THE VALUE OF CAUSTICS IN THE TREATMENT OF MALIGNANT DISEASES.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

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The advocates of caustics in the treatment of malignant growths have made many claims regarding the method of action and the results to be attained from the employment of the same. Prominent among the advantages claimed for caustics is the one that after their use, recurrence of the malignant growth is less frequent. An assertion like the above is easy to make, but difficult to prove. It is equally difficult to disprove, and correct conclusions can only be made by careful and logical interpretation of the statistics of a large and well observed number of cases. Apropos of this, space permits only the remark that the general consensus of opinion among surgeons to-day is to the effect that caustics give no more exemption from recurrence than does the knife.

Another claim is to the effect that the value of caustics is due to a selective action, whereby only malignant tissue is destroyed by the agent employed. This erroneous idea naturally arose from the fact that caustics destroy malignant sooner than healthy tissue, the latter having more resistance than the former, and hence the appearance of selective action. Such a caustic would be ideal, and when it is found, perhaps the question of the treatment of malignant disease will be forever solved. That we have no such drug or combination of drugs, experience constantly reminds us, and therefore this claim must be declared unfounded.

Still another virtue attributed to caustics is their power to reduce enlarged lymphatics adjacent to the seat of disease. That this result is attained sooner and more completely than after extirpation with the knife, of the disease causing them, is certainly not the case. It, however, often happens that the removal of a slough, due to the application of some caustic, is followed by a decrease in the size, tenderness and other signs of inflammation of the adjacent lymph glands. This, however, occurs very commonly where no caustic has been employed and is probably due to the fact that better drainage results from the removal of the slough, and hence the secretions no longer pent up, cease to infect the glands so actively.

The value of caustics, then, is not to be found along the lines advanced by their advocates, but must be sought for in other directions. The less we know about the method of action of an agent, the more carefully must we observe the various phases of the action itself if we would learn to use properly and safely such agent, and experience has taught us that the value of caustics lies in a combination of two conditions, viz, the use of a proper caustic, and its intelligent application in suitable cases. What is a proper caustic, and which are suitable cases? A proper caustic is one which effects complete destruction and removal of the diseased tissue. Many substances classed as escharotics—such as silver nitrate, carbolic acid, zinc sulphate, and the like—are not sufficiently caustic and should not be used. They only serve to irritate the diseased tissue, stimulate the lymphatics and disseminate the infection, thus making a bad matter worse. So when caustics are used, they should be those whose action is both

rapid and thorough. Among these are the actual cautery, sulphuric acid, Vienna paste, Bougard's paste and zinc chlorid.

The actual cautery is a clean speedy agent for the destruction of malignant tissue, but it has seemed to me, in the few cases in which it was used, that there was quicker recurrence than was the case after using, say, Bougard's or Vienna paste.

Sulphuric acid is an active escharotic, but exceedingly painful and but little used now for this reason.

The alkaline caustics are among our most efficient agents and in some form or another are very commonly employed. The same is true of zinc chlorid in its various combinations. This agent is the principal ingredient of Bougard's formula, which according to Lewis (*Medical Record*, Feb. 13, 1892), "is by all odds the best (escharotic) we have at present." Its composition is as follows:

Wheat flour	60 grams.
Starch	60 "
Arsenic	1 "
Cinnabar	5 "
Sal ammonia	5 "
Corrosive sublimate	0.50 centigrams.
Sol. of chlorid of zinc at 52	245 grams.

In its preparation, Lewis suggests that each of the first six substances be separately reduced to a fine powder, then mixed in a mortar (glass or china) and upon the whole is poured the solution of zinc chlorid. The mixture is rapidly stirred to prevent the formation of lumps. A paste results, of which a thick layer is spread upon cotton and left in contact with the diseased tissue for twenty-four hours (caustic potash having been first applied to remove the outer layers of the diseased tissue and thus bring the caustic into quicker and closer contact with the remaining parts). After this time, warm poultices are applied to bring away the slough. This requires from three to nine days, according to the case. When the slough has separated, the wound may be dressed with some stimulating antiseptic ointment.

The space at my command does not permit me to describe the various other caustics and their method of application, so I have given a few details regarding Bougard's paste as fairly typical of the whole class of escharotics.

Whatever escharotic is used, common sense must be exercised in applying it. It must be proportionate in power to the necessities of the case; it must not be applied over too great an extent of surface at one time, one to two square inches being usually enough for a single application; it must be applied to all justly suspicious tissue, and the pain caused by it mitigated in all cases so far as possible. Especially is this latter important in persons enfeebled by age or disease, to whom loss of sleep and appetite are a serious matter. In short, the value of caustics depends in no small measure upon the intelligent way in which they are used and here, as elsewhere, the abuse of these agents leads to negative or disastrous consequences.

And now regarding the question, Which are suitable cases? In speaking of the proper kind of caustic the remark was made that it should possess the property of effecting complete destruction and removal of diseased tissue. It is equally important for us to select such cases as, from their anatomic situation, freedom from general infection, or infection of adjacent lymph glands, make it possible for an efficient caustic to exert its full influence. Without taking

the time and space to specify the cases which would naturally be excluded by such selection, we may say in general that malignant disease affecting bone, tissues intimately adherent to important structures (large vessels, etc.,) internal organs, or glands like the thyroid, are not suitable for treatment by caustics, viewed either from the standpoint of theory or of experience.

What of malignant disease of the breast, cervix and corpus uteri, tongue, tonsil, eyelids, rectum, or of the genital organs, and other similar and common sites of cancer? Experience again teaches us the futility and even positive danger of employing escharotics in the great majority of such cases. Now and then a caustic has cured a cancer of the breast or of some other part of the body, where the course of the disease is usually rapidly fatal; but this is most exceptional. Vastly more often their use results in increased suffering for the patient and an aggravation of the disease. This narrows the field down to cancer of the skin, the lip and the external ear. In other words, cancer usually limited in extent and easily accessible (two very advantageous conditions for the application of caustic). Lewis puts these cases in a distinct class, claiming that if taken early 95 per cent. should be cured, and in this statement the majority of surgeons will probably concur. When the time comes that surgeons shall have learned to properly select their cases, the statistics of caustic treatment will unquestionably show a decided and encouraging improvement. To-day it is to be feared that many surgeons have obtained indifferent results, due to obvious causes, such as late diagnosis, inefficient cauterization, poor technique and the like. This should change with time. Improvement in every way should follow. New agents more potent and of wider applicability may be found and used. Finally, even the long-awaited specific, in caustic form, may come to rid mankind of this terrible scourge.

The foregoing remarks seem to justify the following conclusions:

1. The value of caustics in the treatment of malignant disease depends upon the use of proper caustics and their intelligent application in suitable cases.

2. A proper caustic is one which completely destroys and removes the malignant tissue.

3. Mild caustics are inefficient and dangerous, and therefore to be avoided.

4. Bougard's paste is the most generally useful escharotic.

5. Proper technique in application accentuates the value of caustics.

6. The suitable cases are those which have a limited extent and are easily accessible, or in other words, cancer of the skin, lip and external ear, in their incipient stages.

7. The prognosis should be most excellent, cure resulting in the vast majority of cases when treatment is early and thorough.

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As is well known, the treatment of malignant disease by caustics has been practiced very largely by those who are known as "empirics and quacks," much to the discredit of the medical profession and often to the injury of patients. But that there is somewhat of a foundation for their use in the success which may often attend them is certain, and it behooves the profession to correctly understand and profit by the experience which has been gained in this direction.

That there is a foundation in science for this method of treatment, there can be no doubt to any one who has studied the subject and who has had experience in the same. On the other hand, that harm may be done by their injudicious use is also equally evident. It will be our object to consider very briefly the indications for the use of caustics in malignant disease, the method of their employment, and the cautions to be observed in regard to the same.

To appreciate rightly their value, some consideration must be had in regard to the nature of the disease which it is sought to remove. This has been very largely considered by those who have preceded me in this discussion, and I will not enter into the pathology or etiology of malignant disease, but will only briefly state a few propositions.

The success of the treatment must entirely depend upon the localization of the disease. If the malignant elements are so situated that they can be absolutely and thoroughly destroyed, even to the very deepest ramifications, there is no reason why the caustic which reaches to every part of the disease and destroys its life may not succeed in eradicating the same; consequently, it is in the earlier stages of malignant disease that caustics find their value; and to be of successful employment they must be so used that the destruction shall be absolute and complete. It is needless to say that when the adjoining glands have become at all affected, and when metastasis has occurred to other organs, it is worse than useless to attempt the destruction of the local trouble alone by caustics or other means. Caustics are therefore largely applicable during the formative period, and when one can fairly judge of the exact extent of the morbid process. A very large share of the reputation or celebrity which has come to certain cancer quacks is derived from results obtained under such conditions; for it is very common for patients, when the diagnosis of epithelioma or local cancer has been made, to go at once to them, from fear of the knife, and a thorough application of the caustic made by them will often prove completely successful; and undoubtedly also, as I have personally known to be the case, many other conditions are brought to them which are not cancer, which are easily removed and thus add to their reputation.

I will speak first in regard to the treatment of early epithelioma, especially on exposed regions and particularly on the face. As is well known, these often begin as very trivial affairs, from a mole or wart, or sebaceous concretion, which has been pricked or irritated until a scab forms, and then, the slight

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