TRANSVERSE LIE IN LABOR: A STUDY FROM KADUNA, NORTHERN NIGERIA.

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ABSTRACT

Context: Transverse lie of the fetus in labor is an emergency that could be potentially live threatening and clinically tasking to the Obstetrician.

Objective: To determine the incidence and clinical outcome in transverse lie.

Study design, setting, and subjects: A-12 ½ year retrospective study of all women who presented with fetuses in the transverse lie during labor at a tertiary institution.

Results: During the period there were 16633 deliveries and 30 women with transversely lying fetuses, giving an incidence of 1 in 554 deliveries. Forty percent of the cases were *neglected* transverse lies. The para 4 and above group had the highest incidence of 2.69/1000.

Northern minorities ethnic group had the highest incidence of 2.35% and the Ibos the lowest incidence of 0.48/1000. The highest incidence of transverse lie was among women that were not registered for prenatal care, 3.89/1000 as against those registered, 1.46/1000.

Eighty percent of the women were delivered abdominally; and 63.33% of these were cesarean deliveries. Vaginal delivery was achieved in 13.33% of the women, vaginal route destructive operations and delivery in ***conduplicatio corpore*** on two occasions each. Anencephaly was the only gross congenital malformation seen among the infants.

Sixteen perinatal and six maternal deaths were recorded. Two women died *undelivered*.

Transverse lie was associated with uterine fibroids, abdominal pregnancy, second twin with ruptured membranes and pendulous abdomen.

Conclusion: Transverse lie in labor is associated with high perinatal and maternal mortality.

Keywords: Transverse lie incidence delivery outcome

INTRODUCTION

Transverse lie is a clinical situation in which the long axis of the fetus is approximately perpendicular to that of the uterus. This lie presents a great deal of clinical challenge to the obstetrician and mechanical challenge to both the mother and the fetus with severe clinical consequences of increased maternal and perinatal morbidity and mortality when not appropriately managed[1,2]

The lie of the fetus in the uterus is governed by two laws – *Pajot's* law of adaptation/accommodation of solid masses and the- law of gravity. In the first five months of pregnancy when the amniotic fluid volume is very much larger than the fetus volume for volume, the fetus then is buoyed in it and floats and can assume any attitude passively. This explains why the term ***lie*** is not used clinically before the age of viability.

However, between 5th and 7th months, the rate of growth of the fetus is so rapid that it overwhelms the volume of liquor which would remain at between 500-600mls. At this age the head of the fetus being more voluminous than the breech, will move up to the fundus of the uterus which is more capacious at this period therefore obeying Pajot's law. This also explains the preponderance of breech *presentations* at this period of gestation and does not alarm the clinician because this attitude of the fetus is only but temporary.

Nevertheless, from 7th month with the growth of the fetus continuing more than that of the uterus and amniotic fluid, the fetus is forced to adapt by means of flexion to become an ovoid mass with two poles in order to be accommodated in it-container-uterus. The cephalic pole at this period of gestation is

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smaller in volume than the pelvic pole and therefore in conformity with Pajot's law, the pelvic pole will be displaced towards the fundus of the uterus, which is more capacious. To assume this position the fetal ovoid will have to undergo a *summersault.* This *summersault* is aided by the law of gravity [3]
since at this period also there is marked growth of the contents of the fetal skull which makes it heavier than the pelvic pole.

With these in mind it is understandable therefore that any condition that is capable of preventing the normal summersault will lead to abnormal lies. Such conditions will include Mullerian fusion anomalies for example arcuate uterus in which the more voluminous part of the uterus is situated in the transverse plane. This clinical situation is termed primary transverse lie as against secondary transverse lie conditions resulting from presence of fibroids, hypotonic uterus more often associated with multiparity, abnormal implantation of the placenta, fetal anomalies and quantitative anomalies of the amniotic fluid and short umbilical cord among other conditions.

Because of the disastrous consequences that may follow delay in diagnosis, inappropriate clinical decision making and deficient surgical skill, and moreover scanty literature, this study has the objective of highlighting the incidence, vagaries in its management and clinical outcome of this abnormal lie.

MATERIALS AND METHODS

This is a retrospective study of 30 women who presented with cord prolapse in labor at Ahmadu Bello University Teaching Hospital (ABUTHK), from January 1st 1990 to June 30th, 2002.
ABUTHK is a tertiary institution situated in Kaduna former capital of Northern, Nigeria but now capital of Kaduna State.
Using Case Record Forms, the following variables were extracted for each woman from the respective case notes: year of delivery ,age, parity, ethnic group, booking status, duration of pregnancy, presentation of the fetus and mode of delivery.
For the purposes of this study, pregnancy is said to be term when it has completed 37 weeks in duration. Furthermore, a woman is said to be booked for antenatal care, if she had attended the ABUTHK antenatal clinic at least once before admission to the labour suite.
The Southern and Northern minority ethnic groups here mean a grouping for the numerous ethnic groups in both North and South of Nigeria that are neither Ibo, Yoruba nor Hausa/Fulani.
Statistical analysis was done using The- EPI. INFO 6 Version-July 1996 Software (C.D.C., USA; WHO Geneva, Switzerland). A probability value of < 0.05 was taken as significant.

Table 1: Age, Parity, Registration Status And Incidence Of Transverse Lie Among The Women

AGE GROUP (YEARS)	NR OF DELIVERIE S	NR OF TRANSVERSE LIES	INCIDENCE/1000
<20	1515	-	0
20-24	3648	3	0.82
25-29	5740	12	2.09
30 – 34	3915	12	3.06
35 – 39	1431	3	2.09
40 and above	384	-	0
PARITY			
0	3984	4	1.00
1	2961	7	2.34
2	2580	3	1.16
3	1918	2	1.04
4	1497	5	3.34
5	3693	9	2.43
REGISTERED	14324	21	1.46
NOT REGISTERED	2309	9	3.89

Table 11: Ethnic Group And Transverse Lie

ETHNIC GROUP	NR OF DELIVERIES	NR OF TRANSVSER L IES	INCIDENCE (Per 1000)
Southern minority	1453	2	1.37
.Northern minority	5521	13	2.35
Ibo	2046	1	0.48
Yoruba	3802	6	1.57
Hausa/Fulani	3811	8	2.09
TOTAL	16633	30	1.80

RESULTS

During the period of study there were 16633 deliveries in the hospital and 30 women presented with fetuses in the transverse lie during labor, giving an incidence of 1.80 per thousand, (1:554 deliveries).

Sixty percent (18) of the women were diagnosed at term; one woman was less than 32 weeks, 10 between 32 and 36 weeks and one woman in the group 42 weeks and above.

Fifty percent (15) of the women were diagnosed before labor and fifty percent (15) during labor.

Eighty percent (24) of the women were in the age group 25-34 years. No woman presented with fetuses in the transverse lie in the extremes of reproductive age.

The highest incidence of transverse lie was in the age group 25-34 years, 2.48/1000.

While the incidences in the age groups <20-24 years and 35years and above were, 0.31/1000 and 1.65/1000 respectively.

The para 4 and above women were the largest contributors, 30%; and the nulliparae and primiparae women contributed 23.3% of the cases.

The highest incidence of transverse lie was in the para 4 and above women, 14, 2.69/1000, while the nulliparae and primiparae 11, 1.58/1000, and para2 to para 3,5, 1.11/1000.

The highest incidence of transverse lie was among women that were not registered for prenatal care, 3.89/1000 as against those registered, 1.46/1000. Table1.

The lowest incidence of transverse lie was among women of the Ibo ethnic group, 0.48/1000, while the highest was in women of the northern minority ethnic group, 2.35/1000.Table 11.

Nineteen (63%) of the pregnancies were term, while eleven (37%) of the fetuses were preterm.

Fifty percent of the cases were diagnosed before labor and fifty percent during labor.

Other pregnancy complications among the women included, unstable lie 3.33%, abdominal pregnancy 3.33%, AFD (antepartum fetal death), 3.33% and *neglected transverse* lie 40%.

Eighty percent (24) of the fetuses were delivered abdominally;19 cesarean section, 4 laparotomies for ruptured uteri and 1 laparotomy for abdominal pregnancy.

About thirteen percent (4) of the fetuses were delivered vaginally; 6.66% (2) normal vaginal deliveries and another 6.66% (2) destructive operations.

Two (6.66%) of the fetuses *died undelivered*.

Associated conditions with transverse lie included pendulous abdomen, presence of uterine fibroids, abdominal pregnancy and retained 2nd twin with ruptured membranes.

Fourteen of the babies were males and another fourteen females; the sexes of two of the fetuses that were not delivered were not known.

The only gross congenital malformation was anencephaly in one of the babies.

There were 16 perinatal deaths with a perinatal mortality rate of 553.33/1000; 13(81.25%) were stillborn, one early neonatal death and two (12,5%) died *undelivered*.

There were six (20%) maternal deaths. Two of the women had ruptured uteri, one woman died of severe hemorrhage following abdominal pregnancy, and one of sepsis. Two women *died undelivered*.

DISCUSSION

The incidence of 1:554 deliveries found in this study is very much lower than figures reported by Odum[4] and Anate [5] from Nigeria, and Chauhan et al [6] from India and Holtorff et al [7] from Germany, but higher than that reported by Jabbar and Meshari [8] from Saudi Arabia.

The absence of transverse lie among the very young, despite contributing about 23% of all deliveries, is not totally surprising. This is because this group of woman has almost all the conditions that favor cephalic presentation, like very tonic uterus, tonic abdominal wall, and is less likely to have pelvic /abdominal tumors that could impede the *summersault!* The same cannot be said of the very old; perhaps they are a select group.

Multiparity on the other hand has often been associated with abnormal lie especially transverse lie,[1,2,9] and this study gives further credence to that.

The unregistered woman is always a problem as has been noted by some other workers.[10, 11]
The story is not different in this study, where the incidence is more than double that of the registered. Registration per se, should not be a factor for abnormal presentation, unless *external version* (EV) is routinely practiced and in Ahmadu Bello University Teaching Hospital even ECV is not routinely done. The most important effect of not being registered for care was ruptured uterus and the four cases of ruptured uterus encountered in the study were among the unregistered women. Nevertheless, not being registered need not cause ruptured uterus but if the lie is neglected with hand prolapse and the parturient fails to seek care or delay in accessing care, then the inevitable mechanical outcome of rupture will occur with dare consequences to mother and *fetus-infant* [12].

The low incidence of transverse lie among the Ibos was a surprise finding. However it is difficult to say if this is an attribute of the Ibos from this study. In Kaduna, there have been occasions when women of Ibo ethnic group though registered in the hospital seek *version* at some homes of the so- called *Traditional Birth Attendants* outside of hospital before labor starts, this probably can explain this low incidence. If this low incidence of transverse lie is an Ibo phenomenon, then this needs confirmation by a larger national study.
It is interesting to note that 50% of the cases were diagnosed before labor. This perhaps will give support for the need to initiate antenatal EV practice in the hospital, as the practice is likely to reduce the number of women reporting in labor with transverse lie.
Phelan et al[13] have even proposed the use of intrapartum external version based on a protocol described by them, but cautioned however that the protocol needed further study.
The only woman with unstable lie would also have benefited from stabilizing induction.
Abdominal pregnancy featured in one woman that registered in late pregnancy and this gave a considerable diagnostic challenge that the diagnosis was made only at laparotomy.
Also for 50% of the cases to have reported with this abnormal lie during labor runs short of good management. Among this group though are the unregistered women and those with retained second twin, situations that make intervention at the receiving hospital very difficult.
There is no questioning the fact that the spontaneous delivery of a fully developed live infant is manifestly impossible in transverse lie without degradation of both mother and infant.
The mode of delivery of fetuses in transverse lie should be governed by a number of factors, among which are, whether it is alive or not, whether it is a *neglected* transverse lie, gestational age, size of fetus, dexterity of the Obstetrician with regards to obstetric maneuvers, and every other thing being equal. Cesarean section appears more attractive to many operators especially when the fetus is alive and without major congenital malformations, but the operator must be experienced enough to handle the difficulties that arise often especially when the lie is a neglected one. Shoham et al [16] and Segal [17] have discussed the issue of whether or not to approach the lower segment of the uterus through a transverse incision and concluded that the transverse incision rather than the classical incision, is feasible with good outcome; and Pelosi el al [18] went further to describe a technique they claim obviates the need for classical incision.
The role of destructive vaginal operation has been highlighted by many just as has been criticisms of it [2]. The same can be said also of Internal Podalic Version (IPV).[19]
Vaginal delivery without significant contribution of the accoucheur is definitely feasible but through a process of <u>*conduplicatio corpore*</u> (doubling upon itself).This is however only recommended for the severely preterm, small and macerated fetuses.

It is obvious from this study that transverse lie is a condition that poses significant clinical challenge, both in terms of feto-infant and maternal survival. This high maternal and feto-infant mortality has also been reported by many workers [20,21]. Early diagnosis followed by version by an experienced operator and cesarean delivery for late cases are likely to give better clinical outcome.

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