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THE INJURIOUS EFFECTS OF THE NASAL DOUCHE AND OTHER APPLIANCES FOR FLOODING THE NASAL CAVITY; WITH EIGHTEEN CASES.

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THE treatment of diseases of the nasal cavity by local remedies was brought prominently before the profession, on this side of the Atlantic, by an article of Dr. Thudicum on the Treatment of Polypus of the Nose and Ozæna by the Nasal Douche, in the *London Lancet* of 1864. This appliance, which has for its object the flooding of the nasal cavity, and also various forms of syringes and instruments since introduced for the application of liquids in the anterior and posterior nares, have now become extensively employed. Unfortunately, however, their use is not confined to cases where they are prescribed by physicians; but under various popular names they have obtained a very extensive sale, being used not only for the cure of nasal catarrh, but for all trifling or imaginary diseases of the nasal cavity. From the novelty of their application, and the apparently harmless nature of the liquids usually employed, they are often taken by members of the family as articles of toilet, or for their cleansing effect. The great extent to which they are used is perhaps not fully known to the general practitioner; but the specialist has abundant opportunities for witnessing their effect, not only in the diseased state, but in health. In the writer's experience, of the large number of patients who employ these agents, a great proportion are found to have no trouble of the nasal cavity, or only a slight irritation resulting from their use.

For many years aurists have considered the treatment of nasal catarrh with the douche as attended with serious danger, this danger being the flooding of the Eustachian tubes and passing of liquid into the tympanum, thereby causing inflammation of that organ, with all its sequelæ. As early as 1869, Dr. Roosa, in a note to his translation of Troeltsch on Diseases of the Ear, speaks of the danger of the douche, and in an article published in the *Archives of Ophthalmology and Otology*, ii. 76, he has collected, from various sources, sixteen cases, in which

results more or less serious followed its use. Dr. Pardee, in an excellent article in the *New York Medical Gazette*, vol. vi., No. 23, reports several cases in which acute aural inflammation was caused by it. Other cases have been reported, the ætiology of which cannot be doubted, all tending to show its injurious effects. The opinion long since expressed by Dr. Roosa, that the employment of the douche should be discountenanced by the profession, is now quite generally accepted by aurists.

On the other hand, some of the advocates of the nasal douche claim for it great efficacy in the treatment of diseases of the nasal cavity, and regard the evil results following its use as due to the improper manner in which it is employed. It is a question whether the beneficial effects of the douche have not been very much overrated. As a matter of cleanliness, as in cases of ozæna, both the douche and the syringe are of undoubted service. But in the large majority of cases in which these agents are employed, the same results can be obtained without any risk by the atomizer.

It is a curious coincidence in the writer's experience, that sooner or later patients with ozæna, in using the douche, are very likely to have suppurative inflammation of the tympanum. It is well known to the profession that the liquid almost invariably employed, both in the douche and in the various syringes, is tepid salted water; and of a large number of patients, seen in infirmary and private practice, who were using these appliances, but few cases can be recalled where any other liquids had been employed.

Experience has abundantly proved that the nasal cavity and adjacent parts will often tolerate the use of remedies in this way, for a very long time, without manifest injury; and this too without any great care on the part of the patient. The directions given by writers for the proper administration of the douche vary. They all have, however, the same object in view, to prevent sneezing, or any other motion by which the palate can be relaxed, and allow the liquid to trickle into the pharynx and thus produce *involuntary* swallowing. It is a question whether the force of the stream alone may not be sufficient, in some instances, to open the closed Eustachian tubes, and the liquid be passed into the tympanum. This would certainly seem to be so, since in some cases where the post-nasal syringe has been used, the use of it resulted in acute otitis media. This, however, is not the usual way in which the accident with the douche occurs: but by the escape of only a trifling quantity of liquid from the post-nasal cavity into the fauces an involuntary effort at swallowing is made, the Eustachian tubes are opened, and the liquid passes into the tympanum with an audible rush. The patient is then fully aware of what has taken place. The stereotyped remark on visiting the aurist is, "I felt the water go into my ears."

Granting that the *involuntary* act of deglutition is the cause of most of the accidents which take place from the employment of the douche, it becomes a matter of the greatest importance to know whether, by faithfully carrying out the directions of any of the various writers, one can be insured perfect safety in preventing this act. That there will be an escape of liquid from the post-nasal cavity into the fauces in a certain number of cases, even when the douche is properly employed, will be generally accepted; and it seems fair to infer that in many of these it must give rise to *involuntary* deglutition. One of the principal precautions insisted on by the advocates of the douche, in case of the escape of liquid into the throat, is that the operation should be immediately suspended. Unfortunately, in many of these cases, it is too late; the involuntary act of swallowing has already taken place, the liquid has passed through the open Eustachian tubes into the tympanum. The use of the douche, therefore, can never be unattended with danger, and one employing it is at any time liable to be the subject of serious and even fatal consequences.

Recent experiences would seem to justify the belief that the use of the nasal syringe, also, and all other appliances for flooding the nasal cavity, is attended with some risk; and that it is not even necessary for liquids to enter the tympanum, to produce harm. Instances are not infrequent where acute tubal catarrh can be traced directly to the employment, not only of the douche, but of the nasal syringe. The belief expressed by some otologists, that the douche may give rise to chronic otitis media, seems plausible; that it is sometimes pernicious in such cases, by aggravating an already existing chronic inflammation, there can be no doubt. Persons who have been but very slightly deaf for years, sometimes begin the use of the douche, for real or imaginary trouble, and in such instances it is not uncommon for them to experience a very decided increase of deafness, which can be traced to the time when the douche was first employed.

Eighteen cases of injury are presented, in sixteen of which it was from the nasal douche and syringe, in one from the forcing of liquid into the tympanum by the Valsalvian method, and in one from the snuffing of liquid into the nostrils. With one exception, they have all occurred during the last two years, and most of them within a few months. The first eleven are condensed from records in private practice, and little mention is made of treatment, as not being of interest in this connection. The last seven were treated during service at the Massachusetts Charitable Eye and Ear Infirmary. The history of these cases is not complete, and some of them could have been extended from memory, but it was thought best to present them just as recorded.

In five there was acute otitis media, with perforation of the drum-head, from the douche. In five there was acute otitis media, without

perforation of the drum-head, from the douche. In two there was subacute otitis media, without perforation of the drum-head, from the douche. In one there was increase of chronic otitis media. In one there was acute otitis media, without perforation of the drum-head, from the syringe. In one there was subacute otitis media, without perforation of the drum-head, from the syringe. In one there was acute otitis media, with perforation of the drum-head, from snuffing liquids into the nostrils. In one there was subacute otitis media in one ear, and formation of polypus in the other ear, from forcing liquids into the tympanum by the Valsalvian method.

April 26, 1876. U. L., aged forty-one. He had never had any trouble of the ears. Four months ago, by the advice of friends, he began the use of the nasal douche for catarrh. He used tepid salted water, twice daily, the reservoir being raised two feet. After using it three weeks, he noticed occasional crackling and ringing of the right ear. He then discontinued it, and began the use of the posterior nasal syringe, allowing the liquid to flow out of the nostrils. The preparation employed was obtained from an irregular practitioner, and was probably a weak solution of carbolic acid. On using this for the third time, "he felt the water rush into his ears." Both ears felt stopped, and he was immediately quite deaf. Three hours afterwards, blowing his nose was attended with severe pain and crackling. The former continued with intervals of relief for about ten days, when it was followed by a free discharge of bloody serum from both ears. He has lost twenty pounds of flesh.

Examination revealed suppurative inflammation of the tympanum on both sides. There were two perforations of the drum-head in the right ear, and one large slough in the drum-head of the left. The auditory passages were filled with pus, the mastoids tender and slightly swollen. The watch was heard on pressure over the auricle on both sides. At last visit there were indications of extension of trouble to the mastoid cells.

September 18, 1875. A. M. X., aged sixty. Has been snuffing tepid salted water a number of months, for nasal catarrh, and for the last few months has been using the nasal douche with the same liquid. He has received no instructions in regard to the douche except general ones from a friend. He was, however, fully aware of the precautions to be taken to prevent swallowing, and does not attribute his accident to any want of care. Last night, after using the douche, his ear felt uncomfortable. Soon after retiring, he was awakened by severe pain, which continued until morning, when very great deafness came on. This was more noticeable on account of chronic deafness of the other ear.

Acute otitis media was found in the left ear. The drum-head was injected and there was tenderness in the mastoid region. The watch was not heard.

May 1, 1876. C. F. A., aged twenty-six. Never had any trouble of ears. Ten days ago he began to snuff tepid salted water into the nostrils for catarrh, allowing it to pass into the mouth. It was used twice the first day. The second day it was attended by an uncomfortable sensation of the left ear, followed by deafness, and at midnight by pain, obliging him to walk the floor the rest of the night. The following day the ear began to discharge freely, and the pain was relieved. Deafness and discharge continued, and to-day the pain returned with renewed severity.

There was acute otitis media of the left side, with a large perforation of the drum-head posteriorly and tenderness of the mastoid process. The watch was not heard. Leeches and morphia were ordered.

March 21, 1876. K. I. T., aged forty-eight. Reports himself as slightly deaf a number of years, not enough to be inconvenienced. Five weeks ago, by the advice of a friend, he began the use of the nasal douche with tepid salted water for catarrh. Two weeks ago, after employing the douche, his ears felt uncomfortable for the rest of the day, and late in the afternoon there was pain, which continued during the night, preventing all sleep. Deafness was not noticed until the following morning, but he thinks it may have existed the evening before, the severity of the pain preventing his noticing it. The pain continued for one week, more especially at night.

On examination there was found well-marked subacute catarrh of the tympanum on both sides. The watch could not be heard on pressure over either ear.

December 27, 1874. K. X., aged forty-seven. By the advice of a physician, he began the use of the nasal douche with tepid salted water, one year ago, for nasal catarrh. He never had any trouble of the ears. He had used the douche every second day, and occasionally daily. The first of this week, immediately after employing the douche, he noticed a crackling of the ear, with a feeling of fullness. Deafness and pain came on before night. Last night the pain was very severe and he sought advice.

There was found acute otitis media of the left side, the membrane of the tympanum was red and swollen, and the position of the malleus not to be made out. The watch was heard on pressure over the auricle. The Eustachian tube was patent. Ordered leeches to the ear, and inflation by Pollitzer's method. Appropriate treatment followed up for two months resulted in a very great improvement.

April 20, 1876. X. I. H., aged thirty-nine. Had never had any trouble of the ears. Two months ago, for supposed nasal catarrh he bought of an irregular practitioner an appliance for introducing liquids into the anterior nares. The instrument was very much like the douche, and depended for its force on the pressure of the liquid, which

was intended, however, to flow into the mouth. The liquid employed was probably a weak solution of carbolic acid. On using this for the first time, it produced dizziness, and was followed immediately by tinnitus aurium and a stuffed feeling of the head. These symptoms continued, but without pain, till on the third day after employing it, he became very deaf.

Well-marked subacute catarrh of the tympanum was found on both sides. The drum-heads were depressed and injected. He is still under treatment.

April 7, 1876. K. D. Q., aged forty-five. Has been deaf in both ears several years. Has used nasal douche with tepid salted water last five years, usually raising the bottle two feet. Never until this accident had any trouble. Six weeks ago, in using the douche, and before the tube was fairly away from the nostril, he attempted to blow his nose, when the water, as he says, "rushed into his ears." Pain came on in two hours, and continued with great severity for two weeks. During this time he was under the care of his family physician, was leeches, and kept fully under the influence of morphia and hydrate of chloral. There was swelling and tenderness over the mastoid processes, and redness which extended down over the course of the sterno-cleido-mastoid muscle. Deafness in a high degree, with dizziness, came on early.

Acute otitis media was found on both sides. The drum-heads were injected and unusually concave. Slight swelling with redness down the side of the neck. The Eustachian tubes were patent. The watch was not heard in the right ear, but was heard in the left on pressure over the auricle. The power of hearing ordinary conversation was very much impaired.

September 27, 1875. Q. E., aged thirty-four. He never had any trouble of the ears. Three weeks ago, by the advice of a physician, he began the use of the nasal douche with tepid salted water, for catarrh, the reservoir being held about a foot and a half above the head. One week ago, immediately after using the douche, his right ear felt uncomfortable and full. This was followed by severe pain, lasting all night. In the morning the ear discharged bloody serum profusely.

Acute otitis media was found, with a perforation of the drum-head at its lower segment, around the edges of which was a small mass of granulations. The watch was not heard. After two months' treatment he made a good recovery.

March 6, 1876. N. K. D., aged twenty-four. Had never any trouble of the ears. He began the use of the nasal douche, with warm salted water, four days since, by the advice of friends, for catarrh. An hour or two after using it the second time, when blowing his nose, a crackling was heard, followed by deafness of both ears. Pain soon fol-

lowed, preventing all sleep, which was relieved in thirty-six hours by the appearance of a free discharge of bloody serum from the ear. Pain returning, he sought advice.

He had acute otitis media on the right side, with a large perforation of the lower half of the drum-head. The meatus was filled with pus and swollen. There was tenderness of the mastoid processes. The watch was not heard. Treatment was continued for three weeks, when there was suppurative inflammation of the tympanum.

April 10, 1876. N. H., aged forty. Three years ago slight deafness was noticed, which for two years and a half increased perhaps a little. The increase was hardly apparent, and she is in some doubt about it. Six months ago, by the advice of a relative, she began the employment of the douche with tepid salted water every second day. For several months past she has noticed at times, on taking the douche, a crackling of the ears and a very great loss of hearing; this latter is so great that she is now unable to hear ordinary conversation, and can only understand, when spoken to distinctly by a person standing very near; whereas before using the douche she was able to get along with but little difficulty, not only at home, but in public assemblies.

Chronic otitis media was found; no evidence of acute trouble. The watch was not heard in right ear; heard in left ear on pressure.

March 2, 1876. K. G., aged thirty. Is a warm advocate of the douche, having used it herself nearly five years, once or twice daily, with tepid salted water, for catarrh. One week ago, soon after using the douche at night, she was taken with severe pain and deafness of the right ear, followed in the morning by a discharge of bloody serum from the external meatus.

Acute otitis media was found. No perforation of the drum-head could be made out, although it is probable that there may have been one, which had healed. The manubrial plexus of vessels was much injected. Hearing with watch, $\frac{1}{2}$ to $\frac{3}{4}$. Nothing abnormal was found about the naso-pharyngeal cavity.

The douche, which she had used regularly for nearly five years, was discontinued, and four days afterwards she expressed herself as feeling much better without it.

"No. 155, Vol. 4. F. K., aged twenty-five. Otitis media acute. Trouble came on second day after beginning the use of the nasal douche."

"No. 51, E. K., aged twenty-five. Acute otitis media. He has been using nasal syringe for ten days past. Last Saturday, felt uncomfortable in right ear after using it, and was roused early the following morning with severe pain of the ear. He says he has used the syringe with considerable force."

"December, 1875. W. G. T., aged thirty. Otitis media purulenta.

In right ear, sequelæ of scarlatina, twenty years ago. Ear looks remarkably well for one that has discharged so many years. The otorrhœa is slight and muco-purulent. The drum-head is clear and transparent, with a small perforation posteriorly. Cleanliness only was advised."

This patient at the time of his first visit had had but a very slight muco-purulent discharge for many years from the right ear, and it was, for this he sought advice. The left ear he regarded as well, although he thinks the hearing may not have been perfectly normal. It was, however, good, and he was able to get along without difficulty. As stated in the Infirmary record, the drum-head looked clear and free from inflammatory action, and had probably been in this condition for many years, as he states that the discharge was so slight as hardly to be detected, and the ear had not in any way troubled him since childhood. After an interval of four months he comes again May 4, 1876, for advice, with the following story: He consulted an irregular practitioner, in January 1876, received from him a liquid, which he has snuffed into the nostrils twice daily and forced into the ears by the Valsalvian method. He followed this for about a month. It produced a burning sensation in the right ear and a fullness of the left. The right immediately began to discharge freely, and it became purulent. Deafness increased rapidly in the left ear. Attacks of giddiness came on, which increased, obliging him to change his occupation several months ago from carpenter to a private watchman.

On examination a fibrous polypus was found completely filling the right external meatus, with a free discharge of pus. In the left ear, there was injection of the manubrial plexus of vessels, and other indications of subacute trouble. Hearing was very seriously impaired; conversation was heard if clear and distinct within a few feet, but with difficulty.

"No. 1864, Vol. 4. J. D., aged nineteen. Had never had any trouble of the ears. Four days ago, before retiring, he used the nasal douche with tepid salted water, and was roused early in the morning by pain of left ear. There was acute otitis media with perforation of the drum-head at its lower segment."

"No. 631, Vol. 4. J. F., aged twenty-four. Has been using the nasal douche about one year for catarrh, with tepid salted water. Trouble came on thirty-six hours before visit. There was acute otitis media."

"No. 1191. K. C., aged twenty-five. Medical student. One week ago, while using the nasal syringe, which he had employed some time previously, he felt the water go into his Eustachian tubes, and as he thinks into his ears. In an hour and a half the ear began to pain him very severely, keeping him awake all night, and was not relieved by full doses of Dover's powders.

"There was found subacute catarrh of the tympanum on both sides, and mucous râles in both tubes."

"No. 1098. H. C., aged twenty-four. He has never had any trouble of ears. He has snuffed salt and water into nostrils for six months past, and has felt it go into his ears several times and come out again. One week ago it went into the left ear, and was followed by severe pain and deafness, terminating in a discharge of pus from the meatus. There was acute suppuration of the tympanum."

DIPHTHERIA SUCCESSFULLY TREATED.

BY E. CHENERY, M. D., BOSTON.

EVERYTHING looking towards a successful management of this so frequently fatal disease ought to be made known. This is my apology for this article, which is based on one hundred and fifty-eight cases under my care. Most of them were treated in Maine from 1862 to 1866, and the remainder in and about Boston since that time.

I will not waste space on theories, but simply say : (1) The disease is both epidemic and contagious, and so far as the latter manner of spreading is concerned, isolation should be practiced whenever possible. (2) The disease is to be regarded not as a simply local affection, but a constitutional state, having its local expression in the throat, just as typhoid fever is a general disease having its local expression in the glandular structures of the small intestines, or scarlet fever upon the skin and mucous membrane. Hence the rational indications are to deal with diphtheria as a constitutional affection rather than as a local one. And (3) Granting, what is generally admitted, that this constitutional state depends upon some blood-poison, developed through zymotic change, the treatment, to be rational, must look to a suppression of this fermentation. The all-important question then is, Have we any means that will do it? And the object of this paper is to show that we have. I have had diphtheria myself, and so has my family, and I have treated quite a number of cases by the free use, in milk, of a tincture I have named the compound tincture of myrrh (made by digesting an ounce each of capsicum, powdered myrrh, and powdered guaiacum in a pint of alcohol), employing at the same time quinine and the tincture of iron freely, and fomenting the neck with bags of baked potatoes ; but I at length came upon a case which forbade hopes from such a treatment alone. This patient was an only child, a girl of six, weakly, thin, pale, scrofulous, with tonsils well-nigh meeting across the throat. Patches had formed over these, and the child was delirious.

Professor Polli, of Italy, had broached the subject of the anti-zymotic powers of sulphurous acid diffused in the system. I was pleased with his statements, and felt that my time had come to make a departure in my case. I sought for the *bisulphite* of soda and, failing to get it,