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Birth defect: Findings from Obstetrics & Gynae Department of a tertiary Hospital

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Abstract

Objectives: *To determine the frequency and types of birth defect among newborn in Sir Salimullah Medical College Hospital*

Study Design: Cross-sectional study.

Methods: *The study was conducted in Sir Salimullah Medical College Hospital from January-December 2018. Birth defect identified previously during pregnancy on USG or defect detected at birth at Obstetrics department were included in the study. The study was conducted at Obstetrics department of SSMC MH. All births with gross congenital malformations were noted. All malformations were classified as per ICD 10 classification. The mother of the newborn with congenital malformations was interviewed consecutively using predesigned, pretested questionnaire. The variables included parents age, antenatal registration, antenatal history of drug intake, consanguinity and previous history of malformations. Statistical analysis was done using chi square test.*

Results: *Out of 8912 live births, congenital malformations were observed in 50 cases. The frequency of congenital malformation was 0.56%. There were 25 males and 23 females and two newborns had ambiguous genitalia. The highest congenital abnormality reported in this study was in the age group between 20-29 years, which was 31(62%), The central nervous system was the most common system involved. Among 50 neonates, 8 neonate had multiple congenital anomalies and 42 babies had isolated malformations.*

Key words: *Birth defect, fetal outcome, congenital malformation*

Introduction:

Birth defect is important leading cause of fetal loss, it also causes preterm birth, childhood and adult morbidity. It has considerable impact on familial and social life. Some of major congenital malformation also remain as a burden in society. Congenital anomalies also called birth defects, congenital disorders, or congenital malformations, these conditions develop prenatally and may be identified before or at birth, or later in life[1]. Every year, nearly 8 million children worldwide are born with a serious birth defect of genetic or partially genetic origin.[2]

The pattern of birth defect vary worldwide and reported incidences of 2.5% in India and 1.3% in China,[3]. There are two categories of structural congenital malformations: major and minor anomalies. Major abnormalities are structural changes that have serious implications for the affected person's health, surgical needs, social life, or appearance. Spina bifida, anencephaly, and orofacial clefts are a few examples. Minor abnormalities are structural variations that don't significantly damage a person's health and usually have only minor social or cosmetic impact.[4] Birth defects can be life-threatening, result in long-term disability, and negatively affect individuals, families, health-care systems and societies.[5] This study was undertaken to determine the frequency and pattern of congenital anomalies in newborns in study place.

Methodology:

This study was conducted in Department of Obstetrics and Gynaecology department of SSMC Mitford Hospital. It was part of The National birth defects surveillance system organized by SEARO and coordinated by BSMMU. All newborns were examined

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for external birth defects by nurse or doctors. All newborn who were born after 24 weeks of gestation with congenital abnormality were included in the study. Photograph of all newborn with birth defect were taken to help with the diagnosis of the birth defect and to put on according to ICD-10 criteria. The International Classification of Diseases, Tenth revision, Clinical Modification — more commonly known as ICD-10-CM — is a classification system of diagnosis codes representing conditions and diseases, related health problems, abnormal findings, signs and symptoms, ICD-10-CM Codes Q00-Q99 which deal with congenital malformations, deformations and chromosomal abnormalities.[4] Written informed and verbal consent was obtained before data and photographs collection. Congenital anomalies were divided according to system involved. Interviews with parents were carried out to collect socio-demographic and clinical information, such as maternal age and parity, history of Diabetes Mellitus, drug intake, history of congenital malformation in the family, parental consanguinity. Mode of delivery and birth weight of newborn was obtained from hospital records. Analysis of the data was done using simple statistical method of recording number and percentage of cases.

Results:

Total 8912 neonates were delivered during the study period. Out of which 50 had congenital malformations making prevalence as 0.56%. There were 25 males and 23 females and two newborns had ambiguous genitalia. The highest congenital abnormality reported in this study was in the age group between 20-29 years, which was 31(62%), next was 30-45 years 11 (22%). The mean maternal age was 24.56 years. Among 50 congenital malformations multiple pregnancies (twin) were 3, among these 3, one was conjoined twin. About 72% of babies were delivered vaginally. (Table -1). Eight neonate had multiple congenital anomalies and 42 babies had isolated malformations. So total number of malformations were 58 These are summarized in (Table2). Among congenital anomalies 16 had still birth (32%), 27(54%) was alive, and 7 died soon after birth. Vaginal delivery was conducted in 36 and Caesarean section was done in 14 cases. Reports of USG found in 40 cases (80%) before delivery. In this study Primigravida were 27 (54%) and multigravida were 23(46%),

Among the congenital anomaly, central nervous system defect was highest in number 27. Among these, anencephaly was the major portion (25.8%). Musculoskeletal system defect was about 15(30%) in number. These are summarized in Figure 1 and detail of these presented in Table II.

Table-I

Congenital Malformations in relation to various maternal and fetal factors

Maternal & Fetal factors	Number with Birth defect, *n = 50*	%
Maternal age		
<19	8	16
20-29	31	62
30-45	11	22
Newborn sex		
Male	23	46
Female	25	50
Ambiguous	2	4
Mode of delivery		
Vaginal delivery	36	72
LSCS	14	28
Plurality		
Single	47	94
Multiple	3	06
History of consanguity		
H/O consanguity	03	6
No consanguity	47	94
Number of antenatal visit		
More than 4	23	46
No/less than 4	27	54

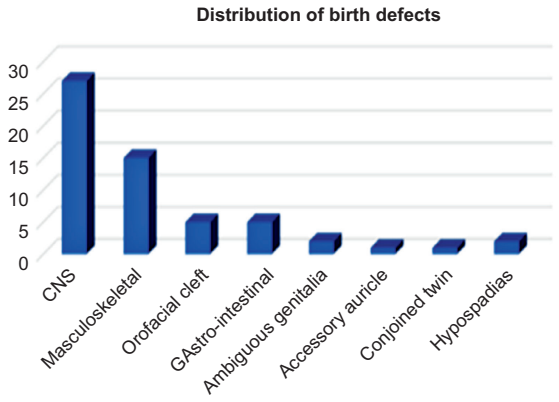

Fig.-I: *Distribution of type of birth defect*

Some rare congenital malformations

Fig.-2: *Frontal encephalocele ICD 10-Q 01*

Fig.-3: *Omphalocele ICD-10 Q79.2*

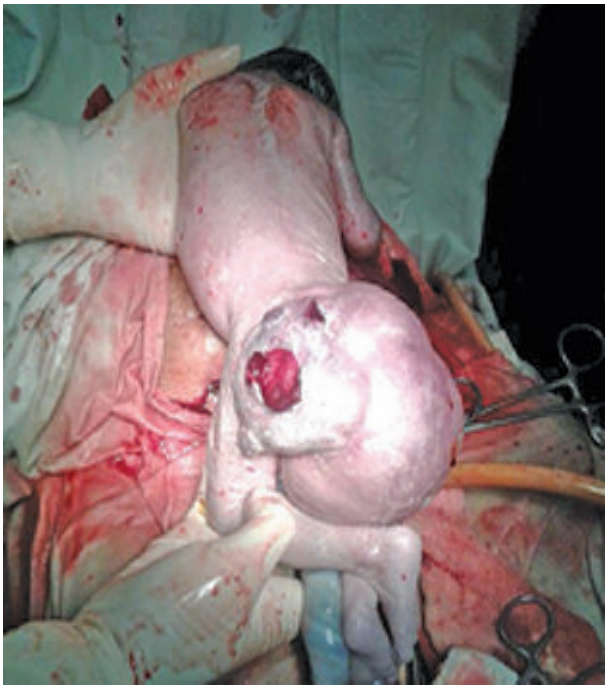

Fig.-4: *Sacrococcygeal teratoma ICD -10 Q76.428*

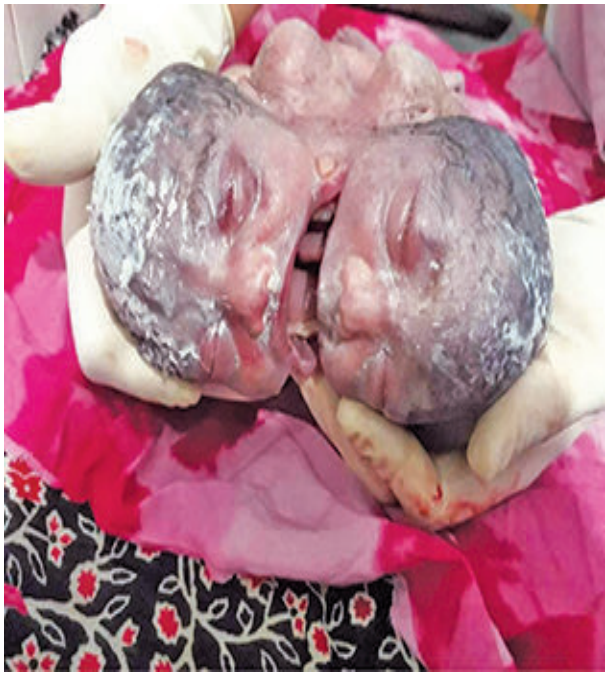

Fig.-5: *Conjoined twin ICD 10 Q89.4*

Table-II

Types of birth defect according to ICD 10

Body System Involved	Type of Defect	ICD-10 code	Number, n=58	%
Central Nervous System	Anencephaly	Q00.0	15	25.8
(CNS) N=27	Meningocele	Q1.2	5	8.6
	Encephalocele	Q01	3	5.1
	Hydrocephalus	Q05	3	5.1
	Single cerebral cyst	Q04.61	1	1.7
MusculoSkeletal N =15	Limb defect- shortened limb	Q72.5	1	1.7
	Congenital absence of radius and ulna	Q71.4	1	1.7
	Talipes equinovarous	Q66.0	6	10.3
	Spina bifida thoracic + Lumber	Q05.7	4	6.8
	accessory finger (6) in each hand	Q69.0	2	3.4
	Sacrococcygeal teratoma	Q76.428	1	1.7
Orofacial cleft N=5	Cleft lip and palate	Q37.0	5	8.6
GastrointestinalN=5	Gastroschisis	Q79.3	3	5.1
	Omphalocele	Q79.2	2	3.4
Others (N=6)	Ambiguous genitalia	Q56.4	2	3.4
	Accessory auricle	Q17.0	1	1.7
	Conjoined twin	Q89.4	1	1.7
	Hypospadias	Q54.9	2	3.4

Discussion:

The detection of birth defects is increasing antenatally and during the neonatal period due to advanced diagnostic technology, specially anomaly scan by 3D or 4D USG. Defects which are detected antenatally are mostly hydrocephalus, anencephaly, various form of bifida, some cardiac disease etc. Patient can be counselled antenatally if it is detected earlier so that necessary adequate referral to respective department and management plan can be discussed.

According to a study[7] of congenital abnormalities in Kenyan neonates, the most prevalent anomalies concerned the musculoskeletal system, followed by CNS anomalies, the most common of which was hydrocephalus, followed by anencephaly and microcephaly. In our study, most prevalent anomalies concerned the CNS system, followed by musculoskeletal anomalies. In the present study, the frequency of congenital malformations in the newborns were 0.56%. There are numerous findings from other parts of the world that show varying rates of congenital abnormalities [8,] the frequency of congenital anomaly might be more than the present rate. Congenital abnormality cases are not always admitted to government tertiary care hospitals, some of cases are frequently delivered in private hospital and more complicated cases are commonly admitted in Government hospital. Some study shows higher incidence of CNS malformations followed by GIT and musculoskeletal system[9].

Approximately 20 to 30% of infants with birth defects have multiple congenital anomalies (MCAs) involving different organ system.[10] It was observed that congenital anomalies were more common in babies born to mother (age 20-29 years). In other studies, birth defect found to be more common in babies born to young mother (age 20 years).[7]. History of consanguity was present in 6% of cases. Multiple vitamin supplements containing folic acid used throughout pregnancy have been shown to minimize the risk of neural tube abnormalities.[3]. The factors found to be associated with congenital anomalies included an inadequate attendance to antenatal clinic.

Some of the cases were diagnosed in this study only after delivery, because patient had no antenatal anomaly scan or patient presented at delivery. Maternal ultrasonography can diagnose these anomalies prenatally in 2nd trimester of pregnancy.[6]

No obvious sexual difference found in our study. Male preponderance was more common in some studies.[6]

Conclusion

Congenital anomaly can occur in any country of the world and types vary from region to region. In this study the most common pattern of congenital anomalies was CNS defects followed by musculoskeletal and other defects. The present study helps to know the pattern of congenital malformations, allowing methods for prevention, early detection, and timely management to be developed. It is recommended that large community-based studies should be conducted in Bangladesh to determine the prevalence of congenital anomalies among the newborns.

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