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TRANSVERSE PRESENTATION OF THE FETUS

by

Richard E. Jackson

A Thesis
Presented to the Faculty of
The College of Medicine at the
University of Nebraska
For Partial Fulfillment for the
Degree of Doctor of Medicine

Under the Supervision of
Joseph C. Scott, Jr., M. D.

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INTRODUCTION

Transverse presentation, or transverse lie, is a position of the fetus where in the long axes of the fetus and mother intersect. The presenting part, therefore, is usually the back, or one or several limbs. Obviously, normal labor and delivery cannot occur unless this position is altered to permit the breech or vertex to enter the pelvic outlet. Although spontaneous version has been noted, it is rare, and neglected cases brought from a wide rural area to a large hospital in India have an 82% fetal mortality rate. Fortunately, such a dangerous complication is rare, having an incidence ranging from 1 in 55 deliveries at a hospital in India seeing only unusually complicated cases to 1 in 1200 deliveries at the Methodist Hospital in Brooklyn, where external version is regularly attempted in the last 10 weeks of gestation. Some more representative incidences are given in Table I.

It is the purpose of this thesis to report the experience with transverse presentation at the University of Nebraska College of Medicine Hospital for a 10 year period between 1955 and 1965. Some conclusions might be made from this data relative to the etiology and management of this condition.

TABLE I
SAMPLE INCIDENCES OF TRANSVERSE
PRESENTATION

<u>Incidence</u>	<u>Author</u>
1 in 376 deliveries	Nadkarni, et. al. ⁹ 6
1 in 322 deliveries	Johnson
1 in 613 deliveries	Kramer, Skalley ⁷ 12
1 in 204 deliveries	Yates
1 in 355 deliveries	Posner, et. al. ¹⁰
1 in 379 deliveries	Winkler, Cangello ¹¹
1 in 223 deliveries	Jackson (this report)

MATERIALS AND METHODS

The obstetrical case records of the University of Nebraska College of Medicine Hospital for the period from July, 1955 to July, 1965, were studied. Data collected from each case included the mother's age, parity, and the length of gestation; the infant's weight, Apgar, fetal heart tones on admission, and eventual outcome. In each case, particular attention was paid to the method of delivery, and possible contributing diagnoses. Twins were included in this study.

RESULTS

There were 44 cases of transverse presentation during the period of July, 1955 to July, 1965, of a total of 8,039 births, resulting in an incidence of 1 in 174 deliveries (including twins) or 1 in 223 deliveries (excluding twins). All cases were of 25 or more weeks gestation (Table II). The range of fetal weight is as noted in Table III. A number of complicating and contributing factors, the most common being grand multiparity, are shown in Table IV. The distribution and management of twin births is shown in Table V.

TABLE II
TRANSVERSE PRESENTATION
UNIVERSITY OF NEBRASKA

<u>Weeks of Gestation</u>	<u>Total</u>	<u>Single</u>	<u>Twin</u>
36 or more	28	24	4
32 - 36	5	4	1
28 - 32	8	7	1
27	2	1	1
25	1	0	1
	—	—	—
TOTAL	44	36	8

TABLE III
TRANSVERSE PRESENTATIONS
UNIVERSITY OF NEBRASKA
INFANT WEIGHTS

<u>GRAMS</u>	<u>SINGLE BIRTHS</u>	<u>TWINS</u>
500 - 999	0	2
1,000 - 1,499	3	2
1,500 - 1,999	8	2
2,000 - 2,499	7	3
2,500 - 2,999	7	4
3,000 - or more	11	3
	---	---
TOTAL	36	16

TABLE IV
TRANSVERSE PRESENTATIONS
1955 - 1965
COMPLICATING AND CONTRIBUTING FACTORS

Parity 6 or more	12
Premature Rupture of Membranes	6
Prolapsed Cord	4
Contracted Pelvis	3
Placenta Previa	3
Low-Lying Posterior Placenta	2
Abruptio Placenta	2
Twin Gestations	8 (16)
Fetal Anomaly	1
No Factors Found	8

TABLE V
TRANSVERSE PRESENTATIONS
UNIVERSITY OF NEBRASKA
1955 - 1965
METHOD OF DELIVERY

Single Births	36
Vaginal Delivery	14
Cesarean Section	22
Twin Births	
Vaginal Delivery	6
Cesarean Section	2

Infants delivered by cesarean section numbered 26, with two sets of twins and 22 single births. Fifteen were mature (over 2500 Gms.), and 11 premature. In the two sets of twins, all four babies presented transversely. One pair of twins were both over 2500 Gms., but the other pair consisted of a 2585 Gm. infant and a 2168 Gm. infant.

There were 22 infants delivered vaginally. Six of them were the second of twins. In each case, the first twin was not transverse; five were vertex, one was breech. Nine of the 22 were mature, and 13 were premature. Of the six twins, four were premature.

Of the infants born by cesarean section, all 26 were live births. There were three neonatal deaths, all from prematurity and atelectasis. Two of the remaining infants have been classified as having "possible residual damage," in that at the age of two years, they had not yet learned to walk. The remaining 21 infants had a favorable outcome (Table VI).

Of the infants born vaginally, 18 of the 22 were live births. Four were in utero deaths. One weighed 2500 Gms., delivered by Braxton-Hicks version, and was found to have had a prolapsed cord. The other three were delivered by internal podalic version and breech extraction (IVBE). One weighed 3440 Gms. and the cause of death was not determined at autopsy. Another weighed 1707 Gms. and

again no cause was found. The fourth baby weighed 1500 Gms. and died of prematurity and immaturity. Six of 18 live births died. Four died of prematurity and immaturity, one of birth injuries (intracranial hemorrhage) and one died of congenital anomalies (achondroplasia). Of the remaining 12 babies, two suffered injuries during version and extraction. One sustained a fractured humerus, and another had a partial paralysis of the left arm until age three months. Ten had a favorable outcome (Table VII).

DISCUSSION

It is difficult to compare the incidence of transverse presentation at various institutions, due to differences in populations studied, amount and quality of prenatal care, and definition of transverse presentation. Several reports exclude twins,^{6, 7} and one study included¹ only infants born after gestation of 36 weeks or more. The current study included twins and prematures over 25 weeks of gestation.

In the present series, contributing factors included multiparity, cephalopelvic disproportion, twin gestations, prematurity, hydramnios, abruptio placenta, placenta previa, low-lying posterior placenta, excessive size of the fetus, and fetal anomaly. Other causes mentioned¹ in the literature include hydrocephaly,¹ congenital abnormality⁶ of the uterus,¹ pendulous abdomen,¹ uterine fibroids,⁶ ventral hernia,⁶ and previous uterine suspension.⁴

TABLE VI
TRANSVERSE PRESENTATIONS
FETAL OUTCOME
CESAREAN SECTION

Live Births	26
Mature	15
Premature	11
Deaths <u>in utero</u>	0
Neonatal Deaths	3
Possible Residual Damage	2
Favorable Outcome	21

TABLE VII
TRANSVERSE PRESENTATIONS
FETAL OUTCOME
VAGINAL DELIVERY

Live Births	18
Mature	9
Premature	13
Deaths <u>in utero</u>	4
Neonatal Deaths	6
Possible Residual Damage	2
Favorable Outcome	10

A distended urinary bladder was the sole cause in one case, and the baby spontaneously converted to a vertex presentation, following catheterization preparatory to cesarean section.³

Since many of these factors are intrinsically hazardous to the mother and fetus (e.g. abnormal placenta, prematurity, congenital anomalies), and since there are other complications purely secondary to transverse lie (cord prolapse, traumatic delivery, uterine rupture), the mortality rate is high for several reasons. One writer proposed that since transverse lie is associated with other risky conditions and intrauterine fetal death, the abnormal presentation may be the result of a doomed fetus' attempt to overcome an unfavorable uterine environment.¹⁰ Other writers¹¹ ascribe the lowered mortality rate recently seen, not only to increased use of cesarean section, but rather to better management of the complications often associated with transverse lie.

The conclusion of most other reports is that cesarean section of all cases of transverse lie leads to reduced fetal and maternal mortality rates.^{1, 2, 7, 9}

Some authors advise IVBE in the presence of full dilation and intact membranes, with the absence of cephalopelvic disproportion, placenta previa, high parity, or prematurity.^{5, 6, 11}

Still other reports recommend IVBE only in some cases of prematurity.^{8, 10}

Following is a case report illustrating one of the hazards of such an approach.

Case Report - V. V., UNH# 1-32-31:

Twenty-three year old, negro female entered the University of Nebraska College of Medicine Hospital on March 12, 1957. The membranes were intact, the fetal heart tones were audible, the cervix was fully dilated, with the fetus in a transverse lie position, the head in the right half of the pelvis, the breech in the left half. Under general anesthesia, IVBE was carried out, the operator experiencing much difficulty extracting the feet. After delivery of the body, nuchal arms were encountered, and a contraction band developed about the head. The head was finally extracted, and the baby (UNH #1-69-35), weighing 2004 Gms., died 21 minutes postpartum. The diagnoses on the autopsy report included:

- 1) subcutaneous hemorrhages on calvarium and both lower extremities
- 2) Hemorrhage of lung parenchyma, right middle and lower lobes, left lower lobe
- 3) congenital atelectasis
- 4) laceration of umbilical vessels, hemorrhage into falciform ligament
- 5) subcapsular hematoma of liver
- 6) laceration of liver
- 7) hemoperitoneum
- 8) hemorrhage in tentorium and falx cerebri
- 9) prematurity and immaturity

The mother's course was complicated by postpartum hemorrhage and shock.

Hourglass contractions of the uterus may have been present in this case, both from the course of the delivery and the fact that transverse lie is present in over 20% of such cases. In one series, only babies delivered by cesarean section survived when transverse lie was associated with hourglass contractions of the uterus.⁴

Another hazard of IVBE is discovering a previously unnoticed placenta previa, which should have been suspected¹¹ in a case of transverse lie.

CONCLUSION

The lowest fetal mortality rates in cases of transverse lie are obtained when cesarean section is the method of delivery used. This is based on the favorable outcome rates obtained with cesarean section compared to IVBE at the University of Nebraska College of Medicine Hospital between 1955 and 1965, and on the reports of other series.

SUMMARY

Forty-four cases of transverse lie out of 8039 deliveries occurred at the University of Nebraska College of Medicine Hospital between July, 1955 and July, 1965.

Twenty-four of these patients (26 babies) were managed by cesarean section, and 80% of these had a favorable outcome. Twenty-two of these patients were delivered by internal podalic version and breech extraction, and 55% of these experienced a favorable outcome. One case of neonatal death from multiple birth injuries secondary to difficult internal podalic version and breech extraction was reviewed. On the basis of these findings, and study of other reports; the conclusion was reached that the lowest fetal mortality rates could be obtained when cesarean section is the method of delivery for cases of transverse presentation.

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