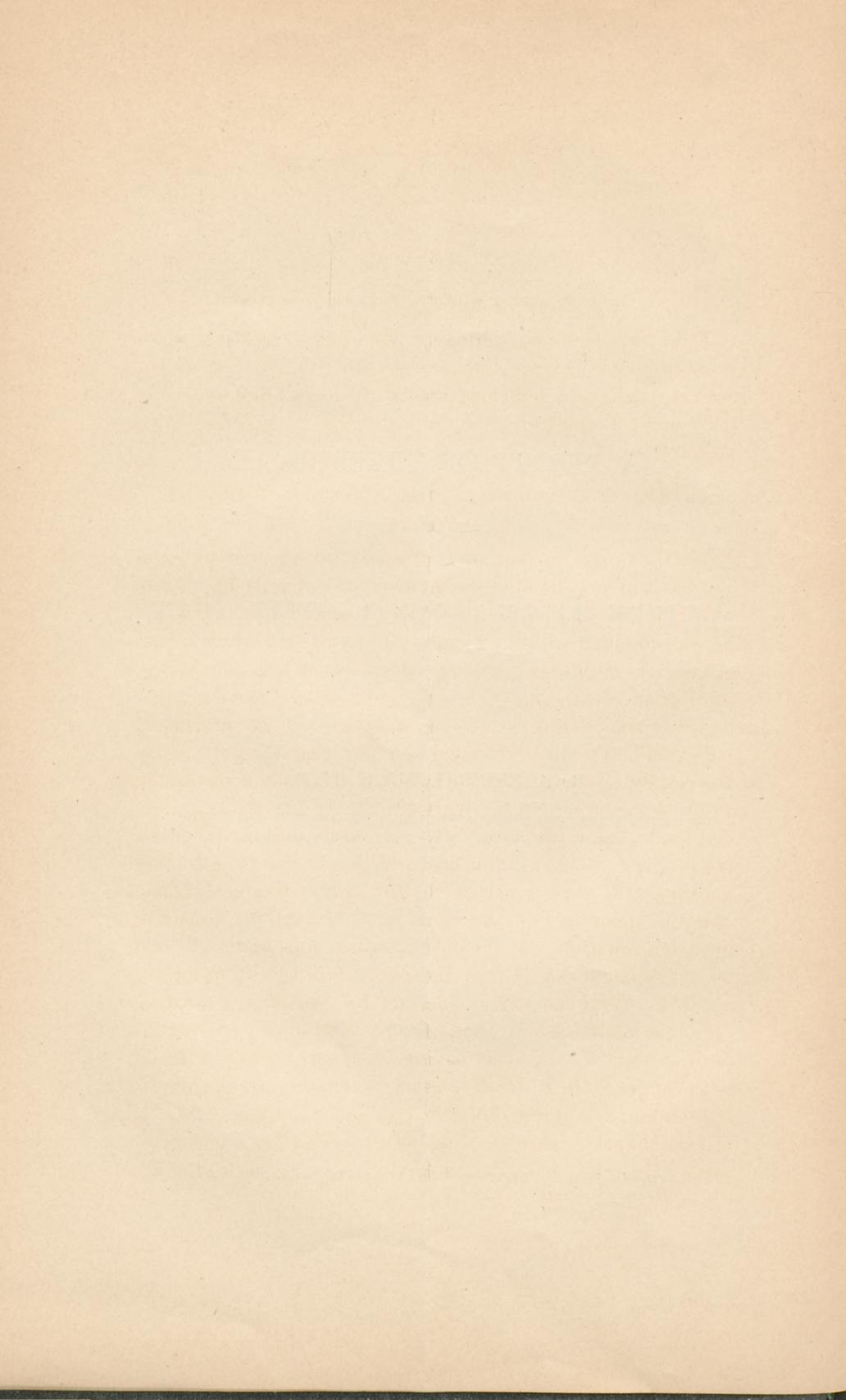
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THREE CASES OF EAR DISEASE.

REPORTED BY ALBERT H. BUCK, M. D., NEW YORK CITY.

The histories of the following cases of ear disease, while presenting no features that are specially new to the aurist, are nevertheless of sufficient interest, from a pathological and therapeutical point of view, to justify me in reporting them here to-day.

TRAUMATIC ANEURISM OF THE POSTERIOR AURICULAR ARTERY.

The first case is that of a plumber, twenty-one years of age, and in the habitual enjoyment of good health. Two weeks before visiting the New York Eye and Ear Infirmary, he was attacked with the symptoms of an acute inflammation of the right middle ear, namely: deep-seated pain, throbbing, tinnitus and deafness. When the pain became so severe that he could not tolerate it any longer, he visited the infirmary. An examination then revealed the fact that the outer canal was nearly obliterated by the swelling of its cutaneous walls, and that the skin over the mastoid process was red, swollen, and tender upon pressure. By gradual dilatation, the swelling of the canal was diminished sufficiently for me to obtain a view of the deeper parts. In this way it was ascertained that the inner half of the canal was occupied by a mass of granulation-tissue, the removal of which was easily effected by the snare. To relieve the congested condition of the mastoid structures, a free incision was made in a vertical direction behind the ear, and of such a depth as to divide the periosteum. The incision having been carried rather nearer to the angle of the ear than is usual under such circumstances, the withdrawal of the knife was followed by a smart jet of arterial blood. The bleeding was arrested by a compress placed over the wound and held tightly in position by a

suitable bandage. All efforts to place a ligature around the wounded vessel, or to control the bleeding by torsion, proved unavailing.

This occurred on the 9th of April. Three days later I saw the patient a second time. I found that the edges of the wound had united by adhesion, and that the pain had been entirely relieved by the incision. At the same time an abundant purulent otorrhœa had established itself.

On the 14th of April the resident surgeon noticed distinct pulsation over the wound. On the 15th, there was a circumscribed pulsating tumor, about the size of a hickory-nut. On the 16th, the pulsation ceased altogether, and the tumor diminished perceptibly in size. An incision was made in the line of the former wound, and a pretty firm, nearly spherical clot of blood removed from a distinct cavity. The outer portion of the clot was found to be laminated in structure.

As the hemorrhage recurred upon the removal of the clot, the cavity was stuffed with lint.

On the 18th, the removal of the lint was again followed by an arterial jet, which rendered it necessary to stuff the wound a second time and apply firm pressure by means of a compress and bandage.

The compress and bandage were removed the following day, but the lint stuffing was left to ulcerate its way out.

The patient subsequently made a rapid and good recovery.

ACCUMULATION OF MUCUS IN THE CAVITY OF THE TYMPANUM.

The second case commenced as an ordinary acute inflammation of the middle ear, resulting in a discharge of pus through a small perforation in the left membrana tympani. The patient was twenty-three years of age, in fair health at the time, though a frequent sufferer from articular rheumatism. His first visit to the infirmary was on the 19th of March, 1873. The acute symptoms had then passed off, and he was simply troubled with moderate deafness in the affected ear and a very slight discharge.

Ten days later, it was found that the opening in the membrane had healed over, and that the latter had resumed a comparatively healthy appearance. The only thing that attracted any special attention was the existence of a faint circular outline in the posterior half of the membrane. Siegle's tympanoscope failed to dislodge this supposed bubble from its position, and the auscultatory sounds were so thoroughly dry, that I very nearly abandoned the idea that there was fluid in the tympanum. To satisfy myself, however, on this point, I made a linear incision through the posterior half of the membrane, and performed suction through Siegle's apparatus. No fluid escaped. The linear incision was then converted into a crucial one, and suction again resorted to. This time a mass of tough mucus was brought through the perforation into the cavity of the meatus. This mass remained connected with the mucus within the cavity of the tympanum by a round cord of the same substance. By exerting traction upon this cord, it could be drawn out to a distance of several inches from the ear. The act of suction was repeated two or three times, and each time successfully. By having the patient perform Valsalva's experiment while I was exhausting the air in the meatus by aid of Siegle's apparatus, I found that the mucus could be drawn into the outer canal in larger quantity and more readily than without the patient's co-operation. The quantity of mucus thus withdrawn from the tympanum was so great that I could not avoid the belief that much of it must have come from the Eustachian tube. The hearing, which before the operation was about $\frac{0.1}{2}$, rose to $\frac{1.5}{2}$ for the watch. No inflammatory reaction followed, nor did the patient complain of any special feeling of soreness about the ear.

On the 2d of April, four days later, — the hearing in the mean time not having increased beyond $\frac{1}{2}$ for the watch, and the perforation having healed, — I repeated the operation. The quantity of mucus obtained was nearly the same as before, but the hearing remained unchanged. Thinking that very probably the ossicles were enveloped with mucus,

resorted to the use of a saturated solution of the bi-carbonate of soda for the purpose of liquefying the mass. The outer canal was filled with the solution, and then, while the patient performed the act of swallowing, firm pressure was made from without upon the tragus, thus forcing the fluid into the tympanum and through the Eustachian tube into the nostrils. At the end of a few minutes suction was again performed, and a certain amount of fluid withdrawn from the tympanum, but without any appreciable improvement in the hearing.

On the 3d of April, the operation was repeated. The soda solution was not forced in as before by means of pressure, but was injected through the perforation in the membrane by means of a hypodermic syringe, armed with a suitable bent nozzle of gold. This time, after the tympanum had been emptied as far as possible of its contents, a warm, weak solution of alum was injected into the cavity. The solution was of such a strength that the sour taste could barely be recognized by the tongue. It was allowed to remain about five minutes in the tympanum, and was then withdrawn in the manner already described. On this occasion, as on the two previous ones, the operation was not accompanied by pain. The fluids withdrawn from the tympanum were not tinged with blood, except on the first occasion, and then it was evidently due to the incision in the membrana tympani.

On the 4th of April, I found the patient in very great suffering from his ear. The pain, he said, came on early that morning, — that is, about twelve hours after the injection of the alum, — and soon became severe. He referred it to the region immediately behind and above the ear. On examination, I found that there was moderate tenderness over the mastoid process; that the membrana tympani was red and abnormally convex, the perforation in it having entirely healed. A vertical incision in the posterior half of the membrane gave vent to a large drop of healthy pus, and was followed by some relief from pain. Five leeches were ap-

plied behind and in front of the ear, and afterwards poultices.

From this time till the 13th of April — a little over a week — the patient enjoyed comparative freedom from pain. There was a free discharge of pus, through the perforation in the membrane and little or no fever. The mastoid region, however, continued to remain tender on pressure.

From the 13th to the 16th, the pain steadily increased and was referred chiefly to the region behind the ear. The motion of the jaws in eating or speaking also became more and more painful. A vertical incision an inch long was made behind the ear, down to and through the periosteum, in the hope of checking the advance of the trouble in this direction. Poultices were also applied.

On the 17th and 18th, increasing suffering.

On the 19th of April, his condition was the following: Temperature 101.5° ; pulse 92, and rather feeble; motion of jaws very painful; meatus slit-shaped vertically, owing to the swelling of its walls; the wound behind the ear imperfectly healed.

After consultation with Dr. Robert F. Weir, the patient was etherized and an opening made in the mastoid process, with a one-fourth inch drill, to the depth of three fifths of an inch. The outer surface of the bone was normal in appearance; the mastoid cells were congested, small in size, and separated by strong, bony septa; no pus was found. The opening was made on a level with the upper wall of the meatus, and about half an inch behind it. The only point of interest in the operation was the great prostration which followed it. It was only by active stimulation (accomplished with great difficulty) that a fatal syncope was prevented.

From the 19th to the 22d, the soft parts behind and below the wound became more and more swollen and painful. The temperature, which on the 20th had fallen to 98.5° , rose slowly to 101° . Warm poultices were frequently applied, and iron and quinine given internally. From this date to the 27th, the patient appeared to be making rapid progress

toward recovery. During the night of the 27th of April, the pain again returned with great severity, the temperature rose to 100° , the pulse to 120, and the skin near the wound again became very much swollen and tender on pressure. From the 29th of April the recovery was steady and rapid.

On the first of June, I found the meatus normal, the membrana tympani entire, all tenderness gone, and the hearing reduced to about $\frac{1}{20}$ for the watch.

ACUTE INFLAMMATION OF THE MIDDLE EAR RESULTING IN THE FORMATION OF AN ABSCESS IN THE MASTOID CELLS.

The third case is that of a strong, healthy woman, twenty-six years of age, who, while nursing a young infant, was suddenly attacked with a pain in the left ear, which lasted about twenty-four hours and then passed off. A week later, the pain returned with still greater severity, and lasted three days before it began to diminish somewhat in intensity. With the abatement of the pain she noticed the appearance of a slight yellow discharge at the outer orifice. Five days later (Feb. 12, 1873), she visited the infirmary. The inner half of the meatus and the membrana tympani were found to be very much swollen, and accordingly they were incised.

For ten days subsequently she enjoyed almost entire relief from pain. On the 23d, however, she again began to suffer from her ear, the pain this time being referred chiefly to the region of the mastoid process. In the course of two days the pain became severe and extended over the entire left side of the head. In spite of this she continued to nurse her infant, and did not visit the infirmary till March the first. By that time there were evident symptoms of commencing mastoid trouble; namely, redness of the skin, œdema, and tenderness on pressure. No appreciable change had taken place in the condition of the meatus or membrana tympani. She was advised to have the bone perforated behind the ear, but she refused to submit to the operation. A free incision, how-

ever, was made over the mastoid process, and the patient ordered to apply poultices to the part so long as any pain remained.

The patient's next visit to the infirmary was on the twelfth day of March. Her story was, that the incision had afforded her relief from the pain for a day or two, but that the ear soon became as painful as before. Her countenance also indicated prolonged suffering. The wound had entirely healed, but the mastoid integuments were red, swollen and very tender to the touch.

Her consent having been obtained, the patient was etherized and the mastoid process perforated, as in the preceding case. The outer surface of the bone appeared to be perfectly healthy. Instead of applying the drill at the spot usually selected, it was made to enter the mastoid process not far from its projecting tip. The cell-structure was thus reached at a very slight depth and the drill easily made to penetrate a distance of about a third of an inch. It was hoped that this more distant opening would suffice to relieve the trouble.

The day following I found her condition improved. The relief from pain was very decided.

March 14th. Erysipelas of left side of face.

March 15th. Entire face involved. Temperature, 105°. Pulse, 108. Wound healthy in appearance. Little or no pain about the ear.

On the 17th of March I found her again suffering pretty acutely from pain in the mastoid region. A careful exploration of the wound with the probe, led to the discovery of a small sinus in the upper portion of the process, at or close to the spot where the perforation is usually made. The probe could be passed into the bone to a depth of three-quarters of an inch without meeting any obstacle; it could also be rotated in a vertical plane as if in a cavity of considerable size. The drill was placed over the outer orifice of the sinus, and with one or two turns made to penetrate into a distinct cavity. On withdrawing the instrument, a moder-

ate amount of venous blood escaped, together with a little pus. The bony walls of the cavity were in a softened condition. The venous hemorrhage soon ceased of itself.

The next day, March 18th, I again found the patient comparatively free from pain. The erysipelas was evidently subsiding (temp. 101°), and she appeared every way better. The soft parts near the wound, especially behind it, were still very much swollen. From this time the improvement was steady and rapid.

On the 29th of March she left the infirmary. There had been no discharge from the meatus since the operation, and for more than a week she had been entirely free from pain. The wound still remained open, but it was very much reduced in size and in a perfectly healthy condition. I have not since had an opportunity of seeing the case, as the patient did not subsequently return to the infirmary.

COMMENTS.

In regard to the case of traumatic aneurism, I would say, that the rarity of its occurrence in this particular locality is simply owing to the fact, that, when it becomes necessary to incise these parts, the incision is almost invariably made more posteriorly than in the present case. In this instance I purposely departed from the prevailing rule in order to ascertain a fact of some practical importance. In fully half of the cases of this kind, I have noticed that the loss of blood which ensued was exceedingly small, — much smaller than, in my opinion, was desirable, — and I believed that, to obtain uniformly a greater loss of blood, the incision should be carried close up to the angle where the skin is reflected from the mastoid process upon the auricle, and where the posterior auricular artery and vein lie. The experience gained in the present case shows, however, that the danger of simply nicking the artery, instead of dividing it, and the difficulty of placing a ligature around the divided vessel, deeply situated as it is among very firm and unyielding tissues, are

good and sufficient reasons why the established rule should not be departed from.¹

The second case affords a fair illustration of one of the most obstinate forms of middle ear trouble, — the accumulation of a very tenacious mucus in the tympanic cavity. The subsequent progress of the case, while under treatment, also throws some light on the action of certain reagents upon the mucus membrane of the tympanum. Solutions of the bi-carbonate of soda, for instance, exerted no apparent injurious effect upon the mucus membrane. On the other hand, I am led to believe, from one or two experiments made with tenacious mucus which had been withdrawn from the tympanum, that we cannot depend upon the bi-carbonate of soda as a liquefacient of this abnormal secretion.

From a similar though less severe experience in two or three other cases, in which, however, there was a much larger perforation in the membrana tympani than in the present case, I believe that solutions of alum, no matter how weak, should in these cases either be introduced into the middle ear in very small quantity, or else abandoned altogether. My own observation would lead me to rank nitrate of silver as one of the safest reagents to employ in stimulating the tympanic mucus membrane to healthy action.

Another point of practical importance suggested by this case, relates to the manner of incising the membrana tympani. If the middle ear is filled with tenacious mucus, the linear incision will usually not suffice; a crucial incision is required to afford the necessary room for the escape of the mass.

Finally, the beneficial effects of perforating the mastoid process are brought out more clearly, I think, by this case than by any of the others previously reported by me.²

¹ Dr. Charles J. Kipp, of Newark, N. J., reported a very similar case to the New York Ophthalmological Society at one of its recent meetings. The hæmorrhage, in his case, was so serious as to threaten the life of the patient.

² Archives of Ophthalmology and Otology, Vol. III, 1, 1873. New York and Heidelberg.

Without this operation the error in treatment in the present case would probably have cost the patient his life.

The third case presents two or three points of interest. In the first place, had the patient consented to the operation for perforating the bone, at the time it was first proposed, it is more than probable that no pus would have been found, but simply a condition of congestion.

In the second place, it will be noticed that the bone was not perforated at the usual point, but some little distance lower down, near the tip of the process. As there was nothing in the appearance of the tone to indicate that pus had already formed beneath the surface, I made the perforation in the lower instead of the upper portion of the process for the express purpose of ascertaining whether or not the same degree of relief could be afforded by establishing a free opening at this remote portion of the communicating system of cells. As some might be deterred from performing the operation through fear of injuring the lateral sinus, it seemed to me desirable to ascertain whether this remote location, where the operation would be entirely free from the danger referred to, would not answer just as well, at least in the earlier stages of the disease. The difficulty, however, or rather impossibility, I should say, of determining the exact stage of the disease, and the danger of losing valuable time, so far as the patient's life is concerned, render it advisable to choose the usual location, higher up. Here, if pus has already formed, we shall reach it by the most direct route; and if the parts be simply in the stage of congestion, the relief will, at least, be as great as if the opening had been made lower down. As to the danger of wounding the lateral sinus, I have already stated* that it should not be a source of fear to the operator who uses his instruments cautiously.

* In the article above referred to.

