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# DÜHRSSEN'S INCISIONS*

CARL P. HUBER, M.A., M.D., INDIANAPOLIS, IND.
*(From the Department of Obstetrics and Gynecology, The University of Chicago and The Chicago Lying-in Hospital)*

THE patient who, after many hours in labor with the membranes ruptured, fails to reach complete cervical dilatation and shows evidence of exhaustion with a gradual decrease in the effectiveness of the uterine contractions presents one of the major obstetric problems. In some instances of this type, delivery may be accomplished satisfactorily following Dührssen's incisions of the cervix. This study was undertaken to evaluate the results of this procedure and to determine the dangers associated with it.

This report covers the period from Nov. 1, 1932 to Sept. 1, 1938, during which 162 Dührssen's incisions were performed. In a previous report from the Chicago Lying-in Hospital, Hunt and McGee[1] summarized 592 cases in which Dührssen's incisions were done from 1917 until November, 1932. Series have been reviewed in the literature during the past ten years by Randall,[2] Shir,[3] and Abrams.[4]

*Incidence.*—The 162 cases occurred during the course of 15,529 deliveries. The incidence is 1.04 per cent. In Table I, the incidence at yearly intervals is recorded. In the fifteen years previous to 1932, the incidence was 1.48 per cent as reported by Hunt and McGee. There has been a slight decrease in the frequency with which the procedure has been employed so that during the past year the incidence was 0.9 per cent. Abrams reported a 6.0 per cent incidence of Dührssen's incisions in his series; Randall, an incidence of 0.37 per cent; and Shir, 0.62 per cent.

TABLE I. INCIDENCE OF DÜHRSSEN'S INCISIONS

| | TOTAL PATIENTS | DÜHRSSEN'S | INCIDENCE PER CENT |
|---|---|---|---|
| Nov. 1, 1932—June 30, 1934 | 4,611 | 53 | 1.2 |
| July 1, 1934—June 30, 1935 | 2,909 | 38 | 1.3 |
| July 1, 1935—June 30, 1936 | 2,394 | 22 | 0.9 |
| July 1, 1936—June 30, 1937 | 2,341 | 19 | 0.8 |
| July 1, 1937—Aug. 31, 1938 | 3,274 | 30 | 0.9 |
| Total | 15,529 | 162 | 1.0 |

## TECHNIQUE

Adequate exposure is essential, as it is preferable to make the cervical incisions under direct vision rather than by palpation. A deep mediolateral episiotomy is performed and the cervix exposed with broad retractors. Three incisions are usually made at points corresponding to 10, 2, and 6 on the clock. If the cervix is approaching complete dilatation, bilateral incisions may be sufficient but there is greater danger of subsequent extension. The use of one incision is

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type described as representative of the dystocia dystrophy syndrome. Dystocia of this type was present in 14 of the patients. Eight more of the patients (Table III) were classified in the dystocia dystrophy syndrome type but other factors were more definitely described as indicating the cervical incisions in their management.

TABLE III

| | | |
|---|---|---|
| Pelvis: | | |
| Contracted | 31 | 19.1% |
| Dystocia dystrophy syndrome type | 22 | 13.6% |
| Fetus: | | |
| Average weight | 3410 gm. | |
| Under 2,500 gm. | 9 | |
| Over 4,000 gm. | 17 | |
| Pains: | | |
| Weak or irregular | 69 | 42.6% |
| Adequate | 93 | 57.4% |

TABLE IV. AGE DISTRIBUTION

| YEARS | NUMBER | PER CENT | |
|---|---|---|---|
| 17-19 | 9 | 5.5 | |
| 20-24 | 38 | 23.4 | |
| 25-29 | 62 | 38.2 | |
| 30-34 | 37 | 22.8 | |
| 35-39 | 14 | 8.6 | 32.6 |
| 40-42 | 2 | 1.2 | |

PARITY

| PARA 0 | PARA I | PARA II | PARA III |
|---|---|---|---|
| 144—88.9% | 14—8.7% | 3—1.8% | 1—0.6% |

Edema of the cervix sufficient to obstruct the progress of the labor was present in 7 instances. In 20 instances (Table VI) cervical edema was a contributing factor. Undoubtedly edema of the cervix is due in most instances to the slow progress of labor in these patients resulting in interference with the local circulation so that it should not be considered as the primary complication. The presence of edema does decrease the probability of complete dilatation being reached and it usually becomes a progressive condition ending in necrosis of the cervix. It is for this reason then that Dührssen's incisions become indicated in these patients where edema of the cervix complicates a prolonged labor.

Failure of progress with incomplete cervical dilatation was the indication for incision of the cervix in 48 patients. In many of these patients, the fetus was in a posterior position, and due to the partial deflection of the fetal head with poor accommodation between the fetus and the birth canal, rotation was slow and incomplete. After a prolonged period of labor often complicated by inadequate uterine contractions, progress ceased for a period of several hours. When such a situation develops in spite of adequate supportive treatment and rest, it is frequently safer for both the mother and infant to complete the delivery artificially. In some instances in this group, the development of evidence of fetal distress was the deciding factor as it was felt that without interference the risk for the infant would be increased.

Maternal exhaustion was the predominant factor in 15 instances. It is probable that these patients might be grouped with those showing a failure of progress but the presence of exhaustion was more marked in this group and they are accordingly listed separately. It is to be understood that exhaustion developed in spite of adequate sedation and supportive therapy and was the result of the prolonged period of labor in patients who may have been below par physically.

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Uterine inertia was the indication in 13 patients although the uterine contractions were classified as weak or irregular in 69 (42.6 per cent) of the group (Table III). It is suggested that induction of labor may have been a factor in some of these cases.

Complicating conditions, such as the toxemias of pregnancy and heart disease, may be secondary factors in the decision to perform Dührssen's incisions. In 13 patients in this series toxemia of pregnancy was present and was an undoubted factor in hastening the decision to incise the cervix; but in no instance was the procedure undertaken because of the toxemia alone. Similarly in one patient with cardiac disease, Dührssen's incisions were done at an earlier time than would have been indicated had it not been hoped to spare the patient the strain of an unduly prolonged labor.

The incidence of contracted pelvis is higher than usual in this series. Thirty-one patients (19.1 per cent) of the group (Table III) showed some degree of pelvic contraction. In 13 of these patients, cephalopelvic disproportion of mild degree may well have been a factor in the prolonged labor.

The infants were in many instances larger than usual (Table III). Although the average weight was 3,410 gm. which is not much above average figures; 17 weighed over 4,000 gm., 61 weighed over 3,500 gm., and 9 weighed under 2,500 gm.

## CONDITIONS

Of equal importance with the indications for which this procedure may be performed are the conditions under which it is justified. Dührssen's incisions should be looked upon as a major obstetric procedure to be done only in a suitable environment by a trained obstetrician. The cervix must be completely effaced although dilatation is incomplete. An adequate period of labor without further cervical dilatation should have elapsed unless sudden exigencies demand the completion of the delivery. The situation should be such that delivery is indicated and possible except for the condition of the cervix.

## AGE AND PARITY

The age of the patients in this series varied from 17 to 42 (Table IV). The largest group was between 25 and 29 years. Approximately one-third were 30 years or older. This is significant when one considers that only 18 of the group were multiparas; 88.9 per cent of the patients were primiparas. In one-third of the multiparas the condition of the fetus was the determining factor in the decision to perform Dührssen's incisions while there was an indication from the standpoint of the fetus in only 14 of the 144 primiparas.

## ONSET AND DURATION OF LABOR

The incidence of induction of labor was approximately twice that recorded for all the patients delivered during the same period of time (Table V). Approximately one out of every 5 patients upon whom Dührssen's incisions were done had either a medical or mechanical induction of labor. Labor was induced medically in 14.8 per cent of the group and mechanically in 4.3 per cent.

TABLE V A. ONSET OF LABOR

| | NO. | INDUCED | MEDICAL | MECHANICAL |
|---|---|---|---|---|
| Total series | 15,529 | 1,572—10.1% | 1,241— 7.9% | 331—2.1% |
| Dührssen's | 162 | 31—19.3% | 24—14.8% | 7—4.3% |

TABLE V B. DURATION OF LABOR, AVERAGE 37.8 HR.

| | TOTAL NO. | UNDER 25 HR. | 25-50 HR. | OVER 50 HR. |
|---|---|---|---|---|
| Primiparas | 144 | 18—12.5% | 101—70.1% | 25—17.4% |
| Multiparas | 18 | 11—61.1% | 7—38.9% | |
| | | | OVER 25 HR. | |
| Dührssen's | 162 | | 133—82.7% | |
| Total series | 15,529 | | 983— 6.3% | |

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## FOLLOW-UP STUDIES

Information was available concerning the post-partum condition of the cervix in 100 of the 162 cases (Table XI). The cervix was well healed in 41.4 per cent of the total group. It was poorly healed in 7.4 per cent and deep scars were present in 12.9 per cent.

Three of the patients returned to the clinic because they were unable to become pregnant again. No record of subsequent abortions was obtained. There have been 19 pregnancies concerning which we have knowledge in this group of patients. There have been 16 deliveries in the hospital among these patients (Table XI). The average interval between the performance of the Dührssen's incisions and the second delivery was 23.9 months. The average duration of

TABLE XI. FOLLOW-UP STUDIES

| | NO. | | PER CENT |
|---|---|---|---|
| CONDITION OF CERVIX: | | | |
| Well healed | 67 | | 41.4 |
| Poorly healed | 12 | | 7.4 |
| Deep scars | 21 | | 12.9 |
| No record | 62 | | 38.3 |
| SUBSEQUENT HISTORY: | | | |
| Sterile 3 | Abortions 0 | | Pregnancies 19 |
| | NO. | COMPLICATIONS | FETAL DEATHS |
| SUBSEQUENT DELIVERIES: | | | |
| Natural | 9 | | |
| Low forceps | 2 | | |
| Midforceps | 3 | Prolapsed cord | 1 |
| Breech extraction | 1 | Prolapsed cord | |
| Dührssen's | 1 | | |
| | 16 | | 1 |
| Average duration of labor, 10 hours | | | |
| Average interval between labors, 23.9 months | | | |

labor was ten hours. One patient delivered twice, the first delivery being complicated by prolapse of the cord and resulting in a stillbirth. This was the only fetal mortality in the group. Nine patients delivered naturally, there were 1 breech extraction and 5 forceps deliveries. In one instance a second Dührssen's incision was performed. These 2 deliveries were twenty-six months apart. The first labor lasted 49.5 hours with adequate uterine contractions and a breech presentation. The infant was stillborn following breech extraction subsequent to 3 incisions in a cervix 8 cm. dilated. The second labor was complicated by an occipito-posterior position with poor uterine contractions. It was terminated when the cervix was 7 cm. dilated after 25.5 hours of labor by 3 Dührssen's incisions and midforceps extraction because of the development of irregular fetal heart tones. The patient and her infant left the hospital in good condition.

## SUMMARY AND CONCLUSIONS

This review of 162 instances in which Dührssen's incisions of the cervix preceded delivery shows that the procedure is not without danger. It should be considered as a major obstetric operation indicated only in carefully considered circumstances where termination of labor becomes imperative in the interests of either mother or infant. It should not be postponed, however, until the condition of the patient and her baby increases the danger associated with its performance. Dührssen's

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incisions are not to be considered at the onset of labor as a method of facilitating the delivery. The following statements concerning their employment seem justified:

1. Dührssen's incisions are indicated in a limited group in instances where the cervix is effaced but incompletely dilated.

2. In most instances indications for their use arise in the presence of prolonged labor with failure of cervical dilatation and the development of maternal exhaustion and uterine inertia.

3. The unrotated or incompletely rotated occipitoposterior position is a factor in the production of conditions indicating Dührssen's incisions.

4. Dührssen's incisions are indicated twice as frequently following induction of labor as they are subsequent to the natural onset of labor. Induction of labor in the presence of a firm, long, undilated cervix is often dangerous from this standpoint.

5. The danger of hemorrhage subsequent to incision of the cervix is increased where difficult operative delivery is necessary. It is always a real danger as shown by a 16 per cent incidence of hemorrhage over 500 c.c.

6. Three cervical incisions are associated with less danger of extension or cervical laceration than where one or two incisions are made.

7. The morbidity of 27.2 per cent associated with patients in this group is high. Infection should not be ignored even though there were no maternal deaths in this series.

8. The fetal mortality of 13.0 per cent is high but the review suggests that some fetal lives have been saved.

9. Subsequent obstetric difficulty is not demonstrably increased by the performance of Dührssen's incisions.

## REFERENCES

(1) *Hunt, A. B., and McGee, W. B.:* Am. J. Obst. & Gynec. **31**: 598, 1936. (2) *Randall, L. M.:* Ibid. **25**: 873, 1933. (3) *Shir, M. M.:* Ibid. **26**: 425, 1933. (4) *Abrams, S. F.:* Ibid. **32**: 312, 1936.

## DISCUSSION

DR. LAWRENCE M. RANDALL, Rochester, Minnesota.—Some years ago I wrote a paper on this subject entitled, "Hysterostomatomy," which according to the medical dictionary is the correct term for Dührssen's incisions. The latter term has, however, been associated with this obstetric procedure for so long a time that its use should probably be continued. Our incidence for the use of this procedure is in the neighborhood of 1 per cent.

There are one or two points in regard to this procedure that I think should be emphasized. In the first place I am sure we should give these patients a sufficient test of labor to prove definitely that the cervix is not going to dilate. It must also be emphasized that unless complete effacement of the cervix exists that Dührssen's incisions should not be done. The reason for this is obvious, for if the cervix is not completely effaced the danger of hemorrhage and extensive lacerations is greatly increased. The presenting part should be definitely engaged and there should not be any great disproportion in size between the presenting part and the pelvis. Dr. Huber has said that he prefers to do three incisions in all cases. We have varied from this procedure. Not infrequently it will be found that the posterior portion of the cervix is very long. In these cases an incision of this long posterior lip from the os to the fornix may sufficiently enlarge the os to permit of

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delivery of the presenting part through the cervix. After making this posterior incision, if it becomes apparent that the cervix is not sufficiently dilated, then the anterior incisions may be made. It seems logical after this procedure has been performed to proceed immediately with delivery rather than to wait for the natural expulsive efforts.

DR. LOUIS RUDOLPH, CHICAGO, ILL.—Cervical dystocia is a misnomer, and has no place in obstetrics. It is used in such a manner that the cervix would appear to be separated anatomically and physiologically from the rest of the uterus. The cervical changes are actually indices of the changes of the uterus as a whole, or, in other words the cervical changes tell us what is taking place in the lower uterine segment and the corpus.

Now, cervical dystocia, as the term is used, means either functional or mechanical dystocia (cervical stenosis). The mechanical dystocia is a rare complication during labor. In prolonged labor, we are, however, frequently confronted with a functional dystocia in which we have a pathologic physiology of the uterus as a whole. When a functional cervical dystocia complicates a labor, we can state that spontaneous rupture of the uterus will not occur, unless pressure necrosis takes place.

Dührssen's incisions and operative delivery are serious operative procedures, and fraught with serious potential possibilities which is agreed to by Dr. Huber. He reports a fetal mortality of 13 per cent and no maternal mortality.

At the Cook County Hospital, we are conducting an investigation of prolonged labor with the requirement of complete cervical dilatation before undertaking operative delivery. Our fetal mortality is 8 per cent and there has been no maternal mortality.

The question arises, is it worth while to jeopardize the parturient by Dührssen's incisions plus operative delivery? It can be readily appreciated that the untrained accoucheur may increase the fetal and maternal mortality by this method of delivery. If it gives a fetal mortality of 13 per cent in the hands of the expert accoucheur, is it justifiable to jeopardize the parturient?

I believe that awaiting the second stage of labor before instituting operative delivery is still the safest procedure for the trained obstetrician, as it is for the general practitioner. If Dr. Huber had awaited the second stage of labor and then performed operative delivery, I believe his fetal mortality would not have been any higher, and the risk to the parturients less.

A very common complication of prolonged labor is constriction ring dystocia, which should be recognized before making the cervical incisions by a proper intrauterine examination. In the presence of a constriction ring then the Dührssen technique is contraindicated. In many cases following Dührssen's technique, we find that we have a difficult forceps delivery and frequently find the parturient going into shock during or after the delivery of the child. When a difficult forceps operation in an apparently normal cephalopelvic relation is followed by shock, we can assume that a constriction ring was present.

DR. J. L. BUBIS, CLEVELAND, O.—If the cervix has been taken up, but there is a tight external os dilated only to 2 or 3 cm. in diameter, you may be able to wait for twenty-four or even forty-eight hours, but if then the cervix will not dilate any more, it may be important to terminate labor. If we can apply forceps first and then do the Dührssen's incision, it makes the procedure less hazardous and difficult. The forceps are in place and you can go ahead with delivery. It is not very often that you can pull the cervix down as Dr. Huber has shown and make the Dührssen's incisions according to that technique.

DR. GEORGE F. PENDLETON, KANSAS CITY, MO.—I disagree with Dr. Rudolph. Of the two types of cases that might need some sort of manual dilatation or cutting of the cervix, the first would be the real Bandl's ring. In these cases, I would certainly advocate cesarean section if it is possible, but in some cases an incision is necessary. The second indication is in placenta previa or abruptio placentae.

Of course, if the head of the baby is a perfect hemisphere presentation, dilatation of the cervix and effacement should be exactly symmetrical. If there is an ovoid presentation, effacement is difficult, and one side is thinner than the other long

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before the start of labor. The result is that you get tears of the cervix, not anteroposteriorly, but laterally. This is because an ovoid presentation always dilates the cervix more on one side than the other, and the weakest spot is the one to tear.

I do not like three incisions. It seems to me it is wiser to cut the very thin spots—a little bit of the thin spot on each side. You will get a much better cervix afterwards. You may have to cut a little farther up, but you will have two cuts instead of three.

DR. HUBER (closing).—We have not felt that Dührssen's incisions should in any way compete with cesarean section, and that Dührssen's incisions should be reserved for those patients who during the course of labor have unanticipated difficulty. We have felt that we have been conservative in choosing Dührssen's incisions for the patients in this group. We believe that by doing Dührssen's incisions some infants have been saved that would otherwise have been lost. We must anticipate a considerably higher fetal mortality in such a group than we would have in all cases on the service.

We have very little trouble in obtaining adequate exposure of the cervix, and these incisions can usually be performed under direct visualization. I believe that less difficulty will be encountered if the incisions are made before the forceps are applied, as the presence of the forceps inside the cervix does interfere with adequate exposure.

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