

CÆSAREAN SECTION WITH REMOVAL OF UTERUS AND OVARIES AFTER THE PORRO-MÜLLER METHOD. By ELLIOTT RICHARDSON, M.D., Lecturer on Practical Obstetrics, University of Pennsylvania, etc., Philadelphia.

THE woman whose case forms the subject of this article is a dwarf, 25 years of age. She measures 46 inches in height, and weighed, immediately before the beginning of gestation, 85 pounds. She is not well-formed, her head and body being disproportionately large; still, though the head and face would become a woman of ordinary size, the body is short and narrow. More particularly is this noticeable about the hips, from which the thighs spread outward in so remarkable a manner that it was difficult, when the woman was lying in an extended position, to feel the crests and anterior superior spinous processes of the ilia. This prominence of the thighs was largely due to the amount of muscular and adipose tissue present, but probably, also, in part to the existence of some curvature of the femur, though, owing to the great development of the soft parts, this could not be definitely determined.

The most careful measurements of the pelvis gave:—

External	{	Between anterior superior spinous processes	22½ c. m.	(8.86 inches)
		Between crests of the ilia	24 "	(9.45 ")
		External conjugate—superior strait	16 "	(6.3 ")
		Between trochanters	29½ "	(11.6 ")
Internal	{	Conjugate at superior strait	4¾ c. m.	(1.87 inch)
		Tranverse at superior strait less than	10 "	(3.93 ")

Like most dwarfs, her wrinkled face made her look much older than she was, though everything indicated good health. Her appetite and spirits were good, and the functions of all her organs seemed to be normally performed.

Careful inquiry of herself and of a friend, who had known her from infancy, elicited the fact that she had never suffered serious illness nor protracted indisposition of any kind. Indeed, I am informed that she has always enjoyed unusually good health.

Her deformity I believe to have been inherited from her father, of whom, I have been told, she is a perfect image. She was born in Vermont, her father being also a native of that State, and her mother, a woman of ordinary size, a native of Ireland. Her uncles and aunts on the father's side are all of at least the medium height, and one of her father's brothers measured over six feet.

She first came to me about the middle of August, 1880, with the object of learning the nature of a steadily increasing abdominal swelling. Examination revealed, without difficulty, a living foetus within the uterus. The history of her pregnancy is, in brief, as follows: Her last menstruation ceased December 31st, 1879; on January 7th following, she was married, then ensued the usual signs of pregnancy. I fixed upon October 6th as the probable time for labour to begin, and, upon informing her of the dangerous nature of such labour to herself and child, she readily consented to undergo any operation I might see fit to advise. I decided to recommend Cæsarean section as modified by Porro, and obtained her consent thereto.

It was thought best to select a time for the operation about two weeks anterior to the supposed period for labour to begin, on account of the many

advantages to both the patient and operator of ample preparation, of both the option of the day and of the time of day, and of the absence of the exhaustion incident to labour. But further, it was thought that the presence of a well-defined cervix would greatly facilitate the application of the retaining ligature at the time of operation, and thus favour its success, a suggestion for which I am indebted to Dr. Ruel Stewart of this city.

Accordingly I commenced to prepare for the operation. In this preparation I adopted measures somewhat at variance with those usually recommended in operations of so serious a character. It is the common custom I believe to give, for a few days or weeks before operating, some kind of tonic or stimulant, but, as she was in health, I simply advised good food, fresh air, and exercise. It is also, I believe, the almost uniform custom, when preparing a patient for an operation involving subsequent rest of the bowels, to give, a few hours before the time for operating, a thorough cathartic. When this has been done, in the cases where I have had an opportunity of observing the after-treatment, I have repeatedly noticed a disturbed condition of the bowels, lasting for twelve or more hours after the operation, which, if checked by the use of opium, often results in more or less meteorism. It has appeared to me that in any operation involving abdominal section and the opening of the peritoneal cavity, that quietness of the muscular coats of the intestines is of the utmost importance, in order that all predisposing causes of peritonitis may be avoided. When, therefore, we have a short time before the operation, by the use of a cathartic, produced increased peristaltic movement, we induce a condition favourable to the production of peritonitis, not only by the movement caused in these structures, but by the determination of blood to them,—an afflux of blood which necessarily occurs to a greater or less extent upon increased movement of any part.

For the reason given I therefore omitted the conventional preliminary purge, and was satisfied to secure daily natural evacuation of the bowels, adopted a carefully regulated diet, and ordered an enema of castile soap and water two or three hours before the operation. Thus the preliminary treatment consisted simply in securing a healthy action of every function of the body as nearly as could be, and not in medication.

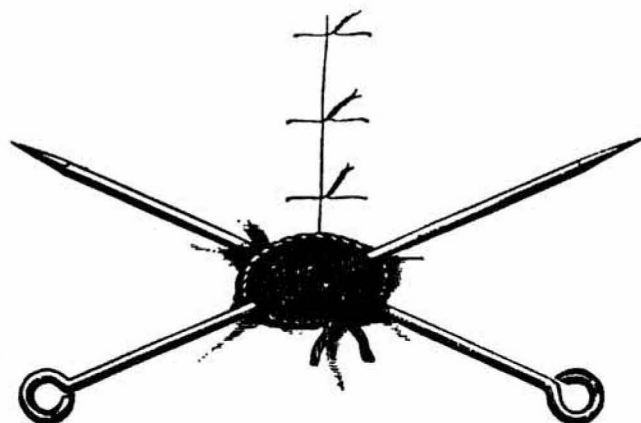
On the 22d of Sept. 1880, in the presence of Drs. Albert H. Smith, Goodell, Tyson, Ruel Stewart, Harris, Anna E. Broomall, Henry, and Bell, I began the operation by making an incision in the median line of the abdomen, extending from a point about $1\frac{1}{2}$ inch above the symphysis pubis to a point about 4 inches above the umbilicus. The incision was about 10 inches in length, and was made so exactly in the median line of the abdomen that certainly not more than a teaspoonful of blood was lost from this part of the operation, and that was chiefly from the portion of the wound which passed around the umbilicus. The bleeding was so slight that no hæmostatic of any kind was used, and no ligature applied. Having opened the abdominal cavity, the uterus was seen uncovered lying immediately beneath; this was then drawn out of the abdominal cavity, the walls of which were promptly closed behind it, and a piece of carbolized

flannel wrapped around its base to act as an additional protector to the abdominal wound and cavity and to absorb the fluids sure to flow from the uterus when incised. The wire loop of an *écraseur* was then rapidly passed round the uterus, secured and tightened. As the tightening process was going on the wire loop slipped gradually down to the cervix, and finally rested at a point a little below the *os internum*. By careful application only sufficient force was used to constrict the vessels and cut off circulation, but not enough to do permanent damage to the tissues. The uterus was then rapidly opened, and the placenta found placed upon the anterior wall, so that the line of incision passed directly through its centre.

This was somewhat of a surprise as the uterine *bruit* had been much more distinctly heard on the left side than on the right. The placenta was rapidly and completely detached and it and the entire ovum turned around within the uterine cavity, the membranes ruptured and the child extracted, followed by the entire removal of the after-birth. During the whole time this was being done, and, in fact, until the organ was detached from the cervix, no contraction of the uterus occurred, being prevented, no doubt, by paralysis caused by the retaining wire of the *écraseur*.

The next step in the operation consisted in the introduction of two stout, steel pins—about five inches in length and of the size of a No. 8 bougie, French scale, through the cervix. Of these, one was passed below and the other above the wire and diagonally to the line of the abdominal wound (see Fig. 1). A piece of stout silk cord previously soaked in carbolized oil (1 part to 11 parts) was tied tightly around the cervix between the two pins exactly in the line of the temporary wire loop, which latter was removed as soon as the permanent ligature was applied but before it was finally fastened. The silk ligature was wrapped twice around the cervix and then tied.

Fig. 1.

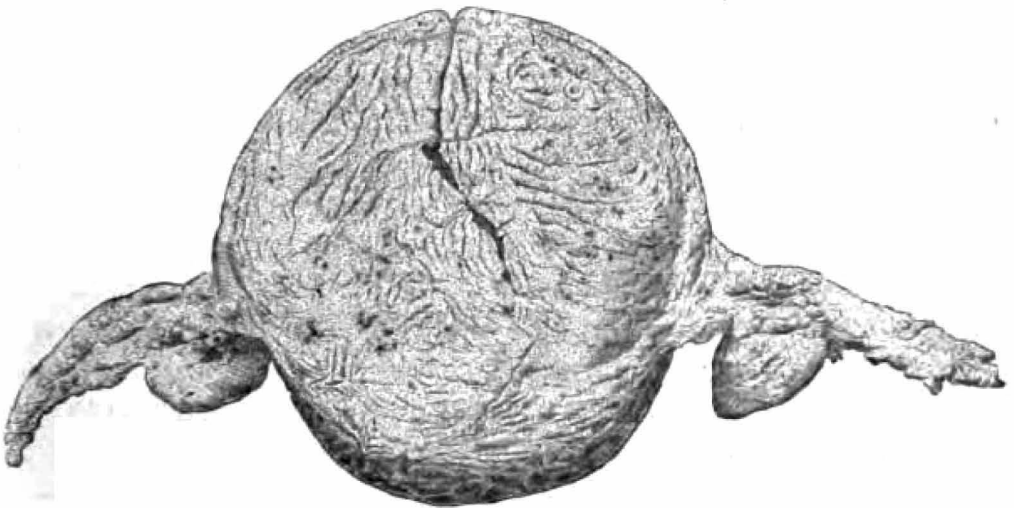


The uterus and ovaries were now cut off with scissors at a point about three-quarters of an inch above the ligature and the stump placed at the lower angle of the abdominal wound. Their appearance after removal is shown in the accompanying drawing (Fig. 2). Careful sponging of the cul-de-sac of Douglas, with carbolized sponges removed a very small quantity of bloody serum, after which I proceeded to close the abdominal wound.

This was done by interrupted silver sutures of which twelve were inserted—four of them superficial and the remainder deep, inclosing about half an inch of the peritoneum on each side. During the introduction of

the deep stitches a flat sponge was placed in the abdominal cavity beneath the flaps to catch and absorb any drop of blood which might escape from the wounds made by the needle. In this I followed the method used by Keith in his ovariectomy operations. After all the deep sutures had been applied, the sponge was removed. The wound was then closed and the stitches supported by long strips of adhesive plaster. Pure liquid carbolic acid was applied carefully to every part of the stump outside of the ligature, plates of lead placed under the pins to protect the integuments from undue pressure, and carbolized gauze, prepared after the method of Lister, applied to the whole extent of the wound and the exposed stump.

Fig. 2.



This was completely covered with carbolized Mackintosh and the whole kept in place by a flannel binder. No drainage tube was introduced. The patient was immediately placed in bed, and a hypodermic injection of a quarter of a grain of the sulphate of morphia administered.

The time occupied by the operation from the first incision to the closing of the wound was forty-five minutes, twenty minutes more were consumed in placing the superficial stitches and applying the dressings, and ten minutes in anæsthetizing the patient, making the whole duration one hour and a quarter. The time usually required for the Müller operation (which this was) is from one and a half to two hours, though, that for the unmodified Porro operation is less than an hour.

Porro's method is to operate precisely as in Cæsarean section, by a short abdominal incision, then to withdraw the emptied uterus and cut off it and the ovaries after ligating the pedicle, which is then fastened in the lower angle of the wound. In 1877, Georg Rein of St. Petersburg, now of Strasbourg, proposed to pass a ligature of wire or other material around the cervix *in situ*, but this has not been done I believe by any one. Prof. Müller of Berne, however, has operated as I did in this case, and was the first to do so. His first case was successful, and out of eight cases operated on by his method four have been saved, a favourable record for this opera-

tion as compared with the unmodified Porro operation. Two other cases operated upon in this way, but in which the pedicle was dropped into the abdominal cavity, died. This I believe has been the fate of all in which the pedicle has not been secured to the abdominal wound. The advantage of opening the uterus *in situ* is that the abdominal incision need not be nearly so extensive as that required to enable the operator to remove the uterus with its contained foetus and liquor amnii. If we believe that the statistics of Spencer Wells are of general application this would be of great importance as affecting the chances of peritonitis resulting from the wound.

In my case the operation was in every respect satisfactory as to its various steps and the absence of any signs of traumatic peritonitis prove that in this case at least the extensive incision was of no disadvantage. On the other hand, by the method adopted all the operating, save the incision through the abdominal walls (which with care may be almost bloodless), is done outside of the abdomen. The deluge of blood from the uterine sinuses and of liquor amnii occurs outside the body of the patient and not a drop of either fluid need enter the peritoneal cavity, at the same time the application of compression to the cervix and uterine bloodvessels is greatly facilitated; in fact, this is rendered so easy that, as demonstrated at the time by Dr. Stewart, the hand alone can accomplish this object without the use of any instrument. Lister's antiseptic method was fully carried out, but care was taken not to direct the carbolized spray upon the peritoneum.

A peculiarity of this operation is the large number of assistants required, owing to the fact that so many things have to be done at the same time and without the least delay. No one should undertake a Müller operation under the Lister antiseptic method without having eight assistants. The operator himself stands on the right side of the patient; directly opposite on the patient's left side, stands the first and chief assistant, whose duties are to follow the incisions with a sponge, to apply serrefines, or forceps, or the ligature to any bleeding surface. His services are also needed to steady the uterus after its withdrawal from the abdomen and while it is being opened by the operator, likewise to take and hand instruments. The second assistant stands on the same side of the patient as the operator and to his right. His duties are to apply the écraseur and to receive the child, which, after the cord is tied and cut by the third assistant, is handed to him for resuscitation. The fourth and fifth assistants are needed to promptly close the abdominal wound behind the uterus, keep back the intestines, and place the carbolized flannel cloth about the cervix. A sixth is needed to take care of the instruments and hand them to the first assistant, for after the application of the temporary constrictor there must be no delay in finding what is wanted in the pan of carbolized solution in which the instruments are placed. A seventh gives the anæ-

thetic and watches the condition of the patient, while the eighth has charge of the spray apparatus. If fewer are present, the operator is sure to be placed at a disadvantage and the safety of the mother and child compromised.

The history of the case after operation was in the main most satisfactory. For the first ten days the symptoms were remarkably favourable. Five hours after operation the temperature was 99.4° , pulse 64, respirations 16. On the following day from 5 to 8 o'clock P. M., the temperature reached 100.4° , the highest point attained during these ten days. As will be observed by looking at the accompanying diagram (Fig. 3), there was no rise of temperature or increase in rate of pulse at the time of the establishment of lactation, a fact of some importance in connection with the theory that the so-called milk fever is of septicæmic origin, as the removal of the uterus prevented any possibility of septicæmic infection from the placental site. On the evening of the fourth day (the 25th), the patient had an attack of colic with some abdominal distension, which subsided promptly after the vomiting of a little clear fluid and the passage of flatus by the mouth and anus.

Fig. 3.

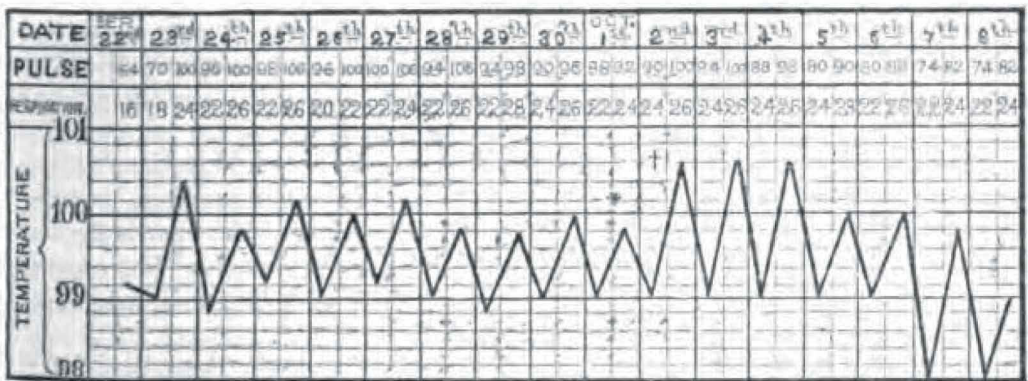


Diagram showing highest and lowest pulse, respiration, and temperature record of each day.

* Sutures removed. † Pedicle separated. Phlegmasia dolens.

On the eleventh day the patient suffered from a mild attack of phlegmasia dolens in the left leg, which was attended with but little fever, pain, or swelling, and which came on without a chill. The temperature for the three nights succeeding reached 100.6° ; on the fourth night only to 100° , and convalescence followed without interruption. The amount of pain experienced by the patient during the entire period was very small, only two grains of the sulphate of morphia having been given including the hypodermic injection of a quarter of a grain immediately after the operation. The bowels were not disturbed until the tenth day, when they were opened by repeated drachm doses of castor oil and enemata of flaxseed mucilage. Four or five natural looking movements followed these measures. On the sixth day, the dressings were first removed. The wound was found to have united by first intention throughout its whole extent and the pedicle to be in a state of decomposition. Notwithstanding union by first intention had occurred, it was thought most prudent to allow the sutures to remain until the tenth day, when they were all removed except the one next the pedicle, which was not taken out until the cavity left by the separation of the latter had partially closed.

The pedicle came away on the eleventh day.

Recovery may be said to have been completed on the seventeenth day, for then the temperature became permanently normal; for prudential reasons, however, the patient was kept in bed until the twenty-eighth day, when she sat up in a chair for the first time. The next day she walked about the room freely, without pain and without fatigue and had not afterwards the least inconvenience from the operation. Throughout the period of convalescence, the patient's tone and spirits were excellent; always happy and cheerful, she had a smile of welcome at every visit, and not a day passed that she was not ready to laugh at anything that amused her; so ready was she to do so, that her hilarity had often to be restrained during the earlier days of her convalescence for fear of injury to the wound and pedicle. A careful record of pulse, temperature, and respiration was kept, and observations of these made every three hours until convalescence was established. A synopsis of this record is given in the accompanying diagram (Fig. 3), in which the highest and lowest observation of each day are noted.

The pedicle separated from the living tissue at a point about half an inch below the seat of constriction, and it with both pins and the ligature came away together. The point of separation appeared to correspond with the junction of the cervix with the vaginal walls. On removal of the dead tissue, a depression was left about one inch in depth and about three-fourths of an inch in diameter communicating with the cavity of the cervix. This contracted with rapidity until an opening was left about the size of the cavity of the cervix, which did not heal until the forty-fourth day.

The vaginal discharge for the first six days was scarcely noticeable notwithstanding the fact that I had, two days before the operation, opened a labial abscess which did not heal until two days after. From this time on there was some vaginal irritation with a moderate amount of leucorrhœa, which continued until after the patient was out of bed, but without pain or other discomfort.

The dressings immediately after operation have been described; after these were removed, the parts were well washed with a weak carbolic acid solution, and the wound and pedicle dressed with lint soaked in carbolized sweet oil (8 per cent.). This was the daily treatment until a few days after the pedicle separated, when oxide of zinc ointment alone was used. The *constitutional treatment* consisted of occasional small doses of sulphate of morphia and sweet spirits of nitre. After the tenth day tonic doses of quinia and iron were given with a small quantity of brandy, of which she took four ounces in all.

The food consisted at first of milk and water, then milk and lime-water, with occasionally a little tea. After the tenth day more substantial diet was added.

Lactation was fully established as after ordinary labour, the supply of milk being abundant, much more in fact than was needed for the child, and the quality entirely suitable for the nourishment of the infant, which the patient has nursed regularly.

The function of the *bladder* was not at all interfered with. For the first two days the urine was drawn by catheter every four hours, but afterwards at the patient's own request she was allowed to pass it voluntarily. Not only was there no irritability of this organ observable, but she has been able to retain in the bladder as large a quantity of urine as she ever

did, and both the nurse and patient assured me that micturition was at no time abnormally frequent.

The *child*, a male, weighed at birth $5\frac{1}{2}$ lbs., and measured 18 inches in length. The cranial measurements were as follows:—

Diameters	{ Occipito-mental	13	c. m.	(5.1 inches.)
	{ Occipito-frontal	12	"	(4.7 ")
	{ Cervico-bregmatic	10	"	(3.9 ")
	{ Bi-parietal	8.5	"	(3.3 ")
	{ Bi-malar	7.5	"	(3. ")
Circumferences	{ Fronto-mental	27.3	c. m.	(10.7 inches)
	{ Trachelo-bregmatic	32.	"	(12.6 ")
	{ Cervico-bregmatic	30.5	"	(12. ")
	{ Occipito-frontal	34.	"	(13.4 ")

The amount of cranial ossification was not that usually seen at term, but both testicles were descended, and no unusual precautions were required to sustain the child's strength. The absence of the usual correspondence between the bi-parietal and cervico-bregmatic diameters may have been due to freedom from the compression to which the heads of all children delivered through the pelvis are subjected, though, as the parietal protuberances were by no means as prominent as usual, this difference may have been owing to hereditary influences alone.

At birth the child was in a condition of suspended animation, so that considerable effort had to be made at resuscitation, but soon through the intelligent care of Dr. Broomall it began to breathe regularly, and has since been in vigorous health. This condition of asphyxia of the child is usual in a Müller operation.

I have one other fact to note among the symptoms of the patient during the operation. It has been asserted that in a Müller operation at the moment of ligation of the pedicle the patient experiences a condition of shock, with slow, feeble pulse, etc. Dr. Tyson, who watched the condition of the patient during the operation very carefully, has kindly written to me that he observed no such effect, but that, on the contrary, after the patient became fully etherized the pulse maintained a rate of 92 per minute, full and soft, and rather increased in strength during the continuance of anæsthesia.

It is as a rule unwise to attempt to establish theories upon one's experience in a single case, yet the status of the Porro operation with its modifications is of such great importance, and the statistics in this country are at first sight so unfavourable that any contribution to our knowledge of the subject must be of some value. It is quite clear to my mind that the Porro cannot properly take the place of the Cæsarean operation in *all* cases. It is of greater value than the latter, however, under certain conditions, and will frequently offer the prospect of better results. It is more particularly adapted to cases of permanent pelvic deformity at the *brim* from the fact that under these circumstances the presenting portion of the child does not descend into the pelvic cavity, and the os is likewise held at the superior strait; as a result the vagina is gradually elongated by the development of the fœtus, and the growth of the uterus, so that no violence is done to it at the time of operation in the efforts to place the stump

in the lower angle of the abdominal wound. When the deformity consists chiefly of a diminution of the conjugate diameter at the superior strait (the flat pelvis of rachitis, etc.), the placing of the pedicle in the abdominal wound is still more facilitated, for under these conditions the cervix is pushed well forward over the symphysis pubis, so that it is found at the time of operation occupying a position very near the anterior abdominal wall, and but slight traction is needed to place it afterwards in the desired position.

When the cervix is not situated so high up, or so well forward, the chances of the patient's recovery are diminished, unless a safe method of disposing of the pedicle without attaching it to the wound in the abdominal wall can be found. Such a method is probably offered us in that adopted by Gustav Veit, of Bonn, after Schröder, of Berlin,¹ who made flaps in the cervix similar in shape to those made in the double flap of skin and muscle in amputations of the thigh. These he united with sutures, taking care to bring the peritoneal surfaces into close contact. His patient did remarkably well until the fourth day, when she died from an attack of erysipelas of the face, commencing on the previous day. A small abscess was found in each kidney. Should this or a similar method be found to be feasible, then the Porro operation would probably offer advantages over the Cæsarean section in all cases where it is of importance to free the patient from the constant fear of future pregnancies.

My patient received with the utmost delight the announcement that I intended to so operate that she could never again become pregnant. But after all, the most important consideration for the surgeon is the safety of the operation to the mother as compared with that of the Cæsarean section. Abroad this has been demonstrated to be much greater. In localities where for many years the death-rate after the Cæsarean section has been 100 per cent., or but little less, the Porro operation has yielded a fair proportion of recoveries. The great majority of the 55 cases abroad have been performed in places where the Cæsarean section has for years been looked upon as almost necessarily fatal, and yet out of the 55, 23 have recovered. In the United States out of four cases three have been fatal—a most unfavourable record. But let us analyze these.

The first case was that of Dr. Storer, of Boston.² In this case Dr. Storer first attempted to perform Cæsarean section, but found that unless something more was done his patient would expire on the operating table. He, therefore, removed the uterus and ovaries, and ligated the cervix in order to control a hemorrhage which otherwise would have been fatal in a few minutes. The patient lived sixty-eight hours. In other words, in this case Cæsarean section alone was instant death,—ablation of the uterus and ovaries necessitated by ligation of the cervix and broad ligaments prolonged life sixty-eight hours. The profuse hemor-

¹ Zeitschr. für Geb. u. Gynæcol., V. Bd. H. 2, p. 256.

² Journal Gynæcol. Soc., Boston, Oct. 1869, p. 223.

rhage to which the patient had been subjected on account of the attempt to perform Cæsarean section must have had much to do with the fatal result, and could have been avoided if the Porro-Müller operation had been attempted from the outset. The case of Dr. Taylor,¹ of New York, was the second in this country, and its fatal result appears to have been owing to a rare sequel of phlegmasia dolens and the unruly temper of the patient; that is from an unfortunate accident quite as apt to occur after Cæsarean section as after the Porro. The third case, performed by Dr. Agnew, of this city, has not been reported, but was undertaken on account of the existence of a large fibroid tumour filling up the pelvic cavity, and after the patient had been three days in labour.

Is it at all likely that Cæsarean section in these four cases would have shown better results? I think not; in fact we know that the attempt to perform that operation in the first of these was a serious disadvantage to the patient. No patient could have done better after a serious operation than my own. I have never seen more favourable symptoms after an amputation of a finger, and rarely have I seen less discomfort in a lying-in woman after normal labour. From all that can be gathered in regard to this operation, I think we can safely say that under certain circumstances it can be recommended as being safer, and in every way preferable to Cæsarean section. In addition to greater immediate safety to the mother, and her preservation from subsequent pregnancy, it has been thought to cure osteo-malacia—an important advantage over Cæsarean section in cases suffering from that disease.

In regard to the Müller modification it may be said that statistics abroad have been favourable to its advantages over the unmodified Porro operation. Of eight sections performed, after Müller's method, four have recovered. Of forty-seven Porro operations twenty have recovered.

Nothing could be more strikingly beautiful to the surgeon than the Müller operation. It is at the same time clean, safe, and, to any one skilled in the use of the knife, easy to perform. It is clean because the abdomen is closed before there need be any flow of blood, and not a drop of it need enter the peritoneal cavity; safe because all hemorrhage from the general system may be entirely avoided; and easy to perform because every step of the operation is done in sight. There is no danger in this method of leaving an ovary behind, because one can see every part he wishes to remove. The uterus also can be neatly divided, leaving no jagged edges. It is to be doubted whether there is any disadvantage to the patient in a long abdominal incision in itself. The danger of giving foreign matter access to the peritoneal cavity by opening the uterus *in situ* is probably much greater than any likely to occur from a long abdominal wound.

As stated in the early part of this paper, care was taken to operate

¹ Amer. Journal Med. Sci., July, 1880. Digitized by Google

before there was any danger that natural labour could come on. When we consider what difficulties there are in the way of getting together the consultants and assistants of our choice, as well as the needful apparatus in an emergency, it will easily be seen that by so doing we give the patient important advantages. It was my request to each of the physicians who were to be present that care be taken to avoid seeing any case of contagious disease on the day of the operation or the day previous. I believe the request was strictly complied with by all, except one gentleman, Dr. J. G. Richardson, remained away on account of the necessity he was under of visiting a case of contagious disease on that morning. Had I been obliged to summon them hastily there would have been no opportunity of observing these precautions. The existence of a well-defined neck of the uterus undoubtedly aided greatly in the application of the *écraseur* and ligature, thus materially shortening the operation. Not the least of the advantages by which the patient and myself were favoured was the presence of the eminent gynæcologists who cordially assisted me in the operation.

Drs. Smith and Goodell extended to me every aid in their power. The former examined the patient with me a few days before the operation, fully approved of what I proposed to do, and saw her, in consultation with me, frequently during her convalescence. To Dr. Harris I am indebted for full access to his very valuable collection of the literature of the subject, which he cordially placed at my disposal. Through the kindness of Dr. Broomall I was enabled to obtain from the Woman's Hospital a skilful and intelligent surgical nurse. But when all did more than I asked of them, it would be invidious to distinguish. I have never seen more united action at a consultation, nor have I ever witnessed a more enthusiastic determination on the part of each to do all in his or her power to promote success, and to the united efforts of all is largely due the honour which belongs to the first successful Porro operation in America.