



ORIGINAL ARTICLE

**ULTRA SOUND STUDY OF CONGENITAL FETAL ANOMALIES**

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**ABSTRACT**

**Aim:** To determine the annual incidence of congenital malformations in near chidambaram and to analyze the data. **Materials and Methods:** Data regarding 600 normal antenatal women ,at Chidambaram in the year of October 2013-September 2015 were obtained and analyzed. The results were compared with similar studies. **Results:** Among 600 normal antenatal cases 40 cases showed as anomaly cases. Anomaly cases most commonly noted at age group of 21-25 years 55%, multi gravida 55%, among all anomalies neural tube defects most common, most of the malformed fetuses turned to females. **Conclusion:** Among all congenital anomalies neural tube defects most common, and is associated

**Keywords:** Ultra Sound, Congenital Anomalies

**1.INTRODUCTION**

Congenital malformations are the leading cause of death in many developed countries. Many environmental factors are now recognized as potential causes of birth defects. A registry of birth defects will help in studying the malformation profile in a geographical locality and undertake etiologic studies.

**2.MATERIALS AND METHODS**

Antenatal ultrasound done in 600 patients at Department of Radio diagnosis, RMMCH, Chidambaram. This study was conducted between October 2013 - September 2015.

The cases were selected randomly. The study was conducted in pregnant women's living in and around Chidambaram consisting of majority of rural population.

All examination was performed with PHILIPS envisor series using 5 MHZ convex sector transducer and SIMENS acuson x-300, SIMENS antares series using 2-5 MHZ convex transducer.

Gestational age was assessed by menstrual history in conjunction with sonographic estimate of BPD, HC, AC, FL according to estimated normograms for these parameters.

If the menstrual history was unreliable or discrepancy between menstrual dates and sonographic gestational age was >2 weeks sonographic gestational age was accepted and serial ultrasound examination is suggested to assess the interval growth pattern.

Following structures were evaluated

**PROFORMA  
COMPONENTS OF FOETAL ANATOMIC  
SURVEY**

**Head and Brain**

Calvaria: Shape

Brain - documentation of thalami, lateral ventricles, cerebellum, vermis, cisterna magna, and cavum septum pellucidum includes the following views :

- Transthalamic
- Transventricular
- Transcerebellar

Face / neck

Face: lips, anterior maxilla, nose, orbits/globes, and profile view for mandible

Neck: nuchal fold

Spine: longitudinal and transverse views

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**Thorax**

- Heart
- Four-chamber view Views of outflow tracts
- Lungs

**Abdomen**

- Stomach: presence, situs, and size
- Gastro intestinal system
- Anterior abdominal wall/cord insertion site

**Genitourinary tract**

- Kidneys, Urinary bladder
- ± Genitalia

**Extremities**

- Upper extremities, including both hands
- Lower extremities, including both feet
- Vessels: number of vessels in umbilical cord

**Measurements**

- Bi parietal diameter
- Head circumference**
- Abdominal circumference
- Femur
- Lateral ventricular atrium cisterna magna
- ± Humerus

**Others**

- Placenta
- Amniotic fluid
- Cervix

- Discrepancy of uterus size and gestational age.,
- Amniotic fluid index,
- History of folic acid intake history.

**3.RESULTS AND DISCUSSION**

The present study denotes that out of 40 anomaly cases 22 (55%) anomaly cases had discrepancy of uterus size with anomalous baby, 18 cases (45%) anomalies shows normal uterus shape, having anomaly baby. The present study shows among 40 anomalies cases 28 (70%) cases related CNS abnormalities, 2 (5%) cases related to CVS abnormalities, 2 (5%) cases related to GIT abnormalities, 2 (5%) cases related GUT abnormalities, 2 (5%) cases related respiratory system, another 2 (5%) cases related to involvement of mixed systems noted.

Studies of Datta chaturvedi et al study, Khatemi A et al study, Graver N et al study, Present study showed as CNS anomalies are more common.

Among CNS anomalies out of 28 cases 10 (35%) cases showed ventriculomegaly, 8 (28%) cases showed anencephaly, 6 (21%) cases showed holoprosencephaly, 2 (7%) cases showed acrania, 2 (7%) cases showed chiari malformation with mixed abnormalities.

The current study showed that out of 28 CNS anomaly cases, 26 (92%) cases are CNS anomalies associated with polyhydromnias and 2 (8%) cases of CNS anomaly without polyhydromnia noted. And also denoted that CNS anomalies mostly associated with polyhydromnia along with other causes also.

The present study on retrograde evaluation of 28 CNS anomaly cases showed as 25 (92%) cases shows neural tube defects due to inadequate intake of folic acid, 3 (7%) cases

showing neural tube defects due to genetic/consanguineous marital history.

The present study shows that most of anomalies are noted at early 3 rd trimester (24 weeks onwards) because of poor literacy and poor health services in these rural areas. Out of 40 anomaly cases 14 cases (35%) are reported at 3 rd trimester, 22 (55%) cases are reported at 2 nd trimester, 4 (10%) cases are reported at first trimester.

The present study shows that out of 40 anomalies majority of the cases 22 (55%) from 20-25 years age group, followed by 14 cases (35%) from 25-30 years age group, 2 cases (5%) from 15-20 years of age group, and the another 2 cases (5%) from 30-40 years of age group.

The present study shows that out of 40 anomaly cases, 22 cases (55%) are from multi gravida, and 18 (45%) cases are reported from primi antenatal women. That denotes that anomalies are most commonly seen in multi gravida women.

**Table -1 Different types of anomalies noted among 600 study populations.**

Sl .No.	Type of Anomalies	No. of Cases
1	Neural Tube ,CNS related Defects	28
2	Skeletal Dysplasia	2
3	CVS	2
4.	GIT related	2
5	GUT related	2
6	Respiratory system related	2
7.	Multiple anomalies	2
Total		40

**Table.2 showing various types of anomaly cases noted among CNS related anomalies.**

Different types of CNS anomalies.	Number of cases noted.
ventriculomegaly	10
anencephaly	8
Holoprosencephaly	6
acrania	2
Chiari malfomations	2
	28

Ventriculomegaly is the most common CNS anomaly noted.

**Table 3 showing association of polyhydrominas with other anomalies.**

	Number of cases noted
CNS related anomalies with poly hydromina	20
Other anomalies with poly hydromina (CVS,GIT,GUT etc)	20

Among polyhydromnia with anomalies cases neural tube defect cases occupies nearly half of cases

**Table.4 showing relation ship between neural tube defects and folic acid intake.**

	Number of cases noted
Number of neural tube defect without folic acid intake	25
Neural tube defect even after intake of folic acid ( genetic causes)	3

Most of neural tube defects due to poor intake of folic acid.

**Table 5. showing relationship between polyhydrominas and neural tube defects.**

Neural tube defects	Number of cases.
With polyhydrominas	26
Without polyhydromnias	2

**Image No.1 Axial section of brain scan showing frogs eyes...a case of anencephaly.**



**Image No.2 Anenceplay baby after delivery.**



**Image no.3 Coronal section of antenatal brain showing gross hydrocephalous,**



**Image-4 Axial section of antenatal thorax with abdomen shows diaphramatic inversion.**



**Image -5 axial section of antenatal of thorax showing echogenic lungs noted in CHAOS syndrome..**



**Image no.6 Sagittal section of antenatal spine showing kyphosis.**



**Image no.7, axial section of antenatal abdomen showing omphalocele,**



**Image no.8 Axial section of antenatal abdomen showing omphalocele,**



## 4.CONCLUSION

In this study neural tube defects are the most common anomaly associated with polyhydramnia with foetal mortality.

**Gravida:** It was found that most of the antenatal women with congenital anomaly were multigravida (55%) similar to earlier studies. Majority of malformations were detected during 2nd trimester with the range of 13-41 weeks and mean gestational age of 22.16 weeks.

### Number of malformations noted :

Malformed fetuses had 45 malformations with 40 malformed fetus, indicating some fetuses had more than one malformation. Among total malformations neural tube defects (CNS anomalies) are more commonly noted

CNS anomalies most commonly associated with polyhydromnia, leading cause of foetal demise, renal anomalies mostly associated with oligohydromnias. Some anomalies associated with mixture of different systems.

Mortality of cases in anencephaly, diaphragmatic hernia and hydrops foetalis it was found to be 100%. The annual report of Indian medical research says that the commonest congenital malformation are cardiac in nature, but our study and many other studys ,literature shows low prevalence of cardiac defects at birth, because the diagnosis usually made after discharge from maternity hospital.

Increased frequency of neural tube defects in our hospital was probably due to large number of babies born to unbooked mothers.

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