

AFTER-TREATMENT IN GYNECOLOGICAL OPERATIONS.

ABDOMINAL AND VAGINAL SECTION.

THE importance of this whole subject is realized by every surgeon engaged in the practice of gynecological operations, and the want of some convenient literature to which reference may be made has often been deplored.

There are certain well-defined principles which may be followed in conducting the after-treatment of a patient upon whom an abdominal section has been performed, but concerning the details of any given case, the surgeon must be governed in great measure by the conditions as they arise. These conditions may best be met and overcome by carrying out the principles to be enunciated, and by deviating from them only when an emergency arises; even then keeping well in view the general objects to be obtained.

Rest.—When the patient leaves the operating table rest is to be the first consideration—rest for the body, rest for the mind; the latter can only be attained simultaneously with the first. The woman should be placed upon her back, and kept in that position for the first few days or until her bowels have been moved. If a drainage-tube, especially a glass one, has been employed, she must remain in this position until it is removed. While upon her back the knees may be drawn up or the legs extended, as is most comfortable for her. She will frequently desire a change of their position, which should always be made by the nurse. While the knees are drawn up they are to be supported by a pillow inserted under them, so as to remove the strain incident upon the muscular effort necessary to keep them in position if left to themselves. It is never to be forgotten that when a patient lies for a considerable length of time in any one position every crease or wrinkle in the bed-linen becomes a source of annoyance, if not of great discomfort. The woman is intensely uncomfortable, and is suffering considerably from pain at the best: every possible added source of discom-

fort must be removed. She is sure to suffer a great deal of pain and distress as the result of her operation, and if kept on her back she naturally attributes all the trouble to the position, when in reality it is not so. It should be one of the chief objects of the nurse from the first to keep both the bed-gown and the sheets under the patient's back perfectly smooth. A woman will beg hard to be allowed to turn, if only for a moment, when, if her clothing and the bed-sheets are smoothed out and her pillows shaken up, she will be rendered fairly comfortable, and will remain so for a considerable length of time. This absolute rest upon the back is desirable for a number of reasons: If she is allowed a little liberty, she will toss and turn about, hoping to find relief first in one position, then in another, only to fail; but in the meanwhile a ligature which has been loosely placed or which encircles an especially large pedicle is unable to withstand the tension it is placed under, and bleeding begins—possibly only slight in amount, but it may be sufficient to kill. When a drainage-tube is used, if made of glass, it is very likely to become broken, and if of any other material, displaced. The stomach, which is already irritable, becomes worse, and the vomiting is not so quickly controlled. Every movement causes the patient pain, and if the edges of the abdominal wound are not closely coapted, they are apt to become displaced, as are also the dressings. The pulse is always more steady with the patient in the dorsal position.

Vomiting.—Rest must not only be obtained for the body but also for the stomach. The anesthetic has rendered that organ so irritable that the slightest disturbance causes it to reject anything it may contain. The retching and vomiting following abdominal section are exaggerated over and above that from simple anesthesia. The symptom is to be treated by rest, pure and simple. Under any circumstances the organ will remain irritable until the effect of the anesthetic has worn away, and drugs will not improve its condition materially: it will be extremely fortunate if they do not render it worse. The treatment of the vomiting consists in allowing the stomach to remain quiet. This is best accomplished by withholding drugs, stimulants, food, or water. Absolutely nothing should be allowed to pass the patient's lips until the vomiting has ceased, which will generally be within from twelve to twenty hours. Should it be necessary to administer nourishment during this time, rectal enemata may be used; however, the patient

usually does very well without either nourishment or stimulants for several days.

Drink.—It is well to withhold fluids until the vomiting has entirely ceased, and then to administer them only in small quantities. They should be begun by allowing a small spoonful of hydrant- or soda-water every fifteen minutes, testing the ability of the stomach to retain and absorb it, and gradually increasing the quantity until within twelve hours the patient is taking an ounce each hour. The mouth may be moistened and cleansed during the interval of vomiting immediately succeeding the operation, by the aid of a wet cloth on the finger of the nurse. Should the thirst become intolerable during this period, it may be relieved by administering an enema of two or three ounces of hot water at intervals of four hours. The habit of giving ice by the mouth is bad and should be avoided. The cold water accumulates in the already over-irritated stomach, which is in no condition to absorb, until finally it is rejected, in the meanwhile having rendered the patient more uncomfortable. The intense thirst created by the withholding of drink is a great desideratum, as the blood-vessels, being unable to satisfy their demand for fluids from the stomach, draw upon the serum and blood which have accumulated in the pelvis. An amount of septic matter of which the peritoneum might readily dispose may cause a septic peritonitis and death if it can find so favorable a medium in which to develop as is afforded by this accumulated bloody serum.

Food.—For the same reason that it is unwise to give drink it is best to withhold food. The stomach will not retain it until it has recovered from the irritation of the ether: even should food be retained, it will accumulate and remain unabsorbed, the added irritation of its presence causing an excessive pouring-out of gastric juice and considerable discomfort to the patient. In addition, purgatives will not act so readily when administered together with food, and it is desirable to have the bowels move as soon after an operation as possible. If food lay on the stomach for any length of time, decomposition sets in and flatulence is induced. Food may safely be withheld for forty-eight hours excepting in unusual cases, when, if it be required, it may be given in the form of enemata; stimulants may be administered in the same manner when indicated. When the stomach has shown itself thoroughly tolerant to drink, it is then time to begin to offer the patient fluid nourishment.

Buttermilk is most acceptable to the majority of women. It should be given in small quantities often repeated, half an ounce every hour or two, testing the capability of the stomach to retain and digest it. It is not wise to attempt too much in the way of feeding until the purgatives have gotten well under way. Milk, unless predigested, is not a good food for this class of patients; it almost invariably causes the formation of flatus. Beef-tea or beef-extracts may be alternated with the buttermilk. Soups or broths of any kind may be substituted as the patient tires of one or the other. In fact, any article of soft diet which is suitable for the sick-room may be of service, the greater the variety the better. As soon as the bowels have been opened, usually in about forty-eight hours, the patient's appetite begins to assert itself, and where before she took what was offered her under protest, she will now begin to enjoy what she is given. It is at this time perfectly safe to consult her appetite; anything that she fancies may be given her. As a matter of fact, for the first four days after the operation she will want little but soft or semi-soft food, but if after the bowels are opened she wishes solid food, it can do no harm to allow her to have it. She has been starved for three or four days; now feed her generously. There are exceptions to this, but they will be noted in their proper places.

Purgatives.—It is imperative to obtain a movement of the bowels at as early a date after operation as possible. The condition of the bowels and pulse is the surest indication of the progress of the patient. If at the end of forty-eight or sixty hours a good and satisfactory movement of the bowels has been obtained, and the pulse be below 100 beats to the minute, the patient is convalescent. If, on the other hand, the bowels remain unmoved in spite of all efforts to open them, tympany begins to appear, and the pulse slowly rises to the neighborhood of 120 beats to the minute or higher, it is a serious matter for the patient. The one hope under these circumstances is to get the intestinal canal open, and it is at times astounding to note the great change for the better which takes place when this has been satisfactorily accomplished. The distress incident to the distension will have disappeared, the vomiting will have ceased, the pulse will have dropped to the neighborhood of normal, the anxious expression of the face will have cleared away, and the patient will look and express herself as feeling very much better in all respects. The alteration is that of complete change from an

appearance and condition of extreme distress and suffering to one of absolute contentment and comfort. Twenty-four hours after the operation, or as soon as the vomiting has ceased, calomel in half-grain doses, to be repeated each hour, should be given until ten or twelve doses have been taken: this should be followed by a Seidlitz powder or a tablespoonful of Rochelle or Epsom salts, dissolved in a small quantity of water, every two hours until the desired effect is accomplished. As soon as the bowels begin to rumble, flatus is passed, or the saline is rejected a large enema of hot soapsuds, a quart or more, containing a tablespoonful of turpentine, should be given: the enema may be repeated at intervals of three or four hours if necessary. Calomel will be retained upon the stomach when everything else is rejected, but there must be a limit to the administration of this drug, else the patient will become salivated. A stomach which is ejecting everything will at times become settled when the calomel is begun. If the magnesia salts are not retained, some other form of drug will have to be used, such as compound licorice powder, or, in desperate cases, even croton oil. When the bowels have not responded to treatment by the end of the third day after operation and the pulse has gradually risen to 130 beats or more, it is the exceptional case which recovers: such patients are generally dead by the end of the fourth day. Efforts to obtain the desired result should not cease until the case is clearly hopeless. If the bowels do respond, even apparently desperate cases at times rally quickly, and are convalescent in a few hours. The depletion of the blood-vessels incident to the purgation is another factor in causing the absorption of the bloody serum in the peritoneal cavity, and for this reason, if for no other, it is desirable to secure a number of watery stools. Subsequently a daily movement should be secured.

Should any of the intestines become injured during the course of the operation and there is danger of fecal extravasation, absolute rest must be obtained for the bowels until such time as Nature may protect the dangerous point with peritoneal lymph and adhesions. Under these circumstances morphia may be administered hypodermatically in quarter-grain doses, repeated sufficiently often to keep the intestines quiet. Three or four doses in the twenty-four hours will answer the purpose: opium suppositories of one grain each, repeated at intervals of six or eight hours, would answer just as well. The opiate, in addition to helping to inhibit the peristaltic action of the intestines and tending to prevent the natural secretions in the

gut, allays the irritability of the stomach and prevents retching or vomiting until such time as the adhesions and lymph have become strong enough to offer the necessary resistance. Should vomiting occur during the first few days, almost certainly the intestinal contents will be forced through the light barrier formed by the lymph and into the pelvic and abdominal cavity. No effort should be made to move the bowels for at least four days after operation, when small doses of magnesium sulphate or castor oil may be administered, followed by an enema of soap and hot water as soon as the patient feels a tendency for the bowels to move. Great care should always be observed in such cases in giving the enema that the bowels be not over-distended, else irreparable damage may result. If the injury has been to the small intestine, it will have been repaired with stitches at the time of the operation, and little difference need be observed in the after-treatment, except that purgatives should not be begun until the end of the second or third day. Not much harm can occur from an injury so high up if properly repaired. Where the damage is to the sigmoid flexure of the colon or to the rectum, as is most generally the case, it is so low down in the pelvis that the sutures cannot be placed satisfactorily or safely, and unless great care is observed, irretrievable damage may be done when the bowels are allowed to open. It is not a good plan to allow the intestine to remain quiescent for too long a time, else the colon and rectum will become filled with ^xscybalous masses which may prevent closure of a laceration or may tear it open after it is partially healed. When the bowels have once moved they should be opened daily, if not acting naturally, by a laxative or an enema.

Bladder.—Should it become necessary, the urine may be withdrawn with the aid of a catheter. It is only, however, when absolutely necessary that the catheter should be used. If a proper length of time is allowed to lapse after the operation, most patients will void their own urine, and, having once done so, there will be no further necessity for the use of the instrument. If the bladder is once relieved artificially, it is most likely that it will be again demanded by the patient, and if the temptation be yielded to a few times, it will be difficult to break the habit. It is best, if possible, to force the patient to pass her own urine from the start, and if she is watched carefully for any untoward symptoms, the urine may be allowed to accumulate for from fifteen to twenty hours if necessary, the patient being offered the bed-pan occasionally

Scybalum (pl. scybala) = hard faecal lumps.

during this interval, and every effort being made to aid her in her endeavors to accomplish the act of urination. A small stream of warm water squeezed from a sponge, if allowed to run down over the meatus at times, accomplishes the result. When the catheter is used, the greatest care should be taken that the bladder be not infected. The instrument should be preferably a soft-rubber one, and should be antiseptically clean. It should have been prepared by being immersed in boiling water, washed in a bichloride-of-mercury or carbolic-acid solution, and kept in alcohol until needed. It should never be used without fully exposing the parts. The patient's knees being well drawn up and separated, the labia are drawn apart with the finger of one hand and the meatus exposed to view. The parts are thoroughly cleansed with a piece of cotton wet with a carbolic-acid or bichloride-of-mercury solution, and the point of the catheter introduced directly into the meatus without being allowed to come in contact with any of the contiguous parts. Thus, and only thus, can the patient's bladder be ensured against infection. A cystitis at this stage of the convalescence will often give rise to serious symptoms and an immense deal of discomfort, to say nothing of danger to the patient.

If during the operation the bladder has been injured or torn open, whether it has been sutured or not, the after-management of the urine must differ somewhat from that which is usual. If under these circumstances the organ is allowed to become distended, there is apt to be leakage at the point of injury between the sutures, or if only the outer coats of its walls have been torn away in separating adhesions, a rupture might readily occur at this point were the urine not removed for fifteen or twenty hours. It should always be arranged in case of such injuries that there be no accumulation allowed. A soft-rubber catheter may be left in the bladder permanently, by means of which the contents can be conveyed into a vessel over the side of the bed, through a long piece of drainage tubing attached to the end of the catheter; or, better still, a self-retaining female catheter may be utilized for this purpose. Three or four days will be sufficient for its use, after which the patient may be catheterized five or six times in the twenty-four hours, the use of the instrument becoming gradually less frequent, until in a week or ten days it may be omitted altogether. If during the convalescence cystitis should develop, it becomes necessary to treat it promptly. A careful inspection of the methods of cathe-

Butter watch this from the start.
 terization should be made, and rectified if found faulty. The vast majority of cases of cystitis arise from this source. Diuretics should be administered freely, provided the stomach has reached the state when it can bear them.

If the cystitis develops within the first day or two, before the bowels are thoroughly opened, internal medication is better withheld for the time and local treatment depended upon. In any event, most reliance must be placed upon the local management, irrigating the bladder twice daily with a mild antiseptic solution and seeing to it that no residual urine remains to undergo decomposition. A warm solution of permanganate of potash, not sufficiently strong to cause burning, may be passed into the bladder until the patient complains of the distress. This is accomplished by the aid of a soft-rubber catheter with a piece of long rubber tubing attached, terminating at the opposite end in a small funnel. The funnel is elevated, and the fluid allowed to enter the bladder through the introduced catheter, by the force of gravity. As soon as the woman complains of much pain, the funnel may be depressed into a vessel resting on the floor, and the solution allowed to siphon away. The action of the residual urine will have decomposed the permanganate of potash in the solution, and it will return almost the color of ordinary water. It is then necessary to refill the bladder without withdrawing the catheter, with a fresh solution, in order that the unaltered drug may come in contact with the inflamed and suppurating walls. After a few washings the patient will become more comfortable and the cure will be accomplished quickly. The urine in the mean while must be rendered as nearly neutral as possible. *Citrate of Potash for acid urine; Benzoic acid for alkaline.*

If there is preëxisting kidney disease, symptoms of uremia may develop after the operation. The quantity of urine voided should be carefully noted and this symptom anticipated: following the operation, the quantity of urine secreted during the first few days is always small, often not more than eight or ten ounces during the first twenty-four hours, but increasing rapidly in amount with each succeeding day: due allowance must be made for this. The treatment of this complication will be similar to that of uremia under any other circumstances. If it once develops, the patient is usually lost, although an occasional case is saved by prompt action. Purgation, diuretics, diaphoretics, heat, and local bleeding are all indicated, and must be applied promptly if any good is to be derived from them.

Croton oil for purgation, cocaine and digitalis for diuresis, leeches and cupping over the kidneys for bleeding, and dry heat applied about the parts, are the chief remedies to meet the indications.

Bathing.—Bathing is an important element in the comfort of an operative case, and should be begun as soon after operation as possible. The bowels will, in a normal case, be opened by the end of forty-eight or sixty hours. As soon after this as the patient has had time to rest a while and regain a slight amount of strength, there being always a period of a few hours of weakness after the purgation, a warm sponge-bath may safely be given. The end of the third twenty-four hours is about the usual time for this first general bath: from the very first the hands, arms, neck, face, and legs should have been frequently bathed. From this time a daily sponge-bath of warm water, followed by alcohol, is to be given. The amount of comfort derived from this procedure is indescribable, and, if due care be taken not to chill the patient, not the slightest harm can come of it. The hair and teeth should receive attention from the very first.

Flatulence.—This symptom is the most distressing one met with in the after-treatment of abdominal surgery. It accompanies, more or less, all cases, although in a very great many the amount is so slight that it is hardly noticed and requires no special attention. Where the woman's life is seriously threatened and she is eventually going to die, it is usually at its worst, and practically nothing can be done for its relief.

Flatulence itself is capable of killing, and almost to the last it is impossible to say whether or not there is a chance of saving the patient: for this reason there should be no cessation in the efforts for its dissipation. Usually it does not appear for from twelve to twenty-four hours, and in the majority of cases, where the bowels are opened at the end of forty-eight hours, it is permanently relieved. This being true, the great effort for its relief should be in the direction of securing a movement of the bowels. That form of flatulence which appears within twelve hours after the operation is usually easily dealt with, and in itself has no great significance and need give no particular alarm. It is the variety which begins to show itself toward the end of the second twenty-four hours, which is accompanied with a refusal of the bowels to move, together with a quickening and weak pulse, which is to be dreaded: it most frequently means septic peritonitis and death. Little in the way of drugs, excepting purgatives, is

worth administering. Large rectal enemata of water and turpentine, and the rectal tube introduced and at times allowed to remain *in situ*, will in some cases give relief. This is not very great, however, and the practice has more theoretical than practical value. Puncturing the intestines through the abdominal wall is never justifiable: if it is thought desirable to attempt to relieve the distension by this source, a small incision should be made in the abdominal wall, a knuckle of gut caught up, opened, and either stitched to the abdominal wall or else closed by a few sutures when the opening has accomplished its object. The same thing might readily be done through the original incision by removing a stitch or two and separating the edges of the wound quickly with a finger. The whole procedure can be carried out with the patient lying in bed and without an anesthetic. It is rare that anything can be hoped for from this direction, however, and it is seldom worth considering. Usually the result would be that only a single coil of intestine would be emptied, and nothing particular would be accomplished. The stomach-pump is a valuable aid in some of these cases, especially where the distension appears quite prominent in the epigastric region. Large quantities of fluids and air may be occasionally removed by its aid, and the distressed expression on a patient's face will clear up almost instantly after its successful use. Where it succeeds at all, after the first application the patient will in a few hours beg for a repetition, so great has been the relief obtained.

As a matter of fact, unless the bowels can be gotten to move, we can do little to permanently relieve this symptom, and even in those cases of sepsis in which the bowels have responded to the purgatives and enemata in a more or less satisfactory manner, the relief from the flatulence is not great, nor is it permanent, returning in a few hours with the bowels obstinately constipated. At times, when nothing else will answer the purpose, turning the patient on the side will bring about the desired result.

The causes of flatulence are varied. Too early administration of food where the stomach is so irritable that it does not perform its function of digestion and absorption, is a common cause. Milk, especially, of all foods is most likely to favor its formation.

It invariably accompanies sepsis, in which case it is most stubborn. Handling the intestines during the operation is supposed to be a common cause, but at times it follows, in cases where the

intestines have not been seen or have been handled a minimum amount: at other times when there has been partial evisceration and severe handling, even to the placing of stitches in the intestinal walls, there is no flatulence following the procedure. The real cause of flatulence is unknown, and its treatment is most unsatisfactory, except where the bowels can be gotten to move, when, as a rule, it disappears. Occasionally, however, where daily free evacuations of the bowels are taking place, a distressing amount of flatus may remain for days.

Drainage-tube.—The care of the drainage-tube is one of the most important parts of the after-treatment. Should the tube be made of glass, each time it is cleaned the nurse or physician is practically dealing with an open wound, and just as great care should be manifested in its cleansing as is done at the operation itself: for the first few days the danger of infection is just as great. Should the tube-track become infected at this time, the chances are largely in favor of a septic peritonitis and death; if the infection takes place later, when Nature has thrown out enough lymph to protect the peritoneal cavity, a suppurating pelvis with, possibly, a more or less permanent fistula, may be the first result. Under any circumstances infection is dangerous: if it does not end in death, it generally terminates in a fistula, which is more or less stubborn in healing. In cleaning a glass drainage-tube it is necessary to pass a long-nozzled syringe to the bottom of the tube in order to suck up the serum and blood which have accumulated in the pelvis. The syringe itself may be infected and carry the poison into the pelvis, or it may become infected as it passes the mouth of the tube. At each tube-cleaning the hands should be well washed with soap and water and disinfected with a bichloride-of-mercury solution. Clean towels should be placed about the tube, and the dressings over its mouth removed, so as to expose the opening. The syringe should be immersed in boiling water and the barrel filled and refilled several times; it is then to be filled and refilled several times with a bichloride-of-mercury solution (1:1000); from this solution it is to be passed again into hot water and the mercurial washed away, when it is ready for use. The point of the syringe is passed to the bottom of the tube, and then withdrawn about a quarter or half an inch, so that when the piston is drawn the fluids in the pelvis will be sucked up, but not the tissue of the pelvis. If any clots or shreds of tissue remain in the pel-

vis, the suction will draw them to the mouth of the nozzle, when by keeping up the suction they may be readily withdrawn. The syringe is to be used until the tube is perfectly dry. After using the syringe, it is to be first washed out thoroughly with hot water until the flow comes away perfectly clear and unstained, then the bichloride-of-mercury solution is to be repeatedly drawn into it, and the syringe put away wet with the solution. It is to be placed immediately upon a clean towel kept for that purpose, and folded up so as to remain unexposed until again required. Each time the tube is cleaned its mouth is to be well washed with a piece of cotton wet with a bichloride-of-mercury solution, and the wet cotton is to be passed down the tube as far as possible (an inch), so as to render its caliber thoroughly clean. The rubber-dam about the tube should be carefully cleansed of any drops of blood or serum which may have soiled it, and clean cotton is placed over the mouth of the tube. All this trouble may seem unnecessary, but any one familiar with the dangers of sepsis will appreciate its importance. A drop of blood or serum left about the mouth of the tube or in the syringe will quickly undergo decomposition. It is much easier to prevent sepsis than to cure it.

Each time the tube is cleansed it should be twisted back and forth several times. The lymph which is thrown about the tube, penetrates the small perforations at its bottom, and if not broken up, and kept so by frequent rotation, becomes firm enough to cause considerable difficulty in the subsequent removal. This difficulty has been such a common one that several instruments have been devised for the express purpose of cutting the tube loose. If the simple precaution be observed of twisting the tube back and forth at each dressing, no such difficulty will ever arise.

The drainage-tube should be allowed to remain *in situ* until such time as it is no longer needed for drainage. This time varies in different cases, and no hard-and-fast rule can be laid down for all. A few drachms of clear serum may always be found in the peritoneal cavity, and when the amount which can be drawn from the tube reaches two or three drachms at five or six hours' interval, and this fluid is clear or nearly approaches straw color, the time for the withdrawal of the tube has come. A drainage-tube should be cleansed as often as it becomes necessary, no attention being paid to the shortness or length of time. Immediately following the operation it should be emptied every fifteen minutes

tube it is only necessary, after removing all the dressings, to make traction upon it, meanwhile rotating it as it is drawn out. The same careful antisepsis is to be observed in removing as in cleansing it. A small piece of antiseptic gauze is placed over the opening left by the withdrawal of the tube, and the wound edges are drawn together with a strip of adhesive plaster. The dressings are replaced, and not disturbed again until the stitches are removed.

In some cases the surgeon fears that the pelvis or certain parts of it may suppurate or that a fecal fistula may form, and yet the drainage-tube is ready, from all appearances, to be withdrawn a day after the operation. Under these circumstances it is best to allow it to remain for three or four days, cleansing it only often enough to have an idea of what is going on at its lower extremity—possibly twice in the twenty-four hours unless the symptoms indicate otherwise.

Should suppuration occur, the tube is to be kept in place until the amount of pus discharged begins to diminish, when it may be withdrawn and the opening gradually allowed to contract. During the acute stage of suppuration the tube should be cleansed every few hours and washed out with boracic-acid solution: later, after it has been dispensed with, peroxide of hydrogen is the most efficient wash for cleansing and disinfecting the tube-track. The opening generally closes in a week or two, or if not, the condition becomes chronic and possibly a permanent fistula may result. As a rule, these fistulous tracts close in time, even after existing for several years.

Should the drain be of gauze instead of glass, the care of it will be somewhat different. The gauze drains by capillary action, and keeps the dressings continually wet, so that it is necessary to change them frequently. The whole arrangement of the abdominal dressing is such that the parts about the drain may be changed without removing all. The one commonly used is that known as the Mikulicz drain. It consists of a gauze bag containing a number

of pieces of gauze, the end of each piece protruding from its mouth. In withdrawing the drain the pieces are picked up with a pair of dressing forceps and withdrawn separately; as they are removed the bag collapses, and is easier withdrawn than if the whole drain was removed together. In drawing out the bag care should be taken that no pieces of intestine or omentum follow, as at times is apt to be the case: should this occur the viscus is to be replaced at once with the forceps and the edge of the wound drawn together with the ligature which was placed for that purpose at the time of operation, or by a strip of adhesive plaster, care being taken that intestine or omentum be not included between the lips of the wound. Any kind of drainage is an indication of incompleteness of surgery, possibly unavoidably so, but nevertheless incomplete, and is to be avoided whenever and wherever possible. Drainage should only be tolerated with the distinct understanding that it is a necessary evil, but only necessary occasionally. Abdominal surgery should be and is possible with not more than a maximum of 5 or 10 per cent. of drainage cases—probably less.

Dressings.—An ordinary case of abdominal section need not have the original dressing removed until the time has arrived to take out the stitches. Should a drainage-tube be in use, the dressing may become soiled, when it will be necessary to change it, or if the incision or the stitch-tracks suppurate, it will be advisable to remove the dressing, not only to replace it by a clean one, but in order to apply remedies to the suppurating parts. A full week should elapse before disturbing the stitches. Stitch-hole abscesses may arise before the stitches are removed or afterward. The stitches should be taken out on the eighth day unless suppuration has previously occurred, when it may become necessary to remove them immediately. This procedure is accomplished by picking up one of the strands of the stitch by the aid of a pair of hemostatic forceps, lifting the knot out of its bed, and exposing both strands of the stitch below the knot. The blades of a pair of scissors are opened, and made to include one of the strands as it dips down into the tissue; the scissors are pressed down into the skin at the same time that the knot is elevated by the forceps. This procedure exposes a portion of the ligature, which has been buried in the tissue, and which is white and clean and has not been infected. The ligature is cut in this uninfected area. As the cut end is drawn through the tissues in its removal,

there is no danger of dragging infection with it, when if the stitch had been cut above the skin-surface a portion of contaminated suture would infect, in many cases, the suture-track. In this manner are caused stitch-hole abscesses which form after the stitches have been removed. After the one strand of the stitch is cut, the knot is to be drawn in the direction *across* the incision, not away from it. Should it be drawn away from the incision, there is an excellent chance that the skin-union will be separated at points, and possibly throughout its whole extent.

After the stitches have been removed the parts about the incision should be cleansed with a piece of cotton dipped in a solution of bichloride of mercury, care being taken not to disturb the line of union. The dried clots may be left alone, else in their removal some raw surface may be exposed. A small piece of antiseptic gauze is to be placed over the incision, and the parts held together by several strips of adhesive plaster, a binder being placed over the whole. Usually no more attention need be paid to the wound.

If the incision suppurates, it is best to remove the stitches at once, allow the superficial parts of the wound to separate, and treat the incision as an open wound by disinfecting and packing. The cicatricial tissue resulting from this method of healing will be the surer barrier to a future hernia. If stitch-hole abscesses exist, it is only necessary to provide for their drainage. Usually as the stitch is withdrawn the pus will flow from the opening left by its removal, and it may be necessary to empty the abscess once or twice a day by gently squeezing it, care being taken not to exert too much pressure: the abscess will, as a rule, heal within from two days to a week. A considerable rise of temperature and pulse may accompany these abscesses, but the symptoms disappear almost at once after drainage has been provided. While suppuration goes on the dressing should be changed twice daily and the parts thoroughly cleansed. It should be treated, in fact, like any suppurating wound. If any of the cavities are very large, it may be well to inject them with peroxide of hydrogen or bichloride-of-mercury or other antiseptic solution.

Hemorrhage.—For hemorrhage following an abdominal section there is but one treatment. As soon as the surgeon is reasonably certain that serious bleeding is going on, the wound must be opened and the bleeding vessel ligated. Attempts to apply any other treat-

ment are useless, and the less time lost the more chance there will be of saving the patient. Care should be taken in re-opening the wound that everything is just as aseptic as at the original operation.

If a drainage-tube has been used, it will usually indicate that bleeding is taking place, but this is not to be depended upon for an indication as to how much blood is being lost. The abdomen has been opened and found filled with clots when the tube projecting into its cavity had been cleaned every ten or fifteen minutes, and it was supposed that all the blood had been withdrawn. Even if the tube does not indicate that a dangerous amount of blood is being lost, if the constitutional symptoms look strongly suspicious, the abdomen had better be re-opened and the bleeding vessel tied. The constitutional symptoms will be the same as those of concealed hemorrhage from any other cause. If the bleeding comes from torn adhesions, and is simply a free ooze, no alarm need be felt concerning it. It matters not how free it may be at first, it will last but a short while. The indications are to keep the drainage-tube perfectly dry, so as to favor coagulation of the blood and consequent cessation of the bleeding. The oftener the tube is cleansed and the drier the pelvis is kept, the sooner will the hemorrhage cease.

If the patient, having rallied from her ether, with a good pulse and practically normal temperature, be found in the course of the next twenty-four hours to be showing indications of collapse, together with a rising pulse and a falling temperature, hemorrhage will almost always be found to be at the bottom of the trouble. The pulse under these circumstances becomes feeble, and is rapid and running in character. The temperature and pulse, together with the general condition of lassitude and growing indifference, are almost pathognomonic of the condition. If the bleeding be allowed to continue, these symptoms gradually deepen, and the more advanced indications of collapse, such as great pallor, sighing, and cold surface, supervene. Intravenous infusion or infusion into the loose subcutaneous connective tissues of a sterilized (when possible) salt solution is often urgently demanded.

Shock.—The symptoms of shock may readily be mistaken for hemorrhage, the difference being that in hemorrhage the indications do not begin for some hours after operation, while in shock they are present from the first. Otherwise, the two present so many points of likeness that it is at times difficult to say which is present. The

indications for treatment in shock following abdominal section are exactly the same as for that condition from any other cause—dry heat applied to the whole surface of the body, care being taken not to burn the skin with the hot cans or bottles; whiskey, ammonia, nitro-glycerin, and digitalis may be used as necessary adjuncts in the treatment. Strychnia is, according to some physicians, the most valuable of all drugs for this condition, and may be given freely without fear. It should be given hypodermically in doses of one-twentieth of a grain repeated every half hour for two or three hours, and then each hour until the patient is decidedly better or shows signs of muscular twitching. It is far better to take the chances of producing strychnia-poisoning than to give two small a quantity. If the patient can be carried over the shock, it will be time enough afterward to attend to the poisonous symptoms.

Sepsis.—The management of this complication will depend much upon the character and extent of the infection. A general pelvic and abdominal septic peritonitis following abdominal section is never cured: the patient invariably dies. For more than two days it is doubtful just what is the trouble with the patient; in fact, one cannot be certain that there is anything seriously wrong. By the time it is reasonably certain that there is septicemia to deal with, the patient is beyond relief, and is dead before the end of the fourth twenty-four hours after the operation. Usually the condition of the patient immediately following the operation is fairly good, but within the first twenty-four hours the pulse gradually and almost imperceptibly creeps up until it reaches 110 to 120 beats to the minute. It is weak and inclined to be running. The temperature simultaneously ranges in the neighborhood of 100 or more degrees. The ether-vomiting is prolonged beyond the usual limit of twenty-four hours, when most probably the stomach will have an interval of rest for six or eight hours before the secondary vomiting due to the septicemia sets in.

During this interval of rest from vomiting the pulse gradually but steadily creeps higher and higher, becomes more rapid and weak, and finally thready. The temperature at the same time becomes more and more elevated. The abdomen becomes distended, due partly to flatulence and partly to the retention of the purgatives and nourishment. In spite of all efforts to move the bowels, no indication of borborygmus or of passage of flatus can be obtained. The stomach finally begins to expel every-

thing placed in it. The rectal enemas are promptly rejected. Profuse sweating and cold creeps set in. The dull, heavy muscular pains of septic poisoning supervene. The patient becomes restless, tossing from one side of the bed to the other. The facial expression, which has been gradually becoming more and more anxious, deepens, and the patient assumes an altogether hopeless appearance. Prior to death the pulse becomes so rapid and weak as to be imperceptible: the temperature may rise even to 106° or 107° , and the body is bathed in a cold, clammy perspiration. The vomited matter is dark brown.

No effort should be spared to secure a passage of the bowels until the trouble has plainly manifested itself.

Whiskey and strychnia should be given to the point of tolerance, many of these patients taking from a pint to a quart of whiskey in the twenty-four hours without showing signs of its constitutional effect. Quinine in large doses is a valuable adjunct to the management. The hypodermic needle and rectal enemas must for the most part be depended upon for the administration.

If at the end of sixty hours there is no longer doubt as to the complication, it is useless to make further effort, other than to render the patient's death as easy as possible. Under these circumstances opium is the one drug to depend upon. It will relieve the pain and suffering, and that is all it is in the power of the physician to do for his patient. Theoretically, the proper treatment would be to open the abdomen, irrigate it thoroughly and introduce a drainage-tube. It would probably be best to do this as early as twenty-four or thirty-six hours after operation should by any chance the diagnosis be made, but even at this early period it is more than doubtful whether any good would be accomplished. When the abdomen is opened the condition found will be that of a general matting together of the pelvic organs and those loops of intestines and omentum hanging into the pelvis. An ounce or two of dark fluid will be observed on breaking up the adhesions. The only effect obtained will be to expose more surface to absorption by separation of the adhesions. If any good can be accomplished in this direction, it will be by providing free and continuous irrigation of the whole pelvic cavity for several days or until such time as the patient is convalescent. If the infection be introduced at the time of the operation, and be given twenty-four or thirty-six hours in which to develop, the case is practically hopeless. The diagnosis

cannot possibly be arrived at earlier than at the end of forty-eight hours with any degree of certainty.

Should a local suppuration occur about the pedicle or elsewhere in the pelvis and an abscess result, the condition is amenable to treatment and the patient will easily recover. The symptoms induced by the abscess will be the ordinary ones of septic infection, which, taken in conjunction with the knowledge obtained from the operation, will readily indicate their true cause. For the first few days the patient progresses favorably. Movements of the bowels are obtained in response to the purgatives and enemas, but not of a satisfactory character. The pulse remains high, from 100 to 120 beats to the minute, but fairly good in character. The temperature ranges from 100° to 102° , or higher, with a daily evening elevation. The patient may at times reject her food, having little or no appetite. Her mental condition is clouded, and she complains of dull pains and cold creeps. Her general condition is heavy and lethargic. Night-sweats are present. The abdomen is more or less distended, and colicky pains are apt to disturb her in consequence. These symptoms are of more gradual development than those of general septic infection of the pelvic cavity. At no time do they become so intense, and seldom threaten speedy death.

The only proper treatment is to empty the abscess and drain the cavity after having washed it out. It may be necessary to reopen the abdomen to accomplish this, or the posterior vaginal cul-de-sac may be opened, a finger passed into the pelvic cavity, and adhesions penetrated until the purulent matter be found. The parts are then gently irrigated and loosely packed. Frequently in these cases a drainage-tube has been used in the pelvis, and it is then most probably near the seat of the abscess. Under these circumstances, if the symptoms will allow of delay, it is best to wait for a few days, or even a week if necessary, in hopes that the abscess will rupture into the drainage-tube, which it generally will do. Should the temperature, pulse, and other symptoms become alarming at any time, the lower end of the incision had best be opened, and the abscess sought in the pelvis amid the adherent intestines and opened with the finger, care being taken not to invade, if possible, the general peritoneal cavity. If the pus be thoroughly washed away, the temperature and pulse will fall almost immediately to normal, and the other symptoms will disappear coincidently. Stimulation by whiskey, strychnia, and quinine is to be begun early and car-

ried out freely, only stopping short of the physiological action of the drugs. Septic symptoms due to stitch-hole abscesses are to be treated as already described under the head of Dressings.

FISTULÆ.—These are either simple suppurating, fecal, or urinary. The simple suppurating fistula is the most common. It is generally due to an infected tube-track or to septic ligatures. The majority of fistulæ close eventually without special treatment for which reason they should be treated expectantly rather than by a secondary operation. If they are caused by an infected ligature, they will not heal until the ligature has come away, when they usually close very promptly. Various methods have been proposed for removing the ligature through the fistulous track without re-opening the abdomen. A pair of small-bladed forceps may be passed into the opening and an attempt made to catch the offending body: the introduction of pieces of twisted wire and various other devices have been adopted, with success in exceptional cases. The silk will eventually work itself free and appear at the mouth of the fistula. Few fistulæ remain open unless there is a foreign body present as the cause: the exception occurs in women who are probably suffering from tubercular or other general conditions.

Under any circumstances the sinus should be kept clean and free from the discharges; at the same time the general health should be looked after, and if there is any condition such as tuberculosis present, it should be treated accordingly. Peroxide of hydrogen diluted with water—half and half—or in its pure state is probably the best wash which can be used. It is to be passed, by the aid of a syringe, to the bottom of the fistula and allowed to regurgitate, the injection being kept up until it comes away clear and clean without any appearance of froth: it would be well to wash the sinus out several times daily, the dressings being changed frequently enough to keep the parts clean.

It is proper to wait from three to six months, or even longer, before attempting any radical procedure. The operation necessitates opening the abdominal cavity, with all the chances of infecting the peritoneum with the discharges of the sinus. Should the operation be undertaken, the parts must first be thoroughly disinfected, and the sinus washed out with peroxide of hydrogen and a solution of bichloride of mercury. The abdomen is opened, the adhesions broken up to the bottom of the fistula, and the ligatures removed:

the walls of the fistula should be curetted away as far as possible. Should no ligature be found, the walls of the sinus must be thoroughly destroyed. In closing the abdomen a drainage-tube must be introduced for a few days in order to guard against possible supuration.

Nothing can be done for chronic fecal fistulæ short of an operation, except to keep the parts clean. It is not always advisable to attempt an operation in these cases, for the reason that the opening in the bowel is often so low down in the rectum that it is impossible to bring the parts within reach so that sutures can be properly placed: in addition, the tissues of the gut are often so badly disorganized that stitches will not hold, and a resection would be necessary, when from the low position of the opening this would be impossible. If the operation is undertaken, the parts must be thoroughly cleansed and disinfected; the bowels should be purged and the rectum washed out by an enema. After invading the abdominal cavity the adhesions between the coils of intestines are to be carefully separated down to the opening in the bowel.

Occasionally in old chronic cases the fistula can be dissected out as a complete tube down to the intestinal opening, in which case there would be a minimum danger of infecting the peritoneal cavity. Under any circumstances the edges of the fistula are to be freshened and turned into the gut, sutures being so placed as to retain the edges in apposition. If the opening is sufficiently high to allow of a resection of the bowel, this may become necessary, provided it cannot be closed. Should it not be possible to close the hole or to resect the gut, a drainage-tube must be so placed as to drain the immediate vicinity of the injured bowel, and the tube cleansed every fifteen minutes to allow of no spread of infection until sufficient lymph has been thrown about the seat of danger to protect the peritoneal cavity: in the mean time sufficient opium is given to keep the bowels quiet.

The operation for chronic fecal fistula is a tedious and dangerous one, and often results in failure or in disaster. It is the only hope of relief, however, and it is justifiable to take considerable risk with the hope of gaining a cure.

The primary treatment of fecal fistula is one of rest. Should the fistula occur three or four days after operation, enough lymph will have been thrown out to protect the general peritoneal cavity, and there will be little danger. Should it be discovered during the

first few hours, while cleaning the drainage-tube, the tube must be cleansed at intervals of not longer than fifteen minutes, and the bowels kept quiet by the use of opium for three or four days at least. When the bowels have once opened, they should not be allowed to again become constipated, but daily evacuation should be secured by the use of laxatives.

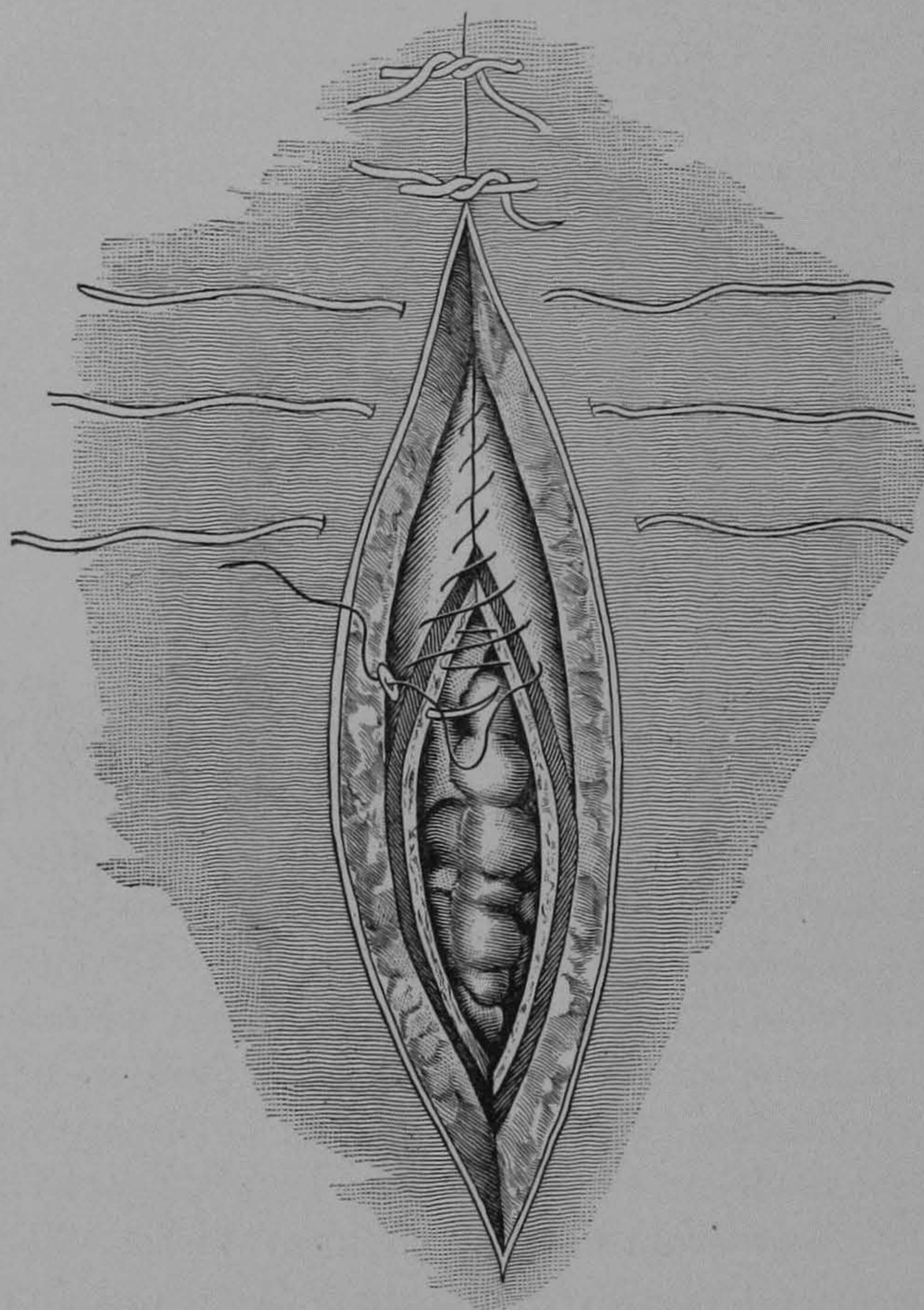
In the course of a week the tube may safely be withdrawn, and the fecal matter allowed to flow through the track formed by the lymph. As long as the tube is in place the opening will not close, but as soon as it is removed the parts begin to contract, and gradually the flow of fecal matter becomes less and less, until finally in a few weeks it has ceased altogether. Most fecal fistulæ will close spontaneously if treated properly from the first.

Hernia.—This is one of the common sequelæ of abdominal section, and is due to a failure of union between the cut edges of the muscles and fasciæ. The hernia usually does not appear for some weeks after the woman is out of bed, and then only as a small protrusion at one point, from which it gradually spreads, until, if neglected, it at times occupies the whole of the original incision. As a prophylactic measure against this accident the longer the patient is kept in bed after her operation the better: too early getting up puts a strain on the newly-united incision and predisposes to hernia. When the hernia has once appeared, but two courses are open—either to use support at the opening and if possible prevent it from becoming larger, or to perform a secondary operation for its cure. A properly-fitting truss will keep the intestines back and to a great extent render the woman comfortable, but there is no chance whatever of the opening ever closing if left to itself.

In making the incision, great care must be observed in opening the abdominal cavity at the seat of the hernia, for the reason that the intestines are very apt to be adherent to the sac. The anatomical relations are all destroyed, and there is no certain guide as to where the knife is about to enter the peritoneal cavity. After the abdominal cavity is opened the old incision should be split to the full extent of the hernia both above and below. The peritoneal and adventitious tissue covering the edges of the muscle and fascia completely around the opening must be trimmed away with the scissors and knife, and the redundant portions of the sac resected. The edges of the several tissues are brought into apposition and the wound closed in the usual way after an abdominal section.

Various methods of repairing hernias have from time to time been used with varying degrees of success, but all the indications are met by the above method, especially if an extra and separate row of sutures be placed in the muscles and fascia in order to secure and retain their coaptation. Either silk or silkworm-gut may be used for this purpose. Silkworm-gut is preferable as it gives a permanent support to the tissues, while silk is apt to become weak-

FIG. 341.



Sutures in place for the Repair of Ventral Hernia.

ened by absorption. Subsequently the patient should be kept upon her back for not less than four weeks, to allow of thorough healing. Should the buried sutures suppurate, it is due to faulty technique, and they must be removed before the resulting fistula will heal.

The usual length of time for a patient to remain in bed following an abdominal section is at least three weeks. During the early

part of the fourth week the patient may be allowed to sit up in bed, and by the end of the week she may begin to go about her usual duties. It is well, however, that she make a semi-invalid of herself for some weeks or more where this is possible, and secure the additional rest from work and worry. For six months or a year after the operation an abdominal binder should be worn, at the end of which time it may gradually be dispensed with. The neglect of these precautions often results in a very considerable amount of future discomfort to the patient.

Every woman who has had both uterine appendages removed suffers from symptoms of the menopause. Generally these are more stormy than those accompanying the natural menopause. Until this change is fully established the patient will not receive the full benefit of the operation. The condition requires treatment, and the indications are to be met as they arise in the way such symptoms are usually met in the natural menopause. The phenomena are essentially nervous, and the indications are for general tonics and nerve-sedatives.

As has been already noted, the infection which gives rise to the disease, requiring an abdominal section in pelvic inflammation, proceeds from the vagina or the uterus into the Fallopian tubes. The removal of the uterine appendages does not always cure the case, but is merely the necessary preliminary step. Some cases are completely cured by the changes which go on in the uterus incident to the menopause, but in others, in spite of this, the womb remains enlarged, heavy, and engorged, and the leucorrhœal discharges and hemorrhages remain just as profuse as before the operation. These cases require local treatment of the diseased uterus; otherwise a satisfactory result is not usually obtained except after a long interval. The womb should be thoroughly curetted, and the case treated as is proper in a case of endometritis and subinvolution. At times, however, the prolonged effect of the menopause is too much for even these cases, and they eventually, after several years, are relieved of their symptoms without any local treatment; other cases require that the womb be removed.

Phlegmasia Alba Dolens.—The attack begins, as a rule, about the end of the second or third week after operation, at a time when the patient is in apparent perfect health. Pain appears suddenly in the hip, followed by swelling of the part. The skin is hot to the touch and the temperature is elevated. The swelling and pain

spread rapidly downward, until within twenty-four hours the whole leg is involved. The tissues are hard to the touch, with no evidence of edema. In a few days the leg becomes less hard and the swelling and pain subside. At no time is there redness along the veins. The condition is accompanied by no septic symptoms. The complication may occur either upon the side upon which an ovary has been removed or upon the opposite side. One leg alone is affected, most generally the left. The condition remains for two or three weeks and even longer before the last trace has disappeared. We have known one case to last a year.

The leg is to be surrounded by soft pillows and an application of laudanum and lead-water made. This is to be kept up until the pain is relieved, after which the treatment consists principally of absolute rest in bed. A light diet and a withdrawal of stimulants are advisable. Friction is to be avoided. The etiology of the condition is not known.

PLASTIC OPERATIONS.

The after-treatment of plastic operations resolves itself into rest and cleanliness. The patient should be kept in bed two weeks, after which she may take another week in getting up and about. As in abdominal section, the longer she remains in bed the better for her, and where a patient can be made content, a month is not too long a time, especially for prolapse cases. If a gauze tampon has been introduced into the vagina, it should be removed within forty-eight hours, and need not be renewed. A warm vaginal douche of boracic acid should be administered daily, care being taken not to make any pressure on the points of suture. The douche should be used for the purpose of cleanliness, after which a single strip of gauze an inch or two in width may be passed if desired into the cul-de-sac with the aid of dressing forceps. This accomplishes the desired drainage with the minimum interference with the seat of operation. Especial care must be taken in this regard when cat-gut sutures have been introduced.

In cases of uterine curettement, if the cavity of the womb has been packed with gauze, the packing should be removed at the end of forty-eight hours and the vagina thoroughly cleansed by an antiseptic douche. Afterward an antiseptic vaginal douche should be administered daily. If instead of the gauze a drainage-tube has been introduced into the uterus at the time of ope-

ration, it should be removed daily, cleansed, and replaced. This can readily be accomplished by placing the patient in the left lateral position in her bed and introducing a perineal retractor. The cervix being exposed and steadied by drawing it down with a tenaculum, the drainage-tube is caught in a pair of dressing forceps, withdrawn from the uterus, cleansed, and at once replaced. It will be perfectly easy before replacing the tube to wash out the uterus with an antiseptic solution by the aid of a Davidson's syringe with a rectal nozzle attached.

When a cancerous cervix has been removed by the aid of the curette and scissors, the tampon, which has been placed in great part to control the subsequent bleeding, should be allowed to remain for forty-eight hours, at the end of which time it may be removed. This is done with the patient lying in the left lateral position in her bed; the vagina and wound are then cleansed and disinfected, and a fresh tampon replaced, provided there be any signs of bleeding. If there be no bleeding, a single strip of gauze to provide for drainage is all that will be required. This should be renewed daily after each antiseptic douche.

The bladder is to be catheterized only in case of necessity, and unless there has been an operation on the anterior wall of the vagina the instrument will rarely be needed. In cases of repair of vesico-vaginal fistulæ, the bladder must be kept empty, either by frequent use of the catheter or by a self-retaining catheter for four or five days, or until such time as it is safe to allow the urine to accumulate and the bladder to empty itself. This is especially necessary where a ureter has been cut and subsequently stitched into the bladder. The bowels may in all cases be opened the day following the operation; a daily passage should be secured thereafter; this holds equally good for tears of the perineum involving the sphincter. A dose or two of magnesium sulphate should be administered, and as soon as there is any manifest desire for defecation an enema should be at once given, so as to secure as easy and as soft a passage as possible. If bleeding occurs after an operation, it is best that it should be given an opportunity to stop of its own accord. This usually occurs, but should it persist, hot vaginal douches may be given, and if these do not control it, resort to a vaginal tampon may be necessary, even though it spoil the operation. The tampon should only be used as a last resort: it will rarely be needed.

Except in cases of lacerated perineum where the sphincter is involved, or in cases of recto-vaginal fistulæ, the patient may be allowed anything to eat or drink she may desire. It is just as well in these two injuries to confine the diet to such articles as will leave little residue, so that there shall be as small an amount of fecal matter as possible. It will not be necessary to restrict the diet for more than four or five days. The stitches in plastic operations should be removed on the eighth or tenth day: after which time nothing in the way of treatment is necessary, except to see that the vaginal douche be given daily and that the bodily functions act properly. If a combined operation for the repair of the cervix and perineum has been performed, great care will have to be exercised in removing the stitches from the cervix, lest the union of the perineal wound be disturbed. For this reason the stitches in the cervix at the time of operation should be allowed to remain long and should be shotted. If this precaution be observed in placing the sutures, it will be easy subsequently to remove them by making traction upon the long sutures, and thus bringing the cervix into view, requiring a minimum amount of stretching of the perineum with the perineal retractor. The patient should be placed on a table in the dorsal position for their removal. If the same precaution be observed in regard to the placing of the stitches in the perineum, no difficulty will be met with in their removal. So great is the facility with which this can be done that even the nurse can be trusted with the removal of the perineal stitches. Should there be much discharge from the parts, a bichloride-of-mercury or a permanganate-of-potash douche may be substituted for that of boracic acid, and it may be given two or three times daily. This is especially necessary in the after-treatment of *vaginal hysterectomies*.

The after-treatment of this operation is very tedious, great care in regard to details being necessary.

Once each half hour the nurse makes inspection of the vulva, to see that there is no bleeding, and every two hours the catch of the catheter, which has been introduced into the bladder, is released and the bladder evacuated. Forty-eight hours after the operation the patient is put upon the table and the forceps removed. Each pair is removed in the following way: Undoing the catch of the forceps, the operator separates the handles to a distance which indicates that the points of the instrument are a quarter

of an inch apart; then, grasping each blade of the forceps in the hands, a rocking motion from side to side is applied at the same time that gentle traction is made. After loosening the forceps and before beginning to withdraw them it may be well to wait a few minutes before removing them, to see whether bleeding takes place; if so the forceps are immediately closed again, the patient given a few drops of chloroform, the vaginal packing removed, and the bleeding point sought for and seized by forceps. The forceps having been removed, the bladder is washed out with a saturated solution of boracic acid and the self-retaining catheter withdrawn. The first dressing is not removed before a week, and is then taken away under chloroform narcosis. The vaginal dressing of sterile gauze is removed and renewed daily thereafter. Two days after the first dressing the patient is allowed to be raised in bed, and to sit up in bed after the second dressing. At the time of operating the cavity should not be irrigated, lest pus be washed up beyond possibility of removal. It is better to depend upon swabbing away all discharges with sterile gauze. During the time of the suppuration which follows the use of clamps the patient is mentally dull and sluggish; the temperature and pulse will be found slightly elevated, and there will be a loss of appetite evidenced. She is, in fact, suffering from a mild form of septic infection due to absorption of the purulent discharges from the wound. For these reasons it is the more important, in order to secure the comfort and possible safety of the patient, that greater attention be paid to local disinfection and cleanliness. Deodorizing and disinfecting vaginal douches should be used daily after the first dressing has been removed and general mild stimulation administered.

Should a *ureter* have been included in either of the ligatures or clamps during the operation, symptoms of uremia will quickly develop, and the patient in most cases will be lost. For the first few days it will be uncertain whether the patient is suffering from the shock of the operation, septicemia, or uremia. By the time the true cause of the trouble is determined with reasonable certainty the patient will probably be beyond help. The symptoms which will lead one to suspect this condition are a diminution in the quantity of urine passed, the elevation and rapidity of the pulse and temperature, the low mental condition, together with restlessness and anxious expression of the countenance,—all beginning early. The diminution of the quantity of the urine is

the only one of all these symptoms pointing directly to the kidney as the seat of the trouble; and when it is considered that the amount of urine secreted after an operation is under all circumstances exceedingly small in the first twenty-four or forty-eight hours—often being less than ten ounces in the twenty-four hours—it will be seen of how little practical value this symptom really is.

If the condition be diagnosed, the proper treatment consists in removing the clamps or ligature and freeing the ureters. Should the ureters have been cut in addition to having been clamped, their cut ends may be freed from the compressing force and turned into the vagina; if the patient recover, at a subsequent operation the ureters may be turned into the bladder or the corresponding kidney be removed. If there is any uncertainty as to which side is involved, catheterization of the ureters is our only method of determining the question. This procedure is valuable in excluding ligation of one or both ureters as a possible cause of the symptoms.

Should the *bladder* have been opened during the operation, and for any reason remain unclosed, great care should be taken not to allow any accumulation of urine. For this purpose a self-retaining catheter should be introduced, and retained in place until all chance of spontaneous closure is passed. If the opening remains permanently, subsequent operation must be made for its closure, it being treated in the interim as an ordinary case of vesico-vaginal fistula.