

Evaluation of Transverse Lie at Term by Ultrasonography

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Abstract

Context: Transverse lie at term may have adverse consequences on both the mother and the foetus. Evaluating transverse lie at term by ultrasonography may reduce these adverse consequences and improve both the maternal and fetal outcome.

Objectives: To determine predisposing factors to persistent transverse lie at term using abdominal ultrasonography and the outcome of such pregnancies.

Study- Design, Setting and Subjects: This was a cross-sectional study of pregnant women at term with persistent transverse lie referred to the Ultrasound Unit of the Federal Medical Centre, Lokoja, Nigeria.

Results: Out of a total of 1296 scanned during the evaluation period, 42 (3.2%) had transverse lie at term. Five (11.9%) patients were primigravida and 37 (88.1%) multipara. No predisposing factors were seen on ultrasound in 25 women (59.5%). Placenta praevia was diagnosed in 11 (26.2%), lower segment fibroid in 5 (11.9%) and pelvic kidney in 1 (2.4%). Thirty nine patients (92.1%) were delivered by caesarean section (CS). Three (7.1%) spontaneously converted to longitudinal lie [1 Breech and 2 Cephalic]. All 3 were delivered per vaginam. There were no maternal deaths but there were 2 stillbirths.

Conclusion: Majority of the patients had no predisposing factor seen on ultrasound and were largely multiparous women. Placenta praevia was the commonest predisposing factor found at ultrasonography. Caesarean section rate was very high, largely due to the fact that external cephalic version (ECV), which has been advocated as an alternative mode of delivery of infants lying transversely at term, is not currently practised in our centre.

Key Words: Transverse Lie, Malpresentation, Ultrasound, Caesarean Section

Introduction

The fetal "lie" indicates the orientation of the fetal spine relative to that of the mother. The normal lie is longitudinal which by itself does not indicate whether the presentation is cephalic or breech¹. The fetus is in a transverse lie when its longitudinal axis is perpendicular to the maternal spine².

A transverse lie can occur in two configurations. The curvature of the fetal spine could be oriented upwards and the fetal small parts present at the cervix (also called back-up or dorso-superior); or the curvature of the fetal spine could be facing downwards, such that the foetal shoulders presents at the cervix (also called the back-down or dorso-inferior)².

The reported incidence of transverse lie at term is between 1 in 300 and 500 pregnancies^{2,4}. Factors known to predispose to transverse lie, are multiparity, placenta praevia,

Polyhydramnios intrauterine synechiae, pelvic contraction, uterine malformation, pelvic kidneys and other pelvic masses^{2,4,5,6}. Many cases are however, known not to manifest any of these predisposing factors⁷.

Persistent transverse lie at term constitutes a management dilemma for obstetricians between expectant management, external cephalic version followed by induction of labour and elective caesarean section⁴. There is consensus that a careful search for potentially dangerous or compromising aetiology is indicated in cases of transverse lie. This is important so that a safe mode of delivery can be

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Table 1

FINDINGS	PRIMIGRAVIDAE		MULTIPARAE		TOTAL	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	percentage
Uterine fibroids	2	4.8	3	7.1	5	100
Placenta previa	1	2.4	10	23.8	11	100
Ectopic kidney	1	2.4	--	--	1	100
No findings	1	2.4	24	57.4	25	100
Total	5	11.9	37	88.1	42	100

determined¹. Ultrasound examination is useful to exclude major fetal malformation, pelvic masses and abnormal placentation. This study aims to determine predisposing factors to persistent transverse lie at term using abdominal ultrasonography and the findings at delivery.

Materials and Methods

A cross-sectional study carried out from October 2002 to August 2004 at Federal medical centre, Lokoja, Nigeria. All patients referred to the ultrasound unit of the hospital at term for ultrasonography were recruited for the study. A Siemens SL machine 3.5Mhz probe linear machine was used. Patients laid in the supine position and the entire abdomen scanned.

The full-bladder technique was not used routinely except in some cases of suspected placenta praevia, or lower segment masses. A fetus was said to be in transverse lie when its longitudinal axis is perpendicular to the maternal spine. The direction of the fetal head with respect to the maternal abdomen was noted, i.e. towards the right or left iliac fossa.

In cases with fetal transverse lie, possible etiological factors like placenta praevia and lower uterine segment masses were carefully sought. The location and sizes of associated pelvic masses were noted. All other relevant data were also collected from patient case files including history of previous surgeries. Data was analysed using statistical package for social sciences. (SPSS).

Results

A total of 42 patients out of 1296 had transverse lie at 37 weeks and above, giving an incidence of 3.2% in this study. Twenty-two (52.4%) women

where referral cases and the remaining 20 (47.6%) patients consisted of 14 booked patients in the hospital and 6 unbooked cases. Sixteen patients (38.1%) had their head oriented to the left iliac fossa, while 26 (61.9%) patients had their head oriented to the right iliac fossa. The mean age of patients in this study was 29.4yrs \pm 5.9yrs, while the mean gestational age of pregnancy was 38.18 \pm 1.16wks. The mean gravid experience was 4.2 with a mode of 4 and median of 4.

Ultrasound findings in this study are summarised in table 1. Five (11.9%) patients were primigravidae and 37 (88.1%) multiparae, with 12 (28.6%) in this group been grandmultiparae (Greater than 5 deliveries). Twenty five (59.5%) women had no associated predisposing factors seen on ultrasound, while 17 (40.5%) women had positive findings. Placenta praevia was diagnosed in 11 (26.2%), lower segment fibroids in 5 (11.9%), and pelvic kidney in 1 (2.4%). In the primigravidae predisposing factors were seen in 4 out of 5 patients (80%), while in the multiparous patient predisposing factors were found in 13 out of 37 patients (35.1%). Six (14.3%) patients had previous history of CS in this study. Thirty-nine (92.8%) out of 42 patients had CS. Emergency CS was done in 30 patients (76.9%), while elective CS was done in 9 Patients (23.1%). Three (7.14%) patients spontaneously converted to longitudinal lie, 1 breech and 2 cephalic presentations. No maternal deaths were recorded; however, there were 2 stillbirths.

Discussion

Transverse lie persisting to term has been associated with serious complications to both the mother and foetus during labour, hence a cause of concern for pregnant women and their

carers^{5, 6}. Detection of transverse and lie and associated etiologies like placenta praevia by ultrasonography can substantially reduce complications to both the mother and foetuses, by determining a safe mode of delivery⁸. In this study, the largest group of patients 25 (59.5%) had no predisposing factor seen on ultrasound. Multigravidae constituted 24 out of the 25 patients (96%) in this group, with 12 (28.6%) been grand-multiparous patients. Women in their 4th gravid experience constituted the largest number (nine) and the mean gravid experience was 4.2. This observation is not surprising as the commonest predisposing aetiology to transverse lie has been attributed to laxity of the abdominal musculature from multiparity².

The possible mechanism attributable to this is a pendulous abdomen which allows the uterus to fall forwards deflecting the long axis of the foetus away from the axis of the birth canal into a transverse lie. Women with greater than four deliveries, have a ten fold incidence of transverse lie compared to nullipara². Grand-multiparity has almost disappeared in the western countries due to advancement of family planning⁹. However, in a developing country like Nigeria, a significant proportion of women in the child bearing group category are grand-multiparae. Ogedengbe et al estimated the incidence of grand-multiparity in Lagos Nigeria to be 4.11¹⁰, while Ozumba et al in Enugu Nigeria, estimated the incidence to be as high as 11% in that region of the country¹⁰. They both observed an increased incidence of abnormal lie and malpresentation in grand-multiparous patients^{10,11}.

Ultrasound assessment in this study revealed associated predisposing factors in 17 patients (40.5%). 4 were primigravidae, which constituted 80% of the total number of primigravidae, while 13 were multigravidae constituting 35.1% of the total number in this group. Transverse lie is relatively rare in a primigravidae and its presence suggests the likelihood of underlying pathology, some like cephalo-pelvic disproportion, pelvic bony abnormalities and uterine malformation may not even be apparent during routine antenatal visits⁴. In a comparative study by Edwards and Nicholson of ECV and expectant management, if

expectant management were adopted only 1 out of 11 nullipara had spontaneous version to longitudinal lie before onset of labour while the corresponding figure was 34% in multipara¹². These findings give further support to the aforementioned statement that transverse lie in a primigravida implies likelihood of underlying pathology. Therefore, careful search for causes of transverse lie especially in a primigravida is important in obstetrics management⁴.

Placenta praevia was the commonest finding predisposing to transverse lie constituting 11 (26.2%) patients. Out of this number 10 patients (90.1%) were multigravidae and 1 patient (9.1%) primigravidae. Fried et al in a study in which foetuses discovered to be in transverse lie by ultrasonography at 20 weeks were followed up, found placenta praevia in 35.7% of cases of transverse lie persisting to term¹³. From the above facts therefore, we would suggest a careful localisation of the placenta when transverse lie is encountered during antenatal ultrasonography. A relatively high incidence of placenta praevia was also noted in those with previous history of caesarean section, with 3 (50%) out of 6 patients with such histories having placenta praevia. Multiparity and previous caesarean section has been implicated among possible predisposing factors to placenta praevia¹⁴.

Lower segment fibroids were discovered in 5 patients (11.9%). Uterine fibroid is the commonest benign tumour of the female genital tract. It can cause malposition of the foetus and obstructed labour, especially if the size is large¹⁵.

Management of transverse lie at term is between expectant management, CS and ECV followed by induction of labour². In our centre, the mode of delivery of patients presenting with persistent transverse lie, at term is by CS. Thirty-nine (92.8%) out of 42 patients had CS. Emergency CS was done in majority of the cases (76.9%), while elective CS was performed in (23.1%) of cases. The emergency CS rate was quite high since majority of the patients were diagnosed to be in transverse lie at term gestation. Most of the patients were referred cases on account of antepartum haemorrhage and clinical suspicion

of transverse lie. Other factors include poor antenatal attendance by booked patients and unbooked patients presenting for the first time at labour. Seffah et al in a study of transverse lie during labour, recorded a high rate of emergency CS of 92%, with a subsequent high incidence of maternal complications, still births and infants requiring hospital admission⁸. He therefore proffered that that early antenatal detection of predisposing factors by ultrasonography like placenta praevia could reduce such complications.

Three patients spontaneously converted to longitudinal lie at 39 weeks. The aforementioned 3 patients converted to longitudinal lie and had spontaneous vaginal delivery, despite detection of transverse lie at 37 weeks. Possible explanation proffered for this is that they might be in unstable lie, as suggested by Phelan et al who recorded spontaneous conversion rate as high as 83% to longitudinal lie in a study of 29 patients with transverse lie at 37 weeks gestation and above, before labour using expectant management. He therefore concluded that close monitoring of these patients till 39 wks before onset of labour is necessary to forestall surgery and its associated morbidity⁶.

External cephalic version (ECV) followed by stabilisation and induction of labour as been advocated as a safe technique for delivery of patients in transverse lie at term in which there are no predisposing etiology. It can reduce associated morbidity with CS^{6,16}. In a study of ECV as an alternative to CS for labouring patients with transverse lie after sonographic confirmation, a vaginal delivery rate of 50% was achieved, thereby reducing caesarean section rate by 50%¹⁶. Similarly, Devendra studied ECV as a technique for delivery of fetuses in transverse lie, in women 36 weeks and above, by obstetricians with limited experience with ECV. Successful version was achieved in 45% of the patients, with vaginal delivery achieved in 83% of those with successful version¹⁷. ECV is not

routinely done in our centre, this is mainly due to lack of experience with this technique. Although routinely when scanning fetuses with transverse lie, the direction of the head, i.e. to right or left iliac fossa is recorded to aid the Obstetrician contemplating an external cephalic version. A higher number of patients in this study had their head oriented towards the right iliac fossa, although the significance of this is not certain, however a probable reason is that there is right rotation of the uterus during pregnancy.

We would advocate that ECV, followed by stabilisation and induction of labour should be encouraged in our environment. as an alternative to CS for patients with transverse lie at term, especially in multiparae with no obvious predisposing factor seen on ultrasonography. This would reduce the CS rate in patients with persistent transverse lie at term and its associated morbidity and can also provide an alternative route of delivery for women with aversion to surgery particularly in our environment.

Conclusion

The incidence of 3.2% quoted for transverse lie in this study is quite high compared to 1 in 300-500 observed in previous studies. This is most probably due to the fact that our centre is a referral centre, and the aforementioned incidence in this study may not account for the total number of transverse lie detected at term in our environment. Placenta praevia was the commonest finding on ultrasound as a predisposing factor to transverse lie in our environment. The mode of delivery of patients was essentially by CS, majority being emergency CS. However, ECV should be encouraged, especially in patients with aversion to surgery and who have no obvious predisposing factors to transverse lie that can prevent successful version, since it can reduce significantly CS rate and its associated morbidity in patients with persistent transverse lie at term.

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