

beguiles us into that safer attitude which impels us toward the search for the ultimate cause.

Recent work along the lines of internal secretion, the question of anaphylaxis from food or bacterial proteins, studies in general metabolism, all offer attractive fields to workers in dermatology. This work, however, as Fordyce aptly remarks, must be in active cooperation with the experimental pathologist, the histopathologist and the chemist.

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## THE CARE OF THE MOUTH OF THE SICK \*

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That the mouth of the sick does not receive the attention that it should is, I think, a fact sufficiently well established not to need further proof submitted at this time. Any one of you stomatologists can, I am sure, cite case after case from your own private practices, in which your patients have presented themselves to your observation, after a prolonged illness, their teeth showing signs of rapid decay due to a period of the neglect of mouth hygiene.

I am sure that much evidence of the general neglect of the mouth of the helplessly ill has come to the notice of the dental surgeons attached to hospitals and especially those larger institutions with public or general wards. Any adverse criticism, therefore, that I may make of this condition must be assumed by the members of the dental profession as well as the medical.

That some feeble effort is made at times, in some cases, toward the maintenance of a clean and hygienic condition of the oral cavity, any one is willing to admit; but a feeble effort—and in a few cases—is admission that hygienic condition of the mouth is essential. Then are we all the more remiss in our duty toward the helpless sick and invalid, if we do not perform this duty fully.

Would a nurse for one moment shirk her duty regarding the administration of medicaments? Would she fail to bathe her fever patient? Would she neglect the stool? Emphatically, no. Then why has she not been more carefully instructed in the care of the mouth and the cleaning, by use of brush and mop, of the teeth; and being carefully instructed, why has not the physician seen to it that this work was as carefully done as any other? The condition of a patient's mouth should be the meter by which is registered the ability of a nurse.

You may say the facilities in our large hospitals are not adequate and that the nurse already has much to do. Both objections—and I have heard them both many times—should be dismissed with the answer that proper facilities should be provided.

Regarding the facilities, they are very good already in most well-equipped hospitals. A tongue-scraper made of ivory or steel, which could be sterilized, together with a cotton swab, could do in such severe illness where the vigorous use of a brush would be ill-advised.

But it should be emphasized that nothing can better take the place of the thorough brushing of the teeth and the massaging effects which this has on the tissues. For it is during prolonged illness, when the patient is unable to use the teeth in mastication of hard substances, that offensive masses of mucus form on the gingival borders

of the teeth, encouraging the deposition of other salivary deposits and thus set up a highly inflammatory condition of the mucous membrane, which, while the patient is in a debilitated condition, has lost its tone and is susceptible to any irritation.

In addition to the usual brushing or swabbing of the teeth, it is very essential for the hygiene of the mouth and the general comfort of the patient that the mouth and throat be sprayed with a pleasant and efficient wash or mouth-bath. To get the best results, it is essential that the spray be driven by a greater force than can be obtained by any ordinary hand atomizer. By the use of compressed air of between 10 to 12 pounds pressure, the medicament can be driven into every little fold of mucous membrane and between the interdental spaces. To obtain the bed-side use of compressed air for this purpose, I have suggested mounting on a rubber-tired wheeled platform a 2-foot air tank and automobile pump, with a 6- or 8-foot hose attachment for spray bottles.

This tank can be filled by some attendant, while the whole apparatus is in another room or hall, if there be any objections to the sound of pumping. Enough air can be stored by sixty seconds' pumping to spray the mouth of ten to fifteen patients. I have one which I used before I installed a motor power pump, which the children used to delight in pumping. I state this simply to show with what ease it can be operated and that it would be no hardship on any nurse. The platform, tank and all, could be rolled from bed to bed and thus facilitate greatly this question of mouth hygiene in the large wards.

Now, an additional word regarding the care of children's teeth—and this will also apply in many adult cases. You will find sick children, who, although not dangerously ill and weak, will resent very often any marked attempt at mouth hygiene and especially the brushing of teeth. In such cases, I offer a bribe in the form of chewing gum, for a half hour a day, if they will have their teeth brushed just a little. In that way, I gain two things: the child permits *some* brushing of the teeth and by this together with the cleansing action of the gum-chewing, a rather clean set of teeth are obtained. In this manner, children can be brought through a long illness without the usual decay of their deciduous teeth, often preventing that most pitiable of conditions, namely, the aching or abscessing of teeth during convalescence. The gum, after use, is destroyed by burning, a new piece being used each time.

The direct and exciting cause of tooth-decay is the lodgment of particles of food between and on the teeth, and the fermentation of this food with the productions of bacteria and acids, which destroy tooth substances. The foods that undergo this fermentation are chiefly the carbohydrates, starches and sugars—just the character of food which a convalescent is likely to receive. This decomposition and fermentation begin very quickly, so that the nurse's attention to the mouth of the sick should be directed immediately after the patient has partaken of any food.

In the Department of Therapeutics about a year or so ago, *THE JOURNAL*, in speaking on mouth hygiene and its applications in the cases of the sick, advocated the use of hydrogen peroxid on swabs when ulcerations were noticed on mucous membranes. I desire to take exception to this for two reasons: First, it is very unpleasant to most patients and adds to the already unpleasant condition of the mouth; second, by its effervescence, it can readily cause an extension of the ul-

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tion. These conditions, if they will not heal under an application of the usual solution of iodine, aconite and chloroform, should be treated with a caustic, touched with silver nitrate, and their growth and sensitiveness thus checked.

The use of hydrogen peroxid should be discouraged; for, if any pyrrheal pockets are present which contain pus, the effervescent action of hydrogen peroxid may cause a tearing of tissue and an extension of pocket. Slight ulcerations could be treated with a solution of boric acid and glycerin.

Where nasal obstructions cause the invalid to breathe constantly through the mouth, the dry condition which is found should be relieved by frequently moistening the mucous membranes with a solution of glycerin and water, to which a drop or two of oil of betula may be added. If patient is conscious, salivary stimulation may be obtained by use of ordinary ginger ale as a mouth-wash.

It is a question in my mind whether illness is not very often prolonged or convalescence greatly checked by an unhealthy condition of the oral cavity. I could relate several cases in my own practice in which the placing in a healthy state of the oral cavity hastened, if it did not altogether account for, convalescence. I would rather quote from another's practice a case published recently in one of our journals:

The dental surgeon was called in this case to do what was absolutely necessary to relieve the discomfort of a patient who had been confined to her bed for three months with intestinal infection. While placing two cement fillings, the operator noticed a congested condition of the mucous membrane and on pressure, pus was seen to exude from the gingival margins. To be brief, after three or four days of treatment and the use of a mouth-bath every half hour or so, this patient was able to leave her bed and take her meals with her family; her improvement from that time on was steady and rapid.

There is no doubt that such cases as these are not only helped, but cured by the institution of oral cleanliness. Is it then necessary for me to urge further the establishment of some degree of treatment and care of the oral cavity of the sick and invalid?

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#### ABSTRACT OF DISCUSSION

DR. VIRGIL LOEB, St. Louis: I think the blame in regard to the care of the mouths of patients in hospitals may be laid on the staff of these hospitals, especially the private ones. In my own city there are very few hospitals which have stomatologists on their staff and just as few whose lectures to nurses include lectures on the care of the mouth.

DR. A. J. FLANAGAN, Springfield, Mass.: One great need that I have in mind is the question of the forceful use of a spray that has some pressure back of it. In the hospital at Springfield, with which I have been associated for some years, there is no compressed air apparatus, and in the cases that I have had charge of I have used the oxygen tank. Of course that is an expensive method of spraying the mouth but a very efficient one. Dr. Fisher has put forth an idea to-day which is original and most practical—the bicycle pump to get the proper pressure. We had a case in our hospital of three months' duration in which the expense of the oxygen used amounted to about \$30, but it happened to be the case of a patient with plenty of money, and we used plenty of oxygen. On the other hand, with patients from whom the hospitals do not receive a great deal of income, and some which are practically charitable patients, they are a little reticent about using oxygen. If dentistry is a part of the

healing art why is it not possible for those who have a hand in the arrangement of these lectures to arrange to have at least one delivered to the nurses with regard to the care of the mouth in relation to health and disease. For years the hospitals at Springfield have had an annual lecture given by some dentist to the class of nurses on that subject. This is a practical point, and I think if we do not call the attention of the people interested in these things to it, and if we do not occasionally insist on it, we will accomplish very little.

DR. THOMAS L. GILMER, Chicago: It seems to me that the most important point to be considered is the teaching of the nurses in the hospitals, on account, not of the work in the hospitals but of the work with out-patients. In the hospital in Chicago, with which I have been connected for nearly twenty years, there has been a course of lectures to nurses, and they have been instructed in the care of the patients' mouths during illness. It is not necessary to have an expensive apparatus for the purpose of cleansing the mouth; that is impracticable in the case of out-patients. I recommend for patients' use, especially those who have fractures of jaw and are wearing appliances, a bulb syringe with numerous openings on the side of the point by which the solution of water or whatever is used may be forced in between the teeth. The teeth can be very thoroughly cleansed in that way. It does not, of course, give as much pressure, and does not perhaps dislodge the debris to the extent that we might with compressed air, but it answers the purpose and is more practical for out-patients. I think that cotton is a poor thing with which to cleanse the teeth. It may be all right for cleansing the mucous membrane, but it simply forces the particles of food between the teeth and into the interproximal spaces where it will do more harm than good. I do not see why any ordinary soft brush will not answer in these places and on the tongue instead of a scraper, because we do not get between the papillae with a scraper as we do with a soft brush. Every person should cleanse the tongue once a day, and certainly a sick patient should have the tongue cleansed once a day.

DR. W. J. LEDERER, New York: The institution with which I am connected, the German Hospital of New York, has had for the past four or five years in the curriculum of the training-school for nurses a series of lectures on the care of the mouth and teeth. There is another side to the care of the patient—the surgical care. The patient who is to be operated on for some intestinal trouble is carefully prepared, the surgeon sterilizes himself, his assistants and the nurses, and the patient's skin is sterilized, and yet nothing is done to the mouth, as a rule. Imagine a patient on whom such an operation is performed, with whom every precaution is taken and who yet is permitted to swallow pus by the teaspoonful—and that is not a fanciful picture but one which is seen in every hospital almost daily. Unquestionably the mouths of surgical patients should be looked after, and I would suggest that the surgical patients can be divided into two classes, the one to be operated on in one or two days or a week, and the emergency patients. With the latter we cannot go through that careful routine of treatment of pyorrhea, etc., but we can remove the pus pockets. It should be made a rule, if possible, that the attention of the surgeon be called to the fact that the mouth should be cleared of pus pockets, abscessed teeth removed and in that way the danger of infection from the buccal surfaces will be reduced, because we do know that no patient will recover from anesthesia or any disease, as one who has a sterile mouth. That is a factor which has not received much attention and nothing much has been done in this direction. The care of the mouth of the medical patient is also a chapter which should be looked into carefully. It is an established fact that pneumonia is frequently the consequence of intestinal fermentation producing auto-intoxication, and that the buccal surfaces play an important part in that; therefore the sterilization of the mouth should become a factor in medical diseases.

DR. M. I. SCHAMBERG, New York: No hospital in the future will be thoroughly equipped without an outlet beside each bed from which can be furnished compressed air for cleansing the mouth. I see no reason why a simple plant such as is

necessary for the supply of compressed air should be any great hardship on any institution. They are equipped with many similar necessities, such as plants for the care of the linen. We may teach the nurses what should be done, but we must equip them with the means wherewith to perform their work. The hospitals are usually very generous in supplying thermometers and other necessities, and compressed air as a means of complete cleansing of the mouth is certainly a necessity. In regard to the work outside of the hospitals, done by the nurses among poor people, I venture to say if the manufacturers of these various tanks were encouraged to supply compressed air in small tanks as they supply oxygen and nitrous oxid, they could do so at a nominal cost, and this contingency would be met. I really think that compressed air is the only feasible way of cleansing the interspaces between the teeth, save by the successful manipulation of the dentist in his office. There is no reason why the private household, which equips its bath-room with needle sprays and other forms of conveniences, should not be equipped with some means of providing compressed air for the complete cleansing of the mouth, and I think it is merely a matter of education along these lines that is necessary to bring about this advanced step.

Dr. M. L. RHEIN, New York: Hospital service varies greatly in different parts of the country. In the city of New York it seems to have been practically impossible to obtain stomatologic service in the hospitals. In New York City the medical staffs of the hospitals have been jealous of permitting any intrusion on that staff. They are willing to have stomatologists in the infirmary. That is not my conception of the field of our work in the hospital. Whatever instructions the nurses may receive in the training department of the German Hospital, the patients receive very little attention. I agree with Dr. Lederer's statement about the preparation of patients prior to surgical work, and I know a great many able surgeons in New York City who insist on that procedure, and in other parts of the country. I agree with the great value of compressed air for this purpose in preference to anything else, and I follow that in my own practice. I have had installed a number of compressed air outfits in private houses at little cost; a motor pump can be attached to any electrical outlet, and that gives compressed air instantaneously. I have had great satisfaction in the introduction of such an apparatus, which is a comparatively cheap apparatus, and in a hospital it can be moved from bedside to bedside and simply attached to any ordinary electric outlet and the compressed air is immediately at the disposal of the operator as readily as the electric light would be. There is an additional objection to the use of hydrogen peroxid for this purpose, and that is the escharotic action on tissues, and especially in the delicate condition in which these tissues are during the early periods of convalescence from some diseases, those especially of the exanthematous type. At that stage the mucous membrane is in a delicate condition and anything as powerful as hydrogen peroxid is detrimental to the comfort of the patient and the welfare of the mucosa.

Dr. JOSEPH HEAD, Philadelphia: Everybody has said that the mouth should be cleansed, but I will venture to say that nobody has said how it should be cleansed. In the first place, if the average dentist in this room will look in the mouths of his own patients, he will find that with healthy patients it takes constant coaching for them to brush their teeth often. The wisdom teeth are not ordinarily brushed at all. The twelve-year molars are not properly brushed, and the six-year molars are brushed fairly well, and the rest of the mouth may or may not be according to the care that the patient takes. This is to a certain extent due to the carelessness of the patient and also to the carelessness of the dentist in teaching many methods of brushing the teeth that are ineffective. In the first place, dentists, in giving instructions in brushing, tell the patient to brush up and down. If anyone will take a brush and try it on a skull, he will find that in brushing up and down the bristles will pivot so much that there is practically no bristle movement at all. We must understand that the wisdom teeth decay not because they are different from any other teeth, not because the structure is any worse, but because they are never brushed. Since

dentists allow the ordinary patient to go with his mouth unbrushed, and can hardly get him to look after his mouth, I think it is hardly to be conceived that the mouth of the sick patient will get very much more attention. But, we will take it for granted, for the sake of argument, that the mouth is made sterile; that the floss silk is used to remove the debris from between the teeth, and then the mucous membrane brushed thoroughly with proper bristle friction, where the toothbrush does not pivot. And supposing then that we sterilize the mouth, I understand when etherization takes place the air goes through the fauces, and it strikes me that any sterilization of the mouth without the sterilization of the nasal cavity and the fauces would be of very little value. It seems to me that we can hardly by merely brushing the mouth and cleansing the mouth expect to protect the lungs of the patient during etherization without cleansing the nostrils and the fauces, any more than we could protect our feet from the mud, if we made a safe walk one-third of the way up to our porch and allowed the rest to be muddy.

Dr. S. L. McCURDY, Pittsburgh: Hydrogen peroxid is of no value in this particular field, or in surgery anywhere. In preparing the mouth for oral operations I always, the evening before the operation, have the patients cleanse their mouths with a brush, and then of course they get nothing in the mouth after midnight, and then when they awake in the morning and have their bath, the mouth is cleansed every half hour with normal salt solution. I rarely have any complications; indeed it is difficult under these circumstances to infect the mouth, and as Dr. Gilmer says, it is almost impossible to have an infection following an operation, and I rarely have any in mine.

Dr. W. C. FISHER, New York: Regarding the case which Dr. Flanagan spoke of in which it cost \$30 to use oxygen, if it was necessary to expend that amount for an entire outfit it would be lost to many hospitals forever. It has always seemed strange to me, especially in recent years, when there has been such a cry for pure food, pure drugs, and we have had Congress legislate to protect the public and give them something pure, when a person is sick or debilitated they are allowed to introduce pure food and pure drugs through mouths in such a condition that these pure drugs and pure foods are in a filthy condition by the time they reach the intestines for absorption. I think the reason that people do not brush the molars is that there are very few brushes on the market which the public can buy which will reach these places, but brushes with short bristles at the end can be made which will give plenty of movement at the end of the bristle—frictional movement. So again it is the fault of the dentist and not the patient, in advising them as to the kind of brushes to use. Dr. Gilmer objects to the cotton swab. I did not mean that the teeth should be cleaned with the cotton swab. I said that at times, such as Dr. Rhein has referred to, when the mucous membrane is so tender that a brush cannot be used, the best thing in that case is the cotton swab. It seems to me that if every barber's chair to-day can be fitted with an outlet for compressed air—and they do not consider it a great expense—that at least every bedside in our hospitals can have a compressed air outlet. Some one suggested that it would be practical to have compressed air supplied as nitrous oxid is now supplied in cylinders. There are automobile concerns already supplying these for automobiles, and there is no reason why the dentist could not get these and attach the spray bottle to them. Dr. Rhein, I think, is right when he speaks of the New York hospitals. Four years ago I was asked to take a position as dentist in one of the largest hospitals in New York, and the members of the staff told me that my position would be such that I would be confined to constructive work on the teeth in the public ward; just purely dental treatment, that is, the insertion of fillings occasionally and the treatment of abscesses. I would not be allowed any scope whatever as a stomatologist, and would never be allowed to treat an antral case no matter if that was purely an infection from the teeth. No, that is the work of the rhinologist. When I understood what they wanted, I told them that what they were after was a constructor of teeth, or possibly a leecher or barber, and I refused the position.