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## Original Communications.

### THE MANAGEMENT OF LAPAROTOMY PATIENTS AND THEIR MODIFIED AFTER TREATMENT.*


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Our object when instituting any form of treatment for a patient is to bring about restoration to health and working ability as soon as possible. When we do an operation we employ such technics as will in our opinion assure the greatest degree of safety to a patient, and then conduct the subsequent treatment of that patient in such manner as will in our opinion ward off the complications and undesirable consequences sometimes incidental to operations.

It is my chief purpose in this contribution to consider the treatment of patients upon whom abdominal sections have been done. While progress has constantly been made in everything connected with medicine and surgery, yet the management of such patients has practically remained unchanged during the past few years. Elaborate articles have appeared in textbooks and journals as to how patients should be cared for after abdominal sections, as to how long they should be restrained from moving about in bed, as to how long they should remain in bed, as to how they should be dieted, etc.

The customary treatment is dealt with in a most efficient manner in all its details by Howard Kelly in the second edition of his *Operative Gynæcology*.

Before considering the special subject of my discourse it may be opportune to state briefly in a general way the management which I make use of for patients upon whom I purpose to do a laparotomy. The preparation of the patient is very simple. They get no special diet unless there is a special indication for it. On the evening before the operation a warm bath is given if convenient. The abdomen is then shaved, and the vagina is thoroughly irrigated with a mild antiseptic solution. If the bowels have been regular, nothing is done toward further emptying them except to have a nurse give a copious enema about eight or ten hours prior to the operation. Over night an antiseptic dressing is fastened upon the abdomen. Two hours and a half before the operation a subcutaneous injection is made of 1-180 of a grain of scopolamine hydrochloride with 1-12 of a grain of morphine sulphate. This medication is repeated an hour later, and again half an hour before the time set for the operation. The effect of it is that the patients usually require less ether. On two occasions I have been able to do major operations without any other anæsthetic, and in another instance not more than about 15 c.c. of ether was required toward the termination of the operation. I have not, however, been able to observe anæsthesia so universally as has been published in the reports of others, to permit of operations without resorting to general anæsthesia with ether or chloroform. I deem it my duty in this connection to state that I have had the misfortune to have two patients in whom the preliminary scopolamine-morphine narcosis was induced die on the table during the operation, practically without more than a few moments' warning, which was manifested by a sudden change in the pulse, which became very slow and almost imperceptible. In the second case respiration also ceased almost simultaneously. On one of these patients an autopsy was made, but nothing was found to account for the death, even on microscopical examination of the heart, large bloodvessels, kidneys, and liver. In the other case an autopsy could not be procured. Whether the scopolamine-morphine narcosis contributed toward the fatal termination I am unable to decide. I think, however, that in the instance of the patient upon whom an autopsy was made with an entirely negative result the absence of a discoverable pathological lesion would point to that inference.

A short time before the operation I prefer to have a cathartic administered so that its effective action may manifest itself twelve to fourteen hours after the operation; however, if the patient's bowels have always been regular previously, the cathartic is omitted. *It is insisted upon that a patient shall not be needlessly kept under anæsthesia. The prevailing custom of keeping a patient under full anæsthesia fifteen minutes or more before an operation is begun cannot be too severely criticised.* A patient need not be under complete anæsthesia before the final abdominal cleansing is begun. The operator, assistants, and instruments should be in readiness, so that when the anæsthesia is complete the operation may be begun.

The incision is made on one side of the median line, the corresponding rectus muscle being separated by dull dissection with the handle of a scalpel, and the forefingers are then used to complete the separation for the entire length of the incision. The incision should be made sufficiently long to permit of easily accessible work on the seat of the pathological condition for which the laparotomy is done, because it is logical that the manipulation is safer when one can also see, as for instance, in the separa-

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tion of adhesions, than it would be if one worked only in the dark. The fact that an incision is an inch or two longer is of no significance so far as the healing of the abdominal wound is concerned, or so far as concerns the probability of the subsequent occurrence of ventral hernia, if the incision is properly closed; in fact we are likely to secure primary union of such a wound more readily than of one that has been abused by traumatism during manipulation, as is necessary in too short a wound.

Before closing the peritonæum, the omentum should always be carefully spread over the intestines. Only in exceptional instances is the abdomen washed out, flushed, with saline solution. In purulent cases the general peritoneal cavity is walled off, that is protected from contamination, by towels or with a heavy gauze roller bandage about four inches wide and folded about eight layers thick. Pus is mopped out with pads. Abdominal drainage is very seldom made use of, only in instances of diffuse oozing from torn adhesion surfaces, and then preference is given to vaginal drainage, so that the abdominal wound may be completely closed.

The abdominal wound is closed in tiers—first, the peritonæum, then the posterior sheath of the rectus in instances of long wounds, next the separated rectus muscle with interrupted sutures, next the fascia by overlapping it, so as to have a broader surface of coaptation. The skin is closed with a subcutaneous suture. Chromicized catgut is used for the fascia; for all other suturing plain catgut is used.

Apropos to catgut, which is one of the most important factors in an operation with any one who makes use of it as suture material and ligatures, it was my misfortune a short time ago to lose two patients with tetanus. The first was after an operation for a very large ovarian tumor, which was adherent throughout, in a woman fifty-five years old. The woman had been up and walking about for several days and was to be discharged two days later, when, on the twelfth day, she showed the first tetanus symptoms. She died six days later. The second case was one of abdominal hysterectomy for a large myofibroma, in which the first tetanus symptoms showed themselves on the ninth day, and to which the patient succumbed three days later. The cultures taken from the reopened wound revealed tetanus bacilli. The suspicion that the catgut was the carrier of the infection was but natural. I therefore had a number of tubes examined by Dr. Muenchehofe, of the Museum of Natural History, through the Kny-Scheerer Co., of which the results were negative, as will be seen by the accompanying report.

THE KNY-SCHEERER CO.:

Gentlemen: The different kinds of catgut you sent me I have examined and find the following: In twelve tnbes of catgut marked *Customers' Samples,* after having made ærobic and anærobic cultures in the different media, gelatin, glycerin, and glucose agar, also culture plates, I find that after ten days in the incubator, of half of the culture and plates, there is no growth visible. It is the same with the ordinary room temperature.

From three tubes each, marked *Stock,* the same cultures and plates were made, after ten days at incubator of half of them, the other half at room temperature, the result being the same as in the foregoing.

From another lot of open tubes asta chromicized catgut and kangaroo tendons, five were inoculated with anthrax bacilli and spores; five others with tetanus bacilli and spores; five more with the hay bacillus. All were then sealed and subjected on three successive days to your method of sterilization, after which time the usual bacteriological tests were made of ærobic and anærobic cultures and plates in the different culture media and were kept in incubator, partly at room temperature; after ten days no growth was visible in any of them. The results obtained show that all the different tubes marked *Customers' Sample* were sterile; the same with samples from *Stock* asta chromicized and kangaroo tendons.

It also demonstrates that the asta chromicized and kangaroo tendons which were infected with the very resistant spores of anthrax and tetanus bacilli were destroyed. The facts brought out with these experiments show that your method of sterilization is doubtless sufficient and an absolute proof against infection with any kind of bacteria.

Yours respectfully (Signed),
C. W. F. MUENCHEHOFE, M. D.

To make doubly sure as to the effect of fractional sterilization on positively infected catgut, I requested Dr. Arthur Mandel, of the Cornell University Medical College, to inoculate some catgut, and he soaked it, after untwisting it, with the view of getting it thoroughly imbued with the bacilli and spores of anthrax and of tetanus and hay bacilli, for twelve hours in bouillon which had been thoroughly infected with the microorganisms named. The infected catgut was then replaced in tubes and sealed. It was then sterilized in the Kny-Scheerer laboratory and returned to Dr. Mandel for examination. After every method of examination it was found absolutely sterile. The tests which I had made had the object of proving or disproving conclusively whether catgut which contained very resistant microorganisms, and subsequently properly sterilized, was absolutely reliable so far as the possibility of causing infection was concerned.

At the meeting of this society held in Birmingham, two years ago, I said a few words regarding the subsequent treatment of abdominal section patients, but I was then still in the experimental stage with the treatment. The first premeditated important departure from the long rest in bed after an abdominal section was made by Dr. Emil Ries, of Chicago, and, believing Ries to be conscientious and a good observer, I had no hesitation in putting the departure to the test. I added, however, one modification which I considered of the utmost importance for the patient's abdominal wound; in fact I believe it to be the salient feature, namely, a proper abdominal binder, which Ries does not consider necessary.

I may add that in a letter dated November 17, 1906, Dr. Robert T. Morris states that he for a time repuired his patients to arise from bed so early after abdominal sections fifteen years ago, but again discarded the practice because of the severe criticism to which he was subjected by some of his colleagues in the hospital with which we are connected. I regret not to have heard of it, until his communication reached me. Morris did not publish his work in this direction. Ries's work, however, was published in the *Journal of the American Medical Association* in August, 1899.

When I first deliberately risked permitting patients to get out of bed in less than three days after abdominal operations, I recalled several instances of extensive operations in the abdominal cavity, in

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which the patients, through inattentiveness of the nurse, got out of bed within twenty-four hours, even in the days when we used hard rubber and glass drainage tubes, and these patients had such a tube in the abdomen, and yet in consequence of their rashness they were none the worse off for their experience. I further recalled one patient who persisted in getting out of bed and walking about after the third day whenever the nurse was absent. Also that for more than fifteen years my patients have been permitted to move about in bed as much as they pleased after abdominal operations, unless there was a strong contraindication for such permission, and yet I failed to observe any harm resulting from such exertions. Further, from the fact that others have had patients who also without permission left their bed soon after the operation without any ill effects, and, lastly, that since 1890 it has been my custom to permit my patients upon whom I had done a vaginal hysterectomy to walk about any time after the first day, if their condition was favorable, and had not seen an instance of unfavorable result, one may naturally ask himself the question: Is there really danger in a patient's getting out of bed soon after an abdominal operation if her general condition is fair and proper precautions are taken? I am aware that advocating the treatment as routine practice will find much opposition, so much so that one of my former clinical assistants read a paper before the New York Obstetrical Society against my teaching, but fortunately my advocacy is based upon experience, and his paper was based only upon theory.

Since my first remarks uttered in public regarding my change of after treatment I have had ample opportunity to study the effects of the method which I now warmly advocate, and which I now consider beyond the experimental stage, so that I can say that experience has taught that the method of treatment which I propose to speak of is good, better than the customary method, but, while it is simple, yet much more discrimination in selecting patients upon whom to carry it out is required than if we treat them in the way usually laid down in textbooks.

After the completion of a laparotomy, a simple dressing is placed over the site of the abdominal incision, consisting of a strip of sterile gauze two and one-half to three inches wide and six to eight layers in thickness; this is fastened with two short, narrow strips of adhesive plaster simply to hold it in place while the binder to immobilize the abdominal parietes is adjusted. *The bandage used by me to immobilize the abdominal parietes is a Scultetus bandage, for which zinc oxide plaster is used. The full width of the plaster, 12 inches wide, is used, and according to the size of the patient, from 28 to 40 inches or more in length. At the bottom, a small half circle is cut out in the middle, so that during defæcation the bandage is not soiled.* The patient is now placed upon the bandage so that the lower border comes about on a level with the head of the femur. Now the fabric covering on the plaster is taken off, and when that part of the plaster is reached upon which the patient is resting, the patient is rolled over a little to one side to facilitate the complete removal of the covering, the end of which is now taken hold of by the assistant on the other side with both hands, and the plaster is entirely freed of the covering. I have found this better than to first remove the covering before placing the patient upon the plaster, for it makes wrinkling of the plaster less likely. Next the plaster is cut on each end into four equal widths and torn as far as the body of the patient; thus the body of the plaster is upon the patient's back; in short, we now have a many tailed bandage made of oxide of zinc plaster. The zinc plaster is preferable to rubber plaster because of its less irritating qualities. The tails are now *snugly* adjusted, beginning with the *lower* one and bringing it to the opposite side, then the opposite side is overlapped all the way down to the other side of the patient, thus making a double structure in front and at the sides. This is continued until the four tails on each side are fastened. If the upper part of the bandage should reach up to the epigastrium in short patients, the topmost tails are not drawn so tight. In thin subjects the anterior superior spine of the ilium is slightly padded with gauze.

Such a bandage immobilizes the abdomen to such a degree that it is impossible for the abdominal wound to give way as the result of intraabdominal strain. I consider the bandage a most important part, the precaution in the after treatment. In the beginning patients usually complain of the tightness of the bandage, but this generally soon wears off. If it is really unbearable for the patient, the upper strip may be cut a little on each side. Of their own accord patients seldom care to get out of bed until the third or fourth day, yet it has been my custom to help them in all simple cases out of bed within twenty-four hours and have them sit in a comfortable chair, and to coax them out subsequently as much as possible. Occasionally I have done abdominal hysterectomies for fibroids, panhysterectomies for purulent inflammatory conditions, ovarian tumor operations, etc., in the morning, and have had my patients out of bed in a rocking chair late in the afternoon of the same day, this depending entirely upon the general physical condition of the patient before the operation and upon the effects of the anæsthesia. My patients receive *no special diet unless there are particular contraindications for regular diet; they get similar food as they had before the operation as soon as the stomach is in condition to retain food after the anæsthesia.* By the end of the fourth or the fifth day the patients after *uncomplicated* abdominal sections usually walk about as though they had had no operation done upon them. If there is no indication to inspect the wound, the binder is not taken off for three weeks, sometimes four weeks. If the bandage is too uncomfortable from wrinkling, or loose, it is removed after two weeks or whenever it seems necessary, and replaced by another after the skin has been left free of a bandage for a day, during which time the patient is bathed with alcohol and the skin powdered with talcum two or three times. The patients usually go home with the bandage, which is permanently removed at the expiration of about four weeks. If there is reason to suspect suppuration of the abdominal wound, the wound is inspected by cutting the bandage in the median line over the gauze layers; this can be done without any marked discomfort to the patient.

Should suppuration be found to be present, then the wound is taken care of in the ordinary way and the patient kept in bed until the suppuration has

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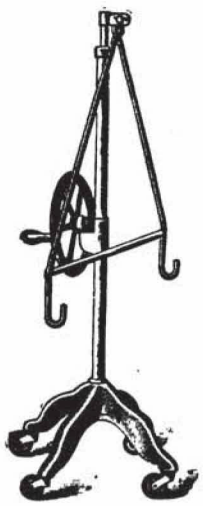
ceased. The cessation of suppuration is hastened by swabbing the suppurating surface with pure carbolic acid and immediately washing it off with alcohol. If no suppuration is found, the bandage is again fastened by applying other strips of plaster over it.

Exception to the inducement of early rising, that is, within twenty-four to forty-eight hours, are made when a patient's physical condition has been much weakened by illness prior to the operation, or when the patient's pulse rate is much above the normal, or when the nature of the operation has been one of unusual magnitude; then, but only then, no attempt is made to get them out of bed before the end of the fourth day, or even then if there is any indication for unusual care. Lately, however, I have even deviated from this and taken the subjects in the most complicated cases out of bed after about twenty-four to thirty-six hours unless they were really too feeble, or unless there was an unusual complication, such, for instance, as happened very recently, the necessity for a ureteral implantation in connection with a difficult hysterectomy for a retroperitoneal myofibroma which in my opinion made it desirable to keep a permanent catheter in the bladder for four days; but at the end of the fifth day she, too, was sitting out of bed.



Bed Lifter.

In those cases in which the operations were so complicated, or in which peritonitis was present before the operation, or in which it was obvious that pathological intraperitoneal secretion would form, so that it was desirable to localize such secretion in the pelvis, or in instances of the first sign of a beginning peritonitis, so that in my opinion it was too hazardous to have such patients out of bed, I have used a bed lifter which I have designed and had constructed for me, to enable me to obtain the trunk elevation recommended by the late Dr. George R. Fowler. It is constructed so that the head of the bed is let into two strong hooks attached to the frame, which is attached to a rod that can be elevated or lowered to any desirable height without physical exertion by the patient, by means of a cog wheel and a large hand wheel, as shown in the illustration. It is on the same principle that I have had my office treatment or examining table built. I have found this a valuable appliance in all such cases, and also to facilitate vaginal drainage.

Patients who are very anæmic and in a poor physical condition will be relieved from the immediate effects of the operation if a tight bandage is placed around the upper part of the thighs before the operation is begun, to act as a tourniquet, thus temporarily keeping the blood in the lower extremities, out of the general circulation. As soon as the operation is completed, the bandage is loosened, and the extremities bandaged from below upwards for a few hours, so as to get more blood into the trunk.

With my present views, the principal objection to permitting patients after abdominal section to arise from bed early and go about is the danger of a subsequent ventral hernia, or perhaps even worse, of having the wound burst open from the effects of intraabdominal pressure—certainly not because of the surgical work done in the pelvis or the danger of thrombosis, because for more than fifteen years I have permitted my vaginal hysterectomy patients to get out of bed and walk about within twenty-four to forty-eight hours if the vaginal vault had been closed at the time of the operation, or if only a small strip of gauze had been inserted in the centre of the wound for the purpose of drainage during the first twenty-four hours, and all these patients were in a better physical condition at the end of two weeks than those who had been confined to their bed for ten days or longer. So far as the danger to the abdominal wound is concerned, it is safely and positively overcome by the proper closing of the abdominal parietes, and the adjustment of the bandage which has been advised.

I have found it beneficial to have the stomach thoroughly washed out as soon as the operation is finished. The stomach lavage, while the patient is still on the table, is readily done and saves a patient much nausea and retching.

In many instances one dose of morphine is administered soon after the operation, because it is but seldom that a patient does not complain of sufficient pain to make such treatment not only humane but beneficial to the patient, acting far better on the heart under some circumstances than strychnine.

I believe that strychnine is used far too extensively and indiscriminately, both during and after operations, whereas intravenous saline infusions are often too long delayed, and the administration of a dose of morphine after an operation is too much dreaded by many.

If the bowels do not move spontaneously within twenty-four hours after the operation as the result of the cathartic not infrequently given before it, no attempt is made to bring about an action, because usually this occurs spontaneously about the fourth or fifth day, and should it not, then, if the patient feels uncomfortable, a saline laxative is given.

I have been frequently asked, What is the object in getting patients out of bed so soon? I ask in return, What is the object in requiring patients to remain quietly in bed so long? The reasons stated in text books for the latter procedure as a routine method do not, from my observation, hold good in practice when compared with the results achieved by the course which I have the privilege to advocate at this meeting. For most abdominal sections those reasons for the necessity of enforced quietude in bed must be regarded as theoretical.

Ries wrote me on November 1, 1906, that he had used the heretical after treatment of permitting patients upon whom he had done an abdominal operation in more than 500 cases without having observed any untoward result that he could attribute to it. I have had 384 cases and not a single instance of untoward result which could in any way be attributed to the early arising from bed. I know of others who upon my suggestion, after seeing some of my patients, also permitted their patients to get out of bed, although not so early, usually on the

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third or fourth day, so as to bring the total number up to more than 1,000 cases; and yet no unfavorable result has been reported to me. This seems to me a sufficiently large number of cases to demonstrate whether the treatment has merit or whether it is fraught with danger. The cases chosen by me were not simple ones alone, but they were taken irrespective of the complications which were met with. For instance:—

C. McG. Double salpingectomy, for double tubal pregnancy; left tube ruptured, the right was unruptured. Patient out of bed most of the time on and after the fourth day.

J. W. Double ovariotomy for cancerous ovarian tumors; exsection of the right broad ligament; panhysterectomy because of malignant involvement of the uterus; exsection of the lower part of the sigmoid flexure and upper part of the rectum, because of carcinomatous involvement; extirpation of a large part of the omentum; extirpation of many retroperitoneal glands. Patient out of bed most of the time beginning with the sixth day.

F. K. Tuberculous peritonitis; catarrhal appendicitis. Out of bed on the fifth day.

P. R. Complicated panhysterosalpingo-oophorectomy. Out on the second day.

C, K. Abdominal hysterectomy for malignant chorioma. Out of bed within twenty-four hours. Discharged on the eighth day.

M. G. Abdominal myomectomy; acute appendicitis. Out of bed six hours after operation.

M. S. Complicated abdominal hysterosalpingo-oophorectomy; intense pelveoperitonitis present. Out of bed on the third day.

I. McC. Similar operation for a similar condition. Out of bed on the third day.

F. K. Very adherent retroflexion; annexa likewise adherent. Out on the second day.

B. B. Complicated panhysterectomy. Out within twenty-four hours.

E. O. Exsection of the left broad ligament with annexa; ventral suspension and appendectomy. Out on the second day.

J. B. Hysterosalpingo-oophorectomy, very complicated, with extensive injury of the bladder. Out on the fifth day. Discharged on the twelfth day.

M. S. Panhysterosalpingo-oophorectomy; diffuse septic peritonitis. Abortion case. Out on the third day.

F. L. Myomectomy. Out within twenty-four hours.

E. L. Complicated bilateral salpingectomy; ventral suspension; appendectomy. Out after the second day.

M. D. Panhysterectomy, with resection of the upper third of the vagina; both broad ligaments and both ureters exposed in their pelvic part, the right ureter cut and anastomosed. Retroperitoneal glands removed. Appendectomy. Carcinoma case, far advanced. Out on the fourth day.

J. G. Double ovariotomy for cancerous tumors; panhysterectomy. Out on the following day and the day thereafter; when on the next day the patient was kept in bed because she began to show evidence of peritonitis, of which she died on the fifth day.

E. D. Hysterectomy for large fibroid with adherent suppurating tubes. Out within twenty-four hours.

S. E. Hysterosalpingo-oophorectomy for adenocarcinoma of the ovaries. At time of the operation it was thought that tuberculous peritonitis was present, but it proved a carcinomatous peritonitis. Out of bed within twenty-four hours. From a report later received the patient lived about six months before succumbing to her ailment.

S. L. Adherent ovarian tumor. Out of bed on the same day.

G. P. Tuboovarian abscess with diffuse adhesions; ventral fixation. Out on the next day. Was later returned to bed, because of wound infection.

E. G. Adherent dermoid tumor of ovary. Salpingectomy on the opposite side, with plastic work on the ovary. Out the next day.

J. E. Complicated extrauterine pregnancy. Out on the fourth day.

S. F. Complicated panhysterectomy. Out the next day.

R. G. Ruptured tubal gestation. Out in twenty-six hours.

R. K. Complicated panhysterectomy for intraligamentous myofibroma. Out on the third day.

C. K. Hysterectomy for large myofibroma with pregnancy. Out the next day. Was subsequently returned to bed for two days, because of bleeding.

M. M. Hysterectomy for large myofibroma with double pyosalpinx. Diffuse adhesions. Out on the fourth day.

A. K. Suppurative appendicitis, with beginning peritonitis. Long median incision to umbilicus. Up the next day. Returned to bed on the sixth day because of wound infection.

G. S. Complicated salpingectomy for pyosalpinx; appendectomy. Curetting. Up the next day.

L. N. Similar operation. Up the second day, but was later returned to bed because of wound infection.

V. S. Very complicated hysterectomy for myofibroma with double pyosalpinx; appendectomy. Up the next day. A *very* stout woman.

E. S. Complicated tubal pregnancy. Up on the second day.

J. R. Complicated panhysterectomy. Up on the second day.

S. K. Complicated bilateral salpingectomy; appendectomy; ventral fixation. Up on the fifth day.

M. L. Ovarian tumor with diffuse adhesions; appendectomy; ventral suspension. Up on the next day.

E. N. Curetting; trachelorrhaphy; anterior colporrhaphy; bilateral posterior colporrhaphy; right ovariotomy for multilocular ovarian cyst; resection of small multilocular ovarian cyst (three inches in diameter) on the left side, retaining some seemingly normal ovarian stroma; appendectomy; ventral suspension. Up the next day, but returned to bed again for a few days after the fourth day, because of mild abdominal wound suppuration.

F. K. Large ovarian tumor (left) with twisted pedicle, five times from left to right, with torsion of 25.0 at cervix from left to right; much oozing from extensive peritoneal adhesions. Out the next day.

A. F. Double ovariotomy. One of the tumors quite adherent. Retained some ovarian stroma on the other side. Appendectomy. Up the next day.

J. W. Right tubal gestation; appendix inflamed and adherent to the tube, also removed. Up on the second day, but was later returned to bed for a few days because of wound infection.

J. S. Very large ovarian tumor, adherent throughout. Up the next day. Patient manifested tetanus symptoms on the twelfth day and died six days thereafter.

R. M. Complicated hysterosalpingo-oophorectomy and appendectomy. Up the next day, but was later returned to bed because of wound infection.

H. L. Panhysterosalpingo-oophorectomy; septic case from criminal abortion; ovarian abscesses and peritonitis. Up on the second day, but was then returned to bed again because of the pulse rate and temperature, 102° F. Definitely out of bed from the sixth day.

K. D. Hysterosalpingo-oophorectomy and appendectomy. Annexa very adherent. Up on the second day.

R. K. Rutpured right ovarian tumor causing diffuse peritonitis; emergency operation during night. Out of bed on the third day, but later returned because of

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wound infection. It was macroscopically a papillomatous neoplasm, which later proved carcinomatous.

S. K. Large myofibroma with double pyosalpinx; intimate adhesions. Very stout woman. Up the next day.

H. K. Complicated hysterectomy for myofibroma and appendectomy. An unusually stout woman. Up the next day. Nearly four weeks later the first indication of deep wound infection was evident, for which she was then kept in bed at her home for about two weeks.

R. O. Panhysterectomy for large intraligamentous myofibroma; appendectomy. Up on the second day.

A. A. Panhysterectomy for myofibroma. Complicated case. Up the third day.

R. W. Hysterosalpingo-oophorectomy; double ovarian abscess; on one side pyosalpinx and on the other side hydrosalpinx; many adhesions. Up on the fourth day.

In the foregoing short list of fifty cases as may be seen, I have not included any of the simple abdominal sections for ovarian tumors without adhesions, noncomplicated hysterectomies for fibroids, easy operations for ectopic pregnancy, etc. Neither do I deem it necessary to cite more or all the instances of technically difficult cases treated by the method advocated because it would be too tedious to listen to or to read. My object is to cite only a sufficient number of cases that those interested in this work may know of the kind of cases that have been so treated. The method is applicable in about eighty-five to ninety per cent. of patients subjected to abdominal section by gynæcologists. On the first day or two that patients are taken out of bed, they usually walk only a few steps, from the bed to the chair and then remain in their chair. They are allowed to remain up as long as they wish; on the first occasion the time is from three quarters of an hour to two hours, and in the afternoon this is again repeated. Every day, however, the time of being up is increased; likewise the amount of exercise. Of course, as might be expected, patients sometimes protest, but a little coaxing usually induces them to acquiesce. It is certainly remarkable to see the physical condition in which such patients are after two weeks have elapsed, compared with that of those who were kept in bed on the customary treatment. Those whom for reasons I think best to keep in bed I endeavor to have do some calisthenic work with their upper and lower extremities while still on their back, unless in my opinion they are too prostrate. Five minutes every hour or two is of some benefit to keep the lethargy out of their muscles and cause better circulation.

It is of decidedly more benefit to a patient under ordinary circumstances to allow her to spend the first week partly in bed, and to induce her to take moderate exercise, than to let her remain in bed two or three weeks and then begin to get her up. Most patients upon whom operations are done for primary surgical diseases do not have their health improved by bed rest, but on the contrary their muscular system becomes more or less atrophied and they lose strength, because all the physiological functions become more or less impaired by the enforced quietude. The only class of patients who would be benefited by bed rest are extreme neurasthenics, and *they only if they are properly fed and in addition get methodical general massage daily.* Take, for instance, malignant disease which has undermined the patient's general physical condition, and on operation the disease is shown to be probably advanced too far for us to hope for permanent cure, or even to attempt to do a radical operation for its cure; such patients if restrained are very likely to become permanently bedridden, at least such has been my experience in a number of such cases. On the other hand, induce them to get out of bed soon, if possible within the first twenty-four hours, and their physique is not undermined more than by the ordinary natural course of the disease.

During the past two weeks I have had two additional instances to prove this. One I shall mention.

J. K., forty-nine years old, cachectic appearance; the abdomen greatly distended, which gave rise to the erroneous diagnosis on the part of several physicians before she was referred to me that she had a very large ovarian cyst. The pelvis was filled by a hard mass, which on the surface, palpable per vaginam, had a number of small irregular nodules. The uterus and annexa could not be palpated because of the enormous abdominal distention. The diagnosis, however, was made of probably malignant disease, yet there was a slight possibility that I might be mistaken and that the condition might be tuberculous peritonitis, consequently an exploratory section was made by me on December 3rd. Unfortunately the first impression proved correct. The omentum was carcinomatous, and numerous carcinomatous nodules were in the mesentery. The mass in the pelvis was composed of coils of intestine with malignant deposits between them. A cigarette drain was placed in the lower angle of the wound to temporarily get the woman rid of the ascitic fluid, and the abdomen was closed; the Scultetus bandage applied above the drain. On December 5th the patient was up and about. On December 6th she walked about *much* better than she did before the exploratory section, and in every way felt better than she did previously, besides the haggard expression in her face had much improved.

The operations that I have done on the intestinal tract, which are few compared with those which a busy general surgeon does, yet have been of a sufficient number to teach me that even such operations are no contraindication to the treatment advocated.

I am frequently confronted by doubters and antagonists of the method with the rule that we usually insist upon in obstetric cases. In these we have altogether a different condition to contend with. There is a large, heavy uterus, with stretched ligaments and a relaxed pelvic floor; these must have time to regain their former condition or else displacements are likely to follow. All this is different in strictly surgical cases. In instances of large tumors the oxide of zinc Scultetus bandage gives adequate support to the abdomen and assures absolute protection of the abdominal wound, provided, of course, that there is no wound infection. It has been suggested that perhaps just this treatment is likely to cause suppuration of the wound. For a time this thought also came to my mind, that perhaps, from the mobility of the patients, occasionally the irritation of chromicized catgut knots might be a causative factor of suppuration; yet, on the other hand, not only I but also my colleagues had under the employment of the customary treatment at some time seen almost a small epidemic of wound infections in hospital practice, whereas in strictly private practice I have not seen a single instance of it during the past five or six years. Again, in those cases in

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which I have used catgut sterilized by the fractional method of sterilization, it has rarely occurred, never in a clean case. I do not attribute the fortunate recovery in my very serious cases to "luck" despite my having used such heretical treatment. On the contrary, I believe that it was because I used the newer, or modified, treatment, that my patients got well; hence my opinion that there is a lower mortality with this treatment.

I have also thought of the medicolegal side of this question, and fail to see why the man who makes use of it should be condemned by his confrères if he should have a patient die of embolism a few days after an operation, or because the patient was attacked with thrombosis. It would have to be shown that patients who were kept abed did not have phlebitis, thrombosis, or embolism. I maintain that these accidents are not so likely to occur if the treatment, a rational activity of the patient after operation, is insisted upon. It is proved by experience.

Dr. Marshall and Dr. Quick, in an article that appeared in the *Medical Record* of November 24, 1906, are also advocating more and earlier mobility for their *simple* laparotomy cases. The greater advantage, however, I am sure, will be seen if the treatment is extended, in the really complicated cases, just that class of cases in which I also formerly insisted upon absolute rest for two or three weeks or more. Particularly in complicated panhysterectomies with suppurating tuboovarian inflammation, with or without vaginal drainage, I have found the method advocated of very superior advantage. The vaginal gauze drain does not prohibit a patient from sitting up and taking light exercise. Besides, in from twenty-four to forty-eight hours the packing is removed, and less is replaced if one thinks it desirable to have some protection in the vaginal vault.

Ries does not use any binder, and yet he has not observed a single hernia except in one instance of an infected wound. I confess that I have been too timid to take such a chance, feeling safer if the abdomen was immobilized, though it certainly causes more or less discomfort to the patients, especially during the first few days.

The most serious objection which my confrères have uttered against the early getting out of bed is the danger of thrombosis and embolism, especially after operations for myofibromata. I say most emphatically that this protest is based only upon theory, so far as my experience goes. Thrombosis and embolism occur not infrequently after abdominal operations when the sacred plan of rest in bed for three or four weeks is adhered to. It occurs occasionally even without any operation, especially in fibroids. It is an unfortunate result of this form of neoplasms, which not infrequently cause cardiac changes. I have not seen a single instance up to the present time following my myoma operations with the plan of treatment advocated, and yet some of the myofibromata removed have been very large. Pelvic elevation during operations is far more risky in causing undesirable results, fortunately not permanent, than the early getting of patients out of bed after laparotomies.

"According[1] to Albanus, there are four factors which may play some part in the ætiology of thrombosis: First, any disturbance of the venous circulation which might exist before the operation and would predispose toward thrombosis, as, for example, heart lesions, varicose veins, exhaustion, prolonged decubitus, and pressure of abdominal tumors. Secondly, conditions attending operations, such as unavoidable chilling and exposure of the contents of the abdominal cavity and possibly traumatism to the vessel walls. Thirdly, the injurious effects upon the heart muscle of the anæsthesia, and, lastly, topographic relations of the vessels. It is readily understood how a distended and overloaded sigmoid flexure might make pressure upon the left iliac vein. Riedel and Gerhardt call attention to the pressure exerted by the iliac artery upon the iliac vein."

"Clark, after careful investigation based upon clinical and experimental observations, has come to the conclusion that a postoperative thrombosis is due to the effect of traumatism exerted upon the deep epigastric arteries during the course of the operation. The primary thrombosis originates in the deep epigastric vein and is slowly propagated along the line of the vessel until it reaches the external iliac vessel, where it gives rise to a retrogressive thrombus in the femoral vein. 'That the thrombus appears most frequently on the left side is attributed to the mechanical conditions on the left side which slow and derange the femoral and iliac circulation.' Human thrombosis is often caused by the liberation of fibrin ferment in the general blood stream, and chemical changes of the blood have likewise an influence on the occurrence of thrombosis. The precise effect of these chemical changes is as yet hypothetic."

Whether the opening of the peritoneal cavity brings about any of these factors, is, I believe, still an open question.

The generally accepted view of the cause of postoperative thrombosis is that it is due to infection during an operation. While this may be admitted to be correct in many instances, it is my firm belief that it is erroneous to so frequently attribute a thrombosis to an infection. For instance, the only case of phlebitis that I have observed after the early getting out of bed after an operation was that of a young lady, sixteen years old, upon whom I did an abdominal section for the removal of an ovarian tumor on one side and the exsection of an ovarian cyst on the opposite side, in which a goodly part of ovarian tissue could be left. It was an absolutely clean operation and the patient was out of bed fourteen hours later. The convalescence was perfect, yet a few days after she had gone to the country a mild phlebitis of the external saphenous vein showed itself which lasted nearly two weeks.

This case convinced me that there were factors which caused circulatory disturbances that were not yet clear to us. Because here we had an instance where no infection took place, and, further, in which rest in bed was neither insisted upon nor taken. I believe that the occurrence of thrombosis may occasionally be attributed to circulatory disturbances brought about by enforced absolute quiet in bed, because there occur inactivity of the muscles and diminished propelling power of the heart, which causes retardation of the circulation. This would be obviated to a great extent if inactivity were not insisted upon. *There is no better way of keeping up a good circulation than by taking rational exercise.* The fact that thrombosis, if unilateral, has usually been observed on the left side may probably be accounted

[1] Quoted from Keen's *Surgery*. Chapter on Postoperative Thrombosis.

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for by the greater length and the course and relations of the left iliac vein.

Being desirous to obtain some statistical data on the frequency of the occurrence of phlebitis, thrombosis, embolism, etc., I wrote to a few of my colleagues, and here express most grateful appreciation to those who were good enough to answer my request. In addition to the statistical report, Dr. William J. Mayo, with whose permission I quote from his letter, wrote:

"We have come to the conclusion that the blood changes which follow the opening of the peritoneal cavity increase the tendency to clotting and that the muscular inaction due to the lying in bed with the change in the blood pressure, and the interference with the circulation on the left side, are the main causes. We found that patients who got up within a week, like chronic appendicitis, did not have phlebitis, as it usually comes on between the tenth and twentieth days, so that we now bend every effort to get our patients about early and encourage movements of the limbs, especially of the left, with patients who lie in bed a longer time."

Dr. William J. and Dr. Charles H. Mayo, during 1904, in 1,788 abdominal operations, had about one per cent. of left side phlebitis. Many of these were mild. For the last year and a half, since they have not enjoined bed rest so strictly, but have endeavored to get their patients about as soon as possible, they have seen it very rarely, not to exceed more than one-third of one per cent. In 1905 they had in 2,157 abdominal operations, two deaths from embolism. One was after an operation on the gall-bladder, and the other a hysterectomy, and also two pulmonary embolus cases in which the patients recovered. Dr. William J. Mayo further wrote:

"The more feeble and rapid the action of the heart after the accident, the better the prospects of recovery. In each case that recovered, the heart's action became almost uncountable, the right and the left heart actions not being together, and by its feebleness enabling the lungs to gain a little more time to adjust themselves. The cases that died continued from strong cardiac contraction to force the blood into the lungs. All of these cases took place between the fifth and the ninth days. In 3,000 celiotomies Clark[1] found the record of thirty-five cases of thrombosis. Schenck, in 7,130 gynæcological operations, found forty-eight cases. Albanus, in 1,140 laparotomies, fifty-three cases, and of this number twenty-six were nonseptic cases.

As to the statistics of thrombosis, etc., in abdominal section patients who were permitted to arise very early from bed.

Dr. Ries informs me, under date of November 14, 1906, that he had one instance of thrombosis or phlebitis with a temperature up to 101.6°F., in a chachectic patient, sixty-six years old, who had cancer of the uterine corpus, with bronchitis, varicose veins of the legs, and arteriosclerosis. In seven days the œdema of the leg had disappeared and the temperature was down to 90°F. She spent most of the time in a chair while the thrombosis lasted. Nineteen days after the operation she could leave for home. Last year a thrombosis developed ten days after a plastic operation for descensus of the vagina and uterus, the patient having been up before the development of the thrombosis. It ran the usual course without any symptoms except pain and œdema. He thinks that he had another case of mild thrombosis some years ago, but does not remember the details.

Dr. George Chandler, of Kingston, N. Y., on November 21, 1906, wrote me that he had had ninety-four cases since February 1st of this year, and in all but six cases he had practically, or to a very large extent, followed the treatment outlined, and he had not had a single instance of thrombosis or embolism. Dr. Chandler informed me that he let his patients come out of the anæsthetic in the sitting position and found less vomiting as the result.

I have seen only one instance of very mild phlebitis, among the entire number of cases in which I permitted the patients to get up very early after an operation. On the other hand, I have had four cases of thrombosis, during the same period, among those who were not allowed to get out of bed soon after an operation, and who were in consequence of the occurrence of the thrombosis kept in bed until all or nearly all symptoms of thrombosis had disappeared.

Undoubtedly in one of these cases, that of a large myoma complicating pregnancy and causing symptoms of such a character as to indicate surgical intervention, the thrombosis would have been attributed to the early getting up, by antagonists of the method if that course would have been followed; but because I was enabled to enucleate by myomectomy the large tumor which was the indication for an operation, and because I was desirous of preserving the conception product, I kept the patient very quiet in bed, and ordered morphine to be given if pain occurred. On the fourth day thrombosis of the femoral veins developed, which kept the patient abed for four weeks. She did not abort.

In another instance of a complicated hysterectomy for a retroperitoneal fibromyoma, in a patient who came to me from Illinois, and who was operated upon two days after her journey, she had such a poor pulse that I did not deem it advisable to follow my usual plan of treatment, because her pulse continued to be of such quality that it seemed too risky to allow her to move about. By the end of the first week she had a double phlebitis, from which it took her nearly four weeks to recover. If the woman had got out of bed on the third or fourth day, and this had occurred, undoubtedly antagonists of the method would have held that responsible, whereas, as a matter of fact, the neoplasm had primarily caused circulatory disturbances, and very probably, had I not been too timid, but despite the pulse had taken my patient out of bed and given her moderate exercise, it might have been avoided.

My associate in the medical school, Dr. A. Brothers, had a number of laparotomies in which he to a large extent followed the line of treatment advocated by me, and he also has not seen any bad effects in the circulatory system or elsewhere.

It seems to me that such experience should be quite conclusive proof that the treatment, to say the least, is not contributory to the production of circulatory disturbances, even if it is not to some extent a prophylactic.

The question of diet, which is so much dwelt upon, I have discarded, or rather revised, in my practice nearly twenty years ago. It came about by what may be called an accident. On November 17,

[1] Keen's *Surgery*.

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1886, I operated upon a woman with double gonorrhœal pyosalpinx. On the third day after the operation she had been seized with all the subjective and objective symptoms of peritonitis, and nothing in the way of nourishment was retained by her. She consequently also suffered intensely from thirst. She begged me for permission to drink a bottle of beer. Believing that she would die and that nothing further could be done for her, I did not feel inclined to deprive her of her longing, and therefore acquiesced in her wish. Lo and behold, she began to retain nourishment, and from that time on she made an uninterrupted recovery. While this was of no scientific value, yet the incident gave me much thought, and gradually I began to change my opinion so far as diet was concerned, so that since sometime in 1887 I have been so far settled on this question by experimentation and observation that I have permitted regular diet after abdominal operations after twenty-four hours unless special contraindications existed.

What are the advantages of the nonrestriction in diet and moving about at random, and the inducement to have patients move about and get out of bed soon after abdominal operations, unless there are some very decided reasons to contraindicate this plan of treatment? I answer the question only from my observation in personal experience, empirical if you please.

It is important to take a series of complicated operations, treated on the plan suggested, and compare that number with an equal number of patients with about similar complications, treated by the generally approved method. I have gained from such a comparison the impression that the mortality rate is lower in the first class. This, of course, I am not in a position to prove; it is simply an impression gained by observation. *Next there is less nausea and vomiting, also less abdominal distention, because flatus is passed more readily when patients are sitting up. Spontaneous action of the bowels occurs earlier. There is less liability to bronchial and pulmonary complications. There is less liability to circulatory disturbances. There is better assimilation of food. There is less weakening of the general physical condition of the patient. In short, there is more rapid recovery to working ability.*

What are the disadvantages If the case is at all suitable for the treatment, *there are no disadvantages so far as my experience goes.*

The gentleman who opposed me in the paper already referred to, in the subsequent discussion suggested the question of pecuniary gain—I think thoughtlessly or unintentionally—as one of the disadvantages. Any one who has only the mercantile view in mind should not choose the method of treatment advocated, but those who practice their profession as it should be done will find that it has advantages. We should make our vocation a benefactor to the physical condition of mankind and endeavor to progress in knowledge. To do this, we should not cast aside methods of treatment which do not immediately appeal to us as good, especially when others, who have had large experience, have reported favorably upon them, until we have proved that they possess no merit, or are perhaps dangerous.

Until recently I did not permit patients upon whom a ventral fixation or a ventral suspension was done to arise before the termination of the second week, but, in a number of patients lately operated upon who were allowed to get up and go about in the same way as other abdominal section patients, examination did not indicate that the early moving about had any deleterious effect. Still, this is a point upon which I am not ready to express an opinion until I have had more experience.

*Conclusions.*—No particular preparatory treatment is necessary for patients upon whom it is intended to do an abdominal operation, unless the operation involves the opening of the stomach or the bowels.

Stomach lavage is of benefit at the conclusion of the operation.

Patients should not be kept unnecessarily under an anæsthetic.

The application of a tight bandage around the upper part of the thighs, to keep a blood reservoir in the lower extremities, in exsanguinated and very weak patients, is excellent. The same may in exceptional cases be done with one of the upper extremities. These bandages are taken off as soon as the operation has been completed, and thus more blood is thrown into the trunk.

The administration of strychnine during and after an operation should be used with more care than is usually done.

The intravenous infusion of a 0.9 per cent. saline solution should not be too long delayed when the condition of the patient makes it evident that its employment may be of benefit. In instances of large myomata, where the patient has been much exsanguinated by bleeding, it is desirable that the infusion be begun as soon as the patient is fully under an anæsthetic, so that by the time the operation has been completed, about 1,000 to 1,500 c.c. may have been infused.

The application of a very simple dressing over the wound, and the adjustment of a snugly fitting Scultetus bandage made of oxide of zinc plaster.

The administration of a dose of morphine if restlessness or pain makes this desirable, the medication then, clinically, acting as a heart stimulant.

The allowing of regular diet and unrestricted mobility within twenty-four hours after the operation, unless specially contraindicated.

The getting patients out of bed as soon as possible after an operation.

The avoidance of forced catharsis before the first four or five days after an operation unless there is a special indication for it.

In instances where resort to vaginal drainage is had, or where it is evident that there will be some secretions intraperitoneally after an operation (purulent cases, and oozing from torn adhesions), the employment of trunk elevation as soon as the patient is put into bed. For this the employment of a bed-lifter such as described, or the placing of high blocks or chairs under the head of the bed, is preferable to back rests.

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