HAVEN (Geo)

CÆSAREAN SECTION

With the Report of a Case.

BY

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CÆSAREAN SECTION, WITH THE REPORT OF A CASE.[1]

BY GEORGE HAVEN, M.D.

PELVIC deformity begins when the true conjugate falls below four inches, and the difficulty of delivering a living child through the pelvis at term increases as the diameter decreases, and becomes impossible when the conjugate measures three inches or less. The size of the child in all cases should be estimated so far as possible, and of special moment is the size, hardness and compressibility of the head. Delivery is accomplished in the lesser degrees of contraction by nature, forceps or version. In the greater degrees of contraction three methods are to be considered: first, emptying the uterus during the early months of pregnancy; second, induced labor at the seventh or eighth month; and, third, the major obstetrical operations, namely, craniotomy, Porro, symphyseotomy, and Cæsarean section.

I do not wish in this paper to consider the subject of abortion, and shall confine myself to induced labor and the major operations. It is clearly our duty to select the operation which offers the best ultimate result for mother and child. How far respect for fetal life should determine the method is a matter to be decided by the family, operator, and in Roman Catholic families by the priest. It is, however, safe to say that no operator will destroy fetal life if other methods of procedure offer which are equally, or almost equally, safe for the mother.

Induced labor is by no means an absolutely safe operation for the mother, and the fetal mortality is very large. In twenty-three cases of induced labor, at the

[1] Read before the Obstetrical Society of Boston, December 15, 1894.

Boston Lying-in Hospital, 19 children died. Selecting the cases which are on the records subsequent to the introduction of antisepsis, or, in other words, the cases occurring since 1885, we have one maternal death in 12 cases or a mortality of between eight and nine per cent. Dr. Theodore Wyder, in an exhaustive article in the *Archiv für Gynækologie*, Band 32, reports 225 cases operated upon since the introduction of antisepsis. Of these 12 died, or a mortality of 5.3 per cent.; and the fetal mortality was a little under 50 per cent. This is distinctly less than Winkle's estimate of 66 per cent. for the fetus. With our increasing knowledge of asepsis, I have no doubt that the maternal mortality can be reduced, but fear that it can never be eliminated. The fetal death-rate, with improved methods of caring for the child, may also be reduced but *must* remain very high.

Craniotomy is fatal to the child, unless we accept a report which comes from the West, where the brain substance was replaced and the child lived. The maternal mortality, quoting once more from Wyder, is about five per cent., and his table is made up of the following cases: 104 cases are from the Berlin Polyclinic, with six deaths, or a death-rate of 5.8 per cent.; 35 cases are from the Halle Clinic, with two deaths, or a death-rate of 5.7 per cent.; 76 cases are from the Leipsic Polyclinic, with four deaths, or a death-rate of 5.3 per cent.; in all, 215 cases with a mortality of 5.6 per cent. In the Lying-in Hospital there have been 15 perforations with one death, or a percentage of about six. The latest figures by Leopold place the mortality at two per cent.

I shall only speak of Porro's operation in passing, as the mortality is so high that I think it will only be undertaken in cases where hemorrhage cannot be controlled, or where for some other reason the Cæsarean section is contraindicated. The mortality in the United States, quoting from Dr. Robert P. Harris, is 61 per cent.;

in Italy it is between 38 and 50 per cent., and in Germany it is claimed to be only a little above 10 per cent.

Symphyseotomy has already been spoken of by Dr. Jackson, and his paper has so exhaustively and so ably treated the subject that it leaves nothing for me to add. This brings me to the subject of my paper, Cæsarean section.

Schrœder says, that the first authentic case of Cæsarean section was that of Trautmann in 1610. Much greater antiquity has been accorded the operation, but apparently without sufficient data. The section is indicated when delivery by the natural passage is impossible, or of extreme danger to mother and child. This may be caused by deformity of the pelvis, intro-pelvic growths, or advanced malignant disease of the cervix. For many years the mortality, 80 per cent. and over, which attended the Cæsarean operation, led to its practical abandonment, and we have to thank asepsis and Sänger for its present splendid showing. The former, as through it the danger of opening the abdominal cavity has been reduced to a practical no per cent.; and the latter for teaching us how to do the operation, and for dispelling the belief that, owing to the contraction and relaxation of the organ, suturing the uterine wound was not to be thought of.

Much has been written as to time of election, whether we should wait until the pains begin, and also how much dilatation should be present, or whether we should operate at our convenience any time during the last days of pregnancy. Dr. H. C. Coe believes that the best time to operate is before labor has begun, and his opinion is strengthened by that of Dr. Robert P. Harris. Personally, I can see no object in waiting, and believe that results will be better if we thoroughly prepare the patient for operation, and then operate at our convenience. The argument that we may have a dangerous hemorrhage in cases where labor has not be-

gun, is, I think, false; and one of the strongest proofs to the contrary is to be found in cases where, for one reason or another, the uterus is emptied during pregnancy but before the advent of labor. There are hundreds of such cases; and I have never yet heard of one where the organ did not contract, and of very few where hemorrhage, to any alarming extent, was present. The other argument against the operation of election was that the cervix, being undilated, would not permit free drainage. I believe this to be also a mistake. The cervical canal is always open, and is usually, during the last few days of pregnancy, so soft and dilatable always with multiparæ that the point of the finger can be introduced through it. This certainly gives sufficient outlet for all fluids, and moreover, a strip of gauze can be pushed from the uterine cavity down through the cervix into the vagina, giving all the needed drainage.

One other point, about which much has been written, is whether the uterus should be opened outside or inside the abdominal cavity. Both methods have warm supporters. I think, however, that the consensus of opinion is that it should be opened outside, Dr. H. A. Kelley to the contrary. Many cases where the uterus has been opened inside have later, on account of hemorrhage, necessitated the removal of the organ to the outside.

The cleanliness of the abdominal cavity is much better cared for when the uterus is outside; in fact, it need not be in the slightest degree soiled. The patient should, if possible, enter the hospital several days before the operation. The total amount of urine passed in twenty-four hours should be noted, and a careful examination of the secretion made. If there is any diminution in the amount, she should be encouraged to drink as much water as possible, and should have some mild diuretic. The skin must be in good condition, and hot baths are to be recommended. Her bowels must receive careful attention, and the rectum should

be emptied by enema the day before the operation. The abdomen is to be scrubbed with green soap and peroxide of hydrogen, to be covered with a soap poultice for two or three hours, to be followed by a corrosive one which remains in position until the time for operating. The vagina is scrubbed with soap, and washed out with peroxide of hydrogen and corrosive sublimate, and lastly packed lightly with aseptic gauze. The bladder should be emptied just before the operation. Four assistants are needed; one to etherize, one to handle instruments and sponges, one to hold the uterus, and one to take care of the baby. The instruments are to be sterilized, and the assistants' hands and arms treated as in preparing for any laparotomy.

The incision is in the linea alba, and should be long enough to admit of easily taking the uterus outside. Hot sterilized towels are placed around the organ, and, if possible, the placental site determined; if it cannot be, an incision should be made through the uterine wall, in the median line, just below the top of the fundus, and extend down for about three and a half inches. A rubber ligature is placed lightly round the uterus at the cervical junction, not to be used save in case of grave hemorrhage. One assistant places both hands around the uterus, and in this way controls hemorrhage. If the incision exposes the placenta, it should be rapidly separated, and the child removed by grasping it around the neck, and given to an assistant.

The uterus is now freed from any remnants of placenta and membrane. Deep sutures are introduced about half an inch from the wound, and going down to the mucous lining of the organ, but not through it, and between these superficial sutures unite peritoneum to peritoneum. The number of sutures will depend upon the length of the incision, and will vary from three or four to eight. The material best suited for this purpose is braided silk, and should be of a size sufficient

to insure against breaking. The abdominal wound is to be closed with silk or silkworm-gut; ergotine (five to ten minims) is given subcutaneously, and the patient placed in bed. There is usually very little nausea following the operation, and in many cases the mother is able to nurse her baby.

Before reporting the case upon which I operated I wish to speak of the statistics of the operation. The result of Sänger's operations from 1880 to 1888 showed a mortality of 17.9 per cent. A report comes from Leipsic of 38 cases with three deaths, or eight per cent. I have collected 40 cases, operated upon in the United States since 1888, and of these nine died, a mortality of 22½ per cent. Of the nine deaths one case was operated upon without any antiseptic precautions; one had been in labor six days, and had had forceps and version tried; another had advanced malignant disease, and was dying at the time of operation; still another had been in labor two days, and had had forceps and version. This is true of a fifth, and the sixth death was in a case where labor had lasted five days and where the woman was septic. These cases should not properly be counted. If we omit them, we have three deaths in 34 cases, or a death-rate of between eight and nine per cent. It is also interesting to note that all cases operated upon in hospitals recovered, save one, and this was the case of advanced malignant disease. I think we can then assume that in all properly selected cases the mortality is not greater than nine per cent., and that in cases operated upon at the time of election, in hospitals, the mortality will be very much below nine per cent.

We then have Cæsarean section with a mortality of nine per cent., craniotomy with a mortality of five per cent., and induced labor with a mortality of five per cent.; in other words, Cæsarean section is, taking all cases, nearly twice as dangerous for the mother as craniotomy or induced labor. Undertaken

Case.	Operator.	No. Preg.	Previous Operations.	Age.	Labor.	Conjugate. Inches.	Cause of Operation.	Uterus.	Antiseptic.	Mother.	Child.	Where.	Reference.
1	W. H. Lusk	....	....	..	In labor	..	Probable deformity	....	$HgCl_2$	Well	Well	Hospital	Trans., Gyn., 1888
2	W. H. Lusk	....	....	..	In labor	..	Carcinoma of uterus	....	"	"	"	"	Ditto
3	W. H. Lusk	....	....	..	6½ days	2½	....	Outside	"	"	Dead	"	Ditto
4	W. H. Lusk	....	....	26	....	..	Gen. cont. pelv.	"	"	Dead	"	"	Med. Jour., New York, 1889
5	J. S. Hawley	Sixth	....	32	....	..	Carcinoma of vagina	....	....	Dead (nearly so when op).	"	"	Ditto
6	J. E. Allen	Several misc.	Tried forceps and version before Cæsarian operation	35	6 days Exhausted	2½	...	Outside	Carbolic	Dead	"	Home	Am. Jour. of Ob., New York, 1889
7	J. M. Hays	Fourth	Craniotomy	..	....	..	Flat pelvis	"	$HgCl_2$	"	"	"	N. C. Med. Jour., 1889
8	H. H. Vinke	....	Tried forceps and version before Cæsarian operation	20	2 days	..	....	"	"	"	Well	"	Med. Assoc., Mo., 1889
9	Seth Hill	....	Ditto	21	2 days	..	Gen. cont. pelv.	....	"	"	"	"	Ditto
10	D. H. Fay	....	....	..	36 hours Exhausted	1½	Gen. cont. pelv.	Outside	"	Well	"	"	Trans. Gyn.. 1890
11	H. A. Kelley	First	....	26	2 weeks Exhausted	2½	....	Inside	"	"	"	"	Am. Jour. of Ob., New York, 1890
12	F. M. Donohue	First	....	30	5 days	..	Fibroid	"	"	"	Dead	"	Ditto
13	H. A. Kelley	Fourth	2 craniotomies 1 misc.	..	Not in labor	..	Rachitic fibroid tumor	"	"	"	Well	Hospital	Ditto
14	H. A. Kelley	....	....	..	....	2½	....	"	"	"	"	"	Ditto
15	H. A. Kelley	Third	Forceps	26	....	2½+	Flat pelvis	"	"	"	"	"	Ditto
16	D. Logaker	Twelfth	....	40	30 hours	..	Tumor	....	"	"	"	Home	Med. and Surg. Rep., 1890
17	A. H. F. Biggar	Fourth	3 craniotomies	28	....	..	Rachitic pelvis	....	"	"	"	Hospital	Med. Rec., New York, 1890
18	A. H. F. Biggar	Third	....	34	5 days Septic	..	....	....	....	Dead	Dead	Home	Ditto
19	R. A. Murray	Second	....	25	3 days Exhausted	3⅝	Impacted shoulder, gen. cont. pelvis	....	$HgCl_2$	Well	Well	Hospital	Med. Jour., New York, 1890
20	H. C. Coe	First	....	..	....	3½	Rachitic.	Outside	"	"	"	"	Trans., Gyn., 1891
21	H. C. Coe	Second	....	37	....	..	Fibroid.	"	"	"	"	"	Ditto
22	Henry Gibbons	....	....	..	24 hours	2¼	....	....	"	"	"	Home	Occident. Med. Times, 1891
23	J. N. Bartholomew	Second	....	17	....	2	Rachitic pelvis	Inside	Carbol., 5%	"	"	"	Med. Jour., New York, 1891
24	H. A. Kelley	....	2 craniotomies	..	....	3	Gen. cont. pelv.	"	$HgCl_2$	"	"	Hospital	Ditto
25	H. A. Kelley	....	....	36	....	3	Rachitic pelvis	"	"	"	"	"	Johns Hop. Bul., 1891
26	H. C. Coe	..	....	22	....	3½	Gen. cont. pelv., result of accid't	Outside	"	"	"	"	Internat. J. S., New York, 1891
27	H. C. Wyman	First	....	..	....	..	Deformed pelv.	....	"	Dead	Dead	Home	Med. Rec., New York, 1891
28	Seth Hill	....	....	..	1 week	..	Gen. cont. pelv.	....	"	Well	Well	"	Proceedings Can. Med. Soc., 1891
29	J. H. Corstens	First	....	24	....	3	....	Outside	"	"	"	Hospital	Am. Jour. of Ob., New York, 1892
30	P. H. Ingalls	Second	....	33	24 hours Exhausted	2½	Gen. cont. pelv.	"	"	"	"	"	Ditto
31	William Goodell	Twelfth	....	32	....	..	Carcinoma of uterus	Inside	"	"	"	"	Med. Press, New York, 1892
32	C. Kellock	....	....	..	....	..	Flat pelvis Dwarf	....	"	"	"	Home	N. C. Med. Jour., 1892
33	T. G. Thomas	First	....	20	2d stage	2 5-6	Gen. cont. pelv.	....	"	"	"	Hospital	Med. Rec., New York, 1892
34	A. H. F. Biggar	Fifth	3 craniotomies	28	....	..	" " "	....	"	"	"	"	Ditto
35	A. H. F. Biggar	Fifth	3 craniotomies	34	Same patient as No. 34	..	" " "	....	"	"	"	"	Ditto
36	G. S. Mitchell	First	....	24	2 days Exhausted	1½	Tumor	Outside	"	"	"	Home	Am. Jour. of Ob., New York, 1893
37	M. L. Wescheke	....	....	36	Several days	..	Deformed. Emergency	....	Soap	Dead	Dead	"	Pacific Med. Journal, San Francisco, 1893
38	A. Worcester	....	1 craniotomy, 1 version, at 8 mos.	.	34 hours	4½	Gen. cont. pelv.	Inside	$HgCl_2$	Well	Well	Hospital	Boston Med. and Surg. Jour., 1893
39	A. P. Dudley	Third	2 craniotomies	..	....	2¾	" " "	....	"	"	"	"	Post Grad., New York, 1893
40	George Haven	Third	1 craniotomy, 1 verson. Forceps	35	Not in labor	2⅝	" " "	Outside	"	"	"	"	

in proper surroundings and by skilled operators, I doubt very much whether the mortality is greater, and the fetal mortality is wonderfully less.

It is a pity that statistics are so disappointing. Men prove whatever they wish, and in collecting statistics take many cases which should be omitted; for instance, if it is wished to prove that craniotomy or induced labor is much safer than Cæsarean section, we have but to include all the cases of which I have spoken as unfit for the operation, our mortality immediately rises and the proof we wish is forthcoming. I shall end this paper by reporting a case which I had the pleasure of operating upon in July, 1894.

E. F., born in England, thirty years old, of slight build, weight about one hundred pounds, entered the Boston Lying-in Hospital on the 10th of July, 1894. She was a patient of Dr. George G. Sears, and was referred by him to the hospital. She was pregnant for the third time. Her first pregnancy was terminated by craniotomy, which was followed by sepsis, and she made a very slow recovery. The second was terminated by a very difficult version, subsequent to high forceps, by Dr. Edward Reynolds. The result in both cases was a dead child. Her pelvis was carefully measured by Dr. William L. Richardson, Dr. Charles M. Green and myself with the following results: spines 9 in., crests 10 in., trochanters 10⅞ in., the true conjugates 2¾ in. The conjugate was apparently less than at the preceding delivery. The reason for this has not been determined. It must be stated here that she came to the hospital two months before the operation, seeking an induced labor, but was advised against it by Dr. William L. Richardson, as the danger was considered about equal to that of Cæsarean section, and she was very anxious to have a living child.

I shall make no comments upon the pelvis, save to say that it was too small to allow of but two operations, Cæsarean section and craniotomy. She was pre-

pared for operation by the method already spoken of, and at 11.15 A. M., Sunday morning, July 15, 1894, she was given ether. She was on the table at 11.30. Drs. E. Reynolds, C. W. Townsend, J. W. Bartol, and Harlow assisted, and Drs. Richardson and Green were present. First cut in the abdominal wall 11.33, abdominal cavity opened 11.34. Uterus delivered from abdominal cavity 11.35½. Ligature round neck of uterus 11.36½. Uterus opened 11.38½. Placenta delivered 11.38 and 45 seconds. Baby delivered 11.38 and 55 seconds. Membranes delivered 11.39 and 20 seconds. Sutures begun in uterus 11.42, finished at 12.04. Sutures begun in abdominal wall 12.07, finished 12.19. Patient in bed 12.35.

There was no bleeding from the abdominal incision. Thickness of abdominal wall was about one-half inch. The bleeding from the uterus was very slight after the first gush, which was apparently merely the blood held in the organ. After the sutures were in position there was no bleeding. The abdominal cavity was not washed out, and the organ was merely replaced after suturing and the abdominal walls united. A subcutaneous injection of ergotine was given. The patient had in the evening an enema of bromide of potash. She was for a day or two more or less hysterical, was given bromide and champagne. The baby was nursed from the beginning, and gained steadily in weight. The mother was up in three weeks and left the hospital in four weeks. Her temperature chart is uninteresting. There was a slight rise during the first forty-eight hours, to be followed by a practically normal chart. Her pulse was never above 100. I saw her a short time ago. She was well, and had a remarkably healthy and fine son. The baby's initial weight was eight pounds.

I am indebted to Dr. Courtney for preparing the table of cases.