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OF
CHRONIC SUPPURATIVE INFLAMMATION
OF THE
MIDDLE EAR.

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EAR, AND THROAT, IN THE MICHIGAN COLLEGE OF MEDICINE, DETROIT.

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MR. PRESIDENT AND GENTLEMEN,—Within the past two or three years the resources of the aural surgeon have been greatly increased by the introduction of new remedies, and also by the use of old remedies in a new way.

The so-called dry treatment of that disgusting and dangerous affection, chronic suppurative inflammation of the middle ear, has come into vogue, and, in appropriate cases, the plan has proven highly beneficial.

All of you are aware that dangerous complications may arise in the course of a chronic suppurative inflammation of the tympanic cavity, and, doubtless, many of you have seen examples of caries and necrosis of the temporal bone, mastoid abscess, meningitis, cerebral abscess, or death, which occurred as the result of a neglected suppurative otitis media.

I regret that my time and space will not permit a consideration of the *sequetur* of this disease or a discussion of the complications which may arise in its course, and of the best means of managing them. Neither shall I attempt to discuss, in a general way, the treatment of the disease itself, nor all the remedies employed for that purpose, but shall confine my remarks to the so-called dry treatment of the affection. By way of preface, however, it must be said that all remediable complications must be removed before beginning the treatment of the tympanic inflammation. For example, if aural polypus or

granulations exist, they should be destroyed or removed, and so it is also with removable pieces of necrosed bone, either in the mastoid or elsewhere. Should a mastoid abscess be present, it must, of course, be evacuated by operative procedure. The necessity of attending strictly to these points cannot be too strongly impressed upon the surgeon. The advantages which the dry treatment of chronic suppurative otitis media seems to offer are:

1. The constant medication of the parts in a manner which is well nigh impossible by any other means.
2. The thorough and continuous disinfection of the parts, and the destruction of micro-organisms.
3. The absorption of the discharges and protection from their irritating properties.
4. Protection from atmospheric influences.

The constant medication of the diseased surface can be best effected by remedies in the form of powder. If a portion of the powder becomes dissolved by the discharges, fresh particles of powder supply the place of that dissolved. Besides this, a much larger quantity of the drug can be thus applied than it would be possible to use in liquid form. The discharges from most ears affected with chronic suppuration swarm with micro-organisms, and their destruction is a matter of much importance. This destruction can be more easily and more thoroughly accomplished by means of dry treatment than by any other. It is true, remedies in liquid form can be advantageously employed, but if used of sufficient strength to accomplish the desired result, they may and often do irritate the ear. Then, again, the action of the remedy is not continuous, as is the case when powders are employed. The disgusting odor of the discharge is what drives the patient to seek relief in many instances, and if the relief can be easily and speedily obtained, it inspires the patient with confidence, and he will give the physician an opportunity to accomplish a cure. The boracic acid powder, or the boracic acid and resorcin, very effectually destroy the foul odor of a suppurating middle ear, and either of them is less irritating than any equally effective agent that we can use in liquid form. The perchloride of mercury, another powerful disinfectant and germicide, may be used with boracic acid or with bismuth.

The discharge itself, in many cases, is very acrid and irritating. As a result of this we sometimes find inflammation of the dermal lining of the external auditory canal. It is practically impossible to remove these discharges sufficiently often to prevent their accumulating in the auditory canal, and their presence is a source of much mischief and discomfort. Especially when eczema of the canal exists, do we find the bad effects of irritating discharges. In such cases, powders afford us a vast advantage over liquids. If the discharges are sufficient to irritate and inflame the dermal covering of the canal, they must also be a source of much irritation to the drum itself, and any means which will prevent such irritation must offer special advantages. The discharges can be absorbed to a considerable extent by the use of powders, and this is an important point in their favor. Of course a discharge may be so profuse as to render the action of the powder *nil*, because the powder may become super-saturated before it has had time to exert any beneficial influence.

That protection from atmospheric influence is a matter of much importance, all will concede. It is an important measure, not only in the treatment of chronic suppurative otitis media, but also in all cases of aural inflammation, especially if the inflammatory action is attended with discharge. A draught of cold air should never be allowed to blow upon an ear whose drum membrane is not intact. Of itself a draught of cold air is often sufficient to excite an acute inflammation of the ear, and if so, it must be capable of exciting a decidedly injurious influence when the *membrana tympani* is perforated. Then, germs, dust, etc., may be carried into the tympanic cavity if it is not protected. Now, the use of powders affords us complete protection from the injurious atmospheric influences; and, indeed, some aural surgeons believe that this protection is the chief advantage which the dry treatment possesses over the moist.

I do not pretend to claim that powders should be used to the exclusion of remedies in other forms, and it must be admitted that in certain classes of cases the dry treatment does not produce satisfactory results. While no very definite plan can be laid down for the management of individual cases, yet some rules can be formulated for our guidance in a general way. The so-called dry treatment would seem to be contra-indicated under the following circumstances:

First, When the discharge is so profuse that the powder becomes super-saturated with it before it has had time to exert any beneficial influence. In such cases the remedy does not afford any of the advantages of the dry treatment, and may do harm instead of benefit. I have seen several cases where the dry treatment proved a failure in the hands of others, and this failure was due to the fact that the powder became thoroughly saturated within an hour or two after its application. Sometimes the abundance of discharge was due to one cause, and sometimes to another; but usually to the presence of large granulations or to polypus.

Second, When granulations or polypi exist, whether accompanied by excessive discharge or not, the dry treatment should not be employed until these bodies are destroyed or removed. Powdered boracic acid will, however, in some instances, cause the destruction of granulations and polypi as will be seen in the report of cases.

Third, Where the disease is complicated by necrosis of the temporal bone. In such cases it should be our aim to get rid of the dead bone, and to such end we should encourage nature in her efforts instead of impeding her.

Fourth, When mastoid abscess is present or is suspected. Here everything should be done to favor the outflow of pus, and any treatment of the tympanic cavity, except cleanliness, must be useless so long as we have a suppurative process in the mastoid cells. Of course such abscess should be at once evacuated by operative procedure.

Fifth, When there is any good reason to suspect the presence of meningeal or cerebral complications.

The remedies which may be used in dry form are numerous, although I have confined myself to the use of a few. Boracic acid I have found to meet the indications in the majority of cases. When absolutely free from impurities, such as sulphuric acid, etc, it is a valuable therapeutic agent. But, strange as it may appear, it seems difficult to get an absolutely pure preparation of boracic acid. Quite often the failure to cure a given case of chronic suppurative otitis media is attributed to the acid when in reality the failure is due to some impurity in the powder which keeps up an irritation of the ear. I have had some very unpleasant experience with impure preparations of this

drug. In several instances where an impure article proved irritating and aggravated the disease, a sample free from impurities quickly effected a cure.

I have found the boracic acid manufactured by John Wyeth & Bro., to give uniformly satisfactory results.

Boracic acid and resorcin—seven parts of the former to one of the latter—also form a good combination of two very powerful antiseptic agents. The resorcin is too soluble to be used alone, and therefore its union with some other agent is advisable.

Bismuth, subnitrate and perchloride of mercury, one or two grains of the latter to the ounce of the former, make a very valuable compound for certain cases. The bismuth is a great absorbent, and the corrosive sublimate is not only a valuable disinfectant but a powerful germicide. When chronic suppurative inflammation of the tympanic cavity is complicated by a dermatitis or ulceration of the auditory canal or by eczema, the combination of bismuth with corrosive sublimate is especially valuable. The mercurial may also be combined with boracic acid in the same proportions as with bismuth. Astringents, such as pulverized alum, etc., may be combined with boracic acid if desired. In this way numerous compounds can be formed; but a few will answer every purpose. I have found as much advantage from the use of pure boracic acid as from the acid combined with other substances.

In common with many other aural surgeons who employ powders in the treatment of chronic suppurative otitis media, I pay great attention to the thorough cleansing and drying of the tympanic cavity and external auditory canal before using the powder. These may seem to be unimportant points, but if ever the adage, "What is worth doing at all is worth doing well," were fully illustrated, it is in regard to the importance of thoroughly cleansing and drying the ear before treatment. As a rule three agents are necessary to cleanse an ear—the syringe, the Politzer bag and the cotton mop. In some cases, however, the use of a syringe may be dispensed with; but I do not think any harm comes from the proper use of the syringe as some writers would have us believe. After the ear has been cleansed a small quantity of the dry powder may be blown into the deeper portion of the canal, and even into the tympanic cavity itself,

and then the canal may be loosely filled with the powder. If the surgeon has no powder blower, he can improvise one by using a quill. The powder may be allowed to remain in the ear one, two, or more days, or until it gets moist. When it becomes moist it should be removed, the ear should be thoroughly cleansed and dried and the powder should be used as before. Some surgeons carry the dry treatment to the extreme, and contend that we should not use water and syringe to remove the powder, but should use the petroleum oil and cotton mop. To me this seems an unnecessary precaution. I have always syringed out the powder when I desired to remove it, and I have had some very brilliant cures made by this mode of treatment. I shall now take the liberty of citing a few cases in which the therapeutic value of remedies in dry form is well illustrated:

Case 1. Four years ago I had under my care a member of the Detroit police force. He had had for many years a suppurative inflammation of the middle ear. The greatest care was taken in regard to cleansing the ear each day with syringe, Politzer bag, and cotton mop, after which an application of some astringent was made. Although the discharge greatly diminished, and although the opening in the membrana tympani grew much smaller, I could not effect a complete cure, at least within a reasonable time. The patient passed out from under my care and observation until six months ago, when he came to inquire if anything farther could be done for his case. His ear had discharged constantly from the date of his previous visits, nearly three and a half years before. I decided to try the dry treatment which had been so frequently successful. The ear was thoroughly cleansed and the canal loosely filled with powdered boracic acid. This operation was repeated three times thereafter, when not only was the discharge stopped, but the drum membrane was entirely healed and the patient has remained well since.

Case 2. A child of William Gall was brought to me at the suggestion of the family physician, Dr. Inglis, for a suppurative otitis media of four or five weeks' standing. The discharge was both profuse and offensive, and from the tympanic mucous membrane projected several large granulations. The ear was cleansed as thoroughly as possible, and the canal was partially filled with boracic acid powder. When the powder became

moist it was removed, the ear was thoroughly cleansed and the powder was again applied. The discharge diminished rapidly, the foul odor disappeared, and after seven applications the ear was well and the integrity of the drum membrane was restored.

Case 3. Miss A. was referred to me by Dr. Longyear of Detroit. She had had a suppurative otitis from childhood. She had been treated, but unsuccessfully. After cleansing the ear a polypus was observed projecting from the drum, and it was removed by the snare. To the remains of the pedicle a solution of chromic acid was applied. Next day, after thoroughly cleansing the ear with syringe, Politzer bag, and cotton mop, the boracic acid was used as in the cases just related. Five applications of the powder were sufficient to completely check all discharge from this ear which had been suppurating for twelve years, and in which a polypus had developed.

Case 4. Chas. W. was referred to me by Dr. Jas. D. Munson for a long standing suppurative inflammation of the middle ear. There were two polypi in the ear, only one of which was removed owing to the dread of the operation on the part of the patient.

The treatment consisted almost exclusively of dry applications, mainly boracic acid. The polypus soon disappeared, the discharge stopped, and in a few weeks the drum membrane was entirely healed. This patient had suffered much from vertigo previous to coming under my care. This was probably due to pressure made by the aural polypi, for with the cure of the disease all vertiginous symptoms disappeared.

Many other cases could be reported, but they would be, to a certain extent, only a repetition of those just given, each of which differs, in some respects, from the other. In the first case the therapeutic value of boracic acid is shown in a simple, uncomplicated, but persistent case of chronic suppuration of the tympanic cavity. The persistency of this case might have been due, in part at least, to the occupation of the patient which exposed him much to night air in all kinds of weather.

The second case illustrates how boracic acid corrects the foul odor of a suppurating ear, and at the same time removes granulations of the tympanic mucous membrane. The third case is an example of the importance of removing remediable complications, and at the same time shows the value of boracic acid

in the general treatment of the disease after the complications are removed.

The fourth case illustrates how even polypi may disappear under the use of powders. It seems a little remarkable that it should occur, and although such occurrence is not rare, yet I must reiterate what was said regarding contra indications, that these growths should be removed by operation.

In conclusion I would say that while the use of powders is not always advisable, they meet the indications in a majority of cases, and by their use our field of therapeutics has been greatly enlarged, and our ability to control and cure a disgusting and dangerous disease has been greatly augmented.



