THE ABDOMINAL WOUND; ITS IMMEDIATE AND AFTER CARE.*

BY

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I THINK the generally accepted principle with reference to the incision is that it should be so made as to cause the least injury to the muscles and especially to the nerves; whenever possible we should split muscles instead of cutting them. For the median incision personally I prefer to go through the inner border of the right rectus rather than through the linea alba. For the lateral incision I cut through the outer border of the right rectus, so that we have exactly the same incision to deal with in closing that we have when making the median incision; that is, we have both the posterior and anterior sheaths of the rectus to suture. The same principle applies to the posterior incision for a kidney operation and for an incision in the upper abdomen in operations upon the liver.

In the next place the incision should be so placed and sufficiently ample to facilitate and not to hamper the operator. This is especially true in dealing with pus accumulations. When dealing with aseptic conditions the incision should not be longer than is necessary to operate comfortably. In the presence of septic conditions an abundance of room is safer for the isolation of the septic material. McBurney's incision is desirable in aseptic cases. Where we are likely to find pus it is better to make a simple lateral incision, because we are so much better able to control the

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septic fluids through a simple incision which can be lengthened as desired.

With reference to suturing, it is generally accepted that homologous structures should be brought together. In the median incision the strength of the union depends upon the union of the aponeuroses and fascia.

The only other point which occurs to me in this connection is the question of Pfannenstiel's incision, which is a transverse incision through the skin, fat and aponeurosis, and then a vertical incision through the rectus muscle. The theoretical advantage of this incision is that the muscle or muscles are of use in keeping the aponeuroses together until sound healing is obtained. Where we have a vertical incision all the way through the abdomen, the normal tonic condition of the rectus muscle is of no service whatever in keeping the wound together. In the transverse incision (Pfannenstiel's) the contraction of the rectus muscles assists in keeping the aponeuroses together.

The acceptance of these principles involves the use of tier sutures to obtain the best results. Personally, in addition to believing in suturing homologous structures, I feel that there is an advantage in overlapping the aponeuroses. In other words, the strength of union between superimposed aponeuroses overlapped a third of an inch, more or less, is greater than is obtained when the aponeuroses are sutured edge to edge.

The avoidance of tight sutures and the vitality of the patient are points of definite value in securing primary union. Primary union is favored by the use of tier sutures, as tension can be avoided. Tier sutures, on the other hand, favor dead spaces.

With the through-and-through suture, post-operative hernia occurs in from five to thirty per cent. of cases, according to Winter and LaTorre. The figures they give are to an American quite astonishing. In America five per cent. would probably represent the post-operative hernias with the through-and-through suture. Hernia is most apt to follow when this method of suture is employed in fat women and where drainage is employed. Because of the thickness of the abdominal wall and the length of the sutures, it is mechanically impossible to secure union of homologous structures. In fat women, also, in order to secure approximation of the wound, it is inevitable that the sutures shall be tied rather tightly and this favors suppuration. With the tier suture, in America, hernia occurs in not more than one per

cent. In my experience with the overlapping of the fascia it has been a fraction of one per cent. We all know, however, that we may have suppuration in a wound followed by hernia, no matter what method of suturing we employ.

In the matter of suture material I use catgut for buried sutures and the silkworm gut for the through-and-through suture.

For the care of the wound the essential thing is that the dressing shall protect it from septic infection. My personal preference is for a wet bichloride dressing which shortly becomes dry and is an absorbent dressing. Silver foil is supposed to inhibit germs, but I regard it as inferior to wet bichloride gauze. The most important point in reference to the dressing is that it shall be an occlusive dressing and shall be so applied that it will stay in place. There should be free use of adhesive plaster not only to prevent the dressing from slipping sideways, but also from moving up and down, thus exposing the wound to secondary infection. The upper and the lower strips of plaster should extend above and below the dressing, thus guarding the wound from secondary infection (Edebohls).

These elementary considerations need only to be mentioned, not elaborated, in this society. There are some questions not so universally accepted; for example, that of quiet after operation versus freedom of movement. Personally I see no reason for questioning the soundness of the classical teaching that rest and quiet favor sound healing of wounds. At the present time the tendency is to give patients more freedom of motion after operation than in the past, allowing them to get out of bed after a major operation in twenty-four or forty-eight hours. Unless the approved teaching with reference to the consolidation of the wound being favored by a longer stay in bed be found to be erroneous, the burden of proof must rest upon those recommending earlier motion.

There are two grounds upon which freedom of motion and early locomotion is recommended which are at least plausible. One is that freedom of motion tends to prevent stasis in the venous circulation, and therefore to prevent thrombosis and phlebitis. Our knowledge of the etiology of thrombosis and phlebitis is not sufficient to decide this question on theoretical grounds, and therefore whether or not it is true must depend upon the practical results secured in large series of cases by those who practice the classical and the proposed methods. I see no

other way of settling the question unless additional light is thrown upon the etiology of thrombosis and phlebitis. As it is well known that wounds burst open, no matter how sutured, as late as the second week after operation, it would seem as though patients with abdominal operations must run this risk if early locomotion is permitted. Quite a number of hernias in ordinary simple sections have come under my notice since the present practice of getting patients early out of bed has been in use. I saw a case like that to-day where, after a simple appendicitis operation, the patient developed hernia. She was out of bed in a few days and sent to the country in eight days. Her wound came open after reaching home and then a hernia developed. Such a result after the methods in use in my clinic in clean cases has never been observed, and the result was clearly due to early locomotion.

The second argument in favor of early locomotion is that patients do not suffer from the loss of tone consequent upon a prolonged stay in bed, and also that the patient can return much more promptly to his or her duties, and thus save not only the expense of a prolonged stay in the hospital, but the loss which a prolonged absence from regular duty entails.

This argument is specious, and if the claims for the newer method with reference to the healing of wounds and the avoidance of phlebitis and embolism shall prove correct, the practice will have manifest advantages for all those undergoing operations when their general health is comparatively good. In gynecological practice, however, the argument will have little weight, as the majority of women undergoing abdominal sections are either prostrated by disease or sufficiently neurotic or neurasthenic to require special treatment intended to restore the tone and balance of the nervous system. For patients reduced in strength by hemorrhage or by sepsis from pelvic inflammatory disease the prolonged rest in bed is essential for their restoration to health. For neurotic women who must undergo operations, the best way to avoid the development of post-operative neurosis is to give them a modified rest cure, followed by easy travel.

With reference to the employment of the abdominal bandage as a routine after celiotomy, I shall merely express my individual judgment. For abdominal wounds sutured by the tier method, in which primary union is obtained, the occurrence of hernia is

never to be anticipated, and in my practice, therefore, the abdominal bandage is used in the first few months for its mental rather than its physical effect. When a patient is obliged to apply the bandage on rising, it reminds her that she has been instructed to avoid muscular exertion until at least ten weeks have elapsed. Otherwise, I feel that it has no advantage.

As a special exception, in patients having a flaccid or pendulous abdomen the bandage takes off a certain amount of strain from intraabdominal pressure, promotes the comfort of the patient, and relieves the wound of a certain amount of tension, and is therefore to be recommended. A well-fitting straight-front corset accomplishes the same result.

When drainage has been employed and when wounds have suppurated, the bandage is recommended in the hope rather than the expectation that it will prevent hernia; and partly also as a result of traditional teaching and as a protection against criticism when hernia subsequently develops. The view is so widespread that a bandage is of service under these circumstances that a surgeon who neglects its use must expect criticism, for some years to come, in patients who develop hernia.