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Ex-President of the Phila. Obstetrical Society, etc., Philadelphia, Pa.



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FORTUNATELY for the comfort of those engaged in obstetric practice, this most fearful accident is one of rare occurrence, so much so that some physicians have been present at several thousand births without meeting a case, or at least without having recognized one. Mr. Robert Dunn met with but one case in 6,319 labors, and it occurred near the end of the list.¹

There is much discrepancy of opinion among medical writers as to the true proportion between the number of ruptures and that of deliveries; and it is impossible, with our present means of determining, to say exactly how many deliveries at full term are represented by one case of laceration. Many women have died in labor, where rupture was not suspected from the symptoms presented, and was only discovered by autopsy. Again, rupture has been suspected to have occurred, where it was not to be found. If the patient experiences severe pain, with a tearing sensation; vomits, becomes faint; the presenting part recedes, and labor ceases, we have sure indications of rupture. But rupture may occur with very obscure symptoms, and only be suspected from the signs of a coming collapse; and recognized by a careful manual exploration. There are also cases of rupture which cannot be determined except by a post-mortem examination. If all who die in child-bed should be examined, we might soon be enabled to say how many ruptures were to be found in a hundred thousand labors. There is a wide range between the calculation of Burns, as 1 to 940, and of Ramsbotham, of 1 to 4,887. Dr. Jolly, of Paris, who excludes ruptures of the vagina and cervix, gives 1 to 3,403, or 230 in 782,741 labors. We may, I think, with safety say that for every

¹ Trans. Obstet. Soc. London, 1868.

4,000 births or thereabouts, in the United States, there is one case of ruptured uterus.

If then we have, as is supposed, 48,000,000 of inhabitants, and one birth annually to every 35 in the United States, we must have at a moderate calculation over 300 cases of rupture every year. This would give New York 5 to 10 ruptures annually, and to Philadelphia in the same proportion. As but few cases are ever published, we can only estimate the amount of mortality imperfectly; sufficient, however, is known to show that the proportion of deaths to recoveries is very large. According to the thesis of Dr. Jolly, there were 100 saved in 580 cases, which I believe to be much too high, as the proportionate loss is much less in the published than the unpublished cases.

It is possible that as many as 16 per cent may be saved, but I should be inclined to rate it at a lower figure. Admitting 16 per cent as claimed by Jolly, and we have about 250 lost annually in our country, many of whom ought to be saved. Dr. Thomas Radford, of Manchester, Eng., reported 19 cases with 3 saved, and the late Gunning S. Bedford, of New York, 11 cases with the same number cured; that is 6 out of 30, or twenty per cent in very skilful hands.

We have next to examine into the reason of this mortality, and see if there is not some error in management, by a change in which, more lives may be saved. The objects of treatment are twofold: one is to avoid the discredit of having a case die undelivered; and the other to deliver in such a way as to favor the recovery of the woman. The life of the child rarely enters into the question, as it generally perishes very soon after the rupture.

The causes of rupture may be divided into avoidable and unavoidable; and the accident is often the result of conditions which no skill of the accoucheur can enable him to remedy. As there is often a suspicion of bad management, however unjust it may be, the accoucheur, to avoid any further discredit, is too apt to turn his attention to the delivery of the woman, without at the same time having solely in view the safety of his patient. The vital question is, What plan of delivery promises best for the life of the woman? Accoucheurs are anxious to escape the discredit of having a woman die undelivered: they should see to it at the same time that the manner of

delivery is one to promise best for the safety of the patient. Various changes have taken place in the management of rupture cases. At one period, the advice was to do nothing, and leave all to nature. Then it was to deliver, if the child was mainly or entirely in utero. Next it was to turn in the abdomen and deliver by force through the rent and vagina. Then to perform gastrotomy where this last was impossible: and finally to choose gastrotomy in preference to turning in the abdomen, as a less dangerous and more simple form of delivery, enabling the operator to cleanse the abdomen, and close up the laceration. We are now approaching the day of such election, but it is far from being as yet the usual practice. There is still too much of the old teaching acted out, and gastrotomy is the *dernier ressort*, where turning and delivering are inadmissible. The relative fatality of the two methods is but little understood, or gastrotomy for its better security would be much more frequently performed. I asked a physician a few days ago whether he had ever met with any cases of rupture, and what was done. He answered that he had met with three: that the consultations decided upon turning and delivering; and that this being the treatment, all had perished. He had by this experience become a convert to gastrotomy.

I must confess that I do not like this term *gastrotomy*. If we look for the word in the index of a journal, as I have, hundreds of times, we generally find the case indicated, to be one of operation upon the stomach, and to this it ought to be restricted. The substitute *laparotomy* is not anatomically and derivatively correct. The correct term would be *etronotomy*, meaning an incision into the lower belly. I have been urged to use this as a substitute, but do not care to create confusion by so doing; I shall, however, take the liberty of employing it occasionally as a corresponding term. *Gastrotomy* is an old word, much older than the operation for opening the stomach, but the new operation has a claim upon it for want of any possible substitute. The old Greek root *γαστήρ* means the viscus, and also abdomen; just as the English word stomach is applied to the food receptacle, and to belly in refined diction.

The medical world is much indebted to Dr. James D. Trask, now of Astoria, New York, for his valuable papers on rupture of the uterus, based upon a collection of 417 cases, and pub-

lished in 1848 and 1856.¹ In these articles, Dr. Trask shows the dangers of rupture under the ordinary methods of treatment, as contrasted with the results of delivery by abdominal incision, and proves the great superiority of the latter in saving life. His figures are not high enough in my estimation in rating the mortality of delivery through the pelvis, and are too high in that of recovery under gastrotomy. Taking his proofs from published cases, which are a mere fraction of the whole, and generally confined to such as are made of interest, either by recovery or by some special peculiarity, he was forced under his record to give the facts as they appeared; and not as he might have conjectured them to have been, in the whole aggregate of the thousands of cases that must have occurred in the years covered by his researches.

In this paper I have adopted my usual plan, of first searching the records of cases in the United States, and then of securing the unpublished ones by correspondents all over the land. My efforts have been directed towards proving the real value among us of the operation of puerperal gastrotomy, as shown by what has actually been done in the past under circumstances favorable and unfavorable to success. I was under the impression, almost from the commencement of my search in 1871, that etronotomy had had more successes than gastro-hysterotomy in proportion, which has proved to have been correct: but I am surprised, in view of this fact and that of the far greater call there has been for the former, that so few women have been operated upon. There must be a vast amount of ignorance as to the result of what has been done, or surely there would be more cases in which gastrotomy would be performed as an operation, not of unavoidable necessity, but of *election*, based upon a hope of prospective success. It will be noticed by my tabular record that, between 1850 and 1861, there was a succession of thirteen etronotomies with but one death, and that two of the successes were in this city. Why then is it that the operation has not been repeated in Philadelphia in twenty-two years? Was there no call for it, in all the cases of rupture that have occurred? There were three operations in our land in 1879, and this is as high as for any year of the table, which, if I am

¹ Am. Jour. Med. Sci., 1848, pp. 104 and 383; 1856, p. 81—in all pp. 108, 8vo.

correct in my estimate, would be 1 for each 100 cases of rupture in the United States.

With causes of rupture we have very little to do in this connection, as the question properly belongs to the obstetrical text-book. I will say, however, that it is the general belief that the organ rarely gives way unless weakened or thinned by disease or mechanical pressure. The normal uterus is very strong, and will contract powerfully in labor, day after day, without any signs of rupture. Some writers have gone so far as to say that no uterus will give way that is perfectly sound in tissue. I cannot admit this, although I believe that a normal uterus will not rupture if the pelvis is normal in size, fetus proportionate, presentation favorable, and pains natural. But ergotic and tetanoid contraction, if the resistance to expulsion is sufficient, I believe will sometimes rupture a sound uterus. I once met a gentleman who in the act of defecation had torn through his sphincter ani muscle. From his sensations at the time, he must have had a tetanic contraction of the muscles of the rectum, as he did not appear to have had the power to resist the act of expulsion by will. The power of a muscle may be too great for the integrity of its own tissue, its attachments, or even the strength of the bone upon which it acts, and one or other may give way under extraordinary exertion, or the effect of spasm. Uterine rupture is no doubt often due to malpractice.

The direction of rupture will depend in large measure upon its cause, whether external linear pressure, or internal resistance associated with mural adynamia. The uterus may give way in any direction, or at any point; may split from os to fundus; may separate between cervix and body for a large part of its circumference; or be only partially rent through, the tear being through the peritoneal coat, or it may be all that remains intact. Women have recovered after very severe lacerations, and have perished when the rent was apparently trifling in comparison. There is something very mysterious about the recovery of some cases of rupture: one woman in the State of New York having recovered from the accident in four consecutive parturitions. I shall refer to the case more particularly in my remarks upon treatment. After the Cesarean section, rupture occasionally occurs in labor in the line of the uterine

cicatrix. This has happened five times in the United States: in third and sixth labors to number four of table; in second and third labors to number eleven, and in second labor to number seventeen. Numbers four and eleven died from their second ruptures after having been saved in the first by abdominal section.

Rupture may take place suddenly, the parts giving way and uterus being emptied or nearly so, in one pain; or laceration may be effected by slow degrees, each pain adding to the rent, and the pains of labor masking the suffering from the rupture. Such a case as the latter occurred in the practice of Dr. J. G. Allen, of this city, in a multipara. Dr. A. was struck with the fact that the patient bore her pains with much less fortitude than on former occasions, making great outeries as each one came on. He was inclined to attribute her conduct to want of patience, until her condition led him to an investigation, that resulted in the discovery of the rent.

Death may result suddenly by shock and hemorrhage, or more remotely by peritonitis and septicemia. No doubt many sudden deaths of women in child-bed are due to unsuspected rupture of the uterus. Many patients recover from the first shock of rupture, to die ultimately from its secondary effects. If the first danger is past, the woman often dies, because of the foreign matters which she carries in her abdomen. We may remove the fetus and placenta from the uterus or abdomen, but we cannot feel at all hopeful of the case while the fluids remain as a cause of irritation, or septic poisoning.

According to Ludwig Winckel, the celebrated German gastro-hysterotomist, the liquor amnii is not injurious if it simply escapes into the peritoneal cavity and is then removed. Blood is also innocuous under the same precautions; but both are capable of lighting up peritonitis and septicemia. The marvellous success of Dr. Keith, the world-renowned ovarioto-mist of Edinburgh, is due to his care in securing every tiny blood-vessel that may possibly bleed into the peritoneal cavity, and cleansing out every particle of escaped blood. He has somewhat improved the results of his operations during the last three years, by the Lister method, but his reputation for success was well established before this change was made. He has now operated more than 300 times, saving 97 out of the

third hundred, and 73 of them consecutively. He has been called *very lucky*; has been suspected of selecting his cases; is believed to owe much to his use of ether instead of chloroform, etc.; but let any one see him operate in a case of adherent cyst, and when he has completed the operation, the visitor will see that Dr. Keith fears more the effect of escaped blood in the abdominal cavity than anything but septic poisoning itself.

Now if blood in the peritoneal cavity is so noxious after ovariectomy, why is it not equally so after rupture of the uterus? If Dr. Keith finds it so essential to secure every oozing artery, and sponge out every drop of blood, what are we to expect from the ordinary methods of delivery, after a woman has ruptured her uterus? If we turn and deliver the child, what is to save the woman from the effects of the pent-up blood in her peritoneal cavity?

What do our text-books teach should be done in cases of rupture? Playfair says: "If the fetus be entirely within the uterine cavity, no doubt the proper course to pursue is to deliver at once *per vias naturales*, either by turning, by forceps, or by cephalotripsy." He gives three rules, as follows: "1. If the head or presenting part be above the brim, and the fetus still in utero, the forceps, turning, or cephalotripsy according to circumstances. 2. If the head be in the pelvic cavity, forceps, or cephalotripsy. 3. If the fetus have wholly, or in great part, escaped into the abdominal cavity, *gastrotomy*."

Leishman says: "When the child has escaped from the uterus and lies among the intestines in the abdominal cavity, our treatment must be essentially different." "On the whole evidence we must pronounce in favor of gastrotomy when the child is in the peritoneal cavity; of turning when it has remained in the cavity of the uterus; and of the forceps or perforation when the head can be easily reached within the pelvis."

Dr. Playfair remarks: "Unfortunately, the cases in which the child remains in utero are comparatively uncommon, and generally it will have escaped into the abdomen, along with much extravasated blood. The usual plan of treatment recommended under such circumstances is to pass the hand through the fissure, to seize the feet of the fetus, to drag it back through the torn uterus, and then to reintroduce the hand to search for

and remove the placenta." In condemnation of this practice he says: "It is surely hardly a matter of surprise that there is scarcely a single case on record of recovery after this procedure."

Here we have our two most important obstetrical text-books recommending abdominal delivery, in what are usually recognized as the extreme cases, in deference to the views and revelations of Dr. Trask, and against what is still too much the practice of the present day. Twenty-four years have passed since Dr. Trask showed the superiority of gastrotomy in these cases, as contrasted with turning and delivering. Still, the latter is to-day generally preferred to etronotomy, notwithstanding its far greater fatality. Can it be that this is done in ignorance of the difference, after all that has been written on the subject?

I design in this paper to take a step in advance of Drs. Trask, Playfair, and Leishman, and prepare the way for what may at some remote day, in the progress of improvement, be admitted to be the proper treatment in cases of rupture, whether the fetus remain in utero or not, provided there shall have been a decided escape of bloody fluid into the peritoneal cavity. It will probably require some years yet, before gastrotomy shall become the general practice as a matter of *election* under the third rule of Playfair. When that shall have been accomplished, I believe the profession will be prepared to practise the opening and cleansing of the abdomen after the fetus shall have been delivered through the pelvis, as by the first and second rules of Playfair, in order that the woman may have the best possible chance for recovery. Whether suturing the uterus, as was done in case 39 of the table, shall also be recommended will depend upon its success in the mean time.

If the fetus is entirely or mainly in utero, there is no question but that it should be delivered through the vagina; but what are we to do to remove the blood that has passed into the peritoneal cavity? Does it not require removal in order to save the patient? Women do sometimes recover, where no such effort is made, but they run a very great risk. Cannot something more be done to add materially to the safety of the patient? My studies in the abdominal surgery of women have very materially lessened my fears in opening the abdominal cavity. If the operation is so dangerous *per se*, how did Dr.

Keith open 97 in 100, without causing death? It appears to me that he has satisfactorily proved that we may with considerable impunity open the abdomen, and cleanse it from foreign fluids by means of sponges wrung out in warm carbolized water, and this I believe should be done in many cases of ruptured uterus. But before we adopt so radical a change as this, we must make a step towards it by the much more general adoption of gastrotomy in those cases in which it has been recommended by Baudelocque, Hatin, Francis, of New York, James and Dewees, of Philadelphia, Trask, etc.; and is now by Playfair and Leishman. To further this end, I have with much labor collected the statistics of this operation in the United States, and have arranged the cases in tabular form, and in the order of their occurrence. I do not claim to have discovered every case, but after nine years' time, I appear to have come to the end of the list. Having elsewhere¹ stated that this collection numbered 40 cases with 21 recoveries, I must here explain, that one of the fatal operations has been since rejected, it having been discovered that it did not properly belong to the record. The percentage of recoveries in American puerperal gastrotomies may then be put down as $53\frac{1}{3}$.

One would have supposed, after the revelations of Trask and Jolly, that the practice of gastrotomy would have very largely increased, but for the fact that it takes years for the dissemination of anything new and valuable in the treatment of rare obstetric accidents. New York, Brooklyn, and Philadelphia have collectively over two and a half millions of people, and have only a credit of six operations, commencing with the one of Dr. Delafield in 1828; or in fifty-two years New York has had four, Philadelphia two, and Brooklyn none.

I cannot agree with Dr. Playfair, when he says that there is scarcely a case on record of recovery after the fetus has been turned in the abdomen, and delivered through the rent and vagina. Far better perhaps would it be if they were all fatal; but the escape of one now and then keeps up the dangerous practice to the fatal injury of the large majority; and a case like that of Dr. J. M. Rose, of West Winfield, N. Y., may be quoted in *quasi* justification of a hundred failures.

¹ Playfair's Midwifery. Note to 3d American Edition, 1880.

Dr. Rose's remarkable case may be given in few words as follows :

1st Rupture. Woman Irish, mother of two children—3d labor, June 1st, 1869; rupture after 5 hours' labor; child turned in abdomen and delivered; woman recovered.

2d Rupture of same subject on April 4th, 1872, after 3 or 4 hours' labor; delivered as before, with same result.

3d Rupture, May, 1872, after 2 hours' labor. Not seen by Dr. Rose until two days later; version as before; skin of child peeling off; woman sat up in 12 days.

4th Rupture, Feb. 28th, 1876, after waters broke. Dr. Rose, twenty minutes later, found one foot within reach, the body having escaped through the rent; drew the child back and out; woman recovered as after an ordinary delivery. Dr. Rose graduated in 1837, and has been indorsed as of "unimpeachable integrity and truthfulness." The rents were all posterior transverse, and in the uterus proper.

We shall now proceed to show the results of puerperal gastrotomy in the United States, and shall, as preparatory, point out what were taught by obstetrical writers fifty years ago, as the proper methods of delivery or management. Our predecessors had at that time the works of Baudelocque, Gardieu, Capuron, Velpeau, Hatin; Denman, Merriman, Hamilton, Burns, Conquest, several English manuals, and the older works of the last century. Those most accessible were the works of Merriman and Burns, edited by Prof. James, of Philadelphia; Denman, by Prof. J. W. Francis, of New York; Hatin, translated by Dr. Gross, Philadelphia; and Dewees' abridgment of Baudelocque.

English obstetricians, under the autocratic leading of William Hunter; and later, in deference to the teaching of Denman, pursued a do-nothing course in cases of rupture of the uterus, and trusted the fate of the woman to nature; the plea being, that it was only adding to her sufferings for nothing, by delivering her of the fetus. In 1784, Dr. Andrew Douglas broke the traces in London, by turning and delivering a fetus, to the saving of the mother; which act, although it does not appear to have had due weight with his friend Denman, made a change in the practice in England, which has continued to the present day. The continental practice was at the same period much in advance; although there were those who

¹ AM. JOUR. OBSTET., 1878, vol. xi., p. 396.

warmly recommended gastrotomy; and others who advised it only as a forlorn hope. Dr. Conquest, of London (1820), in his manual, gives the three directions of Playfair for the same conditions, with some unimportant variations.

Profs. Francis, James, and Dewees, in their edited works, recommended gastrotomy in cases where turning was impracticable; and Dr. Dewees, after some unfortunate experiences, advocated the use of the knife as preferable to turning in the abdomen. Capuron and Gardien (both 1816) were only in favor of gastrotomy when delivery by turning was impossible. As an operation of election, there appears to have been but one prominent advocate at the beginning of this century, *i. e.*, Baudelocque; and for this reason I make some special quotations from his work, as edited by Dewees, in 1811, in an abridged form.

“When the head presents, after the rupture of the uterus, even if it should not be engaged in the pelvis, provided the deformity of the latter does not offer any great obstacle to it, we ought to terminate the delivery with the forceps, whatever part may have penetrated into the abdomen. It may easily be conceived to what danger we should expose the woman by attempting to turn a child, the major part of whose trunk should be in the abdominal cavity, and the rest in the ruptured uterus. If we cannot extract by means of the forceps, or with the crotchet when dead, *gastrotomy* (that is to say the incision of the coverings of the belly) is as manifestly indicated as when it has been entirely forced into that cavity.”

“The operation which I recommend, not only for extracting the child and its after-birth from the cavity of the belly, but also to give an exit to the blood and waters which may have been extravasated there, and which cannot be discharged otherwise, is more easy to execute than the Cesarean operation properly speaking, and does not seem to be more dangerous; for on one side we have not the uterus to open, and on the other the rupture of that viscus is not essentially mortal. It has been done several times with success to the woman, and probably it would have had as much with respect to the child, if it had been performed immediately after the rupture of the

uterus, instead of deferring it several hours, as has been done in all those cases.”¹

The age of puerperal gastrotoomy, according to Baudelocque, is about 112 years; Thibaut des Bois, of Mans, having published the first successful case in 1768. M. Labron, a surgeon of Orleans, operated twice with success upon the same woman in 1775 and 1776.

Fifty years ago then, our medical students and practitioners were directed to act according to the following rules: 1. Deliver the child if possible *per vias naturales*, if in the uterine cavity. 2. If in the abdominal cavity, turn and deliver. 3. If delivery through the pelvis was impossible, open the abdomen. A few authors made an exception in favor of gastrotoomy, where the state of the laceration, or form of the pelvis, rendered delivery *per vias naturales* very hazardous. Baudelocque very nearly approached the best teaching of the present day, in his views.

The first case of puerperal gastrotoomy in the United States that I find mentioned came under the care of two graduates of the University of Pennsylvania; viz., Dr. James S. Dougal, of the class of 1817, and Dr. Thomas Van Valzah, of 1818, and the operation was performed near Northumberland, Pa., in 1827. As the case was never reported by them, but by a medical associate (Dr. Jackson), and not until 1835, we know but little of the particulars, except that the woman died of peritonitis on the third day. The two operators were associated in a case of Cesarean section in 1832, which they also lost. Dr. Dougal died recently at the age of ninety. The remarks made by Dr. Dewees in his *Midwifery*, published in 1828, tend to confirm me in the belief that this must have been the first *gastrotoomy* in the United States. He says, “the operation of gastrotoomy, I believe, is one which has never been performed in this country on the living subject.”

The second operation was performed in New York, in 1828, by the late Prof. Edward Delafield. The woman had ruptured her uterus so long before he was called in that he could not more than pass a finger through the contracted rent. As he could not deliver in any other way, he decided to open the abdomen, when he found the intestines already inflamed. The

¹ Page 563.

patient survived the operation only twenty-six hours, dying of peritonitis.

I shall not attempt to give a résumé of each case in the table, but shall confine my attentions to a few that call for a special notice.

CASE 6TH.—Operation performed by Dr. John Tackett, of Richland, Holmes County, Miss., in 1847, and by some mishap resulted in the formation of a ventral hernia, which in the next pregnancy contained the uterus. This so obstructed the delivery, the os being entirely out of reach, that Drs. Foster and Harrington felt called upon to perform the Cesarean operation. The woman died in three weeks of "irritative fever."

CASE 10TH.—Dr. Jeter operated in Dec., 1850. As the woman was in poor health, and the child hydrocephalic, it is to be presumed that the uterine tissues were unsound, although the rupture occurred under manual exploration. The abdominal incision was ten inches long, and fetal head about that, in diameter. There are three hydrocephalic cases in my table. The woman recovered.

CASE 11TH.—Dr. Boagui performed the Cesarean operation on this woman in January, 1850. In July, 1851, she ruptured her uterus in the line of the cicatrix, and he performed gastrotomy with success. In May, 1853, she ruptured her uterus a second time, and died of internal hemorrhage before Dr. Boagui arrived. He was of the opinion, from the autopsy, that the placenta was implanted over the line of the cicatrix, constituting in the rupture a form of placenta previa.

CASE 13TH.—Columbus, Miss., has had three operations with two recoveries. The late Samuel B. Malone's patient was a lady of 28, large, and in fine health; in her fifth labor, and with a hydrocephalic fetus. The operation was performed early, and head reduced before removal. This lady was alive and well twenty-seven years after the operation.

CASE 17TH.—This woman was operated upon by the Cesarean section, under Drs. Mallett and McSwain, in March, 1852. The child was across the pelvis, with transverse and conjugate diameters each 3 inches. In a labor three years later, her uterus gave way in the cicatrix, and she carried the fetus in her abdomen for three months, when it was removed by Dr. Bizzell in a putrid state. He believed that the Cesarean operation had not been a necessity.

CASE 20TH.—Alice Maley was an Irish woman of 28 or 30, and attended in labor by the late Dr. Scholfield, who discovered the accident by the recedence of the head. Dr. E. Wilson was called in consultation; and the late Dr. Wm. Byrd Page to perform gastrotomy. The rupture was through the front wall and fundus uteri, involving the bladder. After the operation, she was very ill with peritonitis, and when recovered, was several times operated

NUMBER.	YEAR.	OPERATORS.	LOCALITY.	AGE.	CAUSE OF RUPTURE, ETC.	RESULT TO WOMAN.	RESULT TO CHILD.	CAUSE OF DEATH, WOMAN.	TIME BET'N RUPTURE AND OPERATION.	CONDITION OF WOMAN AT TIME OF OPERATION, ETC.	REFERENCE.
1	1827.	Drs. Dougal & Van Valzah.	Northumberland, Pa.	30	3d labor; 1st forceps; in labor 29 hours.	Died.	Dead.	Peritonitis, 3d day.	Several hours.	Intestines found inflamed.	Am. Jour. Med. Sc., Aug., 1835, p. 346.
2	1828.	Dr. Edw'd Delafield.	New York City.	39	6th labor; pelvis ample.	Lived.	Dead.	Peritonitis, in 36 hrs. Recovered.	19 hours.	Intestines found inflamed.	N. Y. Med. & Phys. Jour., vol. vii, 1828, p. 351.
3	1831.	Dr. J. Snell.	Augusta, Me.	39	6th labor; pelvis ample.	Lived.	Dead.	Recoverd.	30 days.		Jour. of Maine Med. Soc., 1834, p. 1.
4	1834.	Dr. Robert Estep.	Columbia Co., O.	20	Transverse position; 3d labor; pelvis small.	Lived.		"			West. Jour. Med. & Phys. Sc., vol. IV, p. 19.
5	1841.	Drs. Robertson & Carey.	Columbiana Co., O.	31	Same patient; 6th labor.	Died.	"	Shock, and haustion, in 36 hrs. Recovered.		Almost moribund.	Am. Jour. Med. Sc., Oct., 1843, p. 364.
6	1847.	Dr. John Tackett.	Richland, Miss.	7th	labor; pelvis normal.	Lived.	"	"			N. O. Med. & Surg. Jour., vo. IX., 1833, p. 772.
7	1847.	Dr. Wm. R. Wagstaff.	New York City.	4th	labor.	Died.	"	Shock, and probably peritonitis, in 36 hrs.	4 hours.		Am. Jour. Med. Sc., Jan., 1848, p. 146.
8	1849.	Drs. Taylor & McGuire.	Talladega, Ga.		In labor two days and nights; thought to be extrauterine.	Died.	"	Shock & exhaustion, in 36 hrs. Recovered.		In a sinking condition.	Trans. Med. Ass. Alabama, 1855, p. 90.
9	1850.	Dr. James S. Lawton.	Lawtonsville, S. C.	23	Under a midwife; mother of two living.	Lived.	"	Recoverd.	8 months.	Was a mere skeleton.	Charleston Med. Jour. & Rev., 1854, p. 185.
10	1850.	Dr. Henry M. Jeter.	Buena Vista, Ga.	30	6th labor; hydrocephalus; 2d in circum.	Lived.	"	"		in poor health.	Southern Med. & Surg. Jour., 1851, p. 136.
11	1851.	Dr. Vincent Boagui.	Opelousas, La.	23	Contracted pelvis; Cesarean cicatrix.	Lived.	"	"			Communicated by the operator, 1871.
12	1851.	Dr. Hallowell.	Fulaski, Tenn.	33	6th labor; pelvis normal; midwife.	Lived.	"	"	34 hours.		Charleston Med. Jour., May, 1851, p. 360.
13	1851.	Dr. Samuel B. Jones.	Columbus, Miss.	28	5th labor; hydrocephalus.	Lived.	"	"	As soon as practicable.	Lady alive in 1878.	N. O. Med. & Surg. Jour., Sept., 1851, p. 141.
14	1853.	Dr. Edward Sayng.	Worcester, Mass.	29	Multipara.	Died.	Lived	General peritonitis 3d day.			Communicated by Dr. Rufus Woodward, 1871.
15	1853.	Dr. John T. Gilman.	Portland, Me.	30	3d pregnancy.	Lived.	Dead.	Recoverd.	21 hours.	Small, spare, delicate.	Am. Jour. Med. Sc., April, 1854, p. 401.
16	1854.	Dr. John Neill.	Philadelphia, Pa.	6th	pregnancy; hydrocephalus.	Lived.	"	"	12 to 15 hrs.	Favorable; robust.	Am. Jour. Med. Sc., 1855, p. 278.
17	1855.	Dr. H. A. Bizzell.	Samson Co., S. C.	24	Small pelvis; in Cesarean cicatrix of 1852.	Lived.	"	"	3 mos. and 6 days.	Very unfavorable.	Am. Jour. Med. Sc., 1856, p. 79.
18	1856.	Dr. John H. Bayne.	Prince George Co., Md.	4th	pregnancy; pelvis under a midwife.	Lived.	"	"	6 days.	Pulse 130; nearly in a collapse.	Am. Jour. Med. Sc., 1857, p. 65.
19	1858.	Dr. George Fries.	Cumminsville, O.	30	4th labor.	Lived.	"	"	hours.	Much exhausted.	[Soc., 1860, p. 65.
20	1858.	Dr. Wm. Byrd Page.	Philadelphia, Pa.			Lived.	"	"	No labor.	Never published.	Trans. Ohio State Med. & Surg. Reporter, vol. x., 1863, p. 91.
21	1861.	Dr. Chas. L. Spence.	New Bedford, Mass.	39	18th pregnancy.	Lived.	"	"		Much exhausted.	

22	1861..	Dr. T. Gaillard Thomas.	New York City.....	Died.	"	Apparently exhausted in 3 days. Probably exhausted in 7 days.	5 hours	Communicated by the rator.
23	1862..	Dr. Wm. H. Byford	Chicago, Ill.....	Died.	"	Pulse 140; feeble.	7½ hours..	Chicago Med. Jour., Dec., 1862, p. 670.
24	1862..	Dr. Thos. H. Mayo	Columbus, Miss.....	Lived	"	Bore two children afterward, prematurely; labor induced.	4 or 5 hours	Communicated by Dr. John Brownrigg, 1871.
25	1863..	Dr. McCune.....	Columbus, Miss.....	Died.	"	Recovered.	15 hours	Ibid.
26	1865..	Dr. Edw. Whinery	Notia, Ill.....	Lived	"	Recovered.	15 hours	Am. Jour. Med. Sc., Oct., 1866, p. 401.
27	1865..	Dr. E. Miles Willett	Memphis, Tenn.....	Lived	"	Recovered.	15 hours	Living child in 13 months.
28	1868..	Dr. Wm. T. Howard	Baltimore, Md.....	Died.	"	Septic peritonitis, in 7 days.	2½ hours..	Med. & Surg. Monthly, Memphis, 1866.
29	1869..	Dr. Tupper	Bay City, Mich.....	Lived	"	Recovered.	8 hours....	Communicated by the operator.
30	1869..	Dr. J. H. Butler..	Baltimore, Md.....	Lived	"	Recovered.	2 hours....	Communicated by Dr. J. H. Jerome, 1871.
31	1869..	Dr. J. W. McCall.	Huntington, Tenn.....	Died.	"	Peritonitis, 3d day.	1 hour	Baltimore Med. Bulletin, Jan., 1870.
32	1870..	Dr. Sam'l S. Thorn	Toledo, O.....	Died.	"	Shocks in 4 days after being lifted up in bed.	1 hour	Nashville Med. & S. Jour., vol. xi, n. s., 1873, p. 29.
33	1874..	Dr. Wm. T. Howard	Baltimore, Md.....	Died.	"	Septic peritonitis, in 7 days.	1 hour	Toledo Med. & S. Jour., vol. ii, 1878, p. 308.
34	1877..	Dr. M. Storrs.....	Hartford, Ct.....	Died.	"	Septic peritonitis, in 7 days.	1 hour	Communicated by the operator.
35	1877..	Dr. C. S. Ward	New York City	Died.	"	Peritonitis, 3d day.	6 hours	Trans. Connecticut Med. Soc., 1877, p. 58.
36	1877..	Dr. T. Chalmers Dow.	Nashville, Tenn.....	Died.	"	Peritonitis, in 2½ days.	3 hours....	Almost in a col. Am. Jour. Obstet., July, 1878, p. 586.
37	1879..	Dr. Wm. T. Howard	Baltimore, Md.....	Died.	"	Protracted shock, 6th day.	7 hours....	Virginia Med. Jour., 1877, p. 442.
38	1879..	Dr. John T. Hodgen	St. Louis, Mo....	Died.	"	Shock, 18 hours.	About 17 hours.	Communicated by the operator.
39	1879..	Dr. J. N. McCorkinck.	Bowling Green, Ky.	Died.	"	Peritonitis, 22 hours.	3 hours....	Previous health fair.
40	1878..	Dr. Thos. S. Dekle;	Thomas Co., Ga.....	Died.	"	Recovered in 40 days.	1 hour	In a collapse; uterus situated.

* Lived 24 days; died from exposure.

† Case added after the table was in type and paper completed.

+ Caught cold in a storm, and died of pneumonia on 24th day.

§ Died in about 40 hours.

upon for the closure of a vesico-vaginal fistula. Dr. Agnew finally cured this, by inclosing the cervix within the bladder. She also ruptured her abdominal cicatrix, and a portion of omentum protruded, became gangrenous and was removed. Dr. Wilson believes that Dr. Page operated in 1857 or 1858. Dr. Agnew operated for the fistula in 1859. Dr. Page never published the case, and strange to say, three of his most intimate medical friends had never heard him mention it.

CASE 29TH.—Gastrotomy, as in case 14, saved the life of the child, a very unusual result of the operation. Dr. Tupper is said to have operated immediately, and with a pen-knife, saving by his promptness both mother and fetus.

CASE 39TH.—This is worthy of note, as the first in which the uterine rent has been closed by sutures, in any of our cases. The woman might have recovered but for her poverty, having taken cold by exposure to wind and rain at a broken window with several panes wanting. She died of acute pneumonia. Prof. D. Warren Brickell, of New Orleans, claimed, in a letter to me several years ago, that he had recommended that the uterine rent should be sutured, as early as 1856, and had lectured to this effect before his students.

Several points in the tabular record should be noticed, viz., 1st. In 31 instances, where the number of the labor is given, not one is that of a primipara; the highest figures are 3 in 5th labors; 4 in 3d; 6 in 4th; 6 in 6th; and 3 in 9th. One woman had previously borne 12 children, and another 17. 2d. Seven ruptures are noted as having occurred under the care of midwives: four of these cases were saved. 3d. It will be seen that there were but six deaths among the first 21 cases, and the mortality has been much greater in proportion in the remaining 18. 4th. There does not appear to be any marked connection between very early operating and favorable results.

Although Dr. James Blundell was by no means an urgent advocate of gastrotomy in cases of rupture, he proposed the following question for consideration:¹ "Would extirpation of the uterus, with or without inversion, be of service in these cases? This question may be answered better next century. There is a great deal to be done in abdominal surgery; but neither by dogmatists nor empirics."

Through the kindness of Dr. Oscar Prévôt, of Moscow, Russia, I have received a full account of the first operation of extirpation of the uterus after rupture of the organ that has

¹ *Obstetric Medicine*, London, 1840, p. 456.

been performed in the world. The case has been erroneously reported time and again in Europe, as one belonging to the Porro-Cesarean class. I will give the case only in abstract, as Dr. Prévôt will at a future day publish it in full, with some other operations. The case is one of considerable interest at this time, and I believe might have had a very different termination, but for the habits of the subject.

Dr. Prévôt's patient entered the Lying-in department of the Imperial Foundling Hospital of Moscow, on November 21st, 1878, in labor, and quite tipsy. She was 33 years old, and the mother of four children. After her labor had continued about four hours and a half, when in a severe pain, during which she became very violent because of her drunken state, her uterus gave way, and at the same moment the infant escaped into the peritoneal cavity. This happened at 12 $\frac{1}{2}$ A.M. of November 22d, and her condition was not reported to Dr. Prévôt until 10 $\frac{1}{2}$ A.M., by which time the state of the patient indicated that traumatic peritonitis had commenced. It was found to be impossible at this late hour to extract the fetus by the vagina, as it was entirely out of the uterus, which was high up and difficult to reach; the woman was also in a state of exhaustion. The rupture, as was afterward found, commenced on the left side of the cervix, and extended 4 $\frac{3}{4}$ inches (12 cm.), involving the whole thickness of the anterior wall. The tissues were so much injured by the laceration that the uterine wound could not be closed by sutures; and the edges of the wound being much inclined to bleed, it was thought essential to remove the uterus as in the Porro method. Owing to the character of the case, Dr. Prévôt was forced to ligate the cervix very low down. He made use of two serre-nœuds with iron wire, under which he placed a silk ligature in form of ∞ . The pedicle was secured at the bottom of the abdominal wound.

Patient's general symptoms improved during the day of the operation. 2d day several attacks of bleeding, because of a rapid involution of the pedicle. Ligatures proved ineffective; wires inclined to cut the tissues when tightened. New ligatures applied, and found also insufficient at the end of 24 hours. Patient gradually failed, and died anemic on the 5th day. During this period, the pedicle, which at the commencement was as thick as the wrist, had shrunk to the size of a finger.

Autopsy.—Abdominal wound healed by first intention; conjugate diam. of pelvis 4 $\frac{3}{8}$ in. In peritoneal cavity, coagulated blood, and some purulent fibrinous exudation.

Uterus found quite normal in tissue, and nothing in its condition to account for the rupture. The diameters of the prepared pelvis are but slightly different from the standard measurements.

The difficulty in this case appears to have been analogous to that which caused one of the Porro operations by Wasseige,

of Liège, to be fatal. The cervix appears to have been in a state of softening, which prevented the constrictors from having a proper effect upon the bleeding vessels. I do not believe that uterine ablation is called for in cases of rupture, unless it may be in some very exceptional ones. Where the pelvis is very much deformed, the method might be justifiable; but to unsex a fine hale woman with a normal pelvis, because of uterine rupture, is not in my opinion a proper act.

There is claimed to be a decided obstacle to the general adoption of gastrotomy as a means of saving life after rupture of the uterus, in the fact that the accident chiefly occurs, particularly in our large cities, in the dwellings of the poor and ignorant, where we cannot expect that the cases will be treated with the care and judgment, or with the hygienic advantages, demanded after so grave a form of operation. Multiparæ among the poorly housed and fed appear to be the particular subjects of uterine rupture. It is true that there are a great many poor; and that they have as a rule more children per capita than rich; but aside from this, the extremely impoverished evidently have more than their relative proportion, as compared with the large class who are a few steps above them in the social scale. There is no grade in society exempt from this accident, but there is a great difference of liability, in proportion, in the different walks of life. Obstetricians called largely in consultation, by physicians and midwives in charge of the poor; or connected as consulting accoucheurs with lying-in charities, have a much larger experience in cases of ruptured uterus than those who simply attend in labor women of a better class, as their regular accoucheur or family physician.

Several accoucheurs long in practice have told me lately that they had never seen a case of rupture. One who had officiated at the delivery of three thousand women, among the better class of the poor and those in the middle walks of life, had never seen a case of this accident. Accoucheurs much younger in years, but connected with charitable obstetrical work, had met with several cases each, but only in consultation.

Now the question arises, Are these poor subjects to be deprived of the evident advantage of gastrotomy, because they do not appear, by their surroundings, to warrant an average

hope of success? In such a condition, science and humanity say operate. Ignorance may present an obstacle to the gaining of assent; but with this obtained, the operator ought to be willing to risk his reputation on the result.

There have been one hundred and fifteen Cesarean operations in the United States, against forty puerperal gastrotomies. No one will pretend to claim that there is a more frequent demand for the former; or that the subjects are in any sense more promising. In the cities of New York and Brooklyn, since the introduction of laparo-elytrotomy and the Porro operation, there have been ten abdominal deliveries in ten years: but in the previous history of these cities, there were but seven, which occurred in thirty-two years, commencing with 1838. Why is this apparent increased demand for the use of the knife? Has the proportion of cases of pelvic deformity increased, or is it that the cases are being more scientifically and wisely treated? If these women of the same class as the subjects for etronotomy are thus treated by the knife, why is it that we find but one woman subjected to abdominal delivery after uterine rupture in the city of New York in eighteen years? There have been three laparo-elytrotomies and one Cesarean section in Brooklyn in ten years: why have they *never* had a gastrotomy after uterine laceration? Baltimore has had four puerperal gastrotomies, which equals those of New York and Brooklyn, and doubles the number in Philadelphia.

It is very evident from these facts that there has been no due proportion between the number of cases requiring the performance of gastrotomy in our cities, and the number of operations. The whole question of performance or non-performance lies with the accoucheurs consulted in the cases. In the little town of Columbus, Miss., which had four thousand inhabitants at the time, a lady twenty-nine years ago (1851) unfortunately ruptured her uterus in labor: gastrotomy saved her life, and under the example set, there have been two more operations since, with two out of the three saved. The second and third subjects were black, and the second bore two children afterward. Many of the thirty-nine subjects in my table were just such as our accoucheurs have attended and delivered by turning, in the belief that their surroundings would make the use of the knife too hazardous. In the language of a learned medical asso-

ciate, "we must not be deterred from doing our duty, by the unfavorable surroundings of the case."

It will be noticed that 21 of the 40 operations in my table were performed either in the open country or in small towns; which leaves but 19 cases, to be divided among all the cities and large towns of the United States; of the 21, 15 recovered; and of the 19, 6 recovered; showing a great preponderance in favor of success in the country and minor towns. Eleven cases were never published, of which five recovered.

329, & 12 1/2

713 LOCUST STREET, PHILADELPHIA,

May, 1880.

... the following table of cases...
... which occurred in the year 1879...
... the proportion of cases...
... and which proved...
... ROBERT F. HARRIS, A.M., M.D.,

