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Original Research Article

A retrospective analysis of mid trimester termination of pregnancies for fetal congenital malformations at tertiary care hospital

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ABSTRACT

Background: This study was conducted to analyse the spectrum of fetal anomalies as a cause of pregnancy termination in a tertiary care hospital.

Methods: This retrospective study includes antenatal women with fetal anomalies diagnosed by an ultrasound (USG) and admitted in Chettinad Hospital and Research Institute, Kelambakkam from January 2018 to January 2020 for termination of pregnancy. Data was collected from hospital records and analysed.

Results: Gestational age of women with fetal congenital anomalies ranged from 13 to 21 weeks. Pregnancy termination, was performed between 17-19 weeks of gestation in 41% of patients, between 13-15 weeks and 19-21 weeks in 23% of women respectively. Congenital fetal anomalies resulting in termination of pregnancy were CNS, musculoskeletal, cardiovascular, renal and multiple anomalies. CNS abnormalities was a major cause of termination of pregnancy which includes meningocele, spina bifida, acrania, anencephaly.

Conclusions: In our study conducted at our tertiary care center, CNS abnormalities were the major cause of mid trimester termination of pregnancies, followed by musculoskeletal abnormalities being second most common cause.

Keywords: Congenital anomalies, Fetal, Pregnancy termination, Second trimester, Ultrasound

INTRODUCTION

Birth defects are most important cause of neonatal morbidity and mortality. Congenital fetal abnormalities lead to permanent disabilities and form a major health burden. About 3% of pregnancies are affected either by genetic or structural fetal anomaly.¹

Increased incidence of fetal anomalies has led to prenatal diagnosis and screening tests to identify them and provide appropriate counselling and management. These defects are of prenatal origin resulting in intrinsic abnormalities or defective embryogenesis in the process of development. Birth defects can be a part of a syndrome or isolated abnormalities causing neonatal and infant morbidity and mortality.²

According to NICE guidelines anomaly scan is routinely performed between 18 to 20 weeks of gestation.³ Most women diagnosed with fetal anomalies preferred to terminate the pregnancy with proportions ranging from 47% to 90%.⁴ Termination of pregnancy is performed as early and late, early pregnancy termination is carried out before 20 weeks of gestation and late after 24 weeks.⁵ Risk of complication increases with late pregnancy termination. Ultrasound is a non-invasive technique available to detect any congenital anomalies in pregnant woman, which will help to identify the single or multiple defects. It also gives physicians an opportunity for fetal therapy or better postnatal care.

Data from UK and Canada suggest that improved diagnosis during pregnancy has increased the rate of

pregnancy termination for fetal anomalies.⁶ The present retrospective analysis has been conducted to evaluate the spectrum of structural fetal anomalies leading to termination of pregnancies and to ascertain the various socio demographic aspects. It will help us understand better and reduce the related maternal morbidity and mortality.

METHODS

A retrospective review of patients who underwent mid trimester pregnancy termination at Chettinad Hospital and Research Institute, from January 2018 to January 2020. Among the study group following factors like age, type of anomaly, gestational age at which fetal anomaly was diagnosed by ultrasound, method of termination of pregnancy and gender of fetus was collected and analysed.

Institutional Ethical Committee approval was obtained for this study. The data collected were analysed using SPSS package.

Routine antenatal check up with USG was performed on all pregnant women between 18 to 20 weeks of gestation. As soon as the diagnosis of fetal abnormality was confirmed through USG, pediatric surgeon's opinion taken for the prognosis of the fetus if born alive. After knowing the fetal anomaly counselling for the couple was given about the severity of fetal anomaly and compatibility for life. Methods for termination of pregnancy were also discussed. After taking an informed, written consent and documentations for termination, the procedure was performed in patients with congenital anomaly requiring termination of pregnancy based on parity and period of gestation.

RESULTS

Out of a total 1879 deliveries, during the study period 39 fetuses with congenital anomalies were identified. Incidence of malformations being 2.1%. The commonest congenital anomalies involved central nervous system (54%) (Table 4).

Table 1: Distribution of patients according to age.

Age (in years)	Total cases- 39	Percentage
20-25	1	3
26-30	7	18
31-35	31	79

Table 2: Distribution of patients according to parity.

Parity	Total cases- 39	Percentage
Primigravida	18	46
2 nd gravida	7	18
3 rd gravida	11	28
4 th or more	3	8

Table 3: Presence of foetal soft markers.

Soft marker in USG	Interpretation of anomalies
NT scan	25
Choroid plexus cyst	3
Echogenic bowel	0
Short femur	5
Single umbilical artery	2
Echogenic focus in ventricle	1
Renal pelvis dilatation	1

Table 4: Gross distribution of anomalies.

System	Total cases- 39	Percentage
Craniospinal	21	54
Cardiovascular	2	5
Renal	1	3
Abdominal	1	2
Musculoskeletal	13	33
Multiple congenital anomalies	1	3
A: Distribution of anomalies- craniospinal		
Meningomyelocele	10	47
Spina bifida	6	29
Acrania	1	5
Anencephaly	4	19
B: Distribution of anomalies- abdominal wall defects		
Imperforate anus	0	0
Gastroschisis	1	100
C: Distribution of anomalies- cardiovascular		
VSD	1	50
PDA	0	0
Complex cardiac anomaly	1	50
D: Distribution of anomalies- renal		
Bilateral hydronephrosis	1	100
Renal agenesis	0	0
E: Distribution of anomalies- musculoskeletal		
Cleft lip	5	38
Cleft palate	4	31
Cleft lip and palate	4	31
Limb defects	0	0
Polydactyly	0	0

Table 5: Gestational age at termination.

Gestational age	Total cases- 39	Percentage
13 weeks + 1 day to 15 weeks	9	23
15 weeks + 1 day to 17 weeks	5	13
17 weeks + 1 day to 19 weeks	16	41
19 weeks + 1 day to 21 weeks	9	23

The second most common type of anomaly involved the musculoskeletal system (33%) (Table 4). Analysing the ages of the women who underwent termination 79% were in the age group of 30 to 35 years and 18% were in the age group of 25-30 years (Table 1). Primigravida women were 18% and the second highest group of women with anomalies were 3rd gravida (Table 2).

Table 6: Risk factors.

Risk factor	Total cases- 39
Consanguinity	12
Age >30 years	7
History of intrauterine foetal death	1
Abortions	9
Maternal diabetes	13
Sibling with malformations	1
Infections	2
Anaemia	11
Hypothyroidism	8
Twins	0

Table 7: Method of termination.

Termination	Total cases- 39	Percentage
Mifepristone + Misoprostol	33	85
Spontaneous expulsion	2	5
Dilatation and suction evacuation	4	10

Table 8: Sex of the foetus (15 weeks of gestation or more).

Sex	Total cases- 39	Percentage
Boy	12	40
Girl	18	60

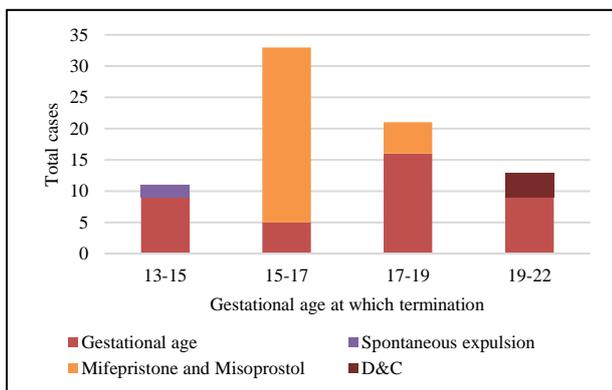


Figure 1: Gestational age and their method of termination.

About 31% of women had a history of consanguinity (Table 6). About 23% had history of previous miscarriage (Table 6). Congenital anomalies were detected before 22

weeks of gestation. Most of the anomalies were picked up only during the anomaly scan between 17-20 weeks (64%) (Table 5) as many of the women did not have their NT scans (11-13 weeks + 6 days). Most common risk factors identified were maternal diabetes 33%, anemia 28% and hypothyroidism 8% (Table 6).

Perinatal mortality occurs due to congenital anomalies. Most of the congenital anomalies detected are associated with maternal contributing factors and have a role in contributing to perinatal mortality if identified late in gestation.

DISCUSSION

In this current study we analysed mid trimester termination of pregnancies for fetuses with congenital malformations. USG was the main modality used for diagnosis of structural fetal anomalies. Couples were explained about the fetal anomalies and its prognosis. Decision for pregnancy termination taken after written valid consent.

Anomaly scan performed at 18-22 weeks of gestational age is the investigation of choice to pick up anomalies. Consanguinity is the single most important factor with increased risk of fetal congenital anomalies.⁷ Awareness regarding the consanguinity and genetic counselling are important to reduce fetal morbidity. Preconceptional counselling and folic acid supplementation helps to reduce the occurrence of neural tube defects. Invasive procedures such as chorionic villus sampling or amniocentesis are restricted to certain high-risk populations, like those having a family history of congenital anomalies.

Termination of pregnancy can be accomplished by both medical and surgical methods. Mifepristone and misoprostol were the common agents used to terminate pregnancy, with misoprostol being used either orally or vaginally. Termination by older medical methods (extra amniotic ethacridine lactate) has been related to maternal morbidity, but misoprostol is found to have less complication rates than other drugs.

In a study conducted in Maharashtra by Taksande et al showed an incidence of 1.9% of anomalies.⁸ Higher incidence of congenital anomalies was noted in mothers aged above 30 years in a study by Singh et al.⁹ In our study a majority (85%) of the terminations were by medical methods as the anomalies were picked up mostly after 16 weeks of gestation.

CONCLUSION

In this study, most of the women who had anomalous fetuses had risk factors like consanguinity, gestational diabetes and previous history of miscarriages. Preconceptional screening and counselling will help in identifying high risk factors and appropriate counselling can be provided. Couples should be screened with karyotyping if genetic risk factors are present.

Targeted scan must be done at 18-20 weeks and fetal echocardiogram between 22 to 24 weeks to exclude anomalies in all pregnant women. Once the fetal anomalies are diagnosed various management options have to be discussed with the parents in consultation with neonatologist, pediatric surgeon and neuro surgeon.

If parents are willing to continue the pregnancy with compatible fetal congenital anomalies then pregnancy may be continued. But if the congenital anomalies are incompatible with life then pregnancy should be terminated. This study was conducted to study the incidence of various spectrum of congenital anomalies, their socio- demographic characteristics and their methods of termination of pregnancy in the population visiting a tertiary care hospital.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee Proposal No: 205/IHEC/November 2020, 27.11.2020

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