Watkins (T. J.)

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DRAINAGE IN ABDOMINAL SECTION FOR PELVIC DISEASE.*

BY T. J. WATKINS, M. D., CHICAGO,
Gynæcologist to St. Luke's, Lakeside, and Provident Hospitals.

The term "drainage" as here considered is to be understood as referring to the removal of fluid, to keeping the intestines or other organs separated from necrotic or infected tissue, and to tamponade for hæmorrhage.

I. GENERAL INDICATIONS.

The general indications for drainage are:

1. General septic peritonitis.

2. Escape of septic matter into the general peritoneal cavity. This may occur prior to or during operation. When it occurs before operation, general septic peritonitis will ordinarily be present. The septic matter may be the contents of the intestine, of an abscess, a cyst, or an hæmatocele. Drainage on account of rupture during operation is seldom necessary, because in such cases the intestines are usually protected by gauze or sponges, and the infected portion of the abdominal cavity can be thoroughly cleansed.

3. The presence of a large amount of necrotic or septic tissue which can not safely be removed. This condition may result when old and extensive adhesions are present, when an abscess occurs primarily or secondarily in the pelvic cellular tissue, when a cyst has become so firmly adherent and necrotic that it can not be removed, and when an hæmatocele has become infected. Drainage in this condition not only permits the escape of necrotic tissues, which slough away, but also prevents contact infection of the intestines.

4. Hæmorrhage which can not be readily controlled by suture, ligature, temporary pressure, hot sponges, etc.

5. An injury to the intestine in which there is danger of the occurrence of fæcal fistula.

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II. The Routes of Drainage.

The routes of drainage are :

1. Abdominal.
2. Vaginal.
3. Vagino-abdominal.

Until recently the abdominal route has generally been employed for drainage in abdominal section for pelvic disease ; the vaginal route is now frequently used, and my belief is that it will soon be employed in nearly all cases which require drainage.

The advantages of the abdominal over the vaginal route are :

1. The production of an additional wound is unnecessary. This, however, is of no special importance, as the vaginal wound is small and is easily made.

2. The drainage does not pass through a septic canal. This objection is theoretically very strong, because the vagina can not be rendered perfectly sterile. The results of operations carefully done in and through the vagina, however, demonstrate that the vagina can be made practically aseptic.

The advantages of the vaginal over the abdominal route are :

1. The most dependent portion of the abdomen is drained.
2. Drainage is downward.
3. The surface which usually requires drainage is in more or less close proximity to the vagina.
4. The danger of hernia is diminished.
5. Fewer adhesions must of necessity occur, as the abdominal cavity is kept more free from exudates.
6. There is less danger of infection of the abdominal wound.
7. When the gauze drain is employed, much less pain is occasioned upon removal of the drain.
8. There is less danger of infection in the after-treatment of the patient.

The abdominal route is the better mode of drainage to employ when the surface to be drained is near the abdominal incision, as, for instance, when a pyosalpinx is adherent to the abdominal wall or to the anterior surface of the broad ligament of an anteverted uterus, when an opening into the vagina can not be readily made on account of extensive adhesions of the uterus to the rectum, and when a septic disease of the vagina or vulva is present. Under all other conditions I consider drainage by the vagina preferable.

The vagino-abdominal route may be employed when the indications for both routes are present.

III. Variety of Drains.

1. *Tubes.*—The tubes usually employed are of soft rubber or glass. The glass tube is better for abdominal drainage than the soft rubber, because the latter is liable to become occluded by pressure or flexion. The rubber tube should, in all probability, be always used in preference to glass for vaginal drainage. More thorough drainage can always be obtained by tube than by gauze, and the tube should therefore always be employed in cases of general septic peritonitis. Gauze may be used in connection with it when it is indicated for the control of hæmorrhage.

When irrigation is necessary, the tube drain is invaluable. For this purpose two tubes should be used—one large and the other small, sewed together at the inner end. The larger tube should be perforated as far as it extends into the abdominal cavity. The tubes should be fastened by suture to the incision in the vagina or to the cervix.

Tube drainage may be indicated in some cases where septic matter has escaped into the general peritoneal cavity. The rubber tube should extend one or two inches outside the vulva ; the outer end should be thoroughly covered with antiseptic gauze, and the gauze should be changed as often as it becomes moist. More active drainage may be obtained by leaving the tubes longer so that they may be bent down over the perinæum and a siphon action be thus produced.

2. *Gauze.*—The gauze drain should usually be employed for the second, third, fourth, and fifth general indications for drainage, as stated above. By means of gauze the infected portion of the peritonæum can, as a rule, be kept separate from the non-infected portion, and capillary hæmorrhage can be controlled. Experiments have shown that the capillary action of gauze is weak, but my experience has been that, when the gauze drain is carried through the vagina, no accumulation of fluid in the peritoneal cavity has occurred. When gauze drainage through the abdominal wound is employed, however, accumulations so frequently occur that it is now my custom, when I employ an abdominal gauze drain, to introduce a short rubber tube between the gauze drain and the lower angle of the wound.

A method of abdominal gauze drainage which I first saw Dr. E. C. Dudley employ is so much better than the Mikulicz that I never employ the latter. The method is as follows: The end of a piece of gauze two feet wide, folded to the desired width, is carried down to

and covers the surface to be drained. The sides of the gauze are folded about any raw surface that may be lateral to the uterus, and the gauze is allowed to project about one or two inches from the abdominal wound. Strips of gauze are packed between the wide layer of gauze and the pelvic organs, if necessary, to control hæmorrhage. This gauze should be placed before the sponges which cover the intestines are removed. In some cases the wide layer of gauze is unnecessary, and only a narrow strip of gauze is required. The rough edges of the gauze should be turned in and sewed.

IV. Technique of Vaginal Gauze Drainage.

In all cases of abdominal section where vaginal drainage may be needed the vagina is prepared before operation as follows: The pubes and vulva are always shaved, and the vulva and vagina thor-

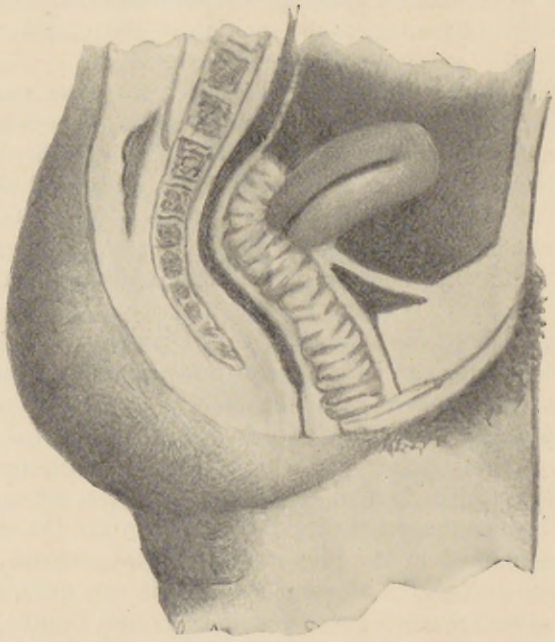

Fig. 1.—Vaginal gauze drainage.

oughly cleansed before the patient is anæsthetized. In narcosis the vagina and vulva are again thoroughly cleansed and disinfected. The uterus is then dilated, thoroughly curetted, and, if septic, is packed with iodoform gauze.

Before the sponges which protect the intestines are removed, the point of a long, sharp-pointed scissors, curved on the flat, is pushed from the vagina into the peritoneal cavity posterior to the uterus. The blades of the scissors are then separated and the scissors withdrawn. With one finger in the vagina and a finger of the other hand in the peritoneal cavity, the opening thus made is dilated to the desired size.

A piece of gauze two feet wide and folded is now carried through the opening into the vagina, caught by the fingers, and pulled out over the vulva. As little of the gauze as will be required to cover the necrotic or infected tissue, or to check hæmorrhage, is left in the

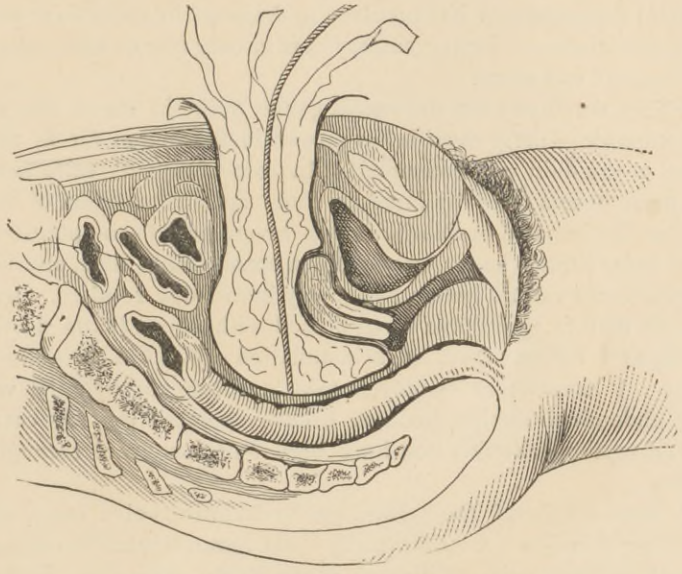

FIG. 2.*—Mikulicz drain. (Montgomery.)

peritoneal cavity. The punctured wound will not bleed unless the tissue is indurated. If hæmorrhage occurs, it may be necessary to pass a suture or to apply forcipressure through the vagina. In cysts of the broad ligament the puncture may be made directly into the cyst and the drain applied. Little or no more time is required for vaginal gauze drainage than for abdominal gauze drainage.

The advantages of the vaginal gauze drain over the abdominal

* From *An American Text Book of Gynæcology*, with permission of the publisher.

gauze drain are apparent upon comparison of the two accompanying illustrations.

The abdominal gauze drain is all removed at the end of twenty-four, forty-eight, or seventy-two hours; the dressings which cover it are changed as often as they become soiled.

The vaginal gauze drain is usually removed at the end of twenty-four hours, but may be left for forty-eight hours. The vaginal tube drain should not be removed as long as a moderate amount of discharge continues.

V. Personal Experience.

From what has been said above, it may be inferred that the abdominal drainage-tube has no place in drainage in abdominal section for pelvic disease. I have employed it in only one or two cases during the past two years.

I have employed the abdominal gauze drain in about fifty cases. In a number of these cases it has proved inefficient so far as the removal of the fluid was concerned. In some cases its early removal has been necessitated by infection from an accumulation of bloody serum. Its removal ordinarily causes severe pain to the patient. In a few cases sinuses have persisted for a considerable time, and in two or three cases ventral hernia has to my knowledge resulted. In one case of double pyosalpinx complicated with appendicitis death resulted, as I believe, from an accumulation of fluid in the abdominal cavity. I have never employed tube drainage through the vagina after abdominal section, because I have operated the few cases of general septic peritonitis that have been under my care through the vagina.

I have employed the vaginal gauze drain in twelve cases, and it has never failed to act satisfactorily. Its removal usually causes the patient but little pain. Although some of the cases were desperate, all the patients have made good recoveries.

93 East Eighteenth Street.