

Sonographic Evaluation of Fetal Presentation in Pregnant Women in Umuahia, Abia State, Nigeria.

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Abstract

Abnormal presentation of fetus causes a lot of concern for pregnant women and their obstetrician because this can go a long way in determining the outcome of delivery. Imaging method using ultrasound is superior to clinical evaluation in accessing presentation of fetus during pregnancy. Ultrasonography is a relatively safe, inexpensive and reproducible imaging modality for assessing fetal presentation. There are few reports on fetal presentation in Nigerian Medical Literature. This study is aimed at determining the commonest type of fetal presentation and to allow for appropriate counseling of antenatal women. **Aim:** To sonographically determine the statistics of fetal presentation in pregnant women on their routine antenatal visit in Umuahia Abia state. **Materials and Methods:** This is a prospective study of 100 apparently healthy pregnant women between the ages of 20 years and 42 years on their routine antenatal check. Consent was obtained from the patients prior to the study. Exclusive criteria include subjects with uterine fibroids, caesarean section, twin gestation and In Vitro Fertilization (IVF) patients. Subjects were scanned transabdominally in supine position using a digital real time ultrasound system with 3.5 MHz convex transducer to determine the commonest type of fetal presentation. Fetal presentation was correlated with gestational age, weight of the fetus, gender and placental localization. **Result:** A total of 100 women on their routine antenatal visits were scanned and they were between the age of 20yrs and 42yrs, with mean age of 28.60 ± 4.95 that are in their 2nd and 3rd trimesters. The gender distribution of the fetus were 55 males and 45 females. The fetal presentation was cephalic 70%, oblique-cephalic 3%, breech 17%, transverse lie 7% and unstable lie 3%. This revealed that among fetuses in umuahia, there are more cephalic presentation than breech, transverse and others, thereby predisposing more pregnant women to normal deliveries table ii. The study showed positive correlation of fetal presentation with gestational age and amniotic fluid index but not with maternal age, fetal gender and fetal weight. **Conclusion:** This study has shown the statistics of fetal presentation in pregnant women on their routine antenatal visit in Umuahia with cephalic presentation being the commonest 70%, oblique-cephalic 3%, breech presentation 17%, transverse lie 7% and unstable lie 3%.

Key words: Fetal presentation; umuahia; ultrasound

Introduction

Abnormal presentation in labour carries increased risks for both the mother and baby and routine pregnancy care based on maternal abdominal palpation fails to detect the majority of cases of non-cephalic presentation.

Ultrasonography is a very useful tool in detecting fetal presentation in pregnancy. Ultrasound is chosen because it is non-ionizing, readily available, reproducible and quite cheaper than other imaging modalities. Ultrasonography is an indispensable tool in obstetrics and gynecology practice worldwide [3-4]. It is usually referred to as the third eye of the obstetrician.

Fahrenheit-Jones (2022) discovered that there are many varieties in fetal presentation which is determined by the part of fetus projecting towards the internal cervical os^[1]. This includes:

- **Cephalic presentation:** Here, the fetal head presents towards the internal cervical os, it is considered normal and occurs in the vast majority of births (97%).
- **Breech presentation:** Here, the fetal rump presents towards the internal cervical os. This has three main types:
 - Frank breech presentation (50-70%) of all breech presentation; hips flexed, knees extended (pike position)
 - Complete breech presentation (5-10%) of all breech presentations; hips flexed, knees flexed (cannonball position)
 - Footling presentation or incomplete (20-30%): one or both hips extended, foot presenting.

- Others, e.g one leg flexed and one leg extended.
- **Shoulder presentation**
- **Cord presentation:** umbilical cord presenting towards the internal cervical os.

Castro et al in his routine ultrasound examination of pregnant women at 35-37 weeks gestation noted that out of 45847 data collected, that cephalic presentation was 94.7%, breech was 4.3% and transverse or oblique was 1.0%.

Materials and Methods:

This is a prospective study of 100 apparently healthy pregnant women between the ages of 20years and 42 years in their second and third trimester in Umuahia Abia state Nigeria. In the year 2022. Consent was obtained from the patient prior to the study. Subjects were scanned using a digital real time ultrasound system model CC-13E71-MT2 siemen machine made in Japan, with 3.5 MHz convex transducer. Each subject lies supine with hands placed under the head to widen the area of the study.

Fetal presentation was determined to include cephalic presentation (fetal head presenting towards the internal cervical os), breech presentation (fetal rump presenting towards the internal cervical os), transverse lie (fetus presenting horizontally), oblique lie (fetus lying obliquely with head to the left or right of the mother).

The placental localization, maternal age, amniotic fluid index, fetal weight, gestational age and others were also obtained.

Data obtained was entered into Microsoft Excel database and statistically analyzed using Statistical Package for Social Science (SPSS) for Windows (SPSS Inc. USA) version 20.0. Data were subjected to descriptive statistics using measures of central tendency and dispersion.

Data comparison (statistical test of significance between the various variables) was done with student t. test. At 95% interval, two tailed "P" values less than or equal to 0.05 were considered as statistically significantly.

Results:

RESULTS

Table I: Sociodemographics

Variable	Min	Max	Mean±SD	Median (IQR)
Age (years)	20.00	42.00	28.60±4.95	28.0 (25.0, 31.0)
<i>Gender</i>	<i>n (%)</i>			
Male	55 (55.0)			
Female	45 (45.0)			

Table I above shows that the women were aged between 20 and 42 years, with a mean age of 28.60±4.95. The gender distribution of the foetuses were 55 males and 45 females.

Table II: Ultrasound Findings

Variable	Minimum	Maximum	Mean±SD	Median(IQR)
Femoral Length (mm)	14.86	41.43	30.87±6.79	32.2(32.2,36.4)
Biparietal Diameter (mm)	15.00	41.57	30.75±6.57	31.9(25.2,36.4)
Abdominal Circumference (mm)	15.57	42.00	30.72±6.65	32.0(25.4,35.8)
Head Circumference (mm)	16.00	41.43	31.42±6.87	33.6(25.5,36.7)
AFI	9.00	31.80	17.11±3.92	17.4(14.6,19.0)
Average GA (weeks)	15.57	40.85	31.04±6.66	32.5(25.6,36.4)
Foetal Heart Rate (beats/minute)	122.00	162.00	142.80±8.93	143.0 (136, 149.8)
Estimated Foetal Weight (g)	137.00	6999.00	2040.50±1263.58	2052.0 (949.8, 2942)
<i>Presentation</i>	<i>n (%)</i>			
Breech	17 (17.0)			
Cephalic	70 (70.0)			
Oblique Cephalic	3 (3.0)			
Transverse	7 (7.0)			
Unstable	3 (3.0)			

The foetal parameters on ultrasound are reported in Table II, and it can be seen that most of the foetuses were in cephalic presentation (70%) while oblique cephalic and unstable presentation both had 3 counts each.

Table III: Association between Amniotic Fluid Index (AFI) and gender, presentation and placentation.

<i>Gender</i>	AFI		χ^2	p value/F
	Normal; n (%)	Polyhydramnios; n (%)		
Male	53 (96.4)	2 (3.6)		1.000
Female	44 (97.8)	1 (2.2)		
<i>Presentation</i>	<i>n (%)</i>	<i>n (%)</i>	1.325	0.857
Breech	17 (100.0)	0 (0.0)		
Cephalic	67 (95.7)	3 (4.3)		
Oblique Cephalic	3 (100.0)	0 (0.0)		
Transverse	7 (100.0)	0 (0.0)		
Unstable	3 (100.0)	0 (0.0)		
<i>Placentation</i>	<i>n (%)</i>	<i>n (%)</i>	7.898	0.048*
Anterior	44 (97.8)	1 (2.2)		
Fundal	20 (95.2)	1 (4.8)		
Posterior	30 (100.0)	0 (0.0)		
Praevia	3 (75.0)	1 (25.0)		

* = statistically significant

Table III shows the association between amniotic fluid index (AFI) and gender, foetal presentation and placentation, and only placentation showed significant association ($p = 0.048$).

Table IV: Association between placentation and foetal presentation

	Placentation; n (%)				Chi square	p value
	Anterior	Fundal	Posterior	Praevia		
Breech	6 (13.3)	4 (19.0)	7 (23.3)	0 (0.0)	20.615	0.056
Cephalic	30 (66.7)	15 (71.4)	23 (76.7)	2 (50.0)		
Oblique Cephalic	2 (4.4)	1 (4.8)	0 (0.0)	0 (0.0)		
Transverse	5 (11.1)	0 (0.0)	0 (0.0)	2 (50.0)		
Unstable	2 (4.4)	1 (4.8)	0 (0.0)	0 (0.0)		

Table IV shows the association between foetal presentation and placentation, which was not statistically significant ($p = 0.056$).

Table V: Association between presentation and GA (in trimesters).

Variable	Placentation; n (%)				Chi square	p value
	Anterior	Fundal	Posterior	Praevia		
Second	12 (26.7)	3 (14.3)	11 (36.7)	2 (50.0)	4.077	0.253
Third	33 (73.3)	18 (85.7)	19 (63.3)	2 (50.0)		

Table V shows that no significant association was found between GA (in trimesters) and placentation.

Discussion:

A total of 100 women on their routine antenatal visits were scanned and they were between the age of 20yrs and 42yrs, with mean age of 28.60 ± 4.95 that are in their 2nd and 3rd trimesters. The gender distribution of the fetus were 55 males and 45 females. The fetal presentation was cephalic 70%, oblique-cephalic 3%, breech 17% ,transverse lie 7% and unstable lie 3% . This revealed that among fetuses in umuahia, there are more cephalic presentation than breech, transverse and others, thereby predisposing more pregnant women to normal deliveries table ii

The study showed positive correlation of fetal presentation with gestational age and amniotic fluid index but not with maternal age, fetal gender and fetal weight.

The findings in this study were similar with that of Olaniyan et al^[6] in his study of various fetal presentation among pregnant women in Warri Delta state Nigeria where He discovered that 75.9% of the studied population had cephalic presentation, 17.6% had breech presentation and 6.5% had transverse lie. It is also in tandem with the findings of Onwere, et al^[8] who reported that there were more fetuses in cephalic presentation than others more especially at the third trimester.

Studies has shown that most malpresentation of fetuses in the first and second trimester will spontaneously reposition into cephalic presentation in the third trimester or full term^[5] provided that the amniotic fluid is adequate showing that with increasing gestational age, more fetuses turn into a favorable position for vaginal delivery , this is established in this study because most abnormal presentation were noted at about the second trimester while at third trimester most of the presentation was cephalic making it up to 70%. Alice et al^[7] in their study stated that persistence of abnormal presentation at third trimester increases the risk of caesarean section in pregnant women.

Conclusion:

This study has shown the statistics of fetal presentation in pregnant women on their routine antenatal visit in Umuahia with cephalic presentation being the commonest presentation 70% , oblique-cephalic 3%, breech presentation 17%, transverse lie 7% and unstable lie 3%. It has also established that at third trimester most abnormal presentation may revert to cephalic presentation provided that the amniotic fluid is adequate. Based on this, the study suggests that pregnant women with abnormal fetal presentation in second trimester should be re-evaluated sonographically in their third trimester so as to know the final presentation before delivery of fetus because fetal presentation provides a useful tool in the determination of outcome of pregnancy for instance those that will have vaginal delivery and those that will have caesarean section.

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