GIBB (J.S.)

ZINC STEARATE IN THE TREATMENT OF ATROPHIC RHINITIS.

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FROM

THE MEDICAL NEWS,

December 8, 1894.

[Reprinted from THE MEDICAL NEWS, December 8, 1894.]

ZINC STEARATE IN THE TREATMENT OF ATROPHIC RHINITIS.[1]

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CONSIDERATION of a disease so prevalent, so disgusting and so rebellious to treatment as atrophic rhinitis appeals at once to both the general practitioner and the specialist. Perhaps from a feeling of incapacity or of indifference these cases are often dismissed with general directions and a solution to use in an atomizer or as a douche. In consequence they migrate from one physician to another, often ultimately to fall into the hands of some one of the numerous charlatans that flock to our large cities. But with some little care and perseverance much can be done. It is with the view of recording my experience with a comparatively new drug that this paper has been prepared. The plan of treatment outlined commends itself because of its exceeding simplicity, and it is within the power of every one to apply. If, as seems probable, it merely arrests the destructive process and renders the patient comfortable and unobjectionable to his friends, it will have

[1] Read at the eleventh annual meeting of the New York State Medical Association, held in New York, October 10, 1894.

served us well. I have taken the liberty of prefacing my remarks with a few words on the nature and general management of the disease, feeling that by so doing the subject would be better elucidated.

The name atrophic rhinitis would imply an inflammatory condition with an atrophic element. When the cases come under our observation, usually there is rarely much of an inflammatory condition present, but there can be no doubt that the early history of these cases is one of inflammation. Bosworth[1] has clearly demonstrated, and I believe his views are accepted by a large number of rhinologists, certainly in the United States, that the disease is the successor of that affection in children in which there is a purulent or muco-purulent discharge from the nose, and named for this reason purulent rhinitis.

The atrophic element in a case is at once noticeable. Dilating the alae of the nose, we observe a roomy nasal chamber, the turbinates shrunken often to obliteration of the lower turbinate, and contracting the middle so as to give an unobstructed view through the nasal chambers to the posterior wall of the pharynx, a state incompatible with healthy function of the nasal chambers. We also observe these turbinate bodies, and especially the middle, covered by thickened crusts, which, upon removal leave a reddened surface and rarely an ulcerated spot on the mucous membrane. Before our investigation has reached this stage we are conscious of an all-pervading, disgusting odor emanating from the nose,

[1] Bosworth: Diseases of the Nose and Throat: the Nose and Naso-pharynx, p. 162.

which is likely to be increased on detaching the crusts. This has given rise to the name "ozena," a term which, while highly descriptive of one symptom, *i. e.*, stench, cannot be used as a synonym. Ozena simply represents a condition present in many cases of the disease, but not in all. The same condition is present in syphilitic and in carious disease, both of which are entirely distinct and will not receive consideration in the present article.

These two symptoms, the crusts and the ozena, give the keynote to the management of this intractable disease. When we obtain a clear conception of their production and can apply means for their permanent eradication we have solved the difficulty. In making this assertion I have not lost sight of the fact that several important physiologic purposes of the nasal chambers have been abrogated when this disease is well marked. Though a firm believer in the rôle of the turbinate bodies in adding to the moisture of the respired air, so ably enunciated by Bosworth, and in their salutary office in filtering deleterious matters in the inspired air, and also cognizant of the important office of the nasal mucous membrane in secreting mucus, yet I cannot but believe that these offices can, in a measure, be compensated for, and indeed, as we shall see later, in studying the pathology of the formation of crusts, this must be accomplished if we are to meet with success in getting rid of the obnoxious symptoms.

To meet with success in the management of a disease we must have clear ideas of its pathology.

What is the pathology of the formation of crusts

and its accompanying ozena? The limits of this paper forbid anything like a full consideration of this subject, and I will advert to points just sufficient to give us a firm basis on which to found our therapeutic measures. I have already stated that the primary stage of atrophic rhinitis is one of inflammation. This inflammation is of sufficient intensity to be attended with suppuration; succeeding it we have sclerosis or atrophy of the mucous membrane. The cavernous tissue of the turbinates and the glandular tissue are all involved in this process, so that ultimately there is little left covering the bones but the connective tissue, with a few glands whose function has become perverted from the contraction to which they have been subjected.

What is the effect of this sclerotic process on the physiologic purposes of the nasal chambers? The venous channels within the cavernous bodies, whose function it is to add moisture and heat to the respired air, are destroyed, and hence the air passes through the nasal chambers poorly prepared for its ultimate purposes. The large number of mucous glands contained in this membrane are also destroyed or perverted in their secretion to such a degree as to be totally inefficient for the purpose for which they are designed.

With this knowledge of the pathology, we are able to give the most plausible explanation of the crusts and the ozena. The glandular secretion being denied, the large admixture of water which is normally present contains a large proportion of solid matter, which collects on the turbinates and

undergoes decomposition or fermentation, and hence the odor.

With this view of the causation of the two essential elements of atrophic rhinitis before us we should strive to adopt measures of treatment looking to the restoration of these functions. The first step should be the entire removal of all crusts rom the mucous membrane. Unless we are faithful and persistent in our efforts in this direction we cannot hope to meet with success. This is but a necessary prelude to the important step of bringing into contact with the diseased mucous surface medicaments of a stimulating nature, which will excite the perverted glands to secretion and perhaps aid in the regeneration of the mucous membrane. The method of accomplishing this object will vary with the operator; that is immaterial; the object is absolute cleanliness. The plan pursued at the Episcopal Hospital, Philadelphia, is about as follows:

The nasal chambers are sprayed thoroughly with an antiseptic detergent solution, after which all rebellious or adherent crusts are removed with a small probe, the extremity of which is wrapped with a pledget of cotton; as this process is likely to be painful, it is well to first prepare the sensitive mucous membrane by a preliminary spraying of a 4 per cent. solution of cocain. By this means also the cleansing is done more effectively. Should the crusts prove unusually tenacious in their attachment, or should a layer of muco-pus cover the turbinates, the cotton-tipped probe is dipped in a solution of hydrogen dioxid and the crusts or pus is dissolved away.

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This latter is succeeded by another spraying with the antiseptic fluid, to remove the dissolved and frothy mucus or pus. While this procedure will doubtless cleanse the anterior nares, there still remains a large surface uncleansed, viz. : the posterior surface of the turbinate bodies and the vault of the pharynx—the latter especially being liable to be the seat of inspissated mucus.

The post-nasal surfaces are probably better and more easily cleansed with the post-nasal syringe or by atomization. However, even in this locality the crusts are frequently so tenacious as to defy the usual methods with syringe or spray. In such cases they must be removed by means of a cotton-tipped probe bent at such an angle as to pass readily behind the soft palate and up to the vault of the pharynx. To effect this satisfactorily, and to avoid wounding the sensitive tissues of the upper pharynx and vault, and even the pharyngeal orifice of the Eustachian tube, full illumination with the aid of a rhinoscopic mirror should be employed.

I have dwelt thus on the details of cleansing, doubtless familiar to all present, to emphasize the fact that without it all subsequent treatment will be futile. Assured that our cleansing has been effective, we are ready to apply to the mucous surface our medications.

Compounds of zinc stearate have for their base zinc stearate, to which may be added any drug that the operator deems necessary for the case. They are dispensed as an amorphous powder, which has a saponaceous or oily feel when handled, and has a peculiarly strong adhesiveness to mucous surfaces.

Drugs in powder-form have for many years been used in the treatment of atrophic rhinitis, but within a few years past there has been a tendency on the part of rhinologists to discard them from their armamentarium. I think the reason for this has been the exceedingly limited time a drug in powder-form could be depended upon to adhere to the mucous surfaces, and hence the utter uncertainty as to the beneficial effect accruing therefrom. It has occurred to me that possibly whatever merit the compounds of zinc stearate possess is due to the tenacity with which they adhere to the mucous surfaces, and thereby exert an influence for a prolonged period.

The indications for treatment, as already stated, are that we shall have some drug of a stimulating nature for the purpose of exciting the perverted mucous glands to increased activity, and, if possible, aid in the regeneration of the destroyed tissue. Europhen[1] was the stimulant selected for incorporation with zinc stearate. After the cleansing process, a powder of zinc stearate, with europhen, 25 per cent., was blown into the nasal chambers with the insufflator, so that a thin layer of the powder was apparent over the middle and lower turbinates and the septum.

The observations in the use of this drug have extended over a period of a year-and-a-half at the clinic of the Episcopal Hospital, and they include fifty-four carefully selected cases, *i. e.*, those in which crusts were invariably present, and in the majority accompanied by ozena. All cases presenting simply an atrophic or rather sclerotic condition of the tur-

[1] Europhen: U. S. Dispensatory, 1894, p. 1628.

binates, unaccompanied by crusts or ozena, have been rigidly excluded, for the reason that they admitted of a doubt as to the diagnosis between the secondary sclerotic change of hypertrophic rhinitis and the disease in question. All of these cases were seen in dispensary service, a source admittedly difficult and unsatisfactory in making deductions or drawing conclusions.

As a matter of convenience and in order the better to study the results, these fifty-four cases have been divided into three classes: (1) Those that were persistent in treatment and faithful in attendance; of his class there were twelve. (2) Those that presented themselves at the clinic at irregular intervals, though seen at times over nearly the whole period of these observations, namely, eighteen months; this class numbered twenty. (3) Those that presented themselves but once or twice after the first treatment; these, numbering twenty-two, have been excluded from all deductions; therefore the observations may the more properly be said to cover thirty-two cases.

The treatment was employed twice weekly; in the interim of the visits, the patient was directed to use a hand-atomizer containing a solution of Seiler's tablets.

After the first cleansing and subsequent insufflation there was in all cases an entire absence of odor, and in the larger number this was persistent, no odor being perceptible upon any of the subsequent visits. It is quite evident to all rhinologists that simple cleansing is not sufficient to effect this result. In five of the most pronounced cases an odor was

still perceptible at three, or at the most four, visits subsequent to the first cleansing and treatment, after which it entirely disappeared in the three that belonged to the first class; whilst in the two that fell in the second class, the odor, after the fourth or fifth visit, though still present, was markedly diminished, leaving me to infer that had the treatment been faithfully continued the result would have been the same as in the first class.

As to the crusts, in the large majority of cases no crusts formed after the first treatment; the appearance presented at the subsequent visits was that of a thin layer of muco-purulent secretion covering the turbinates, which became smaller and smaller in quantity at each subsequent visit until finally it disappeared, leaving the turbinates moist and free from the familiar dull, glazed appearance.

Whilst this was the general result, in the five cases noted as persisting in odor of an unusually rebellious nature the crusts adhered tenaciously; but even in these, after three or four insufflations, the three cases belonging to the first class showed a marked improvement. In two of the three the crusts, and finally the muco-purulent secretion, entirely disappeared, leaving the mucous membrane as already described. In the remaining one this thin muco-purulent secretion still persists, notwithstanding an amelioration of all other symptoms both subjective and objective.

In one of the two cases of the second class, or that of indifferent attendance, after an interval of nearly two months, in which time even the cleansing at home was continued in a very irregular manner,

there was a reappearance of the crusts, but in no such number or of as great tenacity as when the treatment was begun; they were easily dislodged by ordinary spraying. In the remaining case of the second class, in which the cleansing at home had been carefully done, though attendance at clinic had been irregular, the crusts disappeared, though there is some muco-purulent discharge. In all the cases, after a few insufflations, the nasal mucous membrane presented an entirely different appearance, the dry, shrunken, lifeless membrane being replaced by a reddened, moist, and actively-secreting surface. In two of the cases in which the improvement was the most marked there seemed to be something like a regeneration of the turbinate tissue, though I am not prepared to admit that this is really the case; whilst there undoubtedly was an increase of tissue over the shrunken turbinates, this has not assumed the appearance of true cavernous tissue.

To sum up: In a total of thirty-two cases of atrophic rhinitis that have been under observation, the shortest time being two months, the longest eighteen months, there were twenty-seven in which there was a complete disappearance of crusts and odor, and two of these cases promised a restoration of normal functions and structure. In five the results are very doubtful, though the improvement is sufficient to promise more for the future.

What is the rationale of this treatment? The first thorough cleansing enables us to apply a stimulating preparation for a long period of time to the mucous surfaces, thus exciting the remaining mucous glands to increased activity, throwing off larger

quantities of water, which, bathing the tissues, prevents the formation of crusts and the consequent odor. It may be said that by thorough cleansing we accomplish all that is claimed for this treatment. I have never seen, even when the utmost care has been observed in cleansing both by the physician and by an intelligent patient, such thoroughly clean nasal chambers as after a few weeks' treatment of combined cleansing and application of compounds of zinc stearate. Again, while it is true that thorough and persistent cleansing removes all odor, and, in a measure, all crusts, there still remains that dry, unhealthy, glazed mucous surface; and here, to me, is the most noticeable beneficial change.

Whilst subjective symptoms play a very unimportant rôle in making up our prognosis in this disease, it has a most important bearing in the mind of the patient. The testimony of those who have pursued this treatment is the same—that it is followed by great relief of the feeling of fulness and dryness and other uncomfortable sensations about the head and throat, and that this persists nearly up to the time for the next treatment. I firmly believe that were there not some relief to the feelings of the patient we would not have had among fifty-four cases even as many as twelve to return each time, and twenty more to return at intervals.

These insufflations have been made twice a week. It has occurred to me that perhaps a more frequent, say daily, use would produce results more promptly and of more lasting character. It could easily be accomplished with intelligent patients by first instructing them as to the method of cleansing by

means of the atomizer, to be followed by blowing the powder into the nostrils. The method of Ingalls,[1] of Chicago, commends itself to me to accomplish this latter maneuver.

It cannot be claimed zinc stearate is specific; indeed, it is too early to even assume that it is of real benefit; all that can be said is that the trial justifies a continuance of the plan and a further study as to the permanence of the effects. There may be other methods just as serviceable, but to me this has rendered the best service because of its simplicity of application, its effectiveness in relieving the distressing symptoms, and the comfort that it seems to induce.

[1] . . . "By means of a glass tube, about four inches in length, with a caliber of about one-eighth of an inch, which is attached to a rubber tube, through which the patient blows the powder into his nose. The glass tube is disconnected from the rubber; its round end moved about in the powder until it is filled up about one-quarter of an inch; the same end is then reintroduced into the rubber tube, and the flattened end of the glass tube introduced into the nostril. The patient then places the other end of the rubber tube between his lips and gives a quick, strong puff, which forces the powder into the naris."—*Journal of the American Medical Association*, Sept. 15, 1894, p. 424.