SHASTID (T.H.)

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# A NEW OPERATION FOR CHRONIC CATARRHAL AND CHRONIC SUPPURATIVE DEAFNESS.

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IN several cases of deafness, of the kinds mentioned above, I have noted the results of traction on the handle of the malleus by means of a blunt hook carried through an incision in the drum-membrane. This procedure, so far as I know, has not been performed or proposed before.

It was suggested to me by an accident, which, in the course of an operation, occurred in consequence of the unruliness of the patient. This patient had long been a sufferer from catarrhal deafness with subjective noises, for which all the ordinary means of treatment had been tried in vain. I was therefore attempting, by an original method, to produce a permanent perforation of one of her tympanic membranes. Just at a moment when, as a part of the technique of my method, I was introducing through the perforation an angular spatula, the patient suddenly, and without a word of warning, jerked her head away, and the spatula, engaging in the tympanum, was pulled from my fingers. When I recovered the instrument she declared that she heard better. A moment later she declared also that her "head noises" had almost ceased. The assertion regarding the hearing I verified, finding that the hearing-distance had increased for the acoumeter from 4 feet to 25 feet, for loud speech from 8 feet to 30 feet, and

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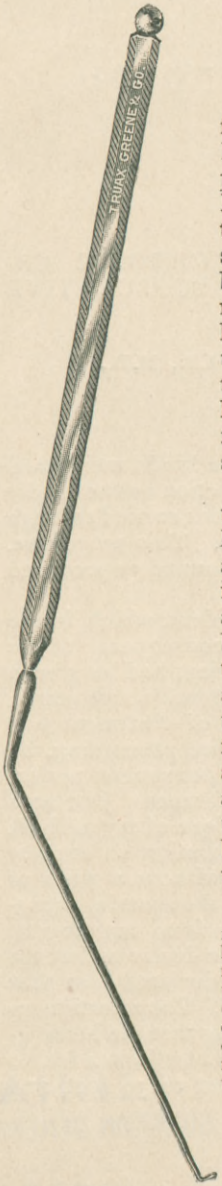




for whispers from 0 inch to 8 feet.[1] Exactly what it was that had taken place to produce the improvement I could not determine; but from the position in which I had held the spatula I thought that it must have been a traction made by the instrument upon the handle of the malleus. Whether or not this explanation was right, the procedure of traction on the handle of the malleus applied intentionally I have frequently found to give good results.

The way in which I do the operation is this: The auditory canal having been thoroughly cleansed and antisepticized, a slight scratch is made with the lance-knife on the anterior portion of the drum-membrane and a twenty per cent. solution of cocaine instilled into the ear and allowed to remain for five minutes. This not only produces perfect anæsthesia for the incision, but also decidedly lessens the unpleasant sensations that accompany the tractions. These sensations, it may be as well to remark, are usually whistling, ringing, or roaring sounds,

[1] The first figures in these comparisons represent the hearing distance as it was after having been improved by the artificial perforation It is an interesting fact in this case that when the artificial perforation closed no diminution in the hearing occurred. This can be explained by supposing that the hindrance to sound-conduction having been removed by the accident, the perforation was no longer advantageous.

together with dizziness and sometimes actual pain. The incision is made with the lance-knife just anterior to the handle of the malleus, parallel with it, and from two and a half to three millimetres in length. It is made in front of the handle rather than behind it, since in the former place the hemorrhage is less—though in neither place is it of much consequence. The first instrument that I used for applying the traction was the angular spatula; but I have since had made a blunt hook which I find far easier to introduce through the simple slit. This hook (shown in the illustration a trifle too heavy and too long) is 1½ mm. in length, slightly enlarged and rounded at the extremity, very slightly curved toward the operator, and mounted on a shaft at an angle of one hundred degrees. It is introduced through the incision and rotated in such manner that it comes to lie directly across the handle of the malleus, when with it are made three or four rather quick, but of course perfectly gentle, tractions. It is then turned and withdrawn. If, upon test, no improvement be found, the instrument may be again introduced and the tractions repeated with a little more force. This technique has been employed, practically without variation, in all the cases whose record follows, the single modification having been the substitution in the last four cases of the blunt hook, or tractor, for the spatula. The incision, it is true, instead of being made parallel with the handle of the malleus, might be made at right angles to it, when the necessity for rotating the hook would be obviated; but since I have observed that now and then during the performance of the tractions the hook slips along the handle of the malleus, I have thought that if the incision were at right angles the hook in slipping might possibly tear the membrane and thus inflict upon it an unnecessary traumatism.

Case I.—A woman, thirty-two years of age, complained of bilateral deafness with loud subjective noises. The noises she had had for many years, the deafness

she had noticed for only two years. The drum-membranes exhibited no changes, except slight retraction. The tuning-fork, however, localized the trouble in the middle-ear. The hearing distance of the right ear was, for the acoumeter, 1½ foot; for loud speech, 12 feet; of the left ear, for the acoumeter, 2 feet; for loud speech, 10 feet. Politzerization and massage of the ossicles for six weeks produced no improvement. Traction was performed on both sides, and the hearing distance of the right ear was found to be, for the acoumeter, 18 feet; for loud speech, 20 feet; for whispers, 5 feet. Of the left ear, for the acoumeter, 20 feet; for loud speech, 20 feet; for whispers, 5 feet. At the end of a week this improvement had almost subsided. Traction was applied a second time with a quicker, sharper touch, and the hearing distance of the right ear found to be, for the acoumeter, 25 feet; for loud speech, 25 feet; for whispers, 5 feet; of the left ear, for the acoumeter, 25 feet; for loud speech, 25 feet; for whispers, 5 feet. These distances, at the end of six months, were found to have remained unaltered.

CASE II.—A man, thirty years of age, had had suppurative otitis media for twelve years, during the last six of which he had noticed a gradually increasing deafness. Both ears, at the time he came to me, were discharging. The drum-membranes presented, each, a large perforation, through which could be seen a mass of granulations. The granulations were removed and the tympana treated to a cure. The hearing distance of the right ear was then found to be, for the acoumeter, 5 feet; for loud speech, 5 feet; of the left ear, for the acoumeter, 15 feet; for loud speech, 20 feet. Politzerization and catheterization had frequently been applied during the treatment of the otitis, and hence were not further indicated. Traction was tried, but gave no results. At the end of a week it was tried again, and at the end of another week a third time, but each time without results. The reason why traction was not ser-

viceable in this case was, I thought, that here there was no restricting tissue to be loosened or torn ; on the contrary, the ossicular ligaments were relaxed and the ossicles themselves already too mobile.

CASE III.—A woman, aged thirty-five, had had deafness and tinnitus aurium for five years. The pharynx was covered with granulations. The drum-membranes were opaque and moderately retracted. The hearing distance of the right ear was, for the acoumeter, 15 feet; for loud speech, 20 feet; of the left ear, for the acoumeter, 10 inches ; for loud speech, 12 inches. Politzerization and massage of the ossicles for four weeks increased the hearing distance of both ears, for the acoumeter, by 3 feet, but the hearing for speech it did not improve. Traction was applied, and increased the hearing-distance of the right ear, for the acoumeter, to 25 feet; for loud speech, to 28 feet; but the hearing of the left ear it did not improve. At the end of four weeks the increase in the distances of the right ear had totally subsided. Traction was not re-performed, as the patient was shortly to pass from observation.

CASE IV.—A girl, aged sixteen, had been deaf from catarrh for one year. She had been treated by Politzerization and catheterization with the result, she said, that she got worse. The pharynx was covered with granulations, and the mucous membrane covering the inferior turbinated bones was hypertrophied. The drum-membranes were opaque and moderately retracted. The hearing distance of the right ear was, for the acoumeter, 9 inches; for loud speech, 5 feet; of the left ear, for the acoumeter, 5 feet; for loud speech, 10 feet. Under three weeks' treatment of the nose and pharynx the hearing of both ears increased, for the acoumeter, 3 feet, but for speech not at all. Traction was applied, and the hearing of the right ear increased, for the acoumeter, to 15 feet; for loud speech, to 20 feet; of the left ear, for the acoumeter, to 20 feet; for loud speech, to 35

feet. The treatment of the catarrh was continued to a cure, and the results are now, six months after traction, practically unaltered.

CASE V.—A girl, aged ten, had been deaf from catarrh since the age of six. She had repeatedly been treated, with but slight and temporary results. The Politzer air-bag had, by her last physician, been placed in the hands of her parents with instructions to "use it." It had been used vigorously and frequently, often several times a day. The membranes were atrophic and flaccid, and the one on the right side was ruptured. The hearing-distance of the right ear was, for the acoumeter, 4 inches; for loud speech, 2 feet; of the left ear, for the acoumeter, 6 inches; for loud speech, 2 feet. The air-douche was discontinued, and the pharynx was treated for four weeks. At the end of this time no improvement could be found in the hearing. Traction was applied, and the hearing-distance of the right ear found to be, for the acoumeter, 30 feet; for loud speech, 35 feet; for whispers, 12 feet; of the left ear, for the acoumeter, 35 feet; for loud speech, 35 feet; for whispers, 15 feet. These distances, five months afterward, were found to be unaltered.

CASE VI.—A woman, aged thirty, had been deaf since the age of four. At the latter age she had got a suppurative otitis media from an attack of measles. The discharge had persisted till the age of ten or twelve. For the last eight or ten years the deafness had steadily grown worse. The drum-membranes were white, perfectly opaque, and slightly retracted, the left one presenting a small perforation. The acoumeter could be heard by the left ear only at 4 inches; by the right ear, not at all. Speech could be heard only when very loud and very near. Under Politzerization with treatment of the naso-pharynx the hearing did not improve. Traction was applied, and the hearing-distance of the right ear increased, for the acoumeter, to 2 feet; of the left ear, to 4 feet. The gain in hearing for speech,

however, was much more remarkable, moderately loud speech being distinctly heard by either ear at 16 feet. This, in effect, restored to the patient her power to converse. It is now three months since the results were secured.

To sum up the report: Of the six cases four were of catarrhal, two of suppurative origin. Of the four cases of catarrhal origin traction was found useless in one, decidedly beneficial in three. Of the two cases of suppurative origin traction was found useless in one, decidedly beneficial in one. All the cases had previously been treated by ordinary methods, either entirely without benefit or with benefit of only a slight or only a temporary character.

How can we explain the fact that in some of these cases traction succeeded when the usual methods had failed? In this way: By traction the force was applied to the ossicles directly; by the usual methods it was applied to them indirectly—that is, through the medium of the drum-membrane. This structure, in many cases of middle-ear deafness, is so thickened and stiffened that when the blast of air strikes upon it it either entirely refuses to draw the handle of the malleus outward, or draws it outward to only a very slight extent. Even when the membrane willingly stretches till the umbo has described as great an outward arc as it could possibly do under the influence of traction—even then, by its very stretching, the membrane lessens the suddenness with which the force acts upon the ossicles. But it is precisely suddenness of action that we want. The truth of this last assertion we may know not only from the supposition that, in these cases, the good that is done is accomplished by the rupturing of limiting adhesive bands, and hence is accomplished in greater degree the greater the rupturing power or suddenness with which the force acts, but also from the well-known clinical fact that frequently when inflation, by means of a slow, gradually increased blast, has been tried in vain,

a quick, sharp, sudden blast opens the gates of sound like magic.

In conclusion, I desire that in laying before the profession the facts concerning this operation I be not misunderstood. As a measure for routine I do not think the procedure worth the slightest attention. Politzerization, catheterization, and massage, in the kinds of cases we have been considering, have long been, and are likely long to remain, our chief reliance, to the almost total exclusion of intra-tympanic operations. All that I wish to claim for traction on the handle of the malleus is that it is simple and safe, and that, judging from the results in the few cases in which I have tried it, it is likely to prove of real and decided service in some of the many cases in which ordinary treatment is ineffective.