DELIVERY BY THE NATURAL PASSAGES FOLLOWING CESAREAN SECTION.

BY

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In the AMERICAN JOURNAL OF OBSTETRICS for April, 1916, the writer(1) reported two personal cases and quoted thirty-seven others from the literature of delivery by the natural passages following Cesarean section. The personal cases were subjected to natu-

ral labor following a previous Cesarean only after the results of animal experimentation carried out by the writer in conjunction with Dr. Mason(2) had demonstrated that in cats and guinea-pigs a Cesarean scar would withstand any strain which could be borne by the uterine muscle.

Since 1916 additional knowledge of the healing of Cesarean scars has resulted from the researches of Williams, Spalding, Losee and others. Williams(3), in the study of fifty uteri removed at Cesarean section, included ten in which the scar of a previous Cesarean was present. In eight of these it was difficult to distinguish the scar by the naked eye, and histological examination showed regeneration of the muscle fibers with no fibrous tissue scar. In another specimen there was marked thinness of the scar but the cicatrix consisted only of regenerated muscle fibers. In the tenth case the scar had been imperfect and rupture had occurred.

Spalding(4) studied histologically four Cesarean scars and found all thinned and more or less defective. He believes that a sac of membranes enters the depression in a thinned cicatrix and acts in a similar manner to the bag of fore waters in dilating the cervix, thus eventually causing rupture.

Losee(5) studied twenty Cesarean scars removed at the New York Lying-in Hospital, among which there were nine completely or partially ruptured. He also observed that in a perfectly healed scar the muscle is regenerated and no scar tissue is to be found. When infection takes place, however, the cut edges become infiltrated with leukocytes and serum and more or less necrosis of the musculature occurs and union takes place by fibrous tissue formation without regeneration, at least to a normal degree, of the muscle fibers.

Mason(6) reported nineteen previously unrecorded cases of vaginal delivery following Cesarean section, for the most part collected from the personal experience of various Boston physicians. None of these scars ruptured.

On the other hand the writer must admit that a considerable number of cases of ruptured Cesarean scars have appeared in the literature. Findley(7) collected and tabulated sixty-three such cases up to 1916, and since his article additional cases have been reported by Bell(8), Rongy(9), DeCourey(10) two cases, Howson(11) and Novak(12).

The writer wishes to report his further experience with delivery by the natural passages following Cesarean section. He is obliged to confess that this is limited because the number of cases in which

an indication for Cesarean might be present in one pregnancy and not in a subsequent one is necessarily small. It is of course confined to such examples as placenta previa, eclampsia, inertia uteri, contraction ring, abnormal presentations in the primipara, etc. Out of a considerable number of cases referred to the writer for possible selection of natural labor in preference to a repeated Cesarean only a very small number have been suitable for delivery by vagina, as the true mechanical indications for Cesarean necessarily persist in successive pregnancies.

The subsequent history of the two cases previously reported is of interest.

CASE I.—Mrs. J. S. This was the case in which a Cesarean section was done in the first pregnancy for undilatable contraction ring, by a general surgeon after failure of forceps. Normal pelvis. Two years later she was delivered normally of a 7½-pound baby. Since the first communication she has been delivered by normal labor two times more, the babies weighing respectively 9¼ and 10¼ pounds. After the first normal delivery the placenta adhered to the scar and was removed manually. The scar was found to be somewhat thinned at the upper extremity but in spite of this gave no trouble in labor. The placenta was again retained after the second normal delivery but only by contraction of the cervix. The third normal delivery was absolutely without incident.

CASE II, of previous article, Mrs. I. L., was delivered by Cesarean section in the first labor for a relative indication: slightly contracted pelvis of justo-minor type, inadequate pains, and exhaustion. In the second labor the pains were more satisfactory and delivery was effected by high forceps. Both babies were the same weight 6½ pounds. Her subsequent history is as follows: Two years later she miscarried at six months. A year following this she delivered herself normally of a 5-pound baby, and the next year again miscarried at seven months of a 3½-pound baby, all without any trouble with her Cesarean scar.

The following additional cases are here reported for the first time. Mrs. G. F. L. In 1914 delivered by Dr. E. P. Starbird of Dorchester by Cesarean section for a dermoid cyst of the ovary obstructing delivery. Normal pelvis. Mar. 17, 1918, after eight hours of labor the os was fully dilated and the fetal head well in the pelvis, so she was delivered of an O. D. P. by Scanzoni's maneuver. The baby weighed 7 pounds 6 ounces. A slight depression could be felt on the surface of the uterus through the abdominal wall, presumably at the site of the Cesarean scar but labor and convalescence were without untoward incident.

Mrs. J. E. D. First labor terminated by high forceps. Baby died on sixth day of intracranial hemorrhage. Second pregnancy terminated by Cesarean section at the hands of another obstetrician. In her third pregnancy the patient consulted the writer and, as her

pelvis was of normal size, she was allowed to go into labor which terminated normally without incident, the baby weighing 7½ pounds.

In this connection the history of another case which, although not delivered by the natural passages, was subjected to the test of labor with a Cesarean scar in her uterus is of interest.

Mrs. R. C. This patient had been twice delivered by Cesarean section, the first time after failure of the test of labor, and the second by election. The pelvis was slightly justo-minor. At the patient's earnest request she was again allowed the test of labor in her third pregnancy. After four and one-half hours labor the os was fully dilated and the membranes were then ruptured, but after two hours of second stage pains the head did not descend so the patient was finally delivered by Cesarean section. The scar of the former Cesarean was found to be intact in spite of the strain to which it had been subjected.

Dr. Sylvester J. Goodman(13) of Columbus, Ohio, has very kindly given me permission to report three of his personal cases of delivery by the natural passages following Cesarean section.

CASE I.—Para-iv seen by Dr. Goodman in consultation with Dr. Appleman of Columbus. She had had two normal births in Europe. The third pregnancy terminated by Cesarean section in New York after a long labor, exact indication unknown. Measurements: anteroposterior 21 cm., spines 23 cm., crests 27 cm., trochanters 33 cm. The fourth time she was allowed to go into labor by advice of Dr. Goodman and she delivered herself without difficulty.

CASE II.—Primipara, placenta previa centralis. Seen by Dr. Goodman in consultation with Drs. McClure and Baldwin of Columbus. Cesarean section by Dr. Goodman. Eighteen months later delivered by Dr. McClure of 8½-pound baby without complications.

CASE III.—Seen by Dr. Goodman in consultation with Dr. Stevenson of Columbus. Cesarean section for eclampsia fourteen months previously in Cleveland. Measurements, anteroposterior 19, spines 22, crests 24. Delivered normally of 9-pound child.

It is not the writer's purpose in reporting these few cases to enter into an academic discussion of the healing of Cesarean scars, but rather to consider the practical aspects of the subsequent handling of patients once subjected to Cesarean section. In his previous paper the writer stated his opinion that where a uterus had been sutured with care and there had been no subsequent sepsis the Cesarean scar would be strong enough to withstand the distention of a full-term pregnancy or even the strain of labor itself.

J. Whitridge Williams (3) says: "The evidence at our disposal indicates that healing of Cesarean section wounds is generally satisfactory provided convalescence has been normal and ordinarily

does not call for a repetition of this procedure unless definitely indicated by extreme disproportion or some other condition. In patients in whom the convalescence has been abnormal it is probable that the cicatrix has been greatly thinned out. In such cases Cesarean section may be indicated for the express purprose of avoiding a subsequent rupture."

Palmer Findley(7) concludes "that in view of the evidence that not more than 2 per cent. of ruptures occur in subsequent labors, we are not justified in voicing the slogan 'once a Cesarean, always a Cesarean,' neither are we to rely implicitly upon the integrity of the uterine scar in any case."

Novak(12), of Baltimore, says "On the other hand, nothing in the case shakes in any way the position held by most obstetricians that the management of Cesarean patients in subsequent pregnancies should not be too strongly influenced by the fact that rupture of the uterus occurs in a small proportion of the patients, probably not exceeding 2 or 3 per cent."

Having then definite authority for allowing certain patients to go into labor after having been delivered previously by Cesarean section, it remains to formulate certain rules for the delivery of such patients.

What patients may be allowed to go into labor with the expectation of delivery by the natural passages? First, those in whom the indication for Cesarean no longer exists, where the operation was done for eclampsia, placenta previa, abnormal presentations, undilatable contraction ring, inertia uteri, etc.

It makes no difference whether or not one agrees that these conditions are indications for Cesarean section. The fact is that Cesarean is frequently performed for these indications, and the patients again become pregnant and the question of how such women are to be delivered must be decided. The writer believes as a result of his personal experience, experimental study and review of the literature that these patients may be delivered by the natural passages with safety.

Second, those in whom the Cesarean has once been performed for a relative indication after the test of labor has demonstrated failure of the natural forces. Cases are occasionally seen where after one or more Cesareans for definite reasons a rapid normal labor occurs either because of a smaller fetus, better uterine contractions or both. In cases of this nature the patient may be allowed to choose between a repeated Cesarean and the test of labor, realizing that Cesarean may be necessary after all.

When the definite indication for Cesarean persists in repeated pregnancies, as it does in most cases, humanity requires that the patient shall not be subjected to needless suffering by being allowed to go into labor which can accomplish nothing but should be delivered by Cesarean section in advance of labor. Where there has been sepsis following the previous Cesarean there is always reason to suspect the integrity of the scar and such cases should also have elective Cesarean section.

What precautions shall be taken in the management of labor following Cesarean section? First, in the technic of the original operation. Every uterus should be sutured as though the operator expected the patient to go into natural labor in the next pregnancy. Perfect approximation of the uterine incision is the aim to be attained. It does not make any essential difference whether one layer of sutures or three are inserted. The important thing is to approximate the entire thickness of the uterine wall. The inner fibers have a tendency to retract beneath the outer fibers and if particular care is not given to including all the layers of the uterine wall the result will be a thinned and weak scar even if it heals cleanly. Attention must be paid to keeping up cervical drainage for if the uterus fills up with blood and clot, the pressure may force this material between the edges of the incision and hinder perfect healing. It is superfluous to speak of asepsis in this connection.

When it has been definitely decided that the patient may be allowed to go into labor following a previous Cesarean, arrangements should be made for her to enter a hospital at the beginning of labor and equipment, instruments, and a competent operative personnel for possible abdominal interference should be accessible. Pituitary extract in such cases has been used without ill effect, but it is probably safer to resort to forceps if delivery does not progress with reasonable speed. Version is likewise probably less safe than forceps.

CONCLUSIONS.

1. Sufficient evidence has accumulated to justify the conclusion that the presence of a Cesarean scar in the uterus is not sufficient reason for repeated Cesarean section in the absence of any other indication.

2. Cases delivered by Cesarean section for a temporary indication (eclampsia, placenta previa, inertia uteri, abnormal presentations, etc.) may be delivered by normal labor with safety if the scar has healed without sepsis.

3. Such cases should however be delivered in a hospital where equipment for abdominal section is accessible if needed.

4. All Cesarean wounds should be approximated with the greatest care, in order that a firm scar may be obtained and such a scar is in all probability equal in strength to any part of the uterine wall.

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REFERENCES.

1. Williams, J. T., American Jour. Obstetrics, 1916, lxxiii, 425.
2. Mason and Williams, *Boston Med. and Surg. Jour.*, 1910, clxii, 65.
3. Williams, J. Whitridge, *Bull. Johns Hopkins Hospital*, 1917, xxviii, 335.
4. Spalding, *Jour. American Med. Assoc.*, 1917, lxix, 1847.
5. Losee, American Jour. Obstetrics, 1917, lxxvi, 1.
6. Mason, *Boston Med. and Surg. Jour*, 1917, clxxvi, 127.
7. Findley, American Jour. Obstetrics, 1916, lxxiv, 411.
8. Bell, American Jour. Obstetrics, 1916, lxxiv, 950.
9. Rongy, American Jour. Obstetrics, 1916, lxxiv, 954.
10. DeCourcey, *Journal American Med. Assoc.*, 1917, lxx, 840.
11. Howson, *Journal American Med. Assoc.*, 1918, lxxi, 728.
12. Novak, *Journal American Med. Assoc.*, 1918, lxxi, 105.
13. Goodman, Personal communication.