DRAINAGE IN ABDOMINAL SURGERY.

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In times past the subject of "Drainage" in abdominal surgery has been a moot question, and at present is still under discussion. There are those who ardently advocate it,—there are those who in great part reject it;—there are those who, Laodicean-like, are lukewarm concerning it, and finally, some who, without convictions, either for or against it, use it or dispense with it, as chance or whim, not logic, may determine. It will be the object of this paper to offer positive convictions on the matter, arrived at theoretically and practically.

Among the working men of the profession it is that are found the antipodes of opinions concerning this question. Herein lies the importance of arriving, as nearly as may be, at positive, nay, even dogmatic expression and adoption of settled methods and rules of procedure concerning it,—such, for instance, as are laid down and adopted in trephining, herniotomy, amputations, and the like. This would not be true if the discussion were restricted to theorists without experience, with zeal but without knowledge. Theory, or preconceived opinion, in surgery, no more determines a question than did ancient geography correctly map the world.

Illustrative of the diversity of opinion concerning the use of drainage, we have the following: Says one operator, "I do not apply drainage in ordinary cases of ovariotomy," etc.; says another, "So confident am I as to the value of the drainage-tube, and so little afraid of injurious results, that I use it on the slightest excuse." Parallax so great must have as its cause widely separated points of view. If one operator has uninterrupted success with the use of the drainage-tube, and another, from his experience, distrusts it, there must be a common point of view from which to arrive at conclusions concerning this divergence of results. It will not suffice to say it is

not used in ordinary cases, nor "in most cases with adhesions, owing to the absorbent power of the peritoneum" to remove secretions. Before such opinion will stand, it is necessary to determine and to agree upon a definition of "ordinary" cases, and to decide in how many cases the peritoneum will refuse to rid its cavity of the exuded fluids from broken-up adhesions.

If the tube has no injurious effects, it is better to use it in every case than to risk non-absorption in a single case, which may have been thought to be "ordinary," but which has turned out the reverse.

Here it will be seen the question resolves itself into one of logic, not predilection. First—Is there a danger from the retention of fluids in the peritoneal cavity? Second—Is the use of the drainage-tube a safe means of obviating these dangers? If the tube involves in its use an element of danger, what are the comparative dangers from its employment or its omission?

That the peritoneum will in many cases relieve itself of exuded fluids goes without question. Experience has also shown that when it refuses to do so unaided, the free use of salines often assists it, and cuts short an attack of acute peritonitis. Experience also shows that this mode of treatment often fails, necessitating the re-opening of the abdomen, thorough irrigation, and the secondary use of a drainage-tube, even though no pus has been discovered on the reopening.

The fallacy in supposing an operation simple because no great adhesions have been involved, lies in the fact that great secretion can arise from small adhesion, and that blood exudation, which seems nothing at the close of the operation, may, when the patient rallies from the shock of ether and the operation, become very considerable. A case illustrative of this last danger has lately come under the writer's notice. The adhesions were very dense, but not extensive. At the close of the operation the blood exudation was almost *nil*. A tube was, however, introduced. The wisdom of so doing became evident as time progressed, inasmuch as for ten days there was free exudation of blood, such as never could have been absorbed by the peritoneum.

A second fallacy occurs in determining the so-called "simple" cases. Operation discloses an inflammatory condition of the tubes and ovaries. There are very slight adhesions or none. The dis-

eased structures are ligated and removed, and the abdomen closed. No drainage is used. Peritonitis sets in. If recognized in time, reopening, irrigation, and drainage may save the patient. Recriminating himself, the operator reviews each step of the operation, and sees no loophole for infection. He has looked on the wrong side for the infection. No one at an operation can decide whether an inflammation is simple, purulent, or infectious and specific. In many cases apparently simple I believe peritonitis arises from such cause, and herein appears a still further justification of the cautery, which Keith so much prefers. A touch of the cautery on a doubtful tube, in many cases, decides between slow recovery from peritonitis and a rapid convalescence without a bad symptom.

The same favorable result often follows simple drainage, which removes the pabulum of infection.

In cases of severe hemorrhage, or vast adhesion, the use of the drainage-tube is not questioned, so I pass on to another consideration of the matter.

Does the use of the tube involve a question of danger? It is held by those who oppose the tube, and by those who are dubious concerning its use, that infection may follow its introduction. My answer is, were half the care used to keep it carefully cleansed, and to protect it from external interference, that characterizes the Gatling-gun warfare against germs supposed to enter through it, there would be little cause to fear it. Keep the tube clean, empty it often, remove it by degrees, commencing as soon as the discharge seems to be at a minimum, and in most cases no more irritation will be caused by it, or with it, than some inadvertence will explain. When an entire pelvis can be packed with lint to subdue hemorrhage, is it possible that a simple glass tube can cause such trouble as is frequently attributed to it? The involvement of the peritoneum in the perforations of the Bantock tube, has been used as an argument against this excellent means of applying drainage.

This fear has some foundation in fact. I believe, however, that the danger referred to may be obviated by a careful packing of the tube, or, more exactly, by carefully introducing the cotton dry, as tightly as possible, then when it becomes wet, it of itself will fill the perforations, thus eliminating the danger of omental involvement. I have never had this condition in my own work, although it has come under my observation. As to the use of the tube, my own

experience teaches me that when kept clean, by frequently changing the cotton, and with careful attention to that part of the incision through which it is introduced, there is not the slightest danger of septic infection from its use. This conclusion is reached after its application in extreme cases of pelvic adhesion, extra-uterine pregnancy, hysterectomy, pus tubes, and (so-called) simple operations. I have never had a single fatal case in which I could justly attribute the result to the use of the tube. On the contrary, I have seen more than one case in which its absence has been followed by mischief which was relieved by its introduction. I have seen cases, too, in which I believe failure was due to its omission. This latter belief may be prejudice, but the advantages I have observed and experienced as a sequence to its use do not admit of doubt or question in my own mind.

Concomitant with the question of drainage comes its adjunct, irrigation. This procedure is not opposed even by those who oppose simple drainage, they not seeming to fear it in any way. I, myself, believe it of the greatest possible use to insure complete removal of *débris*, clots, and shreds. Pouring the water into the abdominal incision I do not consider so efficacious as its introduction by the "Alpha" constant-current syringe. I am in the habit of introducing the nozzle of the syringe into the lower angle of the incision, while with two fingers of the other I retract the intestines, thus giving free exit to the current. In this way the entire abdominal cavity can be thoroughly drenched. As to the method of drainage suggested by Professor Martin, *i.e.*, through the vagina, I cannot understand either its philosophy or its advantage. To close the abdominal cavity in the ventral incision, in order to find reason to enter it through the vagina, seems to me little more logical than to endeavor to escape miasm by closing the pipe of a stationary wash-stand and follow with tapping the sewer with which it communicates. If drainage be decided upon, the site of the incision, as already indicated, offers all that can be desired. As to the use of solutions, that has had its day, and hardly deserves mention. I speak of it now simply to call attention to the mischief it has caused in the past, and to express the belief that much of the intestinal pain frequently met in cases operated upon a few years ago, was due to adhesions resulting from the use of solutions, especially carbolic acid. Less than six weeks ago I assisted in such an

operation, the adhesions being simply universal throughout the entire length of the great intestine. I surmised that carbolic irrigation had been used at a previous operation (this was her third), and was afterward informed by the operator that I was correct in the opinion expressed.

As to the time for the removal of the tube, nothing should influence this more than the nature and quantity of the discharge. When this is clear, and sweet, and scant, the indications are for removal. It has been held that the introduction of the tube delays union, and increases the danger of ventral hernia. This I am not inclined to believe. Ventral hernia, I believe, in most cases, results from two causes. First, a very long incision; and second, getting up too soon and abandoning the abdominal bandage too early. A short incision, and due care to keep the patient in bed a sufficient time, together with abdominal support through a period of months, will, in most cases, obviate this *bête noir* of abdominal surgery.

I have thus briefly set forth my ideas of the use of the drainage-tube, which, epitomized, may be stated as a surgical procedure, which, without danger, eliminates to a great extent the danger of abdominal surgery, infection through the peritoneum. I believe the dangers referred to in connection with the tube are chiefly theoretical, and for the most part imaginary, and where they are real, that they can be obviated and minimized to an extent which renders them of trivial importance compared with the risk that is run with the omission or infrequent use of the tube in pelvic surgery. My own practice is in harmony with this belief, and my results with the tube justify the faith I place in its utility.

Any omission of essential points, I trust, will be referred to in a discussion of this paper. My intention has not been to exhaust the subject, but only to bring forward its strongest points as they appear to me.