DELIVERY THROUGH THE NATURAL PASSAGES FOLLOWING CESAREAN SECTION

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THE dictum "Once a cesarean always a cesarean" is taught and followed in clinical practice in many of the recognized obstetric clinics. On this service, however, a delivery through the normal birth canal after a cesarean section is seen so frequently as scarcely to be a matter of remark. I have, therefore, investigated all the cases of this character that have been on the obstetric service of the Johns Hopkins Hospital between January 1, 1925, and April 1, 1930. All patients who come to our dispensary with the history of a previous cesarean section are registered for delivery in the hospital and admitted about one week before the calculated date of confinement. They are followed very closely, and if the section was done for other indications than pelvic dystocia, a spontaneous outcome is expected. If, however, the section was done for a pelvic indication, the patient is always examined by Dr. Williams in a special clinic, when the type of delivery to be expected is decided upon after all factors have been taken into consideration. Sometimes the decision is not made until just before the expected date of confinement, and occasionally, when the degree of disproportion appears moderate, the patient is subjected to a real test of labor before a final decision is made.

In reviewing the literature on this subject, very few articles were found, including ten references during the past three years, of which three were in English, and the remainder in Spanish and French journals. Furthermore, several of the articles were merely case reports. The most complete study was made by Rice and appeared in the American Journal of Obstetrics and Gynecology for May, 1927. He reported a series of 96 patients, 76 of whom had subsequent sections and 20 of whom were delivered vaginally (21 per cent). In the discussion that followed this report, in which several of the leading obstetricians of New York took part, the consensus of opinions was that one cesarean usually merited another, and that the only method of decreasing the number of repeated sections was to limit the number of initial operations. Since the policy in this clinic is quite different from the above, a study of a series of cases of pregnancy following cesarean section was deemed advisable.

Wilson reported a similar group of cases from this clinic in 1926, when he was able to collect 138 cases of pregnancy following section who

were admitted to the Johns Hopkins Hospital from 1902 to 1925, and which occurred in 101 women. Sixty-nine per cent of the patients had a subsequent section; 27 per cent were delivered through the natural passages, and 3 had abortions. Our report begins January 1, 1925, and runs to April 1, 1930. Owing to the larger size of the clinic, we are able to report a relatively greater number of cases, as well as a larger number of deliveries through the natural channel in the past five years than in the preceding twenty-three years. It is interesting to note that Wilson's figures of 69 per cent of repeated section and 27 per cent of vaginal deliveries become 57 per cent and 39 per cent, respectively, in our series.

During this five-year period, 108 pregnant patients were admitted to the Johns Hopkins Hospital who had had a previous cesarean section. In 3 of them the pregnancy ended in abortion, so they are not considered here. Of the 105 remaining, 62 patients had another section, 26 were delivered spontaneously, and 17 were delivered by forceps, or by breech extraction. As we were particularly interested in the last two groups, we did not investigate the 62 repeated section cases.

We were particularly interested in the following points in the history of the original operation: indication for section, type of section, whether the patient had a test of labor, course of puerperium, weight of baby following section and following vaginal delivery, and its biparietal measurement, result to baby in both cases, the length of labor in vaginal delivery, moulding of head and type of pelvis. The patients were also studied in regard to race and age.

Of the 43 patients who were delivered vaginally 5 were not included in this report because the baby was premature, and thus precluded the possibility of disproportion. Of the remaining 38 patients, 16 were white and 22 colored. It is interesting to note that in the whites 6 of the previous sections had been done because of pelvic dystocia, and 10 for other indications, such as eclampsia, toxemia, placenta previa, etc., as compared with 14 and 8 cases, respectively, in the blacks. In none of the 38 cases did rupture of the uterus occur. The initial section had been done in this hospital in 23 patients, and elsewhere in 20. Of the sections done here, 15 were for pelvic dystocia and 8 for other reasons. Of those done elsewhere the indication was equally divided between pelvic dystocia and other reasons.

In the previous sections which could be investigated 5 had afebrile and 20 febrile puerperia. In 6 of the latter the febrile course lasted for three days, while in 14 it lasted longer. The condition of the scar at the time of vaginal delivery is difficult to determine from the records, but in certain cases it was noted as being definitely palpable and at times thin.

Of the 38 patients, 33 had one cesarean section and 5 had two. Five of the 38 had had spontaneous labors prior to their sections. The

age at which the section was done ranged from 15 to 38 years, with an average of 20.18 years. Only four sections were done on patients over 23 years old—at 24, 30, 35 and 38 years, respectively; the average age for the spontaneous labor following the section was 23.10 years, with extremes of 17 and 40 years. Two of the sections were of the low cervical type, two with the high midline incision, and the rest classical with the usual infraumbilical incision. Only seven of the sections were done after the onset of labor, and the rest were elective. In only one was a real test of labor given.

We will now turn our attention to the vaginal deliveries following section. As previously stated, none of the patients showed rupture of the uterus and there were no maternal deaths. The shortest labor in this group was 2⅝₀ hours and the longest 49³⁶⁄₆₀ hours, with the average duration of labor 15³⁶⁄₆₀ hours. This, when we consider that for practical purposes most of the patients are primiparae, is a normal figure. Furthermore, in only three patients did the second stage last over one hour, the majority being around one-half hour. Of the 38 cases, 21 were delivered by forceps in which 12 followed sections for pelvic dystocia and 9 for other reasons 14 delivered spontaneously, 7 following sections for dystocia and 7 following sections for other reasons; the 3 remaining cases were delivered by breech extraction and in each of these the section had been done for other than pelvic reasons. The indication for the majority of the forceps deliveries was in order to save the uterine scar from added strain.

DURATION OF LABOR IN HOURS WITH NUMBER AND TYPES OF DELIVERIES IN PREGNANCY FOLLOWING SECTION

1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35+
5	7	11	3	4	1	4	2
2 Spont. 1 Forceps 2 Br. Ext.	4 Spont. 2 Forceps 1 Br. Ext.	6 Spont. 5 For- ceps	3 Spont.	3 Spont. 1 For- ceps	1 Spont.	1 Spont. 3 For- ceps	2 Spont. 1 Labor 49½ Hr.

The result to the babies is very interesting. Of the babies obtained on section, 11 were stillborn or died before discharge, which is usually on the twentieth day; in this group are included two prematures who died at 2½ months and 8 months, and a third who died at 6 months of hydrocephalus. Three of the section babies were discharged well but could not be traced later, while 24 were known to be well at least one year ofter birth. These figures include all the babies obtained prematurely when the section was done for eclampsia, pre-eclampsia, or placenta previa.

Of the babies delivered through the natural birth canal, only 1 was stillborn following a low forceps in which the total duration of labor was 4⁵⁵⁄₆₀ hours. It is interesting to note that this patient had three

other deliveries through the natural passages following the section—one before and two following the death just mentioned. Fifteen of the babies were discharged well, but could not be traced later; while 22 were well at the end of one or more years. In considering the result to the babies, even after deducting the prematures delivered by section, there is hardly any comparison between the two groups of cases—a fetal mortality of 2.7 per cent being nearly ideal. As far as can be determined by a study of the case records, there was no excessive moulding of the child's head following vaginal delivery. Only one case of intracranial hemorrhage is recorded, and it eventually recovered.

Of the 38 patients studied, 25 are known to have had one vaginal delivery following section, 9 had two, 3 had three, and one patient had four such deliveries. The latter, who has been mentioned above, had two sections elsewhere because of a kyphotic funnel pelvis, but in this clinic she had four easy low forceps deliveries and three of the babies weighed more than those obtained by section. This patient finally returned to us in her seventh pregnancy with an unusually large baby; and for this reason a section followed by tubal sterilization was performed.

We were particularly interested in the patients who had vaginal deliveries following cesarean section for pelvic dystocia. In the other group of cases, assuming a normal pelvis, a normal presentation, an average-sized child, and a satisfactory union in the uterine scar, we see no reason for subjecting the patient to another section without a thorough test of labor. Gamble, in the *Bulletin of the Johns Hopkins Hospital*, 1922, has shown that under ideal conditions the muscle unites perfectly and its fibers cross the site of the incision as if it had never been made. From this ideal there are all gradations up to a scar of decidua and peritoneum alone. He has shown that in practically every case there is some continuity of muscle fiber across the site of the scar. If the section has been well done and there is no infection, the site of the scar should be practically as strong as the rest of the uterus.

On the other hand, in the group in which the section was done for pelvic dystocia, there is a much larger field for the exercise of refinements in judgment. The condition of the scar, the size of the baby, particularly the size of the head as patient approaches term, the amount of moulding that may be expected, which, of course, is greater in the negro than in the white, all enter into the consideration of the case. Finally, there is a certain nicety of judgment which comes only from experience, which enables one correctly to balance the interplaying factors, and permits a successful prediction of the course of labor.

In our series are twenty cases in which the previous sections were done for pelvic indications. Eleven of these had their sections and

	UNIT NO. AND RACE	TYPE OF DELIVERY	WEIGHT	BIP.	MOULDING OF HEAD	RESULT TO BABY	DURATION OF LABOR	2ND STAGE	PELVIS	C.D.	T.I.
I	14,124 White	Spont.	3180	?	None	Well 4 yr.	?	?	Simple Flat	10.25	9.25
		C.C.S.	4180	10	None	Well 3 yr.	---	---			
		Spont.	3650	9.25	None	Well 2 yr.	5 5/60	28/60			
		Spont.	3500	9.25	None	Well	4 55/60	34/60			
II	628 Col.	L.C.S.	2575	9	Moulded	Well 4 yr.	27 36/60	---		10.5	7.75
		L.C.S.	3550	9	None	Well 1 yr.	9 25/60	---	G.C.R.		
		Spont.	2700	8	None	Disch. Well	13 50/60	45/60	Funnel		
III	15,222 Col.	C.C.S.	3440	10	None	Well 1 yr.	---	---	Flat Rachitic	11	8.25
IV	11,600 Col.	L.C.S.	3840	10	Caput	Well 1 yr.	39 57/60	---	G.C.	10.75	7.75
		Spont.	3340	10.5	None	Well 1 yr.	17	25/60	Funnel		
V	278 Col.	C.C.S.	3240	8.75	None	Well 9 yr.	2	---	G.C.R.	11	10
		Spont.	3040	8.5	None	Well 6 yr.	23 54/60	?			
		Spont.	3425	9	None	Well 4 yr.	8 4/60	13/60			
		Spont.	3500	10	None	Well 1 yr.	9 10/60	10/60			
VI	7,595 Col.	C.C.S.	3650	8	None	Well 2 yr.	---	---	G.C.R.	10.5	10.25
		C.C.S.	2790	8.5	None	Well 1 yr.	---	---			
		Low For.	3150	8.5	None	Disch. Well	13 48/60	53/60			
VII	138 Col.	C.C.S.	3260	9.25	None	Well 7 yr.	---	---	Flat Rachitic	10.5	10.5
		C.C.S.	3490	9	None	Well 3 yr.	---	---			
		Spont.	3235	8.5	None	Well 2 yr.	9 6/60	21/60			
		Spont.	3500	9	None	Well 2 yr.	21 15/60	?			
		C.C.S.	3800	9.5	None	Well 1 yr.	---	---			

	UNIT NO. AND RACE	TYPE OF DELIVERY	WEIGHT	BIP.	MOULDING OF HEAD	RESULT TO BABY	DURATION OF LABOR	2ND STAGE	PELVIS	C.D.	T.I.
VIII	?	C.C.S.	2830	9.25	None	Well 1 yr.	4 55/60	---	G.C.R.	10	8.5
	Col.	Spont.	3050	8.75	None	Well 6 wk.	14 45/60	30/60			
		Spont.	2425	8.5	None	Well 1 yr.	15 26/60	?			
IX	12,205	C.C.S. (Bre)	2340	9	None	Disch. Well	---	---	Simple	11.5	8.25
	White	Mid. For.	3700	9.75	None	Disch. Well	6 29/60	35/60	Flat		
X	9,827	C.C.S.	3470	9.75	None	Disch. Well	11 33/60	---	G.C.R.	10.75	8.75
	White	Spont.	3200	8.5	None	Well 1 yr.	20 51/60	31/60			
XI	9,121	Spont.	2520	8	None	Died 1 mo.	15 44/60	?	G.C.R.	10.25	10
	White	Spont.	2907	9	None	Well 8 yr.	?	?			
		C.C.S. (Bre)	3290	9.5	None	Well 6 yr.	---	---			
		Low For.	3050	8.5	None	Disch. Well.	21 14/60	53/60			
			Section Done in Hospital Other Than Johns Hopkins								
XII	6,794	C.C.S.	2890	?	None	Well 7 yr.	---	---	Kyphotic	12	7.25
	Col.	C.C.S.	2500	?	None	Stillborn	---	---	Funnel		
		Low For.	2420	9	None	Well 4 yr.	3 59/60	?			
		Low For.	3320	9.5	None	Stillborn	4 55/60	1 1/60			
		Low For.	3010	9	None	Well 2 yr.	9 47/60	30/60			
		Low For.	3425	10	None	Well 1 yr.	12	7/60			
XIII	26,935	L.C.S.	3190	9	None	Well 2 yr.	34 5/60		G.C.T.	11.5	8.5
	Col.	Low For.	2970	8.5	None	Well 6 wk.	10 53/60	1 48/60			

subsequent deliveries in this clinic; nine had the sections elsewhere. Some difficulty was encountered in obtaining from other hospitals data on the section and the result to the baby; those which could be obtained are reported. The eleven done here are reported in detail. We obtained data on two cases done elsewhere, which brings our total up to 13; and a table of these cases follows. The table itself is practically self-explanatory.

The following points may be emphasized: 11 of the sections were done for pelvic dystocia, while 2 combined a pelvic contraction with a breech presentation; 7 of the patients had elective sections, 6 of them tests of labor ranging from 2 to 39 57/60 hours. Of the 7 who had elective sections, 5 subsequently had a larger baby per vaginam, and of the 6 who had a test of labor, 2 subsequently had a larger baby by the vaginal route. In 6 of the patients the delivery after section was ended by forceps in order to spare the uterine scar, and 7 had a spontaneous outcome. Two of the above patients had a spontaneous delivery before the first section. The duration of labor in the vaginal deliveries varied from 3 59/60 to 23 54/60 hours and there were only two second stages of over one hour. The puerperium was afebrile in 3 of the sections and febrile in 14. Four of the patients had two sections before the vaginal delivery and in at least one of these the puerperium was febrile. A chart of the puerperia is given.

Type of Puerperium

3	Afebrile	
1	Febrile	3 days
1	Febrile	5 days
1	Febrile	6 days
4	Febrile	7 days
1	Febrile	8 days
1	Febrile	14 days
5	Febrile	(length not given)
17	Total	

As regards the children—there was 1 stillborn in 17 sections and 1 stillborn in 23 subsequent vaginal deliveries. All of the other children were well on discharge.

CONCLUSIONS

1. The dictum "Once a cesarean always a cesarean" is not necessarily true in clinical practice.

2. Each case presents a separate problem and decision should not be made until after a careful study of all the facts at hand. In doubtful cases it need not be made until the second stage of labor.

3. The increasing number of sections being done throughout this country and the tendency to use this operation for nonpelvic reasons makes this problem more important.

4. The condition of scar and type of puerperium, while important, do not necessarily contraindicate a vaginal delivery.

5. Even when the initial section was done for pelvic reason, we are often too ready to do a second section rather than give the patient a chance for a normal type of delivery.

6. The outcome for the baby in normal deliveries following cesarean section for pelvic contraction is good.

7. In 38 cases allowed to go through labor following section, no rupture of the uterus occurred.

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