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Bozeman (N.)

REMARKS ON OVARIOTOMY,

WITH

RELATION OF CASES

AND

PECULIARITIES IN TREATMENT.

BY

NATHAN BOZEMAN, M.D.,
NEW YORK,
Surgeon to the Woman's Hospital of the State of New York, &c.

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When Prof. Schroeder, a little more than a year ago, announced that under the antiseptic method of Mr. Lister he had just completed a series of fifty ovariotomies, with the result of forty cures and ten deaths (80 per cent.), and that thirty-three of these cases, with a loss of only one, were treated in the Berlin Lying-in Hospital—notoriously bad in all its sanitary appointments—there was a feeling of general satisfaction among gynæcologists as to the value of antiseptic treatment, and a disposition manifested more than ever before to give it a fair trial. It is true that just as good, and even better, results than these had been secured in Great Britain, especially in the practice of Mr. Keith, before the general employment there of antiseptics; but in Germany nothing entitled to comparison with these results of Prof. Schroeder had previously been witnessed. Dr. Oldshausen, a few months later, in a letter to Mr. Spencer Wells, stated that the mortality of ovariotomy in Germany, before the adoption of antiseptics in the practice of Esmarch, Hegar, Schroeder and himself, was thirty-three deaths out of sixty-five cases, and since the adoption of antiseptics, thirty-three deaths out of one hundred and fifty-five cases. The exultation, therefore, over the unprecedented success of Prof. Schroeder was not surprising.

In his series of fifty cases he had at one time twenty-three consecutive successes, which was also considered very extraordinary for German practice. But Mr. Wells, in England, long before this, without antiseptics, had a similar series of twenty-seven successful operations.

Satisfactory, however, as were the above results of ovariotomy in Germany under the antiseptic method of Mr. Lister, they have since been so far eclipsed in brilliancy in Scotland by Mr. Keith, through the same protective method, as to be almost lost sight of. Mr. Keith states (*British Med. Jour.*, Oct. 19, 1878) that out of fifty cases treated according to the antiseptic method forty-eight were cured (96 per cent.); that the two deaths occurred in the first eight cases, thus showing the unprecedented run of forty-two successive successes, an achievement gynæcologists for all time to come might be well content to emulate.

His convictions on the soundness of the theory upon which the antiseptic treatment is based, and the emphasis which he gives to the above results, Mr. Keith sets forth in the following significant words: "Since 1876 every operation has been performed with all Mr. Lister's care, under the carbolic acid cloud, and I shall never go back to the old way."

This triumph, therefore, of Mr. Keith, and his recognition of the value of the antiseptic method, may be accepted, I think, as conclusive evidence of the entire correctness of the practice. But in doing this, the fact should not be lost sight of that Mr. Keith still insists upon the greatest care in performing the operation, and the closest attention afterward to the details of surgical treatment. He says that, at the time of commencing antiseptics, in 1876, he had reduced his mortality to about ten per cent. through the improved sanitary condition of his top-flat hospital, and his employment of the actual cautery with the drainage-tube. Yet it is evident enough, from the importance attached to the two factors previously named, that he believed they contributed no small share to the result claimed. While he is willing, with the increased advantages of the antiseptic method before him, to exchange the actual cautery for the ligature, and

to dispense with the drainage-tube, he still insists upon the importance of effectually controlling hemorrhage, and of taking time to wipe out thoroughly the peritoneal cavity. It is, as he further remarks, mainly in the class of adherent tumors, accompanied by a feeble state of health and too long delay of the operation, that the greatest difficulties in treatment are experienced, and to overcome which something in addition to antiseptics is still needed to insure further success in this direction.

Now, Mr. Keith having remarked that previous to his adoption of the antiseptic method of Mr. Lister, in 1876, he had reduced his mortality to ten per cent., it is to be inferred that further improvement of the operation in his hands must have for its object yet the diminution of the mortality of this seemingly small class of cases. The question then may be asked, how much has been gained already by the employment alone of antiseptics? According to the recent experience of Mr. Keith the answer is about six per cent. Therefore, if it be true his aggregate success with antiseptics is now ninety-six per cent., then there would seem to be but little need of any one else attempting to further improve the operation, since it is hardly probable that the actual mortality can ever be brought within narrower limits than four per cent.

Such is truly a very encouraging picture of the advanced state of our knowledge and practice with regard to the operation of ovariotomy. But Mr. Keith's success is exceptional, as no one for a moment, I imagine, will question. No other surgeon has attained anything like it in a large run of cases. I doubt whether at the present moment the average mortality of this operation in the hands of all surgeons is below 20 per cent. That the Lister method has contributed a large share toward bringing about even this gratifying result there can be no doubt, and it is from a better and more general understanding of this and other important principles of practice yet to be mentioned that further diminution of our general mortality may be expected to follow.

It is, therefore, the general mortality of 20 per cent., instead of 4 per cent., as shown by the indivi-

dual death-rate of Mr. Keith, that is to be lessened by improved methods of treatment, and the question now is, how can this be best attained? Death results, in about seven-eighths of all cases, from shock or collapse, hemorrhage, exhaustion, peritonitis, and septic intoxication, pyæmia, and to a large extent within the first three or four days. The late Dr. Peaslee, in speaking of the causes of death after the operation of ovariotomy, says: "Thus shock and collapse, when fatal, prove so in more than one-half of the cases within forty-eight hours; and in more than two-thirds, within ninety-six hours. About one-half of those who die of hemorrhage perish within twenty-four hours, and seven-eighths within seventy-two hours. Acute peritonitis proves fatal in twelve to twenty-four hours, and on to the eighth day; nearly one-fourth of the whole number dying on the third day alone, and nearly two-thirds of the whole within the first seventy-two hours. Asthenic peritonitis proves fatal from the ninth up to the twenty-first day, or even later."

Now, what are the conditions of the system before and after the operation of ovariotomy that favors death from the above causes? And what is the proper plan of treatment to curtail or eliminate liability to the same?

Conditions of the system.—With regard to the pathology of morbid growths of the ovaries, whether cystic or solid, benign or malignant, it is by no means clear and satisfactory. As to the views generally entertained upon the subject with regard to associated conditions of the system in different stages of the development of these growths, they must undergo, it seems to me, a very considerable modification before we can expect to derive the fullest benefits from constitutional and surgical treatments. But I do not propose here to discuss these points, but simply to state, in the most concise manner possible, my own convictions, which may or may not be correct. They are presented in the following epitome:

First. That the conditions of the system favoring the idiopathic development of ovarian growths expose both ovaries alike to attack, but that oftentimes

these growths are induced without such previous conditions of the system, through dislocation or imprisonment of one or the other, or of both ovaries, in a state of hyperæmia or anæmia.

Second. That the morbid processes underlying the development of ovarian growths, in whatsoever way produced, soon lead to disturbance of innervation and nutrition of the entire system, and thus cause gradual impoverishment of the blood—general anæmia.

Third. That the general anæmia arising from the development of ovarian growths, call it, if you please, simple idiopathic or pernicious, is always progressive, and that the stages of growth and development ordinarily recognized only represent so many degrees of advancement toward a fatal termination, which certainly comes sooner or later, unless checked by the resources of surgical art.

Fourth. That the general anæmia accompanying ovarian growths is usually attended in the earlier stages with a well-preserved outward appearance of the body; but that such adipose symmetry—*embonpoint*—associated as it is with deficiency of red blood-globules, betokens discrasia rather than robust health.

Fifth. That the general anæmia of ovarian growths, when attended with emaciation, as in the latter stages, is pernicious in the highest degree, owing to the rapidly increasing abstraction of important elements from the blood, and to other functional disturbances arising from mechanical pressure.

Sixth. That inflammatory affections, whether of idiopathic or traumatic origin, occurring in any stage of the general anæmia attending ovarian growths, tend always to low and persistent forms; and that the attending fever, be it due or not to the introduction of a pyrogenic, phlogogenic, pyogenic, or septigenic material into the blood, is almost, if not always, in a corresponding degree asthenic in type.

Seventh. The seemingly necessary corollary from the foregoing propositions is, that the surgeon should strive to counteract the evil tendencies of the general anæmia of ovarian growths; to husband and strengthen the powers of the system during its progress; to re-

move the morbid growth, as experience justifies, before or as soon after the emaciation appears, as the diagnosis can be determined; to avoid all depletory or depressing influences; and to treat the accompanying inflammation, whether acute or chronic, through all its stages, by continuous and persistent support of the vital forces, leaving the attending fever to take care of itself.

Proper plan of treatment.—The object of any plan of treatment, before and after the operation of ovariotomy, is to prevent death mainly from pernicious anæmia, shock or collapse, hemorrhage, exhaustion, peritonitis, septic intoxication, and pyæmia. Shall this be done by means of the ordinary antiphlogistic measures, including blood-letting, depressants, refrigeration, low diet, etc. ? or shall it be by an opposite course, and by invigorating the system, restoring the lost elements of the blood, and maintaining as nearly as possible a health standard of the vital forces ?

1. *Antiphlogistic treatment.*—With regard to antiphlogistic measures to control peritonitis, the great bugbear of ovariotomy, it is usually insisted upon that they should be employed early and vigorously, because by far the largest proportion of the fatal cases terminate within the first three or four days after the operation. So also must they be employed, if employed at all, to meet any of the other emergencies before enumerated, which allow but little time for hesitation. It is very easy for writers upon the subject to say that when peritonitis or septicæmia shows itself within the first few days after ovariotomy, with a pulse varying from 120 to 140, and a temperature from 102° to 104° F., that the patient should be watched and the threatening progress energetically combated by means of general blood-letting, leeching, opiates, fomentations, aconite, veratrum viride, ice-caps to the head, and ice-bags and cold water affusions over the abdomen. But what has been the success obtained by this plan of treatment ? Judging from the experience of those who have given it a fair trial, there is for the future no great encouragement, I conceive, to adhere to it.

It is not my purpose here to enter upon a study of the various measures above enumerated. I shall speak only of the use of ice and cold-water affusions, as means of controlling high temperature and lowering the pulse. As viewed from my standpoint, I see no great objection to the cautious application of either ice or cold-water affusions to the head where the indications justify it, but as applied to the abdomen the question is quite another thing. I seriously object to the application of ice or cold-water affusions to the abdomen, either as a part of the so-called antiphlogistic plan of treatment, or of the supporting plan of treatment, since their depressing effect upon the heart's action is oftentimes so great and uncontrollable as to immediately endanger life, or remotely to lead to suppuration within the peritoneal cavity, pyæmia, pleuro-pneumonia, and perhaps other complications. They unquestionably reduce the temperature, and lower the frequency of the pulse to almost any desired extent for the time being, but the vital forces are weakened and the integrity of remote organs is impaired by their use, especially when long continued. Therefore, notwithstanding the warm attestations as to the value of these resources by English and German ovariotomists, I feel constrained to regard them as more powerful for evil than for good.

In our own country these expedients have also been resorted to with more or less flattering commendations. Dr. T. G. Thomas, whose large experience entitles his opinion to much weight, recommends cold-water affusions over the abdomen, applying them at a temperature varying from sixty to ninety degrees, with the patient lying upon what is known here as Kibbe's cot. In a paper read by him before the New York Academy of Medicine, entitled: "The Most Effectual Method for Controlling the High Temperature occurring after Ovariotomy" (New York *Med. Journal*, August, 1878), he contrasts cold affusions with large doses of quinine and salicylic acid, and its salts, and expresses his convictions of the superiority of the former in the strongest terms.

Dr. Thomas assumes that prolonged high temperature after the operation of ovariotomy, occurring in

whatsoever way, leads to disorganization of the blood, and serious impairments, or tissue changes in the cardiac and nervous centres. These results, he thinks, can be largely prevented by resorting to cold-water affusions over the abdomen, which keep the temperature and pulse from the beginning below 100° F. and 110 respectively, a result which can only be partially obtained, if at all, with large doses of quinine, or the salts of salicylic acid. As to the end sought to be attained, he says: "In adopting this plan of treatment after ovariotomy, and as I have in several cases done after parturition, I did not propose by it to check peritonitis or to cut short septicæmia, the great evils to be feared at the time. My object was to rob these diseases of one of their chief weapons of destruction—hyperpyrexia—and thus to resist the primary assault in the hope of bearing up against a more prolonged, though less violent, siege."

Dr. Thomas reports, in support of his views, eight cases, one of which was peritonitis resulting from a cause other than that of ovariotomy. Out of this number six recovered. Of the two cases terminating fatally, there was in one, as revealed by the autopsy, "internal peritonitis, with several points of localized gangrene of the intestine;" and, in the other, "evidences of peritonitis, pleurisy with effusion, and pneumothorax," which are assigned as the immediate causes of death—on the twenty-sixth and fourteenth days respectively. Dr. Thomas also refers incidentally to two other cases of ovariotomy, occurring some time before, which terminated fatally under the same plan of treatment; but the particulars of those cases he does not give, further than to say they illustrate "the lessons taught by the two first recited, namely: uniform capacity of this method of refrigeration for maintaining a nearly normal temperature, even while a fatal disorder, one of the most striking characteristics of which is hyperpyrexia, still steadily marches on to a fatal issue."

Of the eighth reported case, he speaks of the depressing effect of this treatment upon the heart's action, as shown by the irregularity and intermittency of the pulse, with coldness and blueness of the hands.

The patient, however, a girl sixteen years old, showed no other signs of being unfavorably affected by the douching, and made a good recovery.

With regard to nourishment, in connection with cold affusion over the abdomen, Dr. Thomas only speaks of it incidentally in cases one and seven as being by enemata, twelve and four days respectively. In the former he employed milk by intra-venous injection four times, but to no effect further than to assist in sustaining life, as was supposed, to the twenty-sixth day. From this it is to be inferred that low diet was the rule for a few days at least, since it usually forms an important feature in the antiphlogistic plan of treatment to which cold affusion properly belongs. Of the views upon low diet entertained by some of the highest authorities who have written upon the subject, the late Dr. E. R. Peaslee gives a faithful reflex in the following words:

"Very little nourishment is to be given the first seventy-two hours. I prefer to continue the milk porridge used before the operation. I. B. Brown gives barley-water, or iced milk, or weak broths, and sometimes also a mutton-chop on the third day. Mr. Wells and Dr. Keith give barley-water mainly, but the latter gives no food at all till after flatus passes *per rectum*—only a little cold water, or a few sips of very hot water. He gives soup and brandy enemas in the feeblest cases. Dr. Roberts advises as little food as possible the first forty-eight hours to obviate sickness and vomiting. No solid food is to be given, as Dr. Clay judiciously advises, until asked for by the patient. If the stomach is irritable, the nourishment, as well as the opiate, is to be administered per rectum, in which case beef-tea is a good substitute for the milk porridge."

Now, if the experience of Dr. Thomas with cold-water affusions over the abdomen, based upon the results of the eight cases reported in his interesting paper, proves anything, it is the full recognition by him of the great value of the method from the following considerations:

1. That sulphate of quinine and the salts of salicylic acid, if antipyretic at all, are only so slightly, so

as not to entitle them to any confidence in the treatment of peritonitis and septicæmia resulting from ovariotomy.

2. That cold-water affusion over the abdomen is antipyretic in the highest degree, and deserves to take precedence over all other known methods as a reliable means of controlling the peritonitis and septicæmia, on account of the simplicity of the method and the ease with which it can be carried out upon Kibbe's cot.

3. That the dangers of cold-water affusions over the abdomen, if there be any incident to the practice, are so slight as only to require ordinary precautions for their avoidance, and that they should not stand in the way of the employment of so valuable a method to control the hyperpyrexia of peritonitis and septicæmia.

4. That cold-water affusions over the abdomen, while they are not directly curative in themselves of peritonitis and septicæmia, yet are indirectly so to a higher degree than any other known agent, by preventing disorganization of the blood and serious impairment of the vital functions.

How far these views of Dr. Thomas upon cold-water affusions as an antipyretic are supported, the statistics of his eight reported cases must answer. A mortality of twenty-five per cent., as shown by this exhibit, is certainly not promising when compared with Mr. Keith's rate of ten per cent., secured without either antiseptics or cold-water affusions. I do not know what Dr. Thomas's further experience in the use of cold affusions has been, nor do I know how often it has been employed by other operators since his interesting paper was published. I have employed the method only once, which was in the Woman's Hospital several months previous to the time he read his paper before the Academy of Medicine. From the little experience which a single case gave me, I was convinced that the practice was not only heroic but dangerous, and opposed to sound principles of surgery. The report of the case (1) is appended to these remarks, which was one of double ovariotomy. The after-treatment consisted in free nourishment by

the mouth from the beginning, and of opium by the rectum to control pain. At the end of thirty-six hours the pulse had reached 120 and the temperature 103½° F. Associated with these indications there were tympanitis, tenderness over the entire abdomen, thirst, and dryness of skin. Under these circumstances the patient was put upon Kibbe's cot and douching of the abdomen with water at 67° F. commenced. At the end of seventy-one hours, when eight douches, varying from 65° to 75° F., had been given, there was no abatement of the acuteness and intensity of the peritonitis. Pulse 126 and very feeble, temperature 104¼° F. Beginning now to lose confidence in the method, and necessarily feeling anxious for the safety of my patient, I supplemented the opium per rectum with eight grains of sulphate of quinine, to be repeated every six hours. The process of douching, with no abatement, however, was continued under the direction of the house-surgeon, Dr. J. L. Perry, whose care and attention were unremitting. At the end of eighty hours, when sixteen douches in all had been given, the last eight within eight hours, the temperature stood at 103¼° F., just one-quarter of a degree less than at the beginning. A few hours after the last douche, at 6½ o'clock A.M., I made my visit, and found the patient in a condition of collapse, as I supposed. She seemed to be chilled through, so to speak; was cyanosed and almost pulseless. The application, however, of cans of hot water about the chest and extremities, and the free administration of whiskey, were soon followed by reaction and disappearance of the above threatening symptoms.

The cold affusion was discontinued, and in its stead increased nourishment and stimulation by the mouth were ordered, in connection with quinine and opium by the rectum. At the end of ninety-six hours, when the patient had taken forty grains of quinine, thorough *cinchonism* manifested itself, and her pulse was 104 and temperature 100¾° F. From this time on the temperature rose but little above 101° F., and this only for a few days. Her convalescence, however, was slow, lasting nearly three weeks, owing, no doubt, to inflammatory products shut up in

the peritoneal cavity, as the result, I fully believe, of the depressing influence produced upon the vital forces for so long a time by the cold affusion, and my failure to employ quinine at the outset of the after-treatment. But my treatment of this case was no more heroic than that adopted in the eight cases reported by Dr. Thomas. The difference in result being simply that my patient narrowly escaped a fatal issue from exhaustion and depression of the heart's action without permanent reduction of temperature at the end of the fourth day; while one of his, after having the temperature for twelve days kept at a point below 100° F., discharged through the abdominal incision more than a pint of pus on the fourteen h day, and finally died on the twenty-sixth day, leaving evidences of extensive peritonitis and gangrene of the bowel; and the other, after the temperature had been lowered from 104° to about 101° F., suffered from an attack of acute pleuritis, with effusion on the fifth day. The increased temperature of the latter complication was treated by continued douching until the eighth day after the operation, when recovery from its effects was pronounced. The case, however, terminated fatally on the fourteenth day, showing at the autopsy, as before mentioned, peritonitis and pleuropneumonia, with effusion.

May not these embarrassing complications encountered by Dr. Thomas and myself be the legitimate fruits of the employment of cold-water affusions over the abdomen? And may we not in attempting, with so powerful an agent, to disarm peritonitis and septicæmia of their dire phenomena—high pulse and high temperature—on the one hand, directly favor or produce, on the other hand, the identical complications and lesions mentioned? In short, may we not, in thus attempting to steer clear of Scylla, run squarely against Charybdis? These are my convictions, and I shall not rest content upon the subject until further statistics open up a more encouraging prospect than that viewed from my present standpoint.

2. *Preparatory and supporting treatment.*—Next let us turn our attention to the plan of preparing and supporting the system as a means of meeting and con-

trolling the principal dangers of ovariotomy previously enumerated. This plan of treatment, according to my understanding of it, embraces all suitable articles of food which can be assimilated when introduced into the mouth and the rectum. Any form of stimulant which the system may require or tolerate, and any kind of medicine which special indications may demand. The plan properly resolves itself into two stages: first, before the operation; and second, after the operation.

1. *Before the operation.*—This stage of the treatment may be supposed to be coextensive with the existence of the morbid growth, but for present purposes it is limited to the week immediately preceding the day set for the operation. During this time the secretions of the body should be regulated as far as practicable, the bowels kept in a soluble condition, the circulation equalized, pain or nervous irritation controlled, the system nourished, and the blood infused, so to speak, with new life.

The means for accomplishing all these ends readily suggest themselves. A mild cathartic every day, or every other day, and an active one the night before the operation; daily tepid baths followed by rubbing the body with emollients, of which vaseline answers an admirable purpose; anodynes or bromide of potash; easily digested and nourishing food of any kind, with wine, ale, porter, brandy, etc., as may be desired or found useful; tonics, of which the tincture of iron, salicin, and quinine are the best.

With regard to the last named medicines, the iron and salicin are given together three times a day in doses of 15 drops of the former and 15–20 grains of the latter. When this form of iron causes headache, as happens sometimes, or otherwise is not borne, then substitute iron by hydrogen or carbonate of iron, or give salicin alone. The quinine is reserved for the last, when 15 grains are given the night before the operation, and 10, with a grain of opium, the following morning, after the lower bowel has been emptied by a lavement of warm water containing a small quantity of castile soap and common salt.

2. *After the Operation.*—The stage of active treat-

ment immediately after the operation is supposed to continue until all dangers are passed—one week, more or less, according to circumstances. The faithfulness with which it is carried out rests not only in the convictions of the surgeon as to what is absolutely required, but in the ceaseless vigilance and assiduity of the nurses intrusted with his directions.

First, the remedial agents to be employed: These are principally quinine, opium, brandy, whiskey, champagne, and any other forms of medicine required or best suited to the individual case. After the patient has recovered from the anæsthetic, all sources of annoyance or direct irritation, of whatsoever nature, are to be avoided as far as possible, and none among them I conceive is more worrying than that of the hypodermic syringe. The use of this instrument I would therefore restrict to the narrowest limits, trusting to other modes equally efficacious for introducing morphine into the system. But can it be said that the stomach affords this facility to the desired extent? Certainly not. But this and the rectum together unquestionably do to a very high degree, not only as regards medicines, but also articles of food. When both of these fail, and the patient is *in extremis*, then the hypodermic syringe may play an important part in introducing into the system not only morphia, but quinine, brandy, or ether. The form of anodyne which I prefer to all others is Squibb's compound liquor of opium. It is more uniform and reliable in its strength than laudanum, and for that reason, if no other, is more valuable. The object to be attained by this preparation of opium is not only the control of pain, but the lessening of general reflex nervous irritation. It also antagonizes the unpleasant effects of quinine upon the brain, thus giving to the latter greater potency in controlling not only cardiac and pulmonic action, but the processes of disassimilation or tissue changes upon which depend, it is believed, the excessive body-heat. My rule now is to administer per rectum, as soon as the patient is removed from the operating-table to her bed, one drachm of the above preparation of opium with ten grains of sulph. of quinine in half an ounce of acidulated water. This

will usually be found sufficient to lull the attending pain after the effects of the anæsthetic are passed. The dose is afterward reduced to half a drachm with the same quantity of quinine, and repeated every six hours. Should severe pains develop in the intervals, the hypodermic use of six to eight minims of Magendie's sol. of morphine is allowed. According to my experience, such emergencies arise only occasionally, and often not at all, in the entire after-treatment. This quantity of opium, about four and a half grains in the twenty-four hours, keeps the patient in a quiet, drowsy state, ready to take nourishment per orem and rectum at almost any moment, and again to relapse into the same somnolent state, seemingly without disturbance. It is seldom necessary to increase the dose of quinine mentioned. This quantity, forty grains in the twenty-four hours, with the twenty-five grains given the night and morning preceding the operation, will rarely fail to produce its specific effect within thirty-six or forty-eight hours, just at the time it is needed to infuse the blood with life-giving and life-saving qualities, and thus control or moderate the rise of temperature. I have seen as small a quantity as thirty-two grains of quinine, given in this way, followed by thorough cinchonism, with almost immediate reduction of both pulse and temperature; but usually double or triple this quantity will be required to produce the desired effect. I am satisfied that the reason why those who have tried and condemned quinine as useless in controlling hyperpyrexia after ovariotomy, is because they have not commenced its use early enough, have not properly combined it with opium, or have not given it in sufficient quantities. The disadvantages of waiting until peritonitis and septicæmia are developed before commencing the use of the remedy, and the advantages of giving it early in combination with opium by the rectum, are so evident, it seems to me they require only mention here.

But quinine and opium are not the only remedies I give by the rectum after ovariotomy. Brandy, in doses varying from one to four drachms, at intervals of three hours, may thus be administered with the

greatest advantage when the stomach is irritable and stimulation is called for.

Second, the kind of food to be employed after ovariotomy. The introduction of food into the system by the rectum—rectal alimentation—is of the greatest importance to insure continuous support of the vital forces, and the best results from quinine and opium as regards the control and moderation of fever. The articles best suited for this purpose are unquestionably beef-tea, mutton-broth, chicken-broth, and mashed beef. The last named I greatly prefer, as it far exceeds in efficiency any of the other forms of animal nutriment mentioned. It is prepared by first chopping up the beef very fine, say three pounds, and then putting the whole into a wooden bowl and mashing it with a pestle. Now cold water, say a teacupful, is added, and thoroughly incorporated with the mass. This being done, it is next placed in a cullender, and all the juice pressed or rubbed out with as much of the muscular fibre as will pass through the holes. Again the juice is placed in a fine wire strainer and thus cleared of all the larger particles of meat-fibre that would otherwise clog or obstruct the pipe of the syringe. Thus is obtained about sixteen ounces of juice, which is believed to contain the nutritive elements of about one-third of the three pounds of beef employed. For keeping, it should be set in a cool place or upon ice, and for use warmed over a spirit-lamp or otherwise. It may be administered alone or in combination with pancreatine. In the proportion of two ounces to one drachm of the latter an excellent emulsion is formed, which is about the quantity to be administered at a time. Its use should be commenced three hours after the first dose of quinine and opium, and it also is to be repeated every six hours. If it manifests any tendency to irritate the rectum, so as to provoke a discharge, twelve to fifteen drops of the preparation of opium indicated (liq. opii. comp.) must be added. In this event, the quantity of the latter used with the quinine is to be lessened in like proportion, unless there be a demand for more than two drachms in the twenty-four hours, which is hardly probable.

When the necessity arises, brandy may be combined with the emulsion in quantity varying from one to four drachms. The emulsion may also be used as a vehicle for the quinine and opium instead of the acidulated water, using for the purpose half to one ounce. In this manner from eight to ten ounces of the emulsion are introduced into the system in twenty-four hours, equal to half a pound or more of beef.

Thus is rectal alimentation, medication, and stimulation gradually carried to the point of giving the greatest amount of nutrition and support.

But again, ingesta by the mouth, when it can be tolerated, is no less important than by the rectum. I only mention this function last, natural as it is, because it is so liable to be disturbed or interrupted at the outset of the treatment. The stomach, almost always irritable from the anæsthetic for the first six or eight hours, can only be made available for the introduction into the system of medicines and food under the most careful watching and with the greatest precautions. Too early resort to it for either purpose is highly prejudicial to success, and oftentimes leads to irreparable mischief. One cannot be too cautious, therefore, in selecting such articles, both of medicine and of food, as may be best adapted to the ends in view and in testing with them the strength of the stomach.

As regards stimulants, brandy, whiskey, and champagne are the best and most available. Whichever one may be selected, it is to be given in small quantities, and often repeated. When tolerance of the stomach is assured and necessity requires it, the dose can be gradually increased, but under all circumstances this must be done cautiously, otherwise much valuable time must be lost. The same thing is true of all medicines employed to meet special indications in the after-treatment.

Much discrimination is called for in selecting articles of diet and in regulating the quantities to be given. Rice-water, barley-water, milk, milk-and-lime-water, milk porridge, beef-tea, chicken-broth, and mutton-broth are the articles to be relied upon.

Of these, milk alone or milk with lime-water, or

milk in the form of porridge, is by far the most valuable and reliable in the beginning of the after-treatment, and given with the same precautions pointed out with reference to the use of stimulants, it seldom fails to give satisfaction, especially when used supplementary to regular rectal alimentation. Beef-tea and broths are equally serviceable after a few days, and may be alternated with the milk, or given alone, according to the fancy of the patient or the wish of the surgeon to discontinue rectal alimentation. Given in teaspoonful or tablespoonful doses and repeated every half or every hour, considerable quantities of any one of the articles named may be given in the twenty-four hours without disturbing the stomach or seriously annoying the patient. The patient being constantly under the influence of opium, given by the rectum, sensitiveness, not only of the stomach, but of the entire alimentary canal is held in abeyance, and a state of almost continuous slumber is maintained. Borborygmus and tympanitis, usually so constant and persistent after ovariotomy, under the expectant plan of treatment, show themselves in this state of quininism and seminarcotism only to a very slight extent, and often not at all. These are advantages which cannot be too highly estimated in any course of treatment. The meteorism of typhoid fever, a like condition, my friend Dr. Alexander Hadden, of this city, informs me he controls with an equally high degree of certainty by the employment of salicylate of soda.

The prevention of shock after capital operations by previous administration of large doses of quinine, as claimed by Dr. Hunter McGuire, of Richmond, has its explanation no doubt in the profound and salutary effect which the remedy produces upon the cerebro-spinal and sympathetic nerve-centres. That shock from the operation of ovariotomy, attended with or without serious loss of blood, is a frequent cause of death, immediately or remotely, there can be no doubt. That quinine does prevent or lessen the tendency to shock in capital operations in a marked degree, I am thoroughly satisfied from my own somewhat large experience with it years ago in the general practice of surgery.

This brings us to the narration of cases of ovariotomy, and I give a series of six, taken without selection, as they presented themselves in my service at the Woman's Hospital within a period of eleven months. From these reports it will be seen that I gradually reached my plan of preparatory and after-treatment, and therefore it will be found carried out to the letter only in one or two of the last cases. The originality or novelty of this treatment, if there be any, will be found mainly in the early and continuous use of quinine and opium per rectum, in conjunction with free and liberal support of the system by oral or rectal alimentation, or both at the same time, as means of preventing or controlling high temperature after ovariotomy.

The results in these six cases are intended to show the value of the plan. All six of the operations were performed in the two small frame cottages situated on the hospital grounds, where the patients were nursed and cared for until all danger had passed—eight to ten days. One week from the completion of the operation being the special period of treatment, the notations of the pulse and temperature for this time were made upon an average once in three hours, but to make these reports as short as possible, only two in the twenty-four hours are here recorded—namely, at or about 6 A.M. and at or about 6 P.M. The quantities of medicines, nutriments, stimulants, etc., given at long, short, or irregular intervals are noted only for the twenty-four hours commencing and ending at 12 o'clock at night. Sulphuric ether was the anæsthetic employed.

CASE I.—*Both Ovaries Involved—Right, Seat of large Dermoid Cyst—Never tapped—The Value of Dulness on Percussion over one Loin, as Diagnostic of the Side of the Tumor, Confirmed—Double Ovariotomy with Antiseptic Precautions—Medium Incision—Extensive and Resisting Parietal and Omental Adhesions—Moderate Hemorrhage—Both Pedicles Ligatured—No Drainage-Tube used—Early Supporting Diet—Peritonitis Violent—Commenced Cold-Water Affusions upon Kibbe's Cot forty-eight Hours after Operation—Supplemented by Quinine twenty-four Hours later—*

Collapse Produced without Reduction of Temperature —The Former Suspended and the Latter Continued— Cinchonism at the End of ninety-six Hours followed by Permanent Reduction of both Pulse and Temperature—Protracted Recovery.

Sarah C., of Perth Amboy, N. J.; native of Ireland, aged thirty-five; married; one child; widow thirteen years; about medium statue; dark complexion, black hair, with the *facies ovariana* well marked; was admitted to the Woman's Hospital May 6, 1878. She stated that the tumor from the first lay to the right side and was the size of a child's head before it began to occasion serious inconvenience; that nine months previously it began to grow rapidly, and that from this date on she gradually lost flesh. Girth below the umbilicus, 34½ inches. Tumor prominent to the right of the median line, though marked dulness found to the left of the latter in the hypogastric and iliac regions. Slight œdema over the abdomen, and protuberance of the umbilicus. But little mobility of the abdominal walls over the tumor. Dulness on percussion over the right loin pointing directly to the corresponding ovary as the seat of the tumor. Case examined by two of my colleagues, and both concurred with me in the belief that the tumor was ovarian.

Operation, May 13th.—At 2 o'clock, with a cloud of carbolic spray falling upon her abdomen, the necessary incision in the linea alba, below the umbilicus, was made and the peritoneal cavity reached. Owing to the extensive adhesions found, and the difficulty of manipulating the tumor, the incision afterward was extended about an inch above the umbilicus. The adhesions were then all torn or separated with the fingers and handle of the scalpel. Then, by successively tapping the several cysts within the tumor containing fluids of varied densities and colors, the whole mass was so reduced that it could be easily drawn out of the abdomen. It proved to be the right ovary as diagnosed, and the pedicle, after being tied with a carbolized ligature, was cut and dropped. Commencing cystic degeneration of the

left ovary now being discovered, this was removed in like manner. There was no great loss of blood, but one or two small bleeding vessels in the omentum required ligatures. The greatest care was taken to wipe out and cleanse thoroughly the abdominal and pelvic cavities. The sponging was continued as long as there was any oozing. The wound by mistake was closed with ten plain silk sutures instead of carbolized ones, and then dressed according to the method usually employed by Mr. Lister. Tumor and contents weighed 18½ pounds; it was dermoid in character, and contained both hair and teeth. Duration of the operation, fifty-six minutes.

AFTER-TREATMENT.

Per orem: Milk, ℥ ij. Per rectum: Liq. opii comp., ʒ ss.

Evening: Pulse, 132; temp., 103½° F. General condition: Nausea and slight vomiting; neither pain nor tympanitis.

May 14th.—Morning: Pulse, 96; temp., 100½° F. Per orem: Beef-tea, ℥ vi.; milk, ℥ xiv.; milk porridge, ℥ x.; whiskey, ℥ ss.; mixture of citrates of potash and lithia every three or four hours. Per rectum: Liq. opii comp., ʒ j. General condition: No pain except in the back; slept well most of the night, and a good deal during the forenoon; urine thick and of a yellowish color. Early in the afternoon symptoms of marked peritonitis began to show themselves.

Evening: Pulse, 120; temp., 103½° F.

May 15th.—Morning: Pulse, 100; temp., 102° F. Per orem: Beef-tea, ℥ xvi.; milk porridge, ℥ xviij.; milk, ℥ ij.; whiskey, ℥ iss.; mixture of potash and lithia as before stated. Per rectum: Liq. opii comp., ʒ i. General condition: At 2 A.M., pulse 120; temp., 103½° F. Now commenced the use of cold-water affusions over the abdomen upon Kibbe's cot at 67° F., six given during the day; each time followed by chilliness and a depressed feeling; pulse small and feeble; tympanites and pain over the entire abdomen.

Evening: Pulse, 110; temp., 103° F.

May 16th.—Morning: Pulse, 116; temp., 101½° F.

Per orem: Beef-tea, ℥xiv.; milk porridge, ℥xxij.; milk, ℥xxiij.; whiskey, ℥vij.; mixture of potash and lithia as before. Per rectum: Liq. opii comp., ℥i.; sulph. quinine, grs. xxiv. General condition: At 12.45 P.M., when two douches had been given, the pulse and temperature showed an elevation of 126 and 104¼° F. respectively; all the symptoms of violent peritonitis present. After a chill, now lost confidence in the cold affusions and concluded to supplement them with sulph. quinine per rectum, in 8-grain doses. From this time to 10 P.M. patient got eight douches, nearly one upon an average per hour. Now temp. 103¼° F. Douching suspended for the time.

Evening: Pulse, 120; temp., 103¼° F.

May 17th.—Morning: Pulse, 106; temp., 101½° F. Per orem: Beef-tea, ℥xxxvi.; chicken broth, ℥xviij.; milk, ℥vi.; milk porridge, ℥xx.; whiskey, ℥iij. Per rectum: Sulph. quinine, grs. xx.; liq. opii comp., ℥iiss. General condition: At 6.30 A.M., made an early visit, and found the patient in a state of collapse. A violent chill was upon her, and her extremities were of icy coldness. The blueness of the lips, the chattering of the teeth, and the almost imperceptible pulse at the wrist all pointed to speedy dissolution. This condition was brought about, as was soon discovered, by wet sheets, wet clothing, and neglect of the nurse, for several hours, to refill with hot water the tin cans around the chest and extremities. By prompt attention to the latter, and changing the sheets and clothing, together with free administration of stimulants, the danger was averted. Thus seeing the great danger attending the use of cold-water affusions, and their failure so far to control, or even moderate high temperature, I determined to abandon them entirely, and trust to quinine and opium per rectum, with free nourishment of the system. Up to this time the two medicines had been given separately, but now they were combined. At 1.30 P.M., about twenty-four hours after their commencement, and when only forty grains of the former and one drachm of the latter (liq. opii comp.) had been taken, thorough *cinchonism* manifested itself. Patient now hungry. Pulse and

skin fair; urine better. Has not slept much during the day, and is afraid to be left alone.

Evening: Pulse, 118; temp., 100¾° F.

May 18th.—Morning: Pulse, 104; temp., 101° F. Per orem: Beef-tea, ℥ xvi.; chicken broth, ℥ ij.; milk, ℥ xxx.; milk porridge, ℥ xvi. Per rectum: Sulph. quinine, grs. xvi.; liq. opii comp., ℥ iss. General condition: Has slept but little since morning. Talks to herself, and sings. Says she feels first-rate; urine clear; pulse good; tympanites and abdominal pain less.

Evening: Pulse, 100; temp., 100¾° F.

May 19th.—Morning: Pulse, 90; temp., 100° F. Per orem: Beef-tea, ℥ xxiv.; milk, ℥ xvi.; milk porridge, ℥ xxxii.; chewed and swallowed the juice of a piece of beefsteak. Per rectum: Sulph. quinine, grs. xvi.; liq. opii comp., ℥ i. General condition: Slept pretty much all night; has some nausea and a little dryness of the tongue; also a little pain. Perspires freely when asleep. Sutures removed, and suppuration found in the tracks of nearly all of them. Patient changed from Kibbe's cot to her bed.

Evening: Pulse, 104; temp., 101° F.

May 20th.—Morning: Pulse, 97; temp., 100¼° F. Per orem: Beef tea, ℥ xvi.; milk, ℥ xl.; milk porridge, ℥ xvi. Per rectum: Sulph. quinine, grs. xij.; liq. opii comp., ℥ iss. General condition: Tongue still a little dry; less tympanites; frequent desire to urinate, though quality of urine good.

Evening: Pulse, 103; temp., 101° F.

The same general plan of treatment as set forth in the above diary of the week was continued, with such omissions and changes as regards medicines and food as circumstances from time to time demanded, until the seventeenth day of the operation. Now, the quinine and opium given up to this time by the rectum were stopped.

Up to the tenth day of the operation the temperature varied but little from 101° F. Then it fell below 100° F., and the pulse to about 80. But still there continued every evening to be a slight exacerbation of the little fever present, until June 4th, the twenty-second day, when both the pulse and temper-

ature mounted to 100 respectively. This went on for four or five days, and then subsided gradually to the standard of health. This I attributed to the presence of inflammatory products in the peritoneal cavity. During the week of active treatment, nine and a half drachms of liq. opii comp. were taken, and from the time it was commenced, on the third day, eighty-eight grains of quinine; from first to last, twenty-one and a half drachms of the former, and one hundred and ninety grains of the latter were taken. Week's average of pulse, 106; of temp., 101¼°. Convalescence finally complete, and the patient discharged cured.

CASE II.—*Both Ovaries Involved—Main Tumor Myxo-Fibromatous — Ascites — Never Tapped—Absence of Dulness on Percussion over One Loin—Double Ovariotomy with Antiseptic Precautions—Small Incision—Few, but very Resisting Adhesions—Hemorrhage Slight—Shock Considerable—Both Pedicles Ligatured —No Drainage-Tube Used, but a small Tent left in Lower Angle of the Wound—Early Supporting Diet by the Mouth and Rectum—Peritonitis Moderate—Quinine with Opium, Commenced per Rectum Thirty Hours after Operation—No Cinchonism—Primary Fever Slight — Secondary High — Pus Discharged through the Wound on the Ninth Day—Peritoneal Cavity Daily Washed out—Protracted Recovery.*

Mary McC., of New York, aged 45, unmarried; short, and of heavy build; lymphatic temperament, with sallow, waxy complexion—was admitted to the Woman's Hospital, May 3d, 1878, presenting an abdominal tumor, with girth below the umbilicus of thirty-seven inches. She stated that a year before admission she first noticed a small tumor low down in the abdomen, and that ever since then she had had pain in the left hip, groin, and corresponding limb; that for six months previous to this time her menstrual flow had been irregular, and sometimes too free; but latterly it had been profuse at times, lasting two or three weeks, for which relief was sought in the St. Vincent Hospital.

Examination showed the tumor to be semi-solid in character, and surrounded by a considerable quantity of fluid in the peritoneal cavity. The precise nature of this floating tumor, for such it was, did not appear clear to my mind, nor were my colleagues, Drs. Emmet and Thomas, who kindly examined the case at my instance, any more decided in their opinions of it. We all agreed, however, upon the two essential points presented by the case: first, that the tumor was connected with the uterus, probably the left side, by a pedicle of no great thickness, and that an operation for its removal was called for. The uterus itself measured three inches, was a little anteflexed, and drawn over to the left side. The marked dulness on percussion over the left loin as contrasted with the right, pointed to the corresponding ovary as the seat of the tumor.

Operation, May 17th.—At two o'clock the operation was performed under the antiseptic spray. Through the small incision made in the peritoneal cavity about a gallon and a half of straw-colored fluid escaped, and thus was the oblong semi-elastic tumor brought into view, lying mainly to the left side, but reaching considerably to the right, above the umbilicus. It was found firmly adherent to the left abdominal wall, and it was only after considerable delay and a process of tearing or gnawing through the points of resistance with the fingers and handle of the scapel, that the mass was finally separated. Only one point was cut with the scissors. The tumor was then tapped with a Spencer Wells's trocar, but no fluid escaped. The instrument was then withdrawn, and one finger after another introduced into the opening, until the whole hand penetrated the mass and reduced it to a mere shell. Afterwards it was easily drawn through the opening, and found to be the right ovary instead of the left, as diagnosed. After tying, cutting, and dropping the pedicle in the usual way, commencing disease of the left ovary was found to exist; its pedicle was treated in like manner. This being done, the fine bleeding points in the omentum were tied and the peritoneal cavity cleansed in the most thorough manner. The patient now became so

exhausted as to require cessation of the anæsthetic, and four hypodermics of whiskey (℥ iv.) were given. On the establishment of reaction the abdominal wound was closed with eight to ten waxed carbolized sutures, made to include the peritoneum. A tent of carbolized gauze was left in the lower angle of the wound, and to the whole was then added the Lister dressing.

From the semi-solid or friable nature of the tumor, and the general appearance of its structure, I was inclined to regard it as the colloid variety of cancer; but under the microscope it proved to be of a myxo-fibromatous character, and therefore benign. The weight of the growth was four pounds. Time of the operation, sixty-two minutes.

AFTER-TREATMENT.

Per orem: Immediately after operation brandy-and-water given freely. Afterward brandy, ℥ ij. Per rectum: Beef-tea, ℥ ij. Two hypodermics of Magendie's sol. of morph., given through mistake, instead of liq. opii comp. General condition: Complains of pain in the abdomen, and has some nausea and vomiting. Reaction satisfactory.

Evening: Pulse, 108; temp., 99⅘° F.

May 18th.—Morning: Pulse, 98; temp., 100⅘° F. Per orem: Milk, ℥ iv.; milk porridge, ℥ iij.; brandy, ℥ iij. Per rectum: Sulph. quinine, grs. viij.; liq. opii comp. ℥ ii♯; beef-tea, ℥ viij. General condition: Complains still of pains in the abdomen; has acid eructations; urine clear.

Evening: Pulse, 108; temp., 101⅘° F.

May 19th.—Morning: Pulse, 102; temp., 101 ° F. Per orem: Chicken broth, ℥ iv.; tinct. ginger in five-drop doses. Per rectum: Sulph. quinine, grs. xvi.; liq. opii comp., ℥ iss.; beef-tea, ℥ x. General condition: Does not vomit, but has frequent eructations, which disturb sleep; has some tympanites and borborygmus; passes flatus now and then.

Evening: Pulse, 100; temp., 100⅘° F.

May 20th.—Morning: Pulse, 88; temp., 101⅘° F. Per orem: Chicken broth, ℥ x.; tinct. ginger. Per rectum: Sulph. quinine, grs. xx.; liq. opii comp.,

℥ iiss.; beef-tea, ℥ xvij. General condition: Passes flatus freely, and has less eructation; sleeps well; menstruates a little.

Evening: Pulse, 82; temp., 100⅜° F.

May 21st.—Morning: Pulse, 80; temp., 99½° F. Per orem: Chicken broth, ℥ xxxi.; tinct. ginger. Per rectum: Sulph. quinine, grs. xvi.; liq. opii comp., ℥ iss.; beef-tea, ℥ xi. General condition: Still menstruates; feels very well in every particular. The gauze tent is removed from the lower angle of the wound. About one ounce of clear, thin, yellowish fluid followed it. The opening was drawn together with an adhesive strip.

Evening: Pulse, 80; temp., 100⅛° F.

May 22d.—Morning: Pulse, 88; temp., 100° F. Per orem: Chicken broth, ℥ xxxij. Per rectum: Sulph. quinine, grs. xvi.; liq. opii comp., ℥ ij.; beef-tea, ℥ xi. General condition: Stomach quiet; sleeps well; sutures all removed; wound united down to the site of the gauze tent; no suppuration in the tract of the sutures.

Evening: Pulse, 84; temp., 100½° F.

May 23.—Morning: Pulse, 92; temp., 100⅛° F. Per orem: Chicken broth, ℥ xxxix.; beef-tea, ℥ xvij. Per rectum: Sulph. quinine, grs. xx.; liq. opii comp., ℥ ij. General condition: Satisfactory in every particular.

Evening: Pulse, 88; temp., 100⅛° F.

May 24th.—Morning: Pulse, 90; temp., 99½° F. Per orem: Chicken broth, ℥ xix.; beef-tea, ℥ xix. Per rectum: Sulph. quinine, grs. xij.; liq. opii comp., ℥ iss. General condition unchanged.

Evening: Pulse, 92; temp., 99⅜° F.

On the eighth day after the operation the patient was removed from the cottage to the hospital, there being a slight increase of pulse and temperature the previous day. About eighteen hours later—pulse, 105; temp., 103½° F.—her condition became exceedingly critical on account of pyæmic symptoms, but, fortunately, now the smaller track of the tent in the lower angle of the wound reopened and gave vent to about one ounce of purulent and very offensive fluid from the peritoneal cavity. This resulted after a

couple of days in the dropping down of the pulse and temperature to 72 and 99½° F. respectively. The washing out of the peritoneal cavity two or three times daily was now commenced with a weak solution of common salt and a little carbolic acid, as recommended by the late Dr. Peaslee. For twenty days this discharge continued, seemingly from the locality of the left broad ligament, varying in quantity, and at intervals more or less long, from a teaspoonful to half a teacupful. It was, as already stated, exceedingly offensive, and sometimes more so than at others. From the sixteenth to the twentieth day after the operation the temperature again ranged from 100° to 101½° F. Then it fell to 99° F., and remained below 100° F. to the complete closure of the wound, which took place on the twenty-eighth day. During the time the wound was discharging, the patient required all the support by the mouth and rectum that it was possible to give. The quinine and liq. opii were continued per rectum, in gradually diminished portions, until the twenty-sixth day of the operation. The quantity of the former taken during the week's special treatment was 108 grains, and of the latter 13 drachms; afterward, of the former 216 grains, and of the latter 22 drachms, making in all, from first to last—quinine, 324 grains, and liq. opii comp., 35½ drachms. Week's average of pulse, 92; of temp., 100° F.

The patient called upon me at my office about five months after the operation, and said she never felt better. To all appearances she was in robust health. After recovering from the operation the uterine discharge ceased, and up to this date showed no indication of reappearance.

CASE III.—*Unilocular Cyst of Right Ovary—Never Tapped—The Value of Dulness on Percussion over one Loin as Diagnostic of the side of the Tumor Confirmed—Ovariotomy with Antiseptic Precautions—Small Incision—Adhesions Unimportant—But little Loss of Blood—No Drainage-Tube—Pedicle Ligatured—Shock from Operation Considerable and Reaction Slow—Free Stimulation—Early and Con-*

tinuous Support of the System by the Mouth and Rectum—Peritonitis Mild—Quinine with Opium per Rectum Commenced sixteen hours after Operation—No Cinchonism—Fever Slight—Speedy Recovery.

Mrs. E., of New York, aged 65; tall and slender; mother of two married daughters; widow thirty years; *facies ovariana* pronounced; was admitted to the Woman's Hospital, October 23, 1878, with girth of abdomen thirty-nine inches. She was very much run down in health, and bore the impress of long suffering. First noticed the tumor eighteen months previously in the right side, and within the last eight months lost eighteen pounds in weight. Tumor movable. Fluctuation pronounced. Dulness over right loin. Diagnosis clear. Never tapped.

Preparatory treatment consisted in regulation of the bowels, daily tepid baths with vaseline inunctions and nourishing diet, with free allowance of brandy.

Operation, November 1.—At two o'clock the operation, under the carbolic acid cloud, was performed. Small incision. One or two slight omental adhesions. Cyst tapped with the Wells trocar and drawn through the wound. Pedicle as usual pierced, tied with carbolized ligatures, cut, and dropped without hindrance. Tumor of the right side as diagnosed. Peritoneal cavity sponged out until all oozing of blood ceased. Wound closed with waxed carbolized sutures, and then dressed antiseptically. Shock of the operation considerable. Free administration of brandy required. Weight of tumor and contents, twenty-seven pounds. Duration of the operation, twenty-seven minutes.

AFTER-TREATMENT.

Per orem: Brandy given *ad libitum* for several hours, and then at intervals of three hours. Per rectum: Liq. opii comp., ʒ i. General condition: Patient suffers considerably from shock of the operation. She rallies slowly under the free use of brandy. Pulse feeble for several hours. No nausea or vomiting.

Evening: Pulse, 88; temp., 96¼° F.

November 2d.—Morning: Pulse, 92; temp., 98¼° F. Per orem: Milk porridge, ʒ xviij.; brandy, ʒ ij.; tinct. ginger. Per rectum: Sulph. quinine, grs. xxiij.; liq. opii comp., ʒ iij.; beef-tea, ʒ ij. General condition: Complains occasionally of pain. Has recovered entirely from shock of the operation. Pulse full and soft. Skin moist. Stomach still quiet.

Evening: Pulse, 96; temp., 98¼° F.

November 3d.—Morning: Pulse, 84; temp., 98½° F. Per orem: Beef-tea, ʒ iij.; milk porridge, ʒ ix.; brandy, ʒ xiij.; tinct. ginger. Per rectum: Sulph. quinine, grs. xv.; liq. opii comp., ʒ iss.; beef-tea, ʒ iv. General condition: Slept well during the night. Has no pain. Pulse full, soft, and regular. Skin warm and pleasant. Urine drawn every six hours and is clear. No tympanites.

Evening: Pulse, 85; temp., 99⅗° F.

November 4th.—Morning: Pulse, 76; temp., 98⅘° F. Per orem: Beef-tea, ʒ vi.; milk, ʒ ij.; milk porridge, ʒ v.; brandy, ʒ xij.; tinct. ginger. Per rectum: Sulph. quinine, grs. xv.; liq. opii comp., ʒ iss.; beef-tea, ʒ ix. General condition: Slept nearly all night. Had to be waked to take medicine and nourishment. Pulse regular, but not strong. Skin soft; urine clear; perspires while sleeping. This evening sleep is disturbed and there is a little restlessness. Opium suspended. Neither tympanites nor borborygmus.

Evening: Pulse, 74; temp., 98⅕° F.

November 5th.—Morning: Pulse, 72; temp., 97⅘° F. Per orem: Beef-tea, ʒ xi.; milk porridge, ʒ xviij.; brandy, ʒ x. Per rectum: Sulph. quinine, grs. xv.; liq. opii comp., ʒ ss.; beef-tea, ʒ viij. General condition: Less restless; sleeps very well; pulse and skin good; appetite and digestion good; urine clear and normal; no tympanites; tongue a little dry and coated; very cheerful.

Evening: Pulse, 74; temp., 98¼° F.

November 6th.—Morning: Pulse, 76; temp., 98¼° F. Per orem: Beef-tea, ʒ xij.; milk, ʒ vi.; milk porridge, ʒ vi.; brandy, ʒ xiv. Per rectum: Sulph. quinine, grs. xx.; liq. opii comp., ʒ i.; beef-tea, ʒ xij.

General condition: Sleeps soundly; pulse and skin soft; passes the urine a little more frequently, which is slightly cloudy; slight tenderness of the abdomen, but no tympanites; no rumbling of the bowels or distress in the abdomen of any sort.

Evening: Pulse, 76; temp., 98¼° F.

November 7th.—Morning: Pulse, 72; temp., 98¼° F. Per orem: Beef-tea, ℥ x.; milk, ℥ vi.; milk porridge, ℥ ix.; brandy, ʒ xij. Per rectum: Sulph. quinine, grs. xx.; liq. opii comp., ʒ i.; beef-tea, ℥ xvi. General condition: Satisfactory in every particular; sutures removed; union of the wound found to be complete, excepting one or two superficial points; scarcely any discharge; only from one suture was there a show of pus; antiseptic dressings renewed.

Evening: Pulse, 78; temp., 99½° F.

November 8th.—Morning: Pulse, 72; temp., 98¼° F. Per orem: beef-tea, ℥ xvij.; milk, ℥ xxj.; milk porridge, ℥ viij.; brandy, ʒ viij. Per rectum: Sulph. quinine, grs. xviij.; liq. opii comp., ʒ i.; beef-tea, ℥ iv. General condition unchanged.

Evening: Pulse, 80; temp., 98¾° F.

The same general plan of treatment was continued, excepting the quantity of opium, which was diminished and given at longer intervals. On the thirteenth day after the operation the patient received an enema of warm water, containing a little common salt and castile soap, which resulted in a free movement of the bowels. On the fourteenth day she was removed from the cottage to the hospital building. Now quinine and opium per rectum were discontinued, but the former was given a while longer thrice daily per orem, in two grain doses, as a tonic. During the week's treatment 131 grains of quinine and 10½ drachms of liq. opii comp. were taken, and afterwards 109 grains of the former and 7 drachms of the latter, making in all: quinine, 240 grains, and liq. opii comp., 17½ drachms. Week's average of pulse, 86; of temp., 98⅝° F. Patient discharged cured.

Case IV.—*Multilocular Cyst of Left Ovary—Metrorrhagia and Facies Uterina present—Tapped Twice—Emaciation Marked—The Value of Dulness on Per-*

cussion over one Loin, as Diagnostic of the Side of the Tumor, Confirmed—Quinine Used freely before the Operation—Ovariotomy with Antiseptic Precautions—Small Incision—Adhesions very Extensive, Resisting, and Intimate with the Mesentery—Hemorrhage Considerable—Pedicle Ligatured—No Drainage-Tube used—Early and Continuous Support of the System by the Mouth and Rectum—Quinine with Opium Commenced per Rectum Three Hours after Operation—Peritonitis Violent—Cinchonism Produced at the end of Eighteen Hours—Pulse and Temperature Controlled—Nausea and Vomiting Persistent until the end of the Fourth Day—Speedy Recovery.

Mrs. T., of New Jersey, aged 47 years; German; medium stature; dark complexion; black hair and eyes; married 27 years; never pregnant; was admitted to the Woman's Hospital November 24,1878, with girth of the abdomen measuring thirty-nine inches. She first noticed enlargement of her abdomen about a year previously. Menstruation was always profuse but regular before that date. Afterwards it became irregular, and metrorrhagia was the rule. The growth from the first was rapid. In the course of six months it was tapped twice. The first time two gallons and a half were taken, and the second one and a half. Fluid very dark-colored. During the autumn had several attacks of malarial fever, for which she took quinine largely, and since then has lost flesh rapidly. As to the diagnosis, one of my colleagues, who examined the case with me, thought the tumor was fibrocystic; and, indeed, I thought so myself at first. The metrorrhagia and *facies uterina*, both of which existed in a marked degree, certainly warranted this supposition. Further examination and study of the case, however, satisfied me of the error of this opinion, and led me to conclude that the tumor was a compound cyst of the ovary, most probably the left, and that its surrounding adhesions were extensive and strong. Besides, there was dulness on percussion over the left loin. Up to within five or six days of the time set for the operation the patient had a metrorrhagic flow about as usual, though attended with but little eleva-

tion of pulse and temperature. From this time on, ten or twelve grains of quinine were given daily, while the patient was otherwise prepared for the operation, as by warm baths, vaseline inunctions, and the unloading of the bowels.

Operation, Dec. 16th.—The operation (antiseptic) was commenced at two o'clock by small incision. After tapping successively the several cysts of the tumor, and separating with the fingers the anterior and lateral attachments of the latter, which were quite resisting, there was still found behind it one point of adhesion to the mesentery, so extensive and unyielding as to require for its separation not only the greatest force of the fingers and handle of the scalpel, but the greatest care to avoid injury of the subjacent parts. The last obstacle being overcome, the tumor in its collapsed state was easily drawn through the wound. It proved to be of the left ovary, as previously diagnosed. The pedicle was secured in the usual way. There being considerable oozing of blood, especially from the mesentery, sponging of the peritoneal cavity was continued for some minutes. The wound was then closed with carbolized sutures, made to include the peritoneum, and the external antiseptic dressings were applied. Weight of the tumor and its contents, 17½ pounds. Duration of the operation, fifty-seven minutes.

AFTER-TREATMENT.

Per orem: Nothing. Hypodermic of ℥v. of Magendie's sol. of morphia. Per rectum: Sulph. quinine, grs. xx.; liq. opii comp., ʒ i¾; beef-tea, ℥ iv. General condition: Has a good deal of pain; vomits a little, and then moans continually. Pulse good.

Evening: Pulse, 108; temp., 99° F.

Dec. 17th.—Morning: Pulse, 104; temp., 98½° F. Per orem: Milk, ℥ iij.; milk porridge, ℥ xij. Per rectum: Sulph. quinine, grs. xxx.; liq. opii comp., ʒ iijss.; beef-tea, ℥ iv.; mashed beef and pancreatine, ℥ viij. General condition: Some pain; sleeps nearly all the time; skin warm and pleasant; pulse full and strong; feels a sense of fulness in the epi-

gastrium; urine drawn every six hours; normal in quantity and color; menstruation appears; *cinchonism* at the end of eighteen hours.

Evening: Pulse, 120; temp., 100⅘° F.

Dec. 18th.—Morning: Pulse 108; temp., 100⅘° F. Per orem: Milk porridge, ʒ x.; brandy, ʒ ss.; tinct. ginger occasionally. Per rectum: Sulph. quinine, grs. xl.; liq. opii comp., ʒ ij.; mashed beef and pancreatine, ʒ xvi. General condition: Slept a good deal during the night; skin warm and pleasant; pulse full and soft; has some hiccough and nausea; once vomited a greenish-looking fluid; has no pain, but feels weak; urine of claret color; four to six ounces passed every six hours; some tympanites and a little abdominal tenderness. Nourishment by the mouth stopped for the present.

Evening: Pulse, 102; temp., 99⅘° F.

Dec. 19th.—Morning: Pulse, 104; temp. 99⅘° F. Per orem: Brandy, ʒ iij.; coffee and milk, ij.; tinct. ginger. Per rectum: Sulph. quinine, grs. xxx.; liq. opii comp., ʒ ij.; mashed beef and pancreatine, ʒ xiv. General condition: Sleep is interrupted, though sufficient; some headache; considerable tympanites; has eructation, and vomits a good deal of greenish fluid; tongue a little dry; again has *tinnitus aurium*, and with it slight *narcotism;* pulse and skin good; nourished entirely by the rectum; skin moist and soft.

Evening: Pulse, 102; temp., 99⅘° F.

Dec. 20th.—Morning: Pulse, 108; temp., 98⅘° F. Per orem: Brandy, ʒ i.; toast water, ʒ v.; tinct. ginger; Hoffman's anodyne, ʒ iss. Per rectum: Sulph. quinine, grs. xxx.; liq. opii comp., ʒ iij.; mashed beef and pancreatine, ʒ xiv. General condition: Drowsy, and sleeps nearly all the time; still has some hiccough, and occasionally vomits a little dark-greenish fluid; tympanites continues; hysterical at times; cries for her husband, and wants beer to drink; urine normal; skin moist and pleasant; pulse good; pupils slightly contracted.

Evening: Pulse and temp. not stated.

Dec. 21st.—Morning: Pulse, 104; temp., 99⅘° F. Per orem: Milk porridge, ʒ v.; toast water, ʒ vij.;

Hoffman's anodyne, ʒ ss.; Magendie's sol. hypodermically, ℥vij., owing to inability of the rectum to retain. Per rectum: Sulph. quinine, grs. xx; liq. opii comp., ʒ ss.; mashed beef and pancreatine, ʒ vi. General condition: Sleeps a good deal; still a little nauseated, but no vomiting; passed from the rectum to-day one or two portions of the emulsion, and one portion of quinine and opium. Enemata of all sorts stopped at the regular hours for the present; food by the mouth increased; otherwise condition is most favorable; pulse good; skin moist.

Evening: Pulse, 108; temp. 99° F.

Dec. 22d.—Morning: Pulse, 112; temp., 98½° F. Per orem: Milk porridge, xi.; toast water, ʒ ij.; Hoffman's anodyne, ʒ ss.; tinct. ginger; beef-tea, ʒ i. Per rectum: Sulph quinine, grs. xxx.; liq. opii comp., ʒ ij.; mashed beef and pancreatine, ʒ viij. General condition: One portion of quinine and opium rejected by the rectum; hysterical excitement continues, but otherwise the symptoms are better; bowels moved once; pulse, skin, and urine satisfactory; has still some hiccough and eructations.

Evening: Pulse, 114; temp., 98½° F.

Dec. 23d.—Morning: Pulse 112; temp., 98° F. Per orem: Chicken broth, ʒ i.; milk porridge, ʒ v.; milk and lime-water, ʒ i.; brandy, ʒ ij.; toast water, ʒ iv.; Hoffman's anodyne, ʒ i.; Magendie's sol. morphia hypodermically, ℥viij., because rectum will not retain anodyne. Per rectum: sulph. quinine, grs. x.; liq. opii comp., ʒ i.; mashed beef and pancreatine, ʒ viij. General condition: Does not feel so well; more or less restless; bowels have moved once or twice; urine voided in bed several times during the day; does not like to take food by the mouth; sutures removed, and adhesive strips applied with renewal of abdominal compress. Union of the wound throughout, excepting one small superficial point, with no suppuration in the tracks of the sutures.

Evening: Pulse, 112; temp., 99½° F.

For two days longer the same course of treatment was pursued, when the pulse, for the first time in nine days, dropped below 100. After this the quantity of quinine per rectum was diminished, and a few days

later given by the mouth as a tonic. On the tenth day the patient was removed from cottage to the hospital building, and allowed to take all her nourishment by the mouth. For several days after this there was slight irritability of the bowels at times, and an occasional return of the hysterical symptoms; but the general tendency was to a satisfactory convalescence. Quantity of quinine taken per rectum during the first week after the operation, was 210 grains, and of liq. opii comp., 15¾ drachms, with three hypodermics of Magendie's sol. of morphia. Afterward, by the rectum and mouth, 91 grains of quinine, and 5¾ drachms of liq. opii comp. In all, 301 grains of the former, and 21¼ drachms of the latter. Week's average of pulse, 108; of temp., 99° F.

Patient discharged cured.

CASE V.—*Both Ovaries Involved—Left, Seat of a Multilocular Cyst with Pedicle Looped over Corresponding Round Ligament of Uterus, and Twisted upon Itself Seven Times—Never Tapped—But Slight Emaciation—The Value of Dulness on Percussion over One Loin as Diagnostic of the Location of the Tumor Illustrated—Tinct. of Iron and Quinine Used before the Operation—Double Ovariotomy with Antiseptic Precautions—Small Incision—Adhesions and Hemorrhage Unimportant—Both Pedicles Ligatured—No Drainage-Tube Used—Early and Continuous Support of the System by the Mouth and Rectum—Quinine with Opium Commenced, per Rectum, Two Hours after Operation—Peritonitis Violent—Resulting Fever High—Cinchonism at the End of Twenty-four Hours, with Control of the Pulse and Temperature—Speedy Recovery.*

Mary C., of Ulster County, N. Y., aged 22, unmarried, seemingly in strong and robust health, but slightly emaciated, was admitted to the Woman's Hospital January 9, 1879, with an abdominal tumor about the size of a man's head; girth of abdomen, thirty-five inches. In January, 1878, first noticed a diminution in the menstrual flow, and occasionally a deep pelvic pain, attended with more or less weari-

ness upon walking or standing. About three months after this perceived, in the left iliac region, a small tumor, which could be easily pushed with the hand from side to side. Began now to have pains in the small of the back, the left hip, the left thigh, the left groin, and the left labium pudendi, which were always greatly increased just before and during the menstrual period, and after severe exercise. The examination of this tumor showed it to be of the left ovary, and probably of the polycystic variety. It rested mainly in the left iliac and lumbar regions, but could be readily pushed far over to the right side, especially its upper part. Owing to the great thickness of the abdominal walls, only a slight sense of fluctuation could be detected. In this particular it had very much the character of a solid tumor. The uterus measured two and a half inches, was anteflexed, and the fundus was drawn to the left side to almost a horizontal position. Percussion over the left loin elicited dulness. The tumor had not been tapped, nor was this deemed necessary at the time of the examination to complete the diagnosis. The great mobility of the tumor, its apparently long pedicle, and the freedom from extensive adhesions, fully justified, it was believed, an operative procedure.

In addition to the ordinary preparatory treatment of daily tepid baths with vaseline inunctions, regulation of the diet, and attention to the bowels, tincture of iron, in fifteen-drop doses thrice daily, was ordered. Ten grains of quinine, given the morning before the operation, which was performed January 24th. At 2 P.M. the operation (antiseptic) was commenced by the small incision. The introduction, first of the flat abdominal searcher, and then of the hand, showed the way to be clear. Several cysts, one after another, within the tumor, were tapped, and the contained fluids found to be of different shades of color. In all, the fluid was thin, in one quite like water, and in another, the largest, dark grumous-looking. No adhesions of any account were found to exist, but when drawing the cyst through the wound, the pedicle was discovered to be twisted upon itself seven times, and looped around the corresponding round ligament of the ute-

rus. In addition to the looping of the pedicle, the fold of the peritoneum containing the ovarian ligament was found to have been divided and cicatrized down to the latter, through constant friction or rubbing of the round ligament. In fact, the ovarian ligament was completely bare, and no doubt would itself have soon been divided by the same processes of traction and attrition. The twisted pedicle having been uncoiled, tied, and dropped in the usual way, attention was next directed to the condition of the other ovary. This was found the seat of commencing cystic degeneration, and was likewise removed in the manner described. There was considerable oozing of blood, which required long sponging. Afterward the wound was dressed antiseptically, as usual.

This specimen I presented to the New York Pathological Society, with an explanation of the probable mode by which the parts involved were brought into the rare and unique relationship above mentioned. (See reports of the Society, published in the issue of the New York Medical Record, Vol. xv., No. 15.) Weight of tumor and contents not ascertained. Duration of the operation, fifty-nine minutes.

AFTER-TREATMENT.

Per orem: Nothing. Hypodermically, Magendie's sol., ♏x. Per rectum: Sulph. quinine, grs. xx.; liq. opii comp., ʒ iss. General condition: Slight nausea from the anæsthetic; urine to be drawn every six hours.

Evening: Pulse, 108; temp., 101⅘° F.

January 25th.—Morning: Pulse, 124; temp., 102⅘° F. Per orem: Milk porridge, ℥ vi.; whiskey, ʒ v. Per rectum: Sulph. quinine, grs. xl.; liq. opii comp., ʒ ij.; mashed beef, ℥ viij. General condition: Slept the greater part of the night, and a good deal to-day; complains of some pain; skin hot, but not dry; feels faint at times; urine dark-colored, though sufficiently free; vomited once; dreams in her sleep; no tympanites; *cinchonized* at the end of twenty-four hours.

Evening: Pulse, 140; temperature, 103½° F.

January 26th.—Morning: Pulse, 118; temp., 100° F. Per orem: Milk and lime-water, ℥ iv.; beef-tea, ℥ ij.;

whiskey, ʒ i. Per rectum: Sulph. quinine, grs. xxx.; liq. opii comp., ʒ iss.; mashed beef, ℥ iv. General condition: Slept only about an hour during the night, and but little more during the day; nausea and vomiting more or less all the time; throws up occasionally a dark brownish material; has but little pain or tympanites, but complains of a burning feeling inwardly; pulse full and strong; skin dry; headache; urine still dark-colored, but quantity sufficient; wants ale to drink.

Evening: Pulse, 112; temp., 101⅛° F.

January 27th.—Morning: Pulse, 110; temp., 100⅛° F. Per orem: Milk and lime-water, ℥ iv.; whiskey, ʒ i.; tinct. of ginger frequently. Per rectum: Sulph. quinine, grs. xxxv.; liq. opii comp., ʒ iiss.; mashed beef, ℥ viij. General condition: Slept more during the night, but is restless and moans; much less nausea and vomiting; complains almost always of abdominal pain after vomiting; fluid thrown up greenish in color; menstruation appears; pulse fairly strong; skin still a little dry; urine drawn at regular intervals, which is still dark-colored, but not turbid; bowels moved; *tinnitus aurium* continues; tympanites very slight.

Evening: Pulse, 110; temp., 101⅛° F.

January 28th.—Morning: Pulse, 98; temp., 101⅛° F. Per orem: Milk and lime-water, ℥ iv.; beef-tea, ℥ ss.; whiskey, ʒ ij.; tinct. ginger and bicarb. soda occasionally. Per rectum: Sulph. quinine, grs. xxxvij.; liq. opii comp., ʒ ij.; mashed beef, ℥ viij. General condition: Passed a comfortable night; slept a good deal; only slight nausea and vomiting; feels some distress in the epigastrium, but no pain; face flushed at times; pulse softer; skin soft and moist; urine clearer. Ordered mixture of citrates of potash and lithia every three or four hours. Menstruation continues.

Evening: Pulse, 100; temp., 101⅛° F.

January 29th.—Morning: Pulse, 94; temp., 100⅛° F. Per orem: Milk and lime-water, ℥ xvi.; whiskey, ʒ iij.; mixture of potash and lithia. Per rectum: Sulph. quinine, grs. xxii.; liq. opii comp., ʒ ij.; mashed beef, ℥ vi. General condition: Passed a com-

fortable night; vomited only once; no tympanites or pain; sleeps enough; pulse good; skin moist and pleasant; bloody uterine discharge continues; urine dark, but less turbid.

Evening: Pulse, 96; temp., 101½° F.

January 30th.—Morning: Pulse, 96; temp., 100⅘° F. Per orem: Milk and lime-water, ʒ xx.; whiskey, ʒ iij.; mixture of potash and lithia. Per rectum: Sulph. quinine, grs. xv.; liq. opii comp., ʒ iss.; mashed beef and pancreatine, ʒ ij. General condition: Complains of nothing, and sleeps sufficiently; bloody uterine discharge less; urine clearer; dressings of wound found to be offensive; removed and sutures taken out; wound completely closed, except a small point at the lower angle. From this opening there had been a considerable bloody discharge, causing the offensive odor; but this was discovered to be from the line of incision, and not the peritoneal cavity. Adhesive strips and new carbolized dressings applied.

Evening: Pulse, 104; temp., 100⅘° F.

January 31st.—Morning: Pulse, 86; temp., 100⅘° F. Per orem: Milk and lime-water, grs. xx.; whiskey, ʒ i.; beef-tea, ʒ ij. Per rectum: Sulph. quinine, grs. xx.; liq. opii comp., ʒ ij. General condition: Vomited twice this morning, but is progressing well in every other particular; wound examined and dressing renewed; discharge only slight, and almost without odor.

Evening: Pulse, 100; temp., 100⅘° F.

After this nothing worthy of note occurred. The next day both the pulse and the temperature fell below 100, and only once or twice afterward reached this point. The quinine in five-grain doses, with the usual quantity of opium, was continued till the ninth day, and then discontinued entirely. During the week of active treatment 225 grains of quinine and 15 drachms of liq. opii comp., with one hypodermic, were taken, and the balance of the time 50 grains of the former and 3 drachms of the latter, making in all: quinine, 275 grains; and liq. opii, 18 drachms. Week's average of pulse, 105; of temp., 101°. Convalescence was uninterrupted.

CASE VI.—*Multilocular Cyst of Left Ovary—Origin Associated with Persistent Fever and Ague—Never Tapped—Present Incomplete Procidentia Uteri and Persistent Headache—But little Emaciation—The Value of Dulness on Percussion over one Loin as Diagnostic of the side of the Tumor Confirmed—Iron, Salicin, and Quinine given before the Operation—Ovariotomy with Antiseptic Precautions—Small Incision—Adhesions Extensive—Hemorrhage Moderate—No Drainage-Tube—Pedicle Ligatured—Early and Continuous Nourishing Diet by the Mouth and Rectum—Quinine with Opium Commenced per Rectum one and a half Hours after the Operation—Peritonitis Mild—Cinchonism at the End of Forty-eight Hours—Pulse and Temperature for the Week almost Normal—Speedy Recovery.*

Anna M., of this city, aged 22; German, unmarried; healthy looking; was admitted to the Woman's Hospital March 4, 1879, with an abdominal tumor and girth of thirty-nine inches. She stated that in the autumn of 1877 she contracted fever and ague, which continued to recur at intervals from that time until the following April (1878), and that associated with this there was "falling of the womb." She then noticed that the menstrual flow was becoming more and more scanty and light-colored. Soon after she began to have deep pelvic pains, and found it difficult to turn in bed or leave the recumbent posture. A month or two later she discovered that her abdomen was considerably enlarged. For this and her womb trouble she sought advice in one of our general hospitals. After leaving this institution and applying to my friend Dr. S. T. Hubbard, of this city, for further treatment, she was advised by him to consult me. Upon examination at the time of admission into my service, I found the tumor reaching considerably above the line of the umbilicus. It was more prominent upon the left than the right side, and indicated, by its uneven surface, that it was probably of a polycystic character. Flatness on percussion to the left of the lumbar spine, coupled with the indications mentioned, led me to conclude that probably the left

ovary was the one involved. The uterus, three inches in depth, was found in a state of incomplete procidentia; that is, it lay across the perinæum and projected beyond the vulva about one-half its length—certainly a very unusual complication of an ovarian cyst. The tendency of the latter usually is to drag the uterus after it, and not to push it out of the vagina. The tumor had never been tapped. The patient stated that she had had constant headache ever since the tumor showed itself.

Some five or six days before the operation the patient was put upon the use of tinct. of iron, 15 drops three times a day; but it was soon discovered by her that her headache was greatly increased by the medicine, and it was thereupon discontinued. Salicin, in fifteen-grain doses thrice daily, was substituted, and continued up to the night before the operation, when it was stopped, and ten grains of quinine ordered. The following morning ten grains of the latter, with one grain of opium, was again ordered. This, together with daily tepid baths, inunctions, and the clearing out of the bowels, constituted the course of preparatory treatment. Careful measurement of the abdomen now showed a diminution in the girth of one and a half inches, and a proportionable increase of the mobility of the tumor itself.

Operation, March 21st.—At 2 P.M. the operation, under carbolic spray, was commenced. Small incision. Extensive adhesions of the tumor to the omentum and abdominal walls. Only a small space, comparatively, to the right of the incision was found free, but nowhere were the adhesions very thick and resisting. The left ovary was found to be the seat of disease, and of the multilocular form, as diagnosticated. It was made up of a large number of cysts, containing jelly-like material of different consistencies, and even fluid almost limpid. Only three or four of the largest needed to be tapped in order to enable me to draw the mass through the wound. After tying and dropping the pedicle as usual, the peritoneal cavity was thoroughly cleared of blood and débris, and then the wound united with waxed carbolized sutures and dressed antiseptically. No drainage-tube

used. Weight of the tumor and contents, fourteen pounds. Duration of the operation, fifty-five minutes.

AFTER-TREATMENT.

Per orem: Nothing. Magendie's sol., hypodermically, ℥viij. Per rectum: Sulph. quinine, grs. xx.; liq. opii comp., ʒ i.; mashed beef, ʒ ij. General condition: About one hour and a half after the operation, took first portion of quinine and opium; has vomited twice from the anæsthetic; slept two hours; pulse good, and skin moist.

Evening: Pulse, 114; temp., 99° F.

March 22d.—Morning: Pulse, 92; temp., 99⅛° F. Per orem: Milk and lime-water, ʒ v.; milk, ʒ i.; milk porridge, ʒ i.; Magendie's sol., hypodermically, ℥x. Per rectum: Sulph. quinine, grs. xl.; liq. opii comp., ʒ ij.; mashed beef and pancreatine, ʒ viij. General condition: Passed a good night; has not vomited since the effects of the anæsthetic passed off; some pain; drowsy, and sleeps quietly; pulse good; skin soft; urine normal; no tympanites.

Evening: Pulse, 100; temp., 100⅛° F.

March 23d.—Morning: Pulse, 98; temp., 99⅛ F. Per orem: Milk and lime-water, ʒ x.; milk porridge, ʒ iv. Per rectum: Sulph. quinine, grs. lv.; liq. opii comp., ʒ ij.; mashed beef and pancreatine, ʒ vi. General condition: Complains of nothing, and sleeps nearly all the time; one portion of the beef emulsion rejected by the rectum; thoroughly *cinchonized* at the end of forty-eight hours.

Evening: Pulse, 76; temp., 99⅜° F.

March 24th.—Morning: Pulse, 80; temp., 98⅛° F. Per orem: Milk and lime-water, ʒ ij.; milk porridge, ʒ iv.; milk, ʒ xij. Per rectum: Sulph. quinine, grs. xlv.; liq. opii comp., ʒ ij.; mashed beef and pancreatine, ʒ vij. General condition: Slept nearly all night; no febrile symptoms, except a little headache, and turbidness of the urine, but in every other particular the condition is entirely satisfactory; no tympanites.

Evening: Pulse, 86; temp., 101° F.

March 25th.—Morning: Pulse, 80; temp., 99¾° F. Per orem: Milk, ʒ xxv.; milk porridge, ʒ iij. Per

rectum: Sulph. quinine, grs. xl.; liq. opii comp., ʒ ij.; mashed beef and pancreatine, ʒ xi. General condition: Passed a comfortable night, and is progressing as satisfactorily as could be wished; *cinchonism* continues.

Evening: Pulse, 86; temp., 100° F.

March 26th.—Morning: Pulse, 79; temp., 99⅘° F. Per orem: Milk, ʒ xl.; milk porridge, ʒ vi.; beef-tea, ʒ v. Per rectum: Sulph. quinine, grs. xxv.; liq. opii comp., ʒ ij.; mashed beef and pancreatine, ʒ ix. General condition: A little restless in the fore part of the night, but, excepting this, there is no unfavorable indication to note; no tympanites.

Evening: Pulse, 74; temp., 98⅘° F.

March 27th.—Morning: Pulse, 74; temp., 98⅘° F. Per orem: Milk, ʒ xxix.; milk porridge, ʒ xij.; beef-tea, ʒ iv. Per rectum: Sulph. quinine, grs. xx.; liq. opii comp., ʒ ij.; mashed beef and pancreatine, ʒ viij. General con ition unchanged.

Evening: Pulse, 78; temp., 99⅕° F.

March 28th.—Morning: Pulse, 78; temp., 98⅘° F. Per orem: Milk, ʒ xl.; milk porridge, ʒ xxxij.; beef-tea, ʒ xiv. Per rectum: At 9 P.M. last night all medication and alimentation by this mode were suspended. General condition satisfactory in every particular; bowels moved once; sutures removed, and union of the wound found throughout, excepting one small superficial point; not a particle of pus in the tracts of the sutures; adhesive strips applied, with renewal of antiseptic dressings and compress.

Evening: Pulse, 78; temp., 98⅘° F.

No further medication being found necessary, the treatment was reduced to simply watching the patient and attending to her diet. The quantity of quinine taken during the six days of active treatment was 245 grains, and of the liq. opii comp., 13 drachms, with two hypodermics of Magendie's sol. of morphia. Week's average of pulse, 92; of temp., 99 °. Recovery in the highest degree satisfactory. The procident uterus returned to a simple prolapsed condition, and called for a mechanical support.

Since the foregoing portion of this paper was in great part written I have performed two more ovari-

otomies in the Woman's Hospital, and from the very great interest attached to these cases I append their histories and results, believing that they largely contribute to the support of the views I have thus far endeavored to maintain. The first patient recovered promptly without an untoward symptom. In the second case, which was cancerous and complicated with ascites and exhaustion, the patient died sixty-one hours after the operation.

Case I.—Bridget D., unmarried, aged 29, was recommended to me by Dr. John Burke, of this city, and admitted to the Woman's Hospital May 21, 1879, with an abdominal tumor. She stated that her menstrual flow had always been free, lasting about six days, but for the last three or four years it had been much freer than this. About a year ago she first noticed enlargement of the lower part of the abdomen—not more upon one side than the other—which had gradually increased to its present size. Five weeks before coming to the hospital she had an attack of what was said to be inflammation of the bowels, which was treated by her physician about two weeks. Anæmia and emaciation are marked. Girth of the abdomen, thirty-five inches. Enlargement of the abdomen and fluctuation pretty uniform and distinct throughout. Dulness on percussion over the left loin. Examination per vaginam revealed a small polypoid growth, which, having its attachment in the cervical canal, was twisted off. Depth of uterine cavity, three and one-fourth inches. The second day after admission she was put upon the use of tinct. of iron, fifteen drops, and salicin fifteen grains, thrice daily, in addition to the ordinary preparatory treatment. The night before the operation fifteen grains of quinine were given, and the following morning ten grains with one of opium, after clearing out, with an enema, the lower bowel.

May 30th.—*Operation.*—At 2 P.M., assisted by Dr. Henry Goldthwaite and the house staff, I proceeded to the operation under carbolic spray, and through a small incision reached, without hindrance, the tumor. Adhesions were found to be extensive throughout, and in some localities quite firm and resisting; but

they were gradually overcome with the fingers and the handle of the scalpel. After turning the patient upon the side and emptying the cyst, the small intestines were found extensively adherent to the posterior surface of the latter, and this to the posterior and left lateral surfaces of the uterus. This union in the last mentioned locality was so firm as to convey the impression that the tumor was an outgrowth from the uterus. The disappearance also of the corresponding Fallopian tube from its usual place and relationship tended still further to strengthen this impression. Upon the anterior surface of the cyst wall, just below the supposed point of connection of this Fallopian tube with the uterus, was now discovered a ragged opening which admitted the point of the index finger, and appeared to have existed for some time. The handle of the scalpel introduced into the opening soon convinced me that enucleation was practicable, and with the instrument thus held I soon separated the cyst wall from what appeared to be the interior structure of the uterus itself, down to a point about midway and a little to the left of the median line of the organ, which I did not believe at the time included the Fallopian tube. The ligature, however, was thrown around the remaining mass, and it was then cut through. I should have stated that before commencing this enucleation there was to the left of the ragged opening above mentioned, a spindle-shaped, muscular-looking cord about the size of a No. 6 bougie, running obliquely upward upon the outer surface of the wall of the cyst. An incision, parallel with this through the peritoneal covering, released it entirely both from the cyst and the uterus. It was thus freed and left attached in the pelvis at or about the point of the left inguinal orifice. This I decided to be the left round ligament of the uterus, now entirely free at its upper extremity. I proceeded to clip off the frizzled end of the cord, and left the balance of it in the pelvis to take care of itself. I have thought that this little hole or tear, between the cyst wall and the structure of the uterus, might have been the cause of peritonitis and the extensive adhesions found at the time of the operation,

and that it was not a case of inflammation of the bowels *per se*, as supposed by the physician called to it five weeks before. There was no active bleeding after the operation, but considerable oozing, which required long sponging before it was deemed advisable to close the wound. Finally it was concluded, in view of the extensively exposed lacerated surfaces, to leave a tent in the lower angle of the wound to facilitate the escape of fluids, should there be any. From these peculiar features of the case I was convinced that the tumor was uterine in its origin, and therefore fibro-cystic. Weight of the tumor and its contents thirteen pounds. Time of the operation one hour and a quarter.

AFTER-TREATMENT.

It is not necessary here to give all the details of the after-treatment. Suffice it to say, it was conducted on the same general plan as that set forth in the foregoing series of cases. The peritonitis was violent and pursued very much the same course as in case V. The emulsion of mashed beef and pancreatine, with quinine, opium, and brandy, was commenced per rectum about two hours after the completion of the operation. For three days all the articles named, excepting the brandy, were given together, and, upon an average, every six hours. After this the emulsion was given alone, and the quinine with the opium alone, with an interval as usual of three hours. The pulse and temperature reached their acme at the end of 65 hours—the former 130, and the latter 101⅜° F. At this stage of the peritonitis, 100 grains of quinine and 5 drachms of liq. opii comp., with 3 hypodermics of morphia, had been taken, though without cinchonism. Three hours later both pulse and temperature dropped somewhat suddenly, the one to 109 beats, and the other to 100½° F. Eighteen hours later the temperature had descended to 98½° F., and only once during the balance of the week of active treatment did it touch 99° F. The pulse at about the same time fell to 94, where it also remained to the end of the week. No cinchonism during the treatment. Daily average quantity of quinine for the week, given by the rectum, 39¼ grains; of liq. opii comp. 2½ drachms, with 3 hypo-

dermics of Magendie's solution of morphia to meet emergencies; and of emulsion of mashed beef and pancreatine, 8½ ounces. Daily average of quantity of nourishment for the same period given by the mouth, consisting principally of milk, milk and lime-water, and milk porridge, 26 ounces; and of brandy, for the first four days, 8½ drachms.

Daily average range of the pulse for the week, 104; of the temperature for the same period, 99½° F.

Recovery complete.

The specimen was referred for examination to Dr. W. H. Welch, pathologist of the hospital, and he returned to me the following report:

"The tumor is a unilocular cyst; in the portion submitted to microscopical examination no secondary cysts were discovered in the wall. The outer surface presents the shreds of numerous old adhesions; with this exception it is smooth and glistening. The thickness of the cyst wall varies in different parts, being thickest at the base, thinnest at the top; in the latter position measuring about 3 or 4 millimeters, in the former ½ to 1 ctm. On the outer surface of the base is an ill-defined mass of reddish tissue, in which can be seen the lumina of numerous large and small vessels. In connection with this soft mass can be made out the fimbriated extremity of the Fallopian tube, through which a probe can be passed for a short distance into the tube. The fimbriæ are thickened but free; there is no meso-salpynx as is usually the case with ovarian tumors, but the tube is adherent to the outer cyst wall.

"The cyst wall presents three layers, which can be distinguished with the naked eye: an outer, white, dense; a middle, the thickest, lax, reddish; an internal, grayish-white. The microscope shows the outer layer to consist of dense fibrous tissue, with scanty, spindle-shaped cells. The middle layer is richer in cells, and especially rich in large, thin-walled vessels; the inner is fibrous, but rich in spindle and round cells, and contains numerous capillaries. On account of the maceration to which the tumor had been subjected before hardening, no epithelial lining could be demonstrated, although one doubtless existed. The inner surface of the cyst is pretty smooth, pre-

senting no papillary excrescences. Microscopic tubular glands could not be made out in the cyst wall.

"A fragment of tissue about 2 ctm. in thickness and length, which had been removed at the same time with the tumor, presented for the most part the same appearance as the vascular fibrous tissue at the base of the tumor, which had served for its attachment and conveyed the vessels for its nutrition. On one surface (uterine?) could be seen a layer of smooth muscular fibres."

Case II.—Hannah K., æt. 60, married, without offspring, of spare build, exhausted from long suffering, was sent to me by Dr. T. C. Finnell of this city, and admitted to the Woman's Hospital June 5, 1879. She bore the impress of long suffering, and presented in a somewhat strong degree the cancerous cachexia. She stated that a swelling in her right side showed itself nine years ago, and that from that time it had gradually increased. About a month before admission to the hospital she first noticed a general enlargement of the abdomen and swelling of the lower extremities. After that she had not been able to walk much or to take food. Girth of the abdomen, 42½ inches. Ascites was readily made out, and by deep pressure the tumor, more prominent to the right side, could be easily felt through the fluid in the peritoneal cavity. Percussion over the loins elicited dulness on the right side. My colleagues, Drs. Emmet and Noeggerath, saw the patient with me, and we all agreed that aspiration of the tumor should be first performed with the view simply of obtaining a specimen of the fluid for microscopical examination. Then, if the view of cancer should be set aside, and the condition of the patient should warrant it, it was deemed advisable at the earliest practical moment to open the abdomen, and if possible to remove the tumor.

The patient was at once put upon as nourishing a diet as her prostrated condition would permit, in conjunction with tinct. of iron, salicin, and brandy. The emulsion of mashed beef and pancreatin per rectum was also ordered. On the next day (June 6th), the good effects of the treatment being already manifest, the aspirating needle was carried into the tumor just below the umbilicus, and about an ounce of a yellowish-

white fluid, of the consistency of cream, was drawn off. At a point three or four inches lower down, and further to the right side, the needle was again thrust in and about the same quantity and quality of fluid obtained. In both localities the point of the needle could be carried in any and all directions, thus showing, in addition to the homogeneity of the two specimens of the fluid, that the cyst was unilocular, and, more than probable, ovarian in its origin. Specimens of the fluid were at once sent to the pathologist, Dr. Welch, and to Dr. C. Heitzmann, for examination. Both discovered a large number of pus-corpuscles. The former failed to recognize the Drysdale corpuscles. The latter declared positively their presence. With this light upon the case before me, and the improvement of the patient's condition as above mentioned, I determined to operate the next day. The bowels having already been freely cleared out, ten grains of quinine were ordered at bed-time and ten early in the morning. So forlorn was the hope, that pretty much all who saw the woman thought she would die upon the operating table; but her extraordinary courage, her improved condition from continuous nourishment for the past two days, and the low beat of her pulse (about 90). gave me considerable hope, should the disease prove not to be carcinomatous.

June 8th.—*Operation.*—At 10 o'clock, kindly assisted by my colleagues, Drs. Emmet and Lee (both of my assistants being absent from the city), I proceeded to do the operation as usual under the carbolic spray. Upon opening the abdomen (small incision) and drawing off the ascitic fluid, amounting to about two gallons, the tumor was found to be almost entirely free from parietal adhesions. After tapping this and drawing off about a gallon and a half of the purulent-looking fluid described, the collapsed cyst was pulled through the incision, when its attachment at the base was discovered to be not only broad, involving the posterior and right lateral surfaces of the uterus with the corresponding broad ligament, but withal was very thick. There were several prominent papilliform projections from this point into the interior of the cavity of the cyst. To separate the cyst from the uterus by enucleation or otherwise was soon found to

be impracticable. Division, therefore, beneath the papilliform projections referred to, and as near as possible to the bottom of the cyst was decided upon as the more feasible mode of procedure. This was carried out by transfixing the base of the tumor in three sections, so as to leave a cup-shaped surface, after tying the sutures, open and free. The cyst walls then being cut away with scissors, the exposed surfaces left were touched with Paquelin's cautery. After wiping the peritoneal cavity out thoroughly, the end of a drainage-tube was set upon the implicated parts, and then secured by the closure of the wound, which was effected in the usual way and dressed antiseptically. There was no great loss of blood, and the patient, although sustaining considerable shock, soon rallied under the free use of brandy hypodermically, while under the influence of the anæsthetic, and by the mouth and rectum as soon as she returned to consciousness. Unfortunately the spray apparatus got out of order toward the close of the operation, and the latter had to be completed without it, thus causing a failure to get the full effects of the method. Weight of the tumor with its contents, thirteen pounds. Time of the operation, fifty minutes.

AFTER-TREATMENT.

During the operation, it is proper to state, the patient got 6 drachms of brandy hypodermically. As soon as she was removed from the operating-table to her bed, 10 grains of quinine with 30 drops of liq. opii. comp. and 2 drachms of brandy were administered per rectum. Soon she recovered from the effects of the anæsthetic, and showed a full and strong pulse. Slept almost continuously for three hours. Temperature of room, 78° F. 5 P.M.: Pulse, 110; temp., 100⅘° F. Has had no nausea or vomiting, sleeps a good deal, and has taken considerable food both by the mouth and rectum. Kidneys acting well. 11 P.M.: Pulse, 130; temp., 101⅘° F. Condition as satisfactory as could be wished. Up to midnight the quantity of milk taken by the mouth was 5½ ounces; of brandy, 14 drachms. By the rectum, 4 ounces of emulsion of mashed beef and pancreatine,

30 grains of quinine, 1½ drachms of liq. opii comp., and half an ounce of brandy.

June 9th.—5.30 A.M.: Pulse, 120; temp., 100° F. Up to this time doing well. Urine is drawn regularly. Complains of no pain. Sleeps a good deal. Has had a hypodermic of 1 drachm of brandy in addition to that by the mouth and rectum. 12 M.: Pulse, 128; temp., 101⅘° F. Has had some acidity of stomach, but skin is soft and pleasant. Takes milk freely, and brandy. 4.30 P.M.: Pulse, 120; temp., 102⅕° F. Has, for the past few hours, had a good deal of nausea and vomiting. Therefore, all nourishment by the mouth is suspended for the present. 9.45 P.M.: Pulse, 124; temp., 103⅗° F. Food and brandy by the mouth resumed, though in smaller quantities. Complains of feeling tired, and has a good deal of tympanites. During the day has taken by the mouth 9½ ounces of milk, 1 ounce of chicken-broth, 2 ounces of kumyss, and 3½ ounces of brandy; and by the rectum, 8 ounces of mashed beef and pancreatine, 30 grains of quinine, 1½ drachms of liq. opii comp., and 3½ ounces of brandy. Tympanites increasing, but no pain.

June 10th.—4 A.M.: Pulse, 123; temp., 104° F. Has not been able to take any food by the mouth for three hours. Pulse is fair, but skin rather cold and clammy. About this time a discharge by the side of the drainage-tube of bloody serum of several ounces took place. Two hours later the patient was turned on her side, the cork of the drainage-tube removed, and some six ounces of bloody serum permitted to discharge itself from the seat of the pedicle. At the same time a few ounces of a very weak solution of carbolic acid and common salt was injected through the drainage-tube, and brought away considerable débris or shreds of tissue. This was intended to be done under the spray, but the apparatus at hand being deemed unsafe, the great advantage of this protection was again lost, which I considered very unfortunate at this juncture, considering the decided change for the better for a few hours after this, as shown by the following record:—8 A.M.: Pulse, 116; temp., 103⅗° F. Kidneys acting well. Still nauseated, and cannot take nourishment by the mouth. Abdomen, below the umbili-

cus, soft and somewhat normal, showing that the distention above this point is in the transverse colon or stomach. 1.10 P.M.: Pulse, 124; temp., 104¼° F. Temperature of room, 84° F. About two ounces of bloody serum have been discharged through the drainage-tube. Mind is a little wandering, but breathing good. Skin soft and pleasant. Pulse fair in volume and compressible. Nourishment now carried on entirely by the rectum. 3.15 P.M.: Pulse, 136; temp., 105⅛° F. Seven ounces of clear urine drawn. Restless. Hiccough. Sordes on teeth. Tongue red at tip. Picks at the wound, and has to be watched. 6.15 P.M.: Pulse, 140; temp., 105⅜° F. Up to this time nourishment and quinine continued by the bowel, it having been rejected only once. Quantity taken through the day about the same as yesterday—8 ounces of the former and 40 grains of the latter. 7.35 P.M.: Pulse, 132; temp., 106⅜° F. 11.45 P.M. patient expired.

Autopsy.—About ten hours after death abdomen opened in my presence by the pathologist. General peritonitis; about a pint of bloody serum in the peritoneal cavity; ligatures in good position, and the exposed surface of the pedicle or divided mass remarkably clean; left ovary diseased, and the size of a small orange; stomach empty; transverse and descending colon very much distended with gas, but the remaining portion of the alimentary tract only slightly so. Rectum contained not more than an ounce of a grayish, thick mass, thus showing that the emulsion and medicines administered through this channel had certainly been absorbed up to within three or four hours of death. Judging from the small quantity and color of fæcal matter found above the sigmoid flexure, it was thought that none of the materials injected into the rectum during the treatment had passed above this point. The report of Dr. Welch upon the character of the tumor removed by operation, I here append.

"The examination of the fluid removed by puncture during life showed the following: Color, yellowish-white; consistence, rather thin (not ropy). The microscope revealed numerous pus-cells undergoing fatty degeneration, and large numbers of the so-called

inflammatory corpuscles of Gluge, the fatty particles of which disappeared after treatment with alcohol and ether. Cells, other than these two varieties, were not present (no so-called ovarian corpuscles). The fluid gave an abundant precipitate with alcohol, which precipitate, after standing for two days under alcohol, made an opalescent solution with water (paralbumen).

"The tumor is a multilocular cyst, with one large main cyst and several smaller cysts in its wall. The large cyst presents a loss of substance in its base corresponding to a portion which had not been extirpated. The large cyst measures 20 ctm. in ant. post. diameter, 16 ctm. in lateral diameter. Its wall at apex (opposite base) is one-half ctm. in thickness. The base of the tumor is thicker and rougher. From it several papillomatous growths project into the cyst cavity, the largest opposite the place where the nutrient vessels penetrate the cyst wall. It is a fungus-like growth, 8 ctm. in length and breadth and 6 ctm. high. Its cut surface presents, for the most part, a yellowish, cheesy appearance, but presents some grayish translucent spots containing yellowish streaks and points (such as are seen in carcinomata).

"The inner surface of cyst shows numerous ulcerative-like patches with thickened trabeculæ running over the floor; also brownish patches (composed of cholesterine and fat, inflammatory Gluge's corpuscles).

"The peritoneal surface of tumor is smooth, except near the base, and presents over the apex a dense, white, glistening appearance.

"The microscopical examination showed the inner portion of wall of the cyst infiltrated with pus-cells, in some places a layer of cylindrical epithelium could be demonstrated; in most, its place was taken by pus-cells. This was always the case in the ulcerative patches.

"The fungus-like growths showed an alveolar structure. The alveoli, some large and very irregular in shape, contained flat epithelial cells undergoing, in many instances, colloid degeneration. Sections of this papillomatous growth presented the alveolar appearance of carcinoma.

"Diagnosis of tumor: Cystoma papillare proli-

ferum cum suppuratione et cum degeneratione carcinomatosa."

In the two appended cases nearly the same general course was pursued as set forth in the above series. In the first case, owing to the complications present, the operation was more protracted than in any one of the series, the time taken being one hour and a quarter; but if it be correct, as shown by the report of Dr. Welch on the character of the tumor, that the origin was ovarian and not uterine, as was supposed, then there is no unusual importance to be attached to this circumstance. In the second case, however, the operation and its result stand in a light totally different from any one of the series given, since the disease for which the operation was performed was of a carcinomatous nature, and if its diagnosis had been clearly made out, I should not have performed the operation. But the diagnosis failing to a certain extent, the operation was performed, and the question now is, what disposition shall be made of the result? As viewed from a statistical standpoint it must be counted; but, as regards the practical value of the general plan of preparatory and after-treatment for the operation of ovariotomy intended to be prominently brought out by this paper, the result in the case cannot, strictly speaking, be considered of any account. To make the most of the case, however, under the circumstances, it is claimed that even the final result of the operation, bad as it was, does not invalidate in the slightest particular the correctness of the principles of practice above mentioned. The value of this was just as clearly and satisfactorily demonstrated, up to within a few hours of the death of the patient, as it was in any one of the series presented. The failure recorded is not in the quinine and opium treatment in conjunction with nourishing diet, to prevent, to moderate, or to control high temperature, since this was actually accomplished by the treatment in a more or less marked degree; but in the existence of a malignant disease, for the cure of which the resources of our art have not yet provided an adequate remedy.

General Remarks.—An examination now of the histories of the series of six cases in which ovari-

otomy was performed shows the following: The age of the patients varied from 22 to 65, the average being 39¼ years. One was married without offspring, two were widows who had borne one and two children respectively, and three were unmarried. In four cases general anæmia and emaciation were marked, and in the other two these conditions were present, but less appreciable on account of the shorter duration of the disease. In five cases percussion over the loins materially aided in the establishment of the diagnosis of the ovary involved. In one case the method failed on account of the increased length of the pedicle and the peculiarity of the fixation of the tumor on the opposite side. In the first two cases no particular attention was paid to the preparation of the system for the operation, further than to use for a few days the warm bath followed by vaseline inunctions and to clear out the bowels the night before. In the other four cases there was more or less preparation; for example, nourishing and supporting diet was employed in one; the same and quinine in another; the same with tincture of iron and quinine in a third; and the same with salicin and quinine in the fourth. The time taken for the operations varied from twenty-seven to sixty-two minutes, the average being fifty-two minutes. In all the operations the antiseptic method of Mr. Lister was employed. The small incision was adopted in five, and the medium in one operation. In four cases the parietal, omental, and mesenteric adhesions were extensive, resisting, and difficult to overcome, but unimportant in the remaining two. In three cases both ovaries were found diseased and were removed. In one case an ovary had passed around one of the round ligaments of the uterus and was followed by several coils of the pedicle. In all the cases the pedicle was transfixed with a double waxed carbolized silk ligature, then tied right and left, cut and dropped. No drainage tube was used in any case, and in only one was a tent left in the lower angle of the wound. In five cases the abdominal wound was closed with waxed carbolized silk sutures made to include the peritoneum. Through mistake the abdominal wound, in one case, was closed with plain silk sutures, and although no harm followed further than suppuration in their

tracks, they are not to be recommended. In three cases the resulting peritonitis was violent, in one moderate, and in the remaining two mild. In one of the first two cases there were evidences of inflammatory products in the peritoneal cavity, but with no other result than protracted recovery (this was the Case in which cold-water affusions over the abdomen were employed for forty-four hours); and in the other there was suppuration and discharge of pus through the wound on the ninth day, which resulted, as a matter of course, in protracted recovery. In the remaining four cases the recoveries were all prompt. In all six cases the average of the pulse for the week of active treatment was 98; that of the temperature for the same time, 100° F. In five cases free nourishment both by the mouth and rectum was employed, and in one by the mouth alone. In four cases nourishment by the rectum was commenced during the first day, and in two, by the mouth. In all six cases quinine and opium were given in combination, and invariably by the rectum. The quantity of the former given per day varied from 18 to 40 grains, the average being 26¼ grains, and that of the latter (liq. opii comp.) for the same period, from 1½ to 2½ drachms, the average being 1¾ drachms. In two cases the remedies were commenced one hour after the operation, in one two hours, in one eighteen hours, in one thirty hours, and in one (the first of all) seventy-two hours; the changes in time, for the most part in the series, being in the inversed order here given. In four cases decided cinchonism was produced, and in two, if present at all, it was so slight as not to be perceived by the patient.

Of the eight results recorded, seven were complete cures, giving a mortality of 12½ per cent.—7½ per cent. less than the average mortality attributed in the outset of these remarks to the practice of all operators. Again, counting the number of diseased ovaries removed, eleven, with only one failure by death,—which is a legitimate mode of presenting the subject—and the comparison is placed in a still better light. The failures would then stand at 9 per cent.

These eight cases, with one (successful) previously reported in this journal (Sept. 1, 1866), comprise my

entire experience in the operation of ovariotomy, and altogether show a death-rate of 11.11 per cent. Prof. Nussbaum has said that if a surgeon could commence his career as an ovariotomist with the experience of twenty operations, he might expect in the course of time to record a respectable average of success. If the results here recorded teach anything, it is that a mere tyro may do this as well as the self-constituted ovariotomist with his twenty embodied experiences, if he will take the trouble to make himself familiar with the principles of the operation, and is patient and painstaking in all its requirements and details.

I think I have proven by my experience thus far that Prof. Nussbaum is in error, and that it is even possible for an ovariotomist to commence with a respectable average of success, if, as stated, he will only take the pains and trouble to do his work well, and above all, to bear in mind the time-honored maxim, acredited to Sir Astley Cooper, "An operation done well, is done soon enough."

I know of no operator in this country who has cured eight out of nine of his first cases—88.89 per cent., the entire mortality being due to cancer; nor do I believe the records of the profession in Europe afford another example of an operator having secured in his *first* cases eight consecutive successes—100 per cent.

There are many eminent ovariotomists both at home and abroad who have had far greater success in a larger number of cases. To this fact I have already alluded. But their great success was not obtained at the beginning, nor can its superiority be used as an argument against a method which, so far as it has been tried, has yielded results quite as favorable, viewed from a scientific standpoint.

In conclusion, I wish to express my great obligations to my assistants, Drs. J. E. Janvrin and Henry Goldthwaite, for their full co-operation in carrying out the details of these operations. I am also under personal obligations to the house-surgeons, Drs. J. G. Perry, F. H. Hoadley, and Geo. E. Munroe, who deserve great credit for the patient faithfulness with which they watched these cases, and for the general accuracy of their observations and records of the after-treatment and its effects.

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