CASE VIII. Male, aged eleven years; entered March 1, 1897, with subacute rheumatism, mitral regurgitation, and a pericardial friction.

March 5th. Pulse weak and rapid; precordial pain and dyspnea; paradoxical pulse. Tapped in fourth left space, just outside the nipple, and two drachms of serous fluid withdrawn. Dulness as in diagram. (Fig. 8.)

March 24th. Area of dulness much smaller. Symptoms abating.

April 1st. Discharged well.

REMARKS ON SYMPHYSEOTOMY.¹

BY GEORGE J. ENGELMANN, M.D.

THIS operation is one which merits our consideration, more especially so as there are those who are inclined to view askance, if not to ignore, the procedure as one of the many fleeting innovations of this progressive era, or as too crude or unsurgical as compared with Cæsarean section, which is now extended, by reason of its success as a hospital operation in elective cases, upon most elastic indications to the minor degrees of pelvic contraction, and even into the realms of version and the forceps, with but little thought of symphyseotomy or premature labor.

This is not a new operation, as it has been known for over a century, and practised even in those early days with fair success and with excellent results as compared with Cæsarean section; yet it has not received the consideration it merits until within the past decade; in that time it has undergone a crucial test, and must now be recognized as one of the accepted procedures of modern obstetric art.

Symphyseotomy holds an unquestioned place in operative midwifery; but its indications are yet to be fixed, its application and limitation to be defined. In the main, we may say that the operation pertains to the intermediate degree of pelvic contraction, that it replaces craniotomy on the living child and premature labor in the earlier months, and must be compared with Cæsarean section on the one hand and high forceps and version on the other, the latter coming in contact with symphyseotomy in the minor contractions, and the former by its relative indications being almost a parallel operation. The indication for pubic section, as I would formulate it, is to be found in the slighter disproportion, two centimetres or less between biparietal and pelvic conjugate, because two centimetres can always be gained by the operation, or, in other words, with the average fetal head of this country, in a pelvis of between 7 and 9 cm. ($2\frac{3}{4}$ to $3\frac{1}{2}$ in.). As yet the various operators differ somewhat as to the sphere of the operation, at least in so far as its limits are marked by pelvic measurements alone, always an uncertain guide.

Pinard gives the widest scope to symphyseotomy, from a conjugate of 8 cm. ($3\frac{1}{8}$ in.), above which he resorts to premature labor, to one of 5 cm. ($1\frac{3}{4}$ in.), within the absolute indications of Cæsarean section, thus confining Cæsarean section to a pelvis of less than 5 cm. ($1\frac{3}{4}$ in.).

Leopold allows a much smaller range to the operation, but likewise applies it to the higher degrees of contraction, to those with a conjugate of 7.5 cm. to 6 cm., the limit for absolute Cæsarean section.

Morissani himself does not carry symphyseotomy quite so far, limiting its application to a conjugate be-

tween 8.8 cm. and 6.7 cm. ($3\frac{5}{8}$ to $2\frac{1}{8}$ inches), very much the class of cases formerly consigned to craniotomy on the living child, and, if elective, to premature labor in the earlier months.

Tarnier gives preference to symphyseotomy in pelves of less than 8 cm., though he reports a series of cases of induced labor in contractions to 6.6 cm. ($2\frac{1}{2}$ in.), unfavorable by reason of the high fetal mortality. Leopold limits premature labor to a conjugate between 8 cm. and 7 cm., cases in which at term he advocates forceps or version in the flat pelvis and version in the justo-minor above 7.5 cm., symphyseotomy below. Tarnier gives preference to premature labor as the method of choice in pelves above 8.6 cm., when it can be inaugurated at the beginning of the ninth month.

Such have been the varied degrees of pelvic contraction to which symphyseotomy has been applied; and though the conditions and circumstances of the individual case will determine our choice of method, we must be guided to some extent by the results of the various operations resorted to in those intermediate forms of pelvic contraction for which symphyseotomy is advocated, and it is well to bear in mind that in these cases the mortality from forceps, version and premature labor is not a low one, but greater, I should say, than from the pubic operation.

The high-forceps operation is reported by Zweifel with a mortality of 7.3 per cent. The Dresden clinic from 1889-1894 records a maternal mortality of 5.17 per cent., and a fetal mortality of 21 per cent., 5.6 per cent. due directly to the operation; this is with a conjugate down to 7.5 cm. Version in this class of cases, to a conjugate of 7 cm. in the flat and to 7.5 cm. in the justo-minor pelvis, gives a mortality of 10 per cent. (Leopold).

Premature labor is practically without danger to the mother (perhaps one per cent.) when the operation is performed, as it usually is, by an experienced obstetrician; but the fetal mortality is great (40 per cent. in the cases reported by Tarnier, with a conjugate between 6.6 cm. and 8.8 cm.); and of these children born before the ninth month few survive the first year unless well cared for and favorably situated.

Craniotomy gives a mortality of perhaps 5 per cent.; Cæsarean section 14 to 20 per cent.; and symphyseotomy, at the utmost, not over 11 per cent.—we may say, from 2 to 11 per cent.

The safety or danger of an operation is a patent argument for or against; and since symphyseotomy and the relative Cæsarean section, as now advocated, apply to the same moderate disproportion between fetal head and maternal pelvis, to a similar class of cases, it may be well to note the relative mortality of these operations more carefully.

MORTALITY OF SYMPHYSEOTOMY.

	Maternal.	Fetal.
1777-1808	31%	72%
1858-1866	20	18
1887-1893, collected by Morissani	11.6	12
Expunged,	0.8	..
1893, in Germany, 1 in 37	2.7	..
To 1893, in America	18	29
Since 1893, in America	13	..
Expunged,	2	..
During 1894, in United States, 44 cases	13.5	27
1894, Farabœuf, Paris	2	..
In 1895, New York, 21 cases	9	14
In 1895, Italy, 53 cases	4	5
In 1895, Pinard, 44	2+	..
In 1895, total, 303 cases from all countries,	11	..
Harris	11	..
Zweifel, 25 cases	0	8

¹ Read before the Obstetrical Society of Boston, February 16, 1897.

MORTALITY OF CÆSAREAN SECTION.

	Maternal.	Fetal.
	100%	..
In Vienna Hospital first 100 years	100	..
In Paris during first 80 years	100	..
In Europe to 1868	46	..
In America to 1868	60	..
In America 1875-1885 (Harris), 33 cases	74	54%
In America 1882-1885 (Harris), 10 cases	90	80
In 1891, 44 cases in United States, Harris	27.5	..
In 1891, 40 cases in United States, Haven	22.5	..
Expunged,	9.0	..
Leopold	15 to 20	..
Sünger	14	..

The lowest mortality of Cæsarean section is 14 per cent.; and that by only one operator, Sünger, in a small series of cases about equal in number to the symphyseotomies reported by Zweifel without a single death; even the mortality of the 303 cases collected by Harris, a total from all countries in 1895, is only 11 per cent.

Such are the results, as they have been obtained in cases taken as they come, one and all, not selected, none expunged, very much more favorable for mother and child than similarly collected Cæsarean sections and more favorable even than small series by expert operators; whilst those facts have but a very relative value, we cannot entirely ignore them.

The operation is decidedly less dangerous than Cæsarean section, and at least equally safe and more certain than forceps or version in the shorter sacro-pubic diameters. It is hardly more serious than premature labor in a pelvis from 7 cm. to 8.5 cm., and far more promising for the child.

Yet we are loth to adopt symphyseotomy, especially as compared to the relative Cæsarean section; it is not so brilliant and impressive an operation and does not appeal to the surgeon of to-day as so strictly surgical. But we must accept that procedure which promises the greatest benefit to our patient with least danger to herself and child. Then we must consider, not alone the great centres, the hospitals, but the country at large; and pubic section is of far more general usefulness, as it is not confined to such an extent as the Cæsarean to the surgical teacher or to the hospital and its trained staff. In fact, the first successful operation in this country, followed by others at a later day, was performed by a young practitioner in Texas.²

Symphyseotomy is eminently adapted to the more trying conditions met with in everyday practice, successful especially as an operation of necessity after forceps have been tried and have failed, when Cæsarean section is very unpromising. Whatever experience may henceforth teach or our preference dictate, with *moderate disproportion between head and pelvis*, not over 2 cm. with pelvic contraction not below 7 cm. (2½ inches), pubic section is to be considered and is our only resource after an unsuccessful trial of forceps if the child is to be saved, replacing the brutal craniotomy of former days; and for the present we must accept such failure of forceps with moderate disproportion of head and pelvis as an absolute indication for symphyseotomy, for which we should always be prepared in the lesser degrees of pelvic contraction.

A REUTER's telegram from Cape Town, dated June 16th, states that satisfactory experiments have been made with a new method of inoculation discovered by Dr. Edington.

Clinical Department.

A CASE OF CÆSAREAN SECTION.¹

BY EDWARD REYNOLDS, M.D.

Mrs. P., thirty-two years old, married, a native of Cambridge, was brought to me when about six months advanced in her third pregnancy, by Dr. L. E. Morgan. Her first labor, which occurred in 1886, was under the charge of Dr. Nichols, of Cambridge, who, with the assistance of Dr. Driver, succeeded in safely delivering her; but only after a prolonged and difficult forceps operation, and at the sacrifice of the life of the child and the integrity of the soft parts of the mother. Her second pregnancy, a year later, was again under the charge of Dr. Nichols, and was wisely terminated by the induction of labor at eight months. Even at this period, however, forceps were again necessary, and a living child was extracted only after a prolonged and difficult operation.

Nearly ten years had elapsed without pregnancy, when the patient finding herself again in this condition, placed herself in Dr. Morgan's hands, told him her history, and informed him that her former attendants had advised her never to go beyond seven months. Dr. Morgan communicated personally with both Dr. Nichols and Dr. Driver, and was emphatically advised by both of them not to undertake a labor at eight months.

Dr. Morgan and I measured the pelvis together, at about six months, with the following results: Distance between anterior superior spines of the ilium 22½ cm. (9 in.); distance between crests of ilium, 26 cm. (10½ in.); external conjugate, 20 cm. (8 in.) diagonal conjugate 4 in.; true conjugate, by estimation, 3½ in. or perhaps a little less; form of deformity, justo-minor. We agreed to see the patient together at intervals of a fortnight and decide upon the course to be pursued in accordance with the development of the child. At seven months the child was small, and the head evidently bore no relation to the size of the pelvic brim, being easily moved from side to side when pressed into the brim by pressure from above. We then told the patient that an induction at that time would probably result in the loss of the child and was unnecessary for her own sake. Both she and her husband stated that they estimated the life of the mother at so much higher value than that of the fetus that they were unwilling to consider the latter in comparison with the slightest increase of risk for the mother; and they consequently consented very unwillingly to a further prolongation of the pregnancy. I now saw the patient at weekly intervals, but even at eight months the child was very small, and entered the brim on pressure from above so extremely easily, that I was unwilling to admit that the time for an induction had come; but recognizing the ease with which one may be mistaken in the size of the child *in utero*, I was unwilling, in view of the history of the preceding labors, to attempt an intrapelvic labor at a period later than eight months. I therefore recommended the Cæsarean section at term, on the ground that it was the safest thing for the child; and upon the whole, safer for the mother than an induction of labor at any latter period, with the chance that this might be followed by a difficult forceps operation. The patient being thoroughly unwilling to accept this decision, I

² Dr. Williams, of Denison, Tex., in 1880 (Harris).¹ Read before the Obstetrical Society of Boston, February 16, 1897.