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Study of Congenital Malformations in a Tertiary Hospital, Government General Hospital, Guntur

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Abstract: *Prospective analysis conducted in OBG department of Government General Hospital, Guntur , Andhra Pradesh during the period between Jan. 2010 – Dec .2010. This paper was focused on incidence of structural congenital malformations detectable at birth among 5020 deliveries, evaluation of associated risk factors and the fetal outcome. In our study we found 50 fetal malformations, incidence is 0.9%. Most commonly affected is craniospinal system (40%). The risk factors are history of consanguinity (70%), malnutrition (90%) and previous history of abortions (40%).*

Key words: *Congenital malformations, craniospinal system, malnutrition.*

I. Introduction

Congenital anomalies can be defined as structural or functional abnormalities including metabolic disorders, present at birth. These defects are of prenatal origin resulting from defective embryogenesis or intrinsic abnormalities in the process of development . Birth defects can be isolated abnormalities or part of a syndrome and continue to be an important cause of neonatal and infant morbidity and mortality.[(1)]In many cases, the causes of congenital anomalies are unknown; however, several factors known to be associated are genetic factors, maternal infections like rubella, cytomegalovirus, toxoplasmosis and syphilis, drugs like thalidomide, streptomycin, tetracycline, phenytoin , smoking, irradiation, maternal age, health, geographical factors and dietary factors. Fetal anomaly scanning is the most powerful approach available for reducing the birth prevalence of infants with serious congenital abnormalities and increasing the chances of survival for those who are born. Finding of a correctable abnormality can be an indication for delivery to take place at a center with facilities for pediatric surgery, the finding of a severe uncorrectable abnormality may lead to early termination of pregnancy. This study was conducted to evaluate the incidence of structural congenital anomalies and to predict the variables which contribute in the incidence of congenital anomalies so that we can reduce the related perinatal morbidity and mortality.[2,3]

Aim And Objectives

1. To determine the frequency of different structural congenital anomalies in our hospital population.
2. To identify the possible risk factors responsible for these anomalies.
3. To evaluate the fetal outcome.

II. Materials And Methods

Total 50 cases out of 5020 deliveries were prospectively evaluated for structural congenital malformations and associated risk factors during one year period from Jan 2010 –Dec .2010. In OBG Department of Government General Hospital . Fetal outcome was assessed. Variables like maternal age, parity, consanguinity, abortions, sibling with malformation, nutrition, smoking ,alcoholism, family history of congenital anomalies, conceived after infertility treatment, maternal diabetes, infections, fever, drugs, history of intrauterine deaths were critically evaluated.

III. Results:

Table 1: Maternal Characteristics:

Character	Number	Percentage
Age		
<20	1	2
20-30	46	92
>30	3	6
Parity		
Nulliparous	25	50
Primi	16	32

2nd	5	10
3rd	3	6
4 or more	1	2
Gestational age		
<28 wks	15	30
28-37 wks	26	52
> 37 wks	6	12
After birth	3	6

Table 2: Distribution Of Risk Factors:

Risk factor	Number	Percentage
Consanguinity	35	70
Abortions	20	40
Low nutritional diet	45	90
History of intrauterine fetal death	6	12
Maternal diabetes	5	10
Age > 35 yrs	2	4
Infections ,fever	5	10
Antiepileptic drugs	2	4
Sibling with malformation	2	4
Family history of anomalies	1	2

Table 3: Associated Risk Factors:

Risk factor	Number	Percentage
Preterm	15	34
Polyhydromnios	6	24
Breech	5	22
IUGR	4	12
Oligohydramnios	3	8

Table 4: Distribution Of Anomalies:

ANOMALIES	NUMBER	PERCENTAGE
CRANIOSPINAL	20	40
Hydrocephalus	5	10
Ventriculomegaly	3	6
Myelomeningocele	3	6
Encephalocele	3	6
Meningocele	5	10
Spina bifida	2	4
Sacral agenesis	2	4
Holoprosencephaly	2	4
Dolichocephaly	1	2
Acrania	2	4
Anencephaly	7	14
Meningoencephalocele	3	6
Sacro –coccygeal teratoma	2	4
MUSKULO SKELETAL	**10**	**20%**
Limb defects	3	6
Cleft lip,cleft palate	4	8
Polydactyly	1	2
Clubfoot	2	4
ABDOMINAL WALL DEFECTS	**7**	**14%**
Omphalocele – 3	3	6
Gastroschisis- 1	1	2
Lower abdominal cyst-1	1	2
Hydrops fetalis with ascites – 2	2	4
CARDIOVASCULAR	**5**	**10 %**
VSD	2	4
ASD	2	4
EBSTEIN ANAMOLY	1	2
RENAL	**4**	**8%**
Bilateral hydronephrosis	2	
Renal agenesis	2	
RESPIRATORY	**3**	**6%**
Pleural effusion	2	
Cystic adenomatous lung	1	

Table 5: Fetal Outcome:

Abortions	18	36
Preterm vaginal delivery	22	24
Term vaginal delivery	6	12
Hysterotomy	2	4
LSCS	3	6

Out of total 5020 deliveries , 50 babies with congenital anomalies identified. Incidence being 0.9%, commonest congenital anomalies involving craniospinal system (40%)(table 4). Second most common is musculoskeletal system . 57% of cases were registered at our hospital , 92 % cases were in the age group of 20-30 yrs and 6% were in the age group of >30 yrs(Table:1).In 56% of cases history of consanguinity was present(Table: 2), and about 50% were nulliparous 32% cases were primigravidae (Table 1). In 40% of cases history of abortions was present (Table: 2) .In 90% of cases malnutrition was observed (Table 2). About 30% congenital anomalies were detected before 28 wks. 52% of the cases were diagnosed between 28-37 wks, most of them have no previous antenatal scans due to infrequent antenatal visits (Table 1). Most common perinatal risk factors are preterm labor (34%), polyhydramnios (24%) and breech (22%)(Table: 3).Congenital malformations contribute to 46% of perinatal mortality. Even though congenital anomalies of minor degree, prematurity along with associated maternal contributing factors are responsible for the perinatal mortality.

IV. Discussion

We found the incidence of congenital anomalies in our hospital was 0.9% in our study which is equal to the general incidence in developing countries[2,3,4,5].With improvement in the standards of living prenatal and antenatal health awareness, the overall incidence of NTDs has come down markedly in developed countries.In our study 40% of cases involved craniospinal system(Fig 1,2,3). Anencephaly amounting to 14%cases of NTDs and most common factor contributing to perinatal mortality. Second most common congenital anomalies involved facial and neck structures but most of them are non fatal but contributing to perinatal morbidity. [6-20].Though most of the anomalies are compatible with life, the increase in perinatal mortality was mainly due to associated preterm labor, prematurity, polyhydramnios, maternal diabetes and IUGR.Consanguinity is single most important factor which was found to increase the risk of congenital anomalies in our study.[22]. In 35% of the cases consanguinity was noted. Appropriate health education about consanguinity and genetic counseling for consanguineous couples should also be established before marriage. In addition to this, there is a need for more extensive screening studies to determine the birth prevalence, types and distribution of congenital anomalies. In 40%of cases there is history of one or more abortions. Maternal age is an important parameter in the birth of a congenitally malformed fetus. In our study 6% of the mothers were older mothers (30 years of age or older).Mothers who have given birth to children with NTDs should take 4 mg of folic acid per day for subsequent pregnancies. The fetal outcome was abortions- 36% preterm vaginal delivery - 24% term vaginal delivery- 12%,hysterotomy -4% caesarean section for obstetric indication- 6%(TABLE 5).

V. Conclusion

In the present study, most of the mothers who had anomalous fetuses had risk factors like consanguinity and previous history of abortions. Hence the need for focused screening in this high risk category. Pre scan counselling with karyotyping ,triple screen and relevant serology has to be done. A level II targeted scan is done at 18-20 weeks and again at 24 weeks to exclude anomalies. Though the cost of routine screening even in low risk women is not more than the burden of a severely morbid and disabled child on the family and society, a single ultrasound examination is allowed per pregnancy, the mid trimester scan at 18- 20 weeks clearly represents the best time to accomplish the most. Once an anomaly is detected , various management options are to be discussed with the patients in consultation with neonatologist, pediatric surgeon and neurosurgeon when necessary. Lethal anomalies are terminated immediately after diagnosis irrespective of the gestational age. Autopsy can be done in needed cases. Careful monitoring and surveillance of fetuses with minor anomalies or those compatible with life is done and delivery is contemplated at term or after lung maturity is accomplished, depending on type of anomaly in a tertiary center with an intensive neonatal care,adequate prenatal care to improve the preconception& prenatal nutrition along with periconceptional folic acid. Thanks to our JANANI SURAKSHA YOJANA to encourage all the pregnant mothers to attend health care center from the first month of pregnancy for checkup and diagnosis of any abnormalities. Specialist services (genetic services) should be offered to women with high risk factors like diabetes mellitus, epilepsy, previous history with congenital anomalies and elderly gravida

Anencephaly

Fig 1

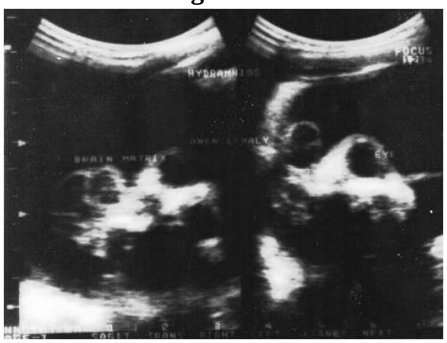


Fig 2

Holoprocencephaly

Fig 3

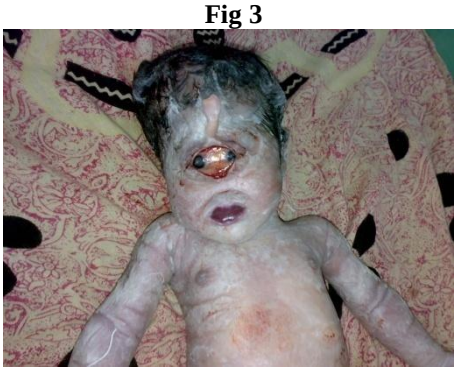


Fig 4

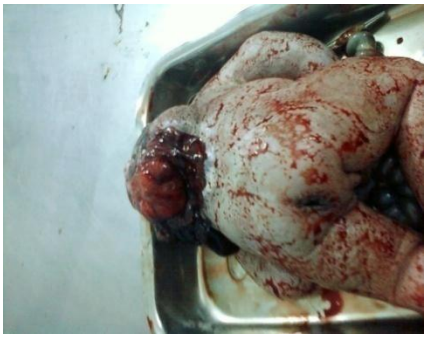
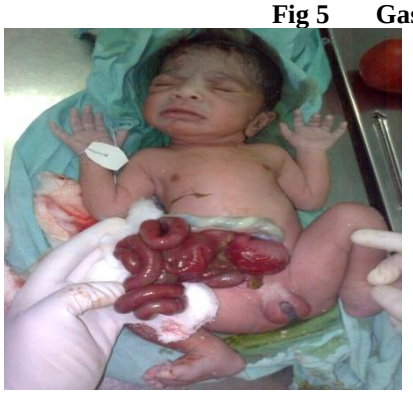


Fig 5 Gastrochisis Fig 6



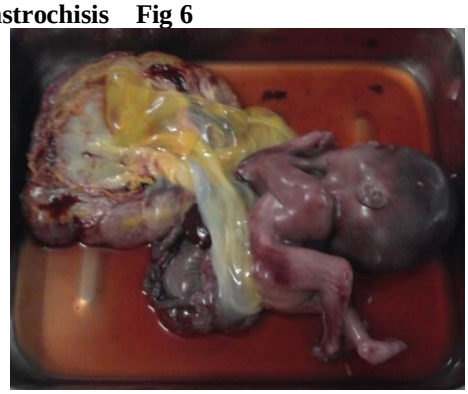


Fig 7 Limb constriction and club foot

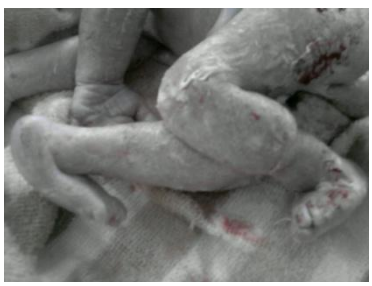


fig 8 false knots of umbilical cord

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