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LOW, OR CERVICAL, CESAREAN SECTION (LAPAROTRACHELOTOMY)

THREE HUNDRED AND THIRTY OPERATIONS,
WITH TWO DEATHS

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Puerperal infection, eclampsia and hemorrhage still carry away thousands of our mothers annually. Many of these lives could be saved if all accoucheurs were fully alive to the possibilities of modern obstetrics. Another factor that contributes to the high maternal mortality—growing bigger every year—is cesarean section. Letters from the U. S. Bureau of the Census indicate that the number of deaths following cesarean section in the death registration area in 1920 was 212; in 1921, 247, and in 1922, 266. The data from this cause do not include such deaths reported jointly with puerperal albuminuria and convulsions, puerperal septicemia, etc. Dr. William H. Davis, chief statistician for vital statistics, points out that it is not possible, from the information given on the death certificates, to determine in all cases whether peritonitis results from cesarean section or is a part of ordinary puerperal sepsis. "However," he says, "the practice of assignment here in the bureau is to charge to puerperal septicemia the joint causes, peritonitis and cesarean section. Therefore, the number of certificates which show that cesarean section was performed was undoubtedly much larger than was indicated by the figures."

That 500 women die annually in the United States following abdominal delivery, I feel sure is not an exaggeration; and I feel equally sure that a large part of this fatality could be eliminated.

In the first place, it is a notorious fact that too many cesarean sections are being done. The indications are too loosely applied, and women are operated on who should not be exposed to the risks of abdominal delivery. We could reduce this element of mortality by reverting to the old and tried obstetric methods of delivery, and we could gain still greater additional reduction if the old classic cesarean were supplanted by the new, low, or cervical operation here described.

Three hundred and thirty consecutive laparotrachelotomies with two maternal deaths (one preventable) is a record that should arrest the attention of all obstetricians and surgeons. Reports of 145 of these cases were published¹ in 1922. The first death occurred in this series; it was from peritonitis. The patient was a bad risk; the weight was 270 pounds

(122.5 kg.); the systolic blood pressure was 208; diastolic, 130; there was albuminuria; the patient had been in labor four days, and many examinations had been made. The second death was of a Mexican woman who died from ether pneumonia, general septicemia and peritonitis—all proved at necropsy by Prof. H. Gideon Wells. Thus, only one death is really chargeable against the 330 laparotrachelotomies.²

These 330 cesarean sections were performed at the Chicago Lying-in Hospital, by the operators listed in Table 1.

The morbidity of the operations, and the causes of rise in temperature are given in Table 2. Vomiting occurred once in fifty-one cases, twice in nineteen and three times in fourteen, but was marked in only four (eighty-eight, or 26.6 per cent.).

TABLE 1.—Operators

| | |
|--------------------------------|-----|
| Dr. J. B. De Lee..... | 154 |
| Dr. H. M. Stowe..... | 6 |
| Dr. E. L. Cornell..... | 33 |
| Dr. J. H. Bloomfield..... | 40 |
| Dr. D. S. Hillis..... | 21 |
| Dr. D. A. Horner..... | 16 |
| Dr. Anna R. Lapham..... | 18 |
| Dr. J. P. Greenhill..... | 22 |
| Residents and outside men..... | 20 |
| Total | 330 |

TABLE 2.—Morbidity, and Causes of Rise in Temperature

| | |
|--|---------------|
| Morbidity of the operations: | |
| Highest temperature 100.4 F..... | 32 |
| Between 100.4 and 101 F..... | 17 |
| Between 101 and 101.5 F..... | 35 |
| Between 101.5 and 102 F..... | 14 |
| Over 102 F..... | 36 |
| Total | 134, or 40.6% |
| Causes of rise in temperature: | |
| Pneumonia, bronchitis, sore throat, etc..... | 26 |
| Pyelitis, cystitis | 9 |
| Suppuration of the wound..... | 24 |
| Lochiometra | 3 |
| Mastitis, 4; breast abscess, 4..... | 8 |
| Peritonitis | 1 |
| Appendicitis (operation) | 1 |
| Phlegmasia alba dolens..... | 4 |
| Unknown | 58 |

Fecal vomiting occurred in one case, but there was no intestinal obstruction (flatus and feces) and perfect recovery. Since we have begun the use of local anesthesia, nausea and vomiting have almost disappeared, and bronchitis and pneumonia are known no more.

Tympany never was a threatening symptom, and in only three cases was it needful to wash out the stomach. Milk and molasses enemas and turning the patient on the abdomen dispelled the symptoms.

Gas pains have not been a troublesome complication; even these have been less since we began to use local anesthesia. They were present in thirty-two cases.

1. De Lee, J. B., and Cornell, E. L.: Low Cervical Cesarean Section (Laparotrachelotomy): Results in One Hundred and Forty-Five Cases, J. A. M. A. 79: 109 (July 8) 1922.

2. The statistics for this paper were prepared by Dr. J. P. Greenhill. Since they were gathered, twenty-three more operations have been performed without a death.

The large percentage of febrile reactions is easily explained. First, the report includes the frequent brief postoperative reaction. Secondly, we do the low operation in cases in which we would not think of the classic section—on women who have been in labor hours and

centae—not such a good showing when one considers that these were presumably clean cases and relatively good risks.

The morbidity of the 136 operations and the causes of rise in temperature are given in Table 3. The incidence of wound infection is noteworthy. Twenty-four of the 330 laparotrachelotomies and twenty-four

TABLE 3.—Morbidity and Causes of Rise in Temperature in One Hundred and Thirty-Six Cases (Classic)

| | |
|--|------------|
| Highest temperature, 100.4 F. (38 C.)..... | 24 |
| Between 100.4 and 101 F..... | 8 |
| Between 101 and 101.5 F..... | 8 |
| Between 101.5 and 102 F..... | 4 |
| Over 102 F..... | 19 |
| Total | 63, or 46% |
| Causes of rise in temperature: | |
| Pneumonia, bronchitis, sore throat, etc..... | 4 |
| Pyelitis | 2 |
| Peritonitis | 3 |
| Suppuration of the wound..... | 24 |
| Pyemia | 1 |
| Appendicitis | 1 |
| Mastitis | 2 |
| Phlegmasia alba dolens..... | 2 |
| Rupture of abdominal wound..... | 1 |
| Unknown | 24 |

of the 136 classic sections suppurred, 7 per cent. and 17.6 per cent., respectively. Vomiting occurred in fifty-two cases, 38 per cent., and was marked in five. Tympany occurred in many cases and required the

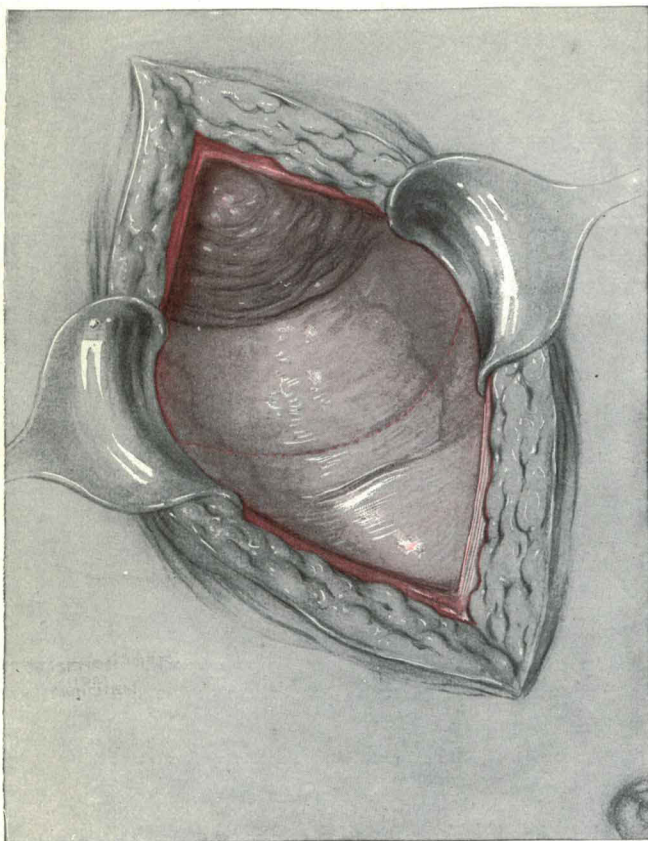


Fig. 1.—Exposure of field in cervical cesarean section, or laparotrachelotomy: Trendelenburg position. The bladder should be empty, with catheter left in. Hypodermic injection of ergot. Median incision from pubis to about 2 inches below navel (6½ inches). The bladder should be looked out for when the abdomen is opened. Now a long, narrow laparotomy sponge is tucked in horseshoe shape around the inside of the opening. The dotted line shows the intended cut, which is 2 cm. below the firm attachment of the peritoneum to the uterus. This incision varies with the height of the bladder on the uterus.

days, with the membranes ruptured likewise hours and days; women on whom forceps had been tried and even colpeurynters had been used for many hours, or on whom numerous vaginal examinations had been made. Outside of such complications, these women are not such good risks because of the long labor, the depleted powers, loss of sleep, acidosis, etc. On the other hand, while we submitted to classic section only the clean cases and women in good condition, early in labor or indeed not in labor, yet we had a larger febrile morbidity, 46 per cent. At the same time, we had much more trouble from peritoneal reactions.

Of the 330 cases, 328 babies were delivered alive; two were dead before operation (one abruptio placentae, one nephritis, macerated fetus); two died shortly after delivery (one atelectasis, one thymus). No death could be assigned to the mode of delivery.

CLASSIC CESAREAN SECTIONS

During the period of time covered by this report, 136 of the classic cesarean sections were performed by the same operators. Seven of these women died; two from peritonitis, three from toxemia of pregnancy, one from heart disease, and one from abruptio pla-

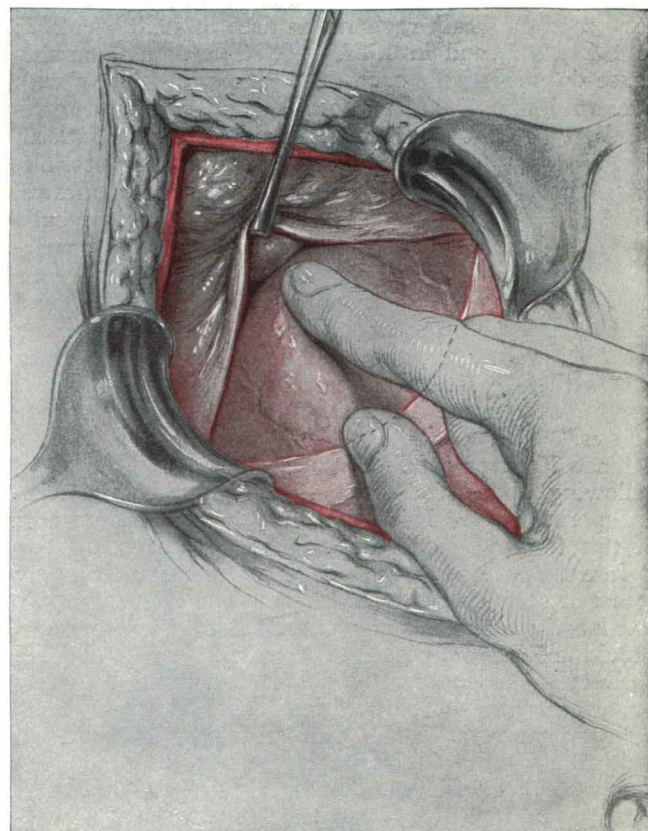


Fig. 2.—Dissecting the lower flap: After the peritoneum has been incised, it is gently stripped toward the pubis, together with the bladder, by means of the finger. Large bleeding veins are tied with fine catgut (rarely needed). The point of the raised peritoneum shown in the illustration is sewed with one suture to the skin of the pubic end of the incision, or held with Allis forceps.

stomach tube more frequently than after laparotrachelotomy. The records are incomplete on these points. Gas pains were noted in twenty-two cases.

The most striking feature of the recovery after the low operation is the absence of postoperative depression and the feeling of well being during the puerperium. The patients have less shock and more of the aspect and sensations of a normal woman than

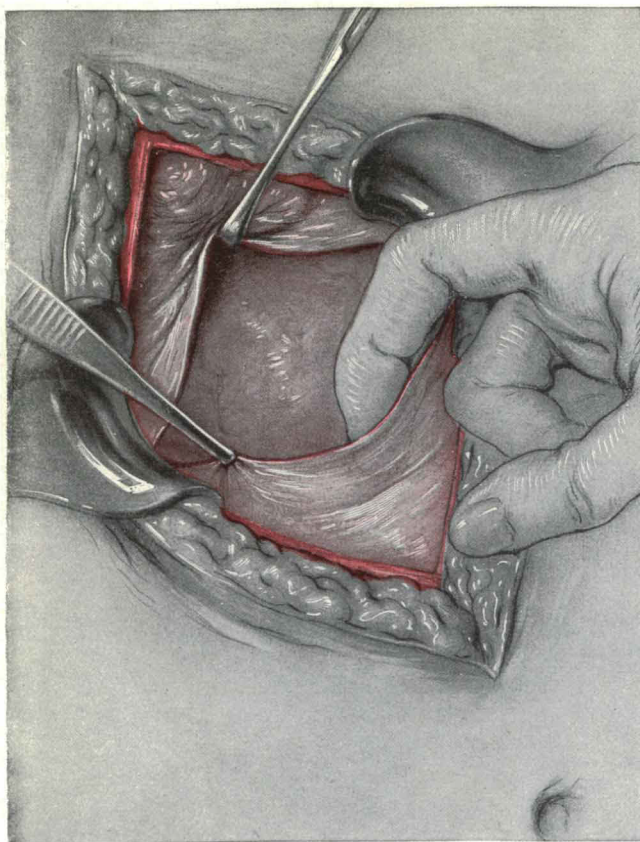


Fig. 3.—Dissecting the upper flap: The upper flap of peritoneum is made in the same way, being pushed up toward the navel to a point which delimits the upper end of the uterine incision. One should be sure that the bladder is pushed down far enough to expose an area of lower uterine segment sufficient for the exit of the child. This should be between 4 and 5 inches long, depending on the size of the baby.

after the classic operation, and often feel better than the usual puerpera. Women who have had both kinds of cesarean section are unanimous in their choice of the low, cervical method, and every one of the numerous physicians who have visited our hospital has been convinced of the better recoveries made by the laparotrachelotomies.

The reason for the greater safety as to life and health of the low operation lies entirely in the location of the opening in the lower abdomen and in the cervix or neck of the uterus, and away from the fundus or contractile portion of the organ. The sutured wound is at rest, it can heal undisturbed by the recurring after-pains (fourteen cases are on record of rupture of the classic cesarean wound by the after-pains); the exact closure of the cervix and its coverage by fascia and peritoneum are a full guarantee against seepage of the lochia into the peritoneal cavity and a strong barrier to the transmigration of bacteria; the cervix stands infection better than the corpus because it is used to it; the lower part of the abdomen is more resistant to infection, and, should all protection fail and suppuration ensue, it occurs in the least dangerous region and one that is readily accessible to the surgeon (not high in the abdomen among the intestines or even under the stomach, liver and spleen). It is true that

no barrier is an absolute one against a virulent streptococcus. Not even an intact uterus can always stop such an infection. What we do with the low operation is to reduce the dangers to a minimum.

I claim the following points of superiority for laparotrachelotomy over the classic cesarean section:

1. A decidedly lower mortality.
2. A decidedly lower primary morbidity.
3. A greater guarantee against rupture of the uterus in subsequent pregnancy and labor (only five cases on record, all during labor, and three improved).
4. A greater guarantee against intraperitoneal adhesions.
5. Much less likelihood of utero-abdominal fistula (no case yet reported), and fewer hernias.
6. The permissibility to extend the indication for abdominal delivery to cases of neglected labor, even when infection is suspected. Thus we reduce the field of craniotomy on the living child almost to the vanishing point (see below).
7. The possibility of giving the parturient a real test of labor before concluding that abdominal delivery is necessary. Thus many of the latter will be avoided.
8. A broadening of the indication for abdominal delivery for the purpose of saving the life of the child and preventing damage to the mother's soft parts. Here, however, I cannot forbear sounding a warning. The general surgeon whose obstetric judgment is not

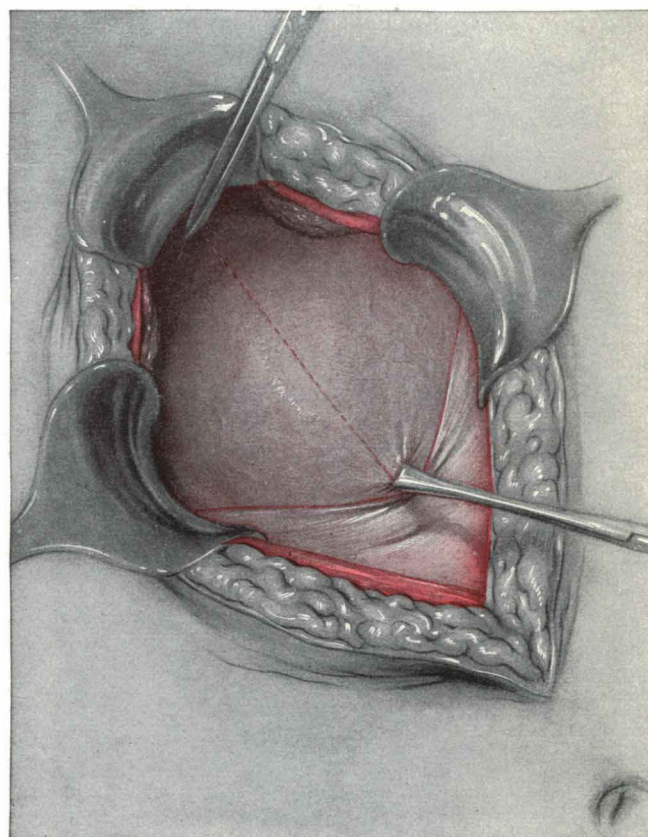


Fig. 4.—Intended incision in the lower uterine segment: The bladder is held by a well rounded retractor. With two Allis forceps (or two catgut sutures, if preferred) the upper and lower ends of the intended incision are delimited and the uterus steadied. Now one should be ready for the "spill," either by a supply of large laparotomy sponges or by the vacuum pump.

as well developed as his surgical should not be misled by the excellent results scheduled here to extend the indication for abdominal delivery to all sorts of cases,

infected and otherwise. Most of our cesarean sections were clean and early ones, in a specially designed maternity and isolated from the risks of infection of a general hospital. While I am profoundly certain that

There is only one drawback to the cervical section. It takes from twenty to thirty minutes longer than the classic operation, but this is a negligible matter with local anesthesia. That the operation is technically more difficult is a fact, but this should not deter any abdominal surgeon.

TABLE 5.—Time of Performance of Operation

| | |
|---|---------|
| Tenth month plus..... | 45 |
| Tenth month | 248 |
| Nine and one-half months..... | 10 |
| Nine months | 19 |
| Eight and one-half months..... | 2 |
| Seven and one-half months..... | 1 |
| Seven months | 1 |
| Not stated (presumably at term)..... | 4 |
| Not in labor..... | 132 |
| Operation with intact membranes..... | 210 |
| In labor less than 12 hours..... | 66 |
| In labor from 12 to 24 hours..... | 68 |
| In labor from 24 to 36 hours..... | 28 |
| In labor from 36 to 48 hours..... | 15 |
| In labor more than 48 hours..... | 21 |
| In labor with ruptured membranes..... | 220 |
| Shortest period of ruptured membranes..... | 4 hours |
| Longest period of ruptured membranes..... | 4 days |
| Number of cases with previous operation, forceps, colpeurynter, gauze | 5 |
| Number of cases with previous vaginal exams.... | 41 |

The indications for the 330 laparotrachelotomies were as given in Table 4.

The time of performance of the operation is given in Table 5.

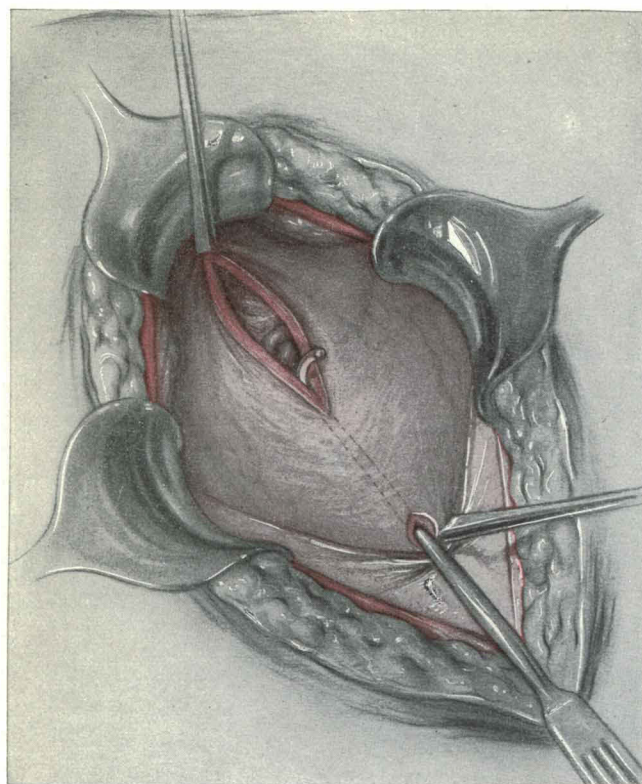


Fig. 5.—A long tonsil knife—bandage scissors can be used just as well—is inserted at the upper end, passed, on the flat, down to the lower Allis forceps, turned, its end brought through, and with a gentle sawing motion the thin uterine wall is cut. One should take good care of the spill, and should not hurry. Bleeding sinuses may be clamped temporarily with Allis or round tongue forceps.

the mortality of abdominal delivery will be reduced by the substitution of the cervical for the high classic operation, I do not wish to appear to be advising the

TABLE 4.—Indications in Three Hundred and Thirty Laparotrachelotomies

| | |
|---|-----|
| Contracted pelvis | 203 |
| Contracted pelvis with abnormal mechanism..... | 7 |
| Dystocia due to soft parts..... | 5 |
| Eclampsia | 3 |
| Toxemia (other than eclampsia)..... | 16 |
| Abruptio placentae | 5 |
| A number of previous stillbirths..... | 8 |
| Cardiac disease | 12 |
| Placenta praevia | 11 |
| Dystrophia dystocia syndrome..... | 26 |
| Pelvic tumors causing dystocia..... | 5 |
| Previous cesarean section (after test of labor)..... | 9 |
| Antefixation of uterus..... | 1 |
| One kidney and pyelitis..... | 1 |
| Malformation of uterus..... | 2 |
| Prolapse of cord..... | 1 |
| Kraske operation for carcinoma of rectum..... | 1 |
| Threatened rupture of uterus..... | 5 |
| Breech in elderly primiparas..... | 3 |
| Fracture of pelvis..... | 1 |
| Contracted pelvis and diabetes..... | 1 |
| Healed third degree laceration and contracted pelvis..... | 1 |
| Hyperthyroidism | 1 |
| Total | 330 |

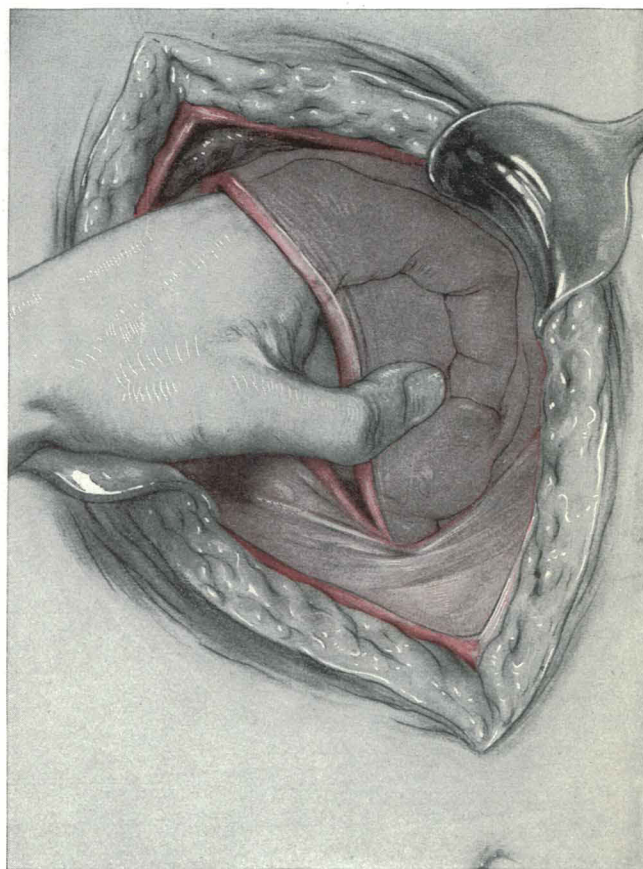


Fig. 6.—Bringing face to front: The face of the child is now pulled into the wound by means of a finger introduced into its mouth. One should not hurry or use force. The throat is cleared with sponges or the vacuum pump. If the occiput comes more readily into the wound it should be steadied with Allis forceps, the scalp being grasped and the forceps applied as usual in a pelvic delivery.

widespread, indiscriminate performance of laparotrachelotomy for all kinds of obstetric complications. Mother Nature may still be trusted, and cool obstetric judgment, taking in all the conditions surrounding a labor case, still needs to be exercised if we wish to keep down maternal mortality in the United States.

While we have not extended the indications for laparotrachelotomy to cover frankly infected cases, as Küstner, Walthard and others in Germany have done,

we have performed it when we would never even consider the classic section.

The records do not show the incidence of adhesions, but the opinion of the operators is unanimous that

incising this portion of the peritoneum, to push the bladder off its cervical attachments with great ease, and to expose an area of the cervix and lower uterine segment large enough for the delivery of the child without encroaching on that portion of the uterus and peritoneal cavity which are concerned in the classic cesarean section.

At the Chicago Lying-in Hospital we have recognized the theoretical value of the two main principles of the low, cervical operation—the avoidance or limi-

TABLE 6.—*Previous Cesarean Sections*

| | |
|--|----|
| One laparotrachelotomy | 22 |
| One classic operation..... | 18 |
| Two classic operations..... | 1 |
| Two laparotrachelotomies | 2 |
| One classic operation, one laparotrachelotomy..... | 1 |
| Vaginal cesarean section..... | 1 |
| Unknown | 2 |
| Total | 47 |

tation of peritoneal exposure, and the location of the uterine scar in the neck of the uterus—and we have devised a method of cesarean section which is considered by us standard for abdominal delivery. We reserve the old classic operation for rare special indi-

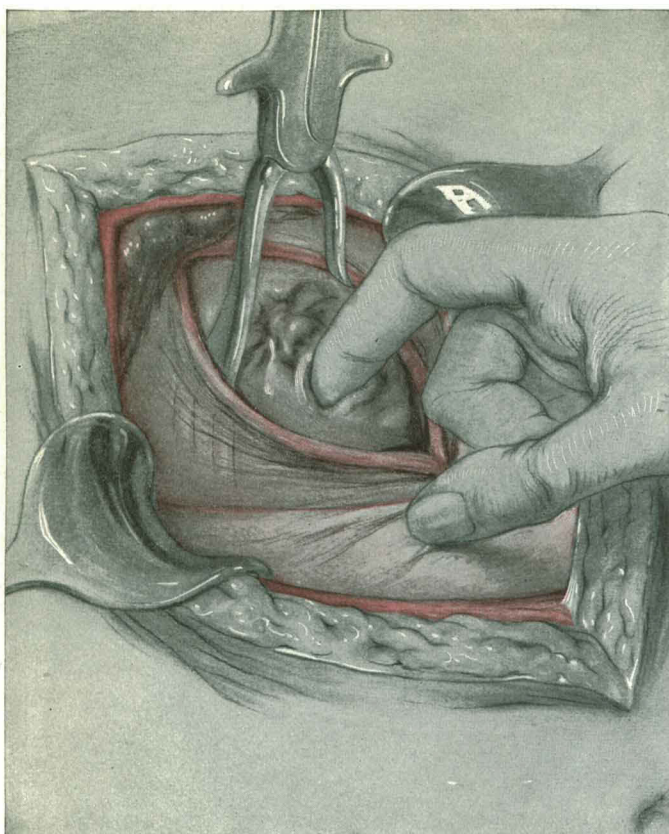


Fig. 7.—The assistant holds the head steady with his finger. The forceps are applied with the concavity of the blades toward the pubis. (In the illustration, straight forceps are being used.) All retractors are removed. Sometimes the head may be expressed by the Kristeller method, or squeezed out from the flanks. The chin is delivered first over the upper (navel end) edge of the wound and the rest of the head by flexion. One should not hurry. The shoulders should be delivered slowly and carefully, time being given for the uterus to contract. The child may breathe freely now. The nurse gives a full cubic centimeter of pituitary extract into the deltoid muscle. The cord is severed; the child is handed to an assistant; then the edges of the wound are grasped with Allis or tongue forceps, as many as are needed to stop bleeding. The separation of the placenta is now observed. Manual removal is not done at once—one should rather wait a few minutes, but not permit bleeding. Credé expression of the placenta is sometimes feasible. The uterus is wiped out carefully and packed temporarily with a long laparotomy sponge. We usually pack the uterus with gauze and lead the end down into the vagina, as a routine. It is necessary if there is too much bleeding and when the cervix is not open enough. If the uterus is sluggish, 1 c.c. of strong pituitary extract is injected directly into it and the aorta is compressed through the posterior wall of the lower uterine segment. One may remove the gauze just before the patient leaves the operating room or within six hours after the operation.

the classic cesarean section is rarely free from them and that after the low operation they are seldom encountered.

THE OPERATION

The low cesarean section technic is rendered possible by certain anatomic changes that occur in the lower uterine segment and the overlying peritoneum and bladder during pregnancy. Owing to the softening and the loosening of the peritoneum and pelvic connective tissues, and to the development of the lower uterine segment in the latter months of pregnancy, and particularly during labor, the cervix is dilated and drawn away from the pelvis and from its relations to the vagina and bladder. The vesico-uterine culdesac is usually obliterated. The peritoneum lies loose on the subjacent structures. It is therefore possible, after

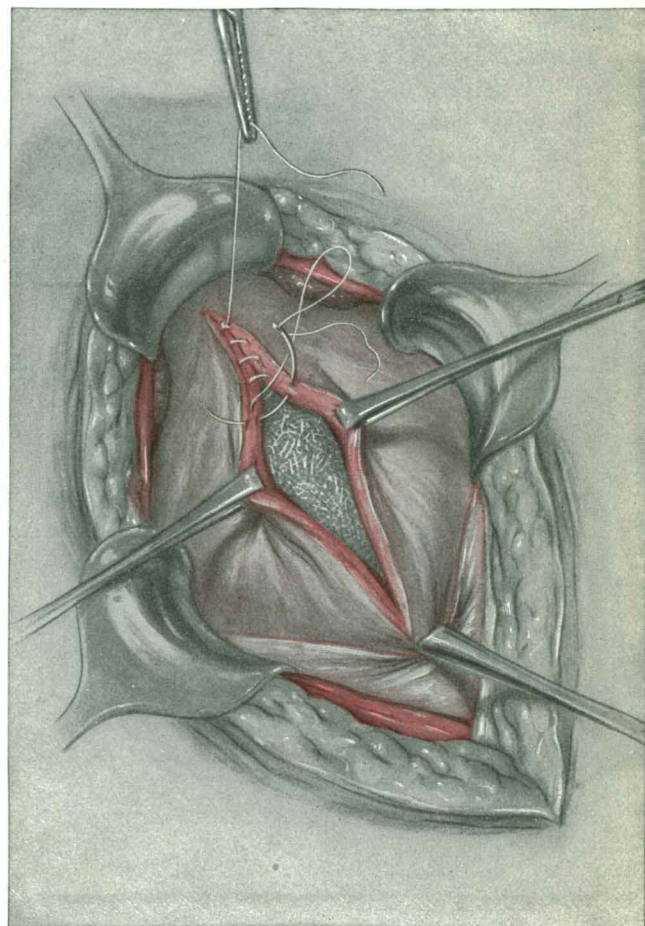


Fig. 8.—Suture of wound: The retractors are replaced. Suturing begins at the bladder end. We use No. 2 twenty-day catgut, taking in half the thickness of the wall in the first row, going down to but not through the mucosa. The gauze is removed later through the vagina.

cations. The technic is based on Sellheim's fourth method, and we have added several features which protect the peritoneal cavity from seepage of lochia and strengthen the scar in the lower uterine segment.

We have given the name laparotrachelotomy to the operation, as this expresses exactly what it is—an incision in the neck of the uterus through the abdomen. It should be noted that this operation is intraperitoneal, and the edges of the peritoneum are not sewed together

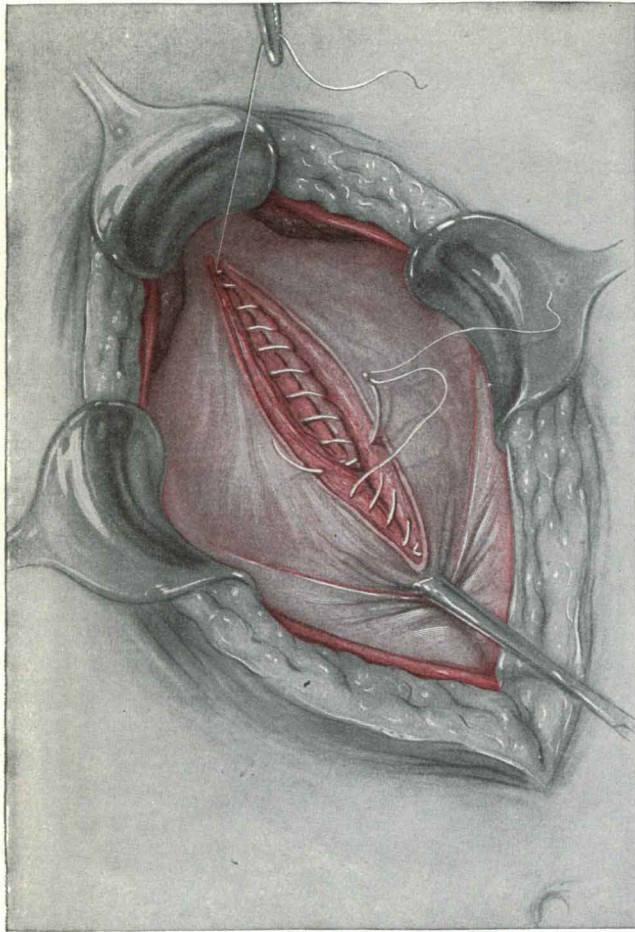


Fig. 9.—Second row of sutures: At the upper end of the incision the suture is locked; then returning, the other half of the wall is sutured, the end being secured with the first knot. We often make this row interrupted sutures.

as in the Frank and the Fromme-Veit-Hirst technic. Vaginal cesarean section would be called colpotrachelotomy, and the old classic section laparohysterotomy.

TECHNIC

The operation is much simpler if the patient has been in strong labor for a long time. Uterine action stretches the lower uterine segment and draws the cervix away from the bladder. We have done laparotrachelotomy in the seventh month of pregnancy before pains had started, but it is technically more difficult. A Pfannenstiell incision may be used, but we usually make the cut in the middle line, and it need be only 14 cm. long, beginning at the pubis. We make the fascial incision 1.5 cm. to the left of the linea alba, and then draw the rectus muscle from its sheath at the middle line and open the peritoneum again extramedially. Thus, the rectus muscle is mortised into the fascia when the wound is closed, preventing hernia. The bladder is usually high on the abdominal wall. It is pushed down and to the right. The lower uterine segment is exposed with retractors, and a cross cut made in the peritoneum, about 2 cm. below its firm attachment to the uterus. This is a grayish line, or

seam, which delimits the lower uterine segment from the body of the uterus. The cut extends in a slightly curvilinear direction, 5 cm. on each side of the middle. The lower flap of the peritoneum is reflected downward, carrying with it the bladder. The upper flap is pushed upward to a point which delimits the upper end of the intended uterine opening.

This method of technic was used by us several years before Opitz and Beck published their descriptions of the operation. After the bladder has been pushed down far enough to expose a surface sufficient for the child's delivery, the upper and lower poles of the area of incision are steadied by Allis forceps, and the hook knife is passed into the uterus, alongside the upper Allis forceps, and brought out at the lower end just at the edge of the bladder. With a slow, gentle, sawing motion, the thin uterine wall is cut. The blood and liquor amnii are sucked out of the field by means of a vacuum pump. The face of the child is now pulled into the wound by means of a finger introduced into its mouth, and forceps are applied, or the head may sometimes be expressed by means of pressure applied in the flanks, or the occiput is led into the aperture and forceps applied in the usual way. Hurry should always be avoided. There is no occasion for it. Pituitary extract is given hypodermically. Ergot was given just after the anesthetic was started.

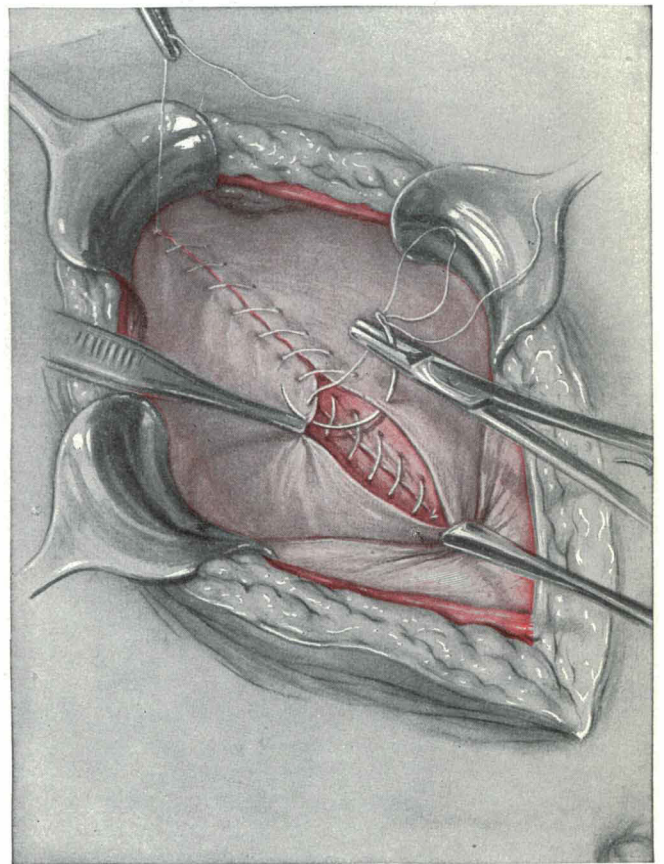


Fig. 10.—The important fascial suture: Now the fascia over the lower uterine segment is reunited with a special continuous suture so placed that the edge of one side overlaps that on the other 0.5 cm. Occasionally a superficial vein bleeds and requires a mattress suture (No. 0 plain catgut). The bladder end of the suture is kept as a tractor to lift the tissues out of the depth of the wound until all oozing has been perfectly stanchied.

The placenta usually separates and appears in the wound if one waits long enough, but we usually wait only three or four minutes, employing this time in

grasping the edges of the uterine wound with tongue forceps to stop the bleeding from the uterine sinuses (which is usually not disturbing) and to lift them up for suture. The placenta may be expressed by the method of Credé or removed manually. If the opera-

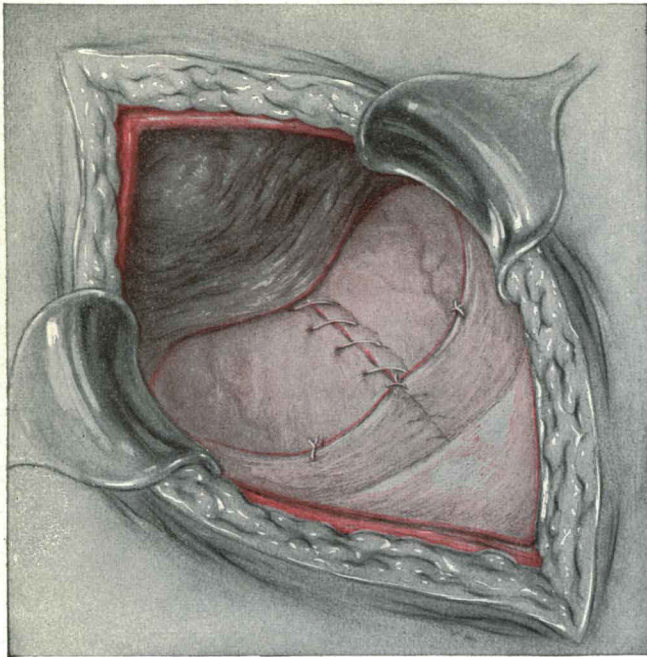


Fig. 11.—Anchoring the upper flap: Now the upper flap of peritoneum is pulled down over the fascia and fastened with a few small single stitches.

tion is done under local anesthesia, the placenta is removed by gentle traction on the cord. Then the uterus is carefully wiped smooth with a dry lap sponge, packed lightly with a narrow gauze strip, which is led into the vagina by means of a shuttle (removed from five to eight hours later), and now the lower uterine segment is carefully sewed up. We use No. 2 twenty day catgut, beginning near the bladder, taking in half the thickness of the wall in the first row, going down to but not through the mucosa. At the upper end of the wound, the suture is locked; then returning, the other half of the wall is sutured, the end being tied to the first knot.

Now the fascia over the lower uterine segment is reunited with a special row of catgut sutures, which are so placed that the edge of one side overlaps that on the other 0.5 cm. This is our second contribution to this operation, and the importance of this fascial layer has been proved by the event. Now the upper flap of peritoneum is pulled down over the fascia and fastened down with two or three stitches, and finally the lower flap, carrying the bladder, is pulled up over the upper flap, and closed with a continuous suture. Of late years in clean cases we have not overlapped the peritoneum, as we found a shortage of this membrane in subsequent sections. Occasionally, an oozing superficial vein requires a fine suture. Before the peritoneum is sewed, all bleeding must be stopped.

The peritoneal toilet is very simple, as blood will be found only in the culdesacs below the round ligaments. If the peritoneal cavity has been walled off with lap sponges, even this soiling of the field may be avoided. Usually the intestines and the omentum are not seen at all.

One should remember that opening the parturient canal through the peritoneal cavity is analogous to opening the intestine, which is another hollow abdominal viscus, and that the same surgical rules apply to the two operations.

We used ether for 267 of the cases, local anesthesia for sixty, ethylene and nitrous oxid and oxygen for the remainder. The steps of the operation during local anesthesia are of course the same, but the technic must be modified according to the usual rules for operating with procain. Since we have perfected the infiltration method and have thus abolished the danger of pneumonia and other pulmonary postoperative complications, we feel justified in still further extending the indications for the abdominal delivery. Nevertheless, the extremely conservative practice of the Chicago Lying-in Hospital is shown by the relative fewness of our sections.

In the last 25,681 deliveries there have been 482 cesarean sections, or one in fifty-three cases. Bill of Cleveland gives his proportions one in sixteen; Potter of Buffalo, one in fourteen; Danforth of Evanston, one in thirty-one; Williams of Baltimore, one in thirty-nine.

CONCLUSION

In this paper I do not wish to discuss the relative merits of the low, cervical, intraperitoneal cesarean section (laparotrachelotomy) as compared with the true extraperitoneal operations of Küstner, Latzko, Asa B. Davis (the gastro-elytrotomy of Ritgen-Baudelocque-Thomas), but I wish to present and to urge on the profession the cervical approach to the parturient canal, feeling that the results in the saving

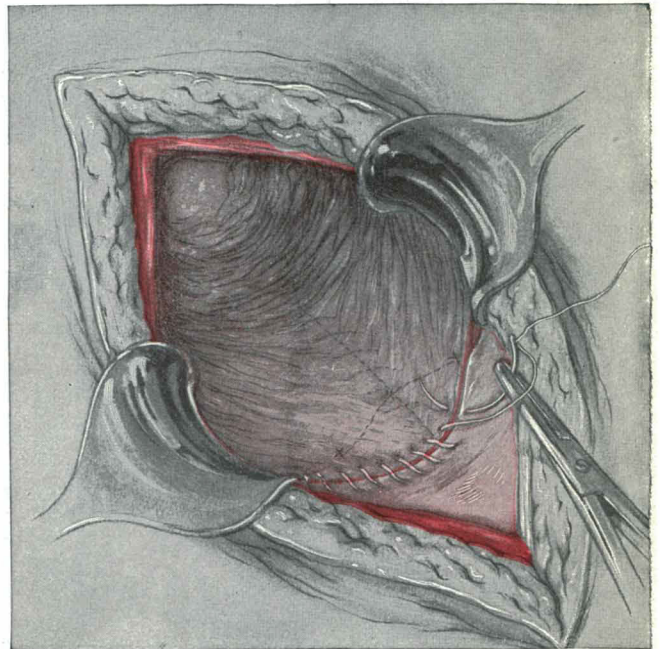


Fig. 12.—Finally the bladder flap is raised up and sewed with a continuous No. 1 twenty-day catgut, the knots being buried under the peritoneum, leaving a hardly visible line of suture which the bladder, when filled, completely hides. In clean cases the two peritoneal flaps are not overlapped but reunited where cut. The peritoneal toilet is very simple. Usually intestines and omentum have not been seen. Drainage is not needed.

of human life will more than compensate for the greater effort in learning the technic and the greater expenditure of time and effort in its execution.

Any surgeon who is capable of doing a cholecystectomy is capable of doing laparotrachelotomy, and after he has done one or two he will be convinced of the simplicity of its performance, the ease with which complications are managed, and the rapidity of the recovery.³

426 East Fifty-First Street.