The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LVI, No. 10

CHICAGO, ILLINOIS

MARCH 11, 1911

CESAREAN SECTION, WITH SPECIAL REFERENCE TO THE TIME OF OPERATION AND ITS TECHNIC *

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One familiar with the history and progress of abdominal surgery must be impressed with the similarity in the development of ovariectomy and Cesarean section. The latter operation is much older than ovariectomy, but the indications for its application are less definite and positive, and it has been universally regarded as a final and desperate effort at delivery when other measures have been tried and have failed. Like ovariectomy in its early development, Cesarean section has been fostered under the care of a few operators, who have struggled on in their efforts despite the discouragement of a heavy mortality. That the Cesarean operation is so far behind ovariectomy and hysterectomy in professional favor and in general application when indicated is due for the greater part to the fact that the surgeon competent to do the operation rarely has access to the patient until she is exhausted, often infected, by futile efforts at instrumental delivery. With patients afflicted with ovarian and uterine tumors no other operation is considered prior to ovariectomy and hysterectomy, and the operations are eminently elective, instead of being, as too often obtains with the Cesarean section, operations of emergency.

The patients requiring delivery by abdominal hysterotomy who are so fortunate as to be confined in maternity hospitals, where every modern facility and surgical skill are at command, compose only a small proportion of the great number who meet the same issues of life and death amid the disadvantages of confinement in their own homes.

The late Dr. R. P. Harris, of Philadelphia, writing in 1889, reported that there had been 175 Cesarean operations in the United States with 110 deaths. He also states that from April, 1884, to February, 1885, six Cesarean sections were done in this country and all of the mothers and children died.¹ Lusk reports on high authority that in the lying-in hospital in Vienna during the nineteenth century up to 1880, not one woman had survived Cesarean section. On equally high authority, he reported that in Paris up to 1873 there had not been one successful Cesarean section in eighty years. I beg to follow this report of Lusk showing the results of the operation prior to the antiseptic era, and the report of Harris after the antiseptic era, but prior

to the perfection of aseptic methods and before the general adoption of Sanger's technic, with present-day results.

In Germany the operation has attained a high degree of perfection in the hands of Sanger, Leopold and Olshausen. The latter (Olshausen) has reported a series of sixty-five cases with a mortality of 4.6 per cent. Reynolds, of Boston, reports in 1907 thirty cases without a death. In all these cases the operation was primary; it was elective, and the patients had not been subjected to repeated examination and efforts at delivery. These results mark the standard that can be attained by early examination, hospital facilities and surgical skill.

Dr. Asa B. Davis, of the Lying-in Hospital in New York, reports (September, 1910) that in a service of 68,200 obstetrical cases at that hospital there were 256 Cesarean sections performed. The maternal mortality was 14.06 per cent.; the fetal mortality 20.08 per cent. Of these, seventy-eight operations were performed by Dr. Davis, with a maternal mortality of 16.67 per cent. Of these thirteen deaths, the report gives among causes of death the following: "prolonged labor, sepsis, suppression of urine; midwife in charge for twenty-four hours"; another "prolonged labor, sepsis before admission to hospital"; and "prolonged attempt at high forceps by private physician; general streptococcemia." Twelve of the sixty-seven women had had repeated Cesarean sections; one had undergone the operation three times and one five times. In some of these cases the operation was necessitated by multiple sarcoma of abdominal and pelvic viscera, or by carcinoma of cervix and vagina; and there were seven cases of eclampsia. A study of this report will convince one that if every reasonable advantage be utilized, if the operation be not delayed and if the patient is not infected beforehand, this operation can be done under proper hospital conditions, in uncomplicated cases, with a mortality as low as that of ovariectomy.

As with all abdominal operations, the splendid results of the present time have been made possible by the discovery and perfection of aseptic surgery. In 1876 Porro made the great contribution to the operation which has forever attached his name to the radical operation. To Cesarean section as previously performed he added hysterectomy. By this procedure both hemorrhage and sepsis were materially lessened. It gave a great impetus to the operation, and in labor complicated by uterine neoplasms will remain a standard and perfected operation. The greater number of the Cesarean operations done by me have been based on this indication, and consisted of the Porro operation with retroperitoneal treatment of the pedicle. It is an ideal operation under such conditions.

* Read before the Southern Surgical and Gynecological Association, at Nashville, Tenn., Dec. 14, 1910.

1. American System of Obstetrics, 1889, Philadelphia, Lea Bros. & Co.

In 1882 Säger made his epochal contribution to the technic of Cesarean section. Previous to this time, after incision of the uterus and delivery of fetus and placenta, the uterine walls were left to be approximated by the physiologic contraction of the uterus. Säger demonstrated the importance of suturing the uterine incision with deep sutures down to, but not including, the uterine mucosa, and adding a neat suturing of the peritoneum over the entire length of the incision. As a result of Säger's addition to the technic of the operation, and the simultaneous improvement in aseptic surgery, the operation was at once followed by unprecedented success and has attained its present high place as an operation of choice.

The operation as practiced by Säger consisted of the median abdominal incision midway of the abdomen; turning the uterus out of the abdomen before opening it; two or three sutures were placed at the upper angle of the abdominal incision and tied after the uterus was delivered to protect the subjacent peritoneum; a sheet of rubber was then placed beneath the uterus to protect the lower peritoneum; the cervix was constricted with rubber tubing to control hemorrhage; the uterus was incised through its anterior wall vertically; fetus and placenta delivered; the rubber tube removed as soon as uterine contraction obtained; the uterine sutures were of silk and were placed as already described; before any of the sutures were tied the uterine cavity was washed out with an antiseptic solution, and the uterine cervix dilated to insure drainage. The uterus was then returned to the abdomen, and the abdominal incision closed.

As in all abdominal operations, this operative procedure as devised by its author has been simplified with experience. It was soon discovered that the elastic tube placed around the cervix produced atony of the uterus and predisposed to post-partum hemorrhage; also that it frequently encircled the child's head and interfered with delivery. The constricting tube was first replaced by manual compression of the uterine arteries by an assistant. Later even this was found to be unnecessary, as the hemorrhage can be effectually controlled by the pressure of a gauze towel packed into the uterine incision while the sutures are being placed. The uterus need not be brought out through the abdominal incision, and all exposure and handling of the abdominal viscera should be avoided. At the beginning of the operation an assistant should place his hands flat on the abdominal wall, one on each side, hold the uterus steady, and keep the abdominal wall closely in apposition with the uterus. A double tenaculum at the upper angle of the uterine incision, another fixed in the lower angle, will give the operator perfect control of the uterus while incising and suturing that organ. The utmost care should be observed to protect the peritoneum from the amniotic fluid. Davis assures us that in no instance has he found it necessary to dilate the cervix to secure drainage. No application of any kind should be made to the uterine cavity after the fetus and placenta have been delivered. The suture material best adapted for the uterine incision is chromic catgut, No. 2. The after-treatment is the same as that of other abdominal operations.

The operation should be performed with the same deliberate care and expedition as are observed in other abdominal operations. There seems to be a general impression on the part of surgeons that exceptional rapidity bordering on haste should characterize the steps of the operation. There is no valid reason for this.

Davis makes the abdominal incision above the umbilicus, and the uterine incision just below the fundus of that organ. I do not believe that the site of the incision is of essential importance. The abdominal wall at the full term of pregnancy is thin and relaxes easily. As soon as the abdominal incision is made and the uterus exposed, long gauze pads wrung out of warm salt solution are placed within the abdomen to hold back the omentum and intestines and protect peritoneal surfaces while the uterus is being emptied and closed.

Unfortunately, in the majority of cases, the operator has no choice as to the time of election for the operation, the patient being usually in active and prolonged labor when he is called on to operate. When the patient is under observation in advance and choice of time for operation can be made, it is preferable to operate after labor has assuredly begun. To elect this time from the menstrual history is inaccurate and will not infrequently result in the delivery of a premature child. No dilatation of the cervix or preliminary vaginal operation, other than thorough cleansing of the vagina, should be done.

With the demonstrated results of Cesarean section, as now obtained, the scope of the operation must necessarily be widened and its application greatly extended. What is most needed at the present time (and this thought has inspired this paper), is an active interest on the part of all abdominal surgeons, and such a campaign of education as was successfully applied some years since in behalf of early operation in other conditions requiring prompt surgical intervention. It is established that the primary Cesarean operation in skilled hands has a mortality quite as low as uncomplicated ovariectomy and clean hysteromyomectomy. With repeated examinations, cervical dilatation and application of forceps, carried out with crude and desultory observance of aseptic precautions, the mortality of abdominal hysterotomy is unnecessarily increased. The cooperation of the surgeon and the general practitioner is necessary to correct this fatal error.

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THE MOBILIZATION OF JOINTS BY MEANS OF THE RUBBER BANDAGE

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The mobilization of joints is a common field of neglect. The patient with a stiff joint following fracture is often told that time alone will bring a restoration of the normal range of motion, which is in a degree true, but the patient so dismissed feels, and is, neglected, for much time can be saved for him by proper treatment. Not this alone, but many a brilliant success in fracture treatment is greatly overshadowed in the patient's estimation by the resultant stiffness following the removal of splints. In addition to the cases in which time alone usually successfully obtains the normal range of motion, is the group of immovable joints, and cases of limited range, which, if neglected, do not improve, and which, with the exception of those of bony ankylosis, exuberant callus or displaced fragments following fracture—cases of mechanical obstruction to be relieved alone by operation—brilliantly respond to proper treatment in various degrees.