

## RETROSPECTIVE STUDY OF FETAL CONGENITAL ANOMALY IN WAYANAD TERTIARY CARE CENTRE

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### ABSTRACT

**Introduction:** Congenital anomaly is due to structural and functional abnormalities that occur during intrauterine life. The prevalence of this condition varies among different countries. High prevalence of this condition is one of the major causes for mortality and morbidity in countries with high prevalence of congenital anomalies. Objectives- 1. To study the prevalence of congenital anomalies in tertiary care centre situated in Wayanad district. 2. To study types of congenital anomalies in the tertiary care centre in Wayanad district.

**Materials and Methods:** This retrospective observational study was conducted in the Department of Anatomy, DMWIMS, Wayanad, Kerala for a period of 3 years from 2016-2018. Total 90 formalin-fixed dead fetuses were obtained from OBG after consent from parents and were studied by dissection method for noting the features of congenital anomalies.

**Statistical analysis:** The prevalence of Congenital anomalies was calculated with the following equation. Prevalence of Congenital anomalies = Number of cases with congenital anomalies / Number of births recorded for 3 years × 100. The type of congenital anomalies was identified and classified based on the organ system and its prevalence was estimated in percentages.

**Observation and Results:** The percentage of prevalence of congenital anomalies was 1.33 in 3 years period spanning from 2016 to 2018. The type of anomalies identified were limb anomalies that accounted for 59.10%, anomalies of the central nervous system (CNS) amounting to 3%, anomalies of the cardiovascular system (CVS) accounted for 7.58%, facial abnormalities in 40.10% fetuses and abdominal anomalies in 3% fetuses. The congenital anomalies identified in these fetuses were more in males than females. However congenital talipes equinovarus was a common condition seen in both sexes.

**Conclusion:** Wayanad district is home for a large population over 8 lacs out of which over 1.5 lac belong to 11 different types of tribes. A considerable number of congenital anomaly cases are from the tribal population. The type of congenital anomalies and their prevalence observed in this study differed from the studies performed in other regions by other authors. There is a need for prospective study to be conducted to identify the predisposing factors for the congenital anomalies.

**KEY WORDS:** Congenital Anomaly, Intrauterine Life, Mortality and Morbidity, Wayanad District.

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### INTRODUCTION

A malformation is a primary structural defect of an organ or part of an organ, that results from

an inherent abnormality in development [1]. Congenital anomaly means “existing at birth” and includes all “birth defects” regardless the

causation [2].

The prevalence of major congenital malformations around the world is variable from less than 1% up to 8% according to different population around the world. Congenital malformations are now increasing in developing countries giving rise to increase in morbidity and mortality. There are very few studies conducted in developing countries on prevalence and pattern of congenital anomalies. A good data of prevalence and pattern of congenital anomalies in various developing countries in specific region gives an opportunity for identifying some etiological factors which can be useful for the prevention of such anomalies in that region [3].

**Objectives of the study:**

1. To study the prevalence of congenital anomalies in tertiary care center situated in Wayanad district.

To study the types of congenital anomalies in tertiary care center in Wayanad district.

**MATERIALS AND METHODS**

This study was conducted in the Department of Anatomy, DM-WIMS, Wayanad. It is a retrospective observational study conducted for a period of three years from 2016 to 2018. Total sample size comprising of 90 fetuses donated to the Department of Anatomy by the Department of OBG after obtaining consent from the parents for using the dead fetus for academic purposes. In the present study, the prevalence of different types of congenital anomalies based on the organ systems was studied. Autopsy of all the fetal specimens was done and a detailed morphological study of various anomalies was carried out. Additional relevant information required for this study was collected from the medical records section of the hospital and the prevalence and types of congenital anomalies was calculated combining all these data.

**Statistical analysis:**

The prevalence of Congenital anomalies was calculated with the following equation and the outcome was represented in percentage.

Prevalence of Congenital anomalies = Number of cases with congenital anomalies / Number of births recorded for 3years × 100

**RESULTS**

Out of 90 fetuses studied, 66 found to have congenital anomalies. The total number of live births in the period of 3 years was 4961.

By applying the equation, the prevalence of congenital anomalies in the period of 3 years was found to be 1.33%. Some of the congenital anomalies identified were Congenital Talipes Equano Varus Deformity (figure 1), phocomelia (figure 2), congenital hydrocephalus (figure 3), meningocele (figure 4) and spina bifida with meningomyelocele figure 5).

**Table 1:** Percentage distribution of different types of congenital anomalies.

Sl No	Type of congenital anomaly	Percentage of prevalence
1	Limb	59.1
2	Central Nervous system (CNS)	3
3	Cardiovascular system (CVS)	7.58
4	Face	40.1
5	Abdomen	3



**Fig. 1:** Congenital Talipes Equano Varus Deformity.



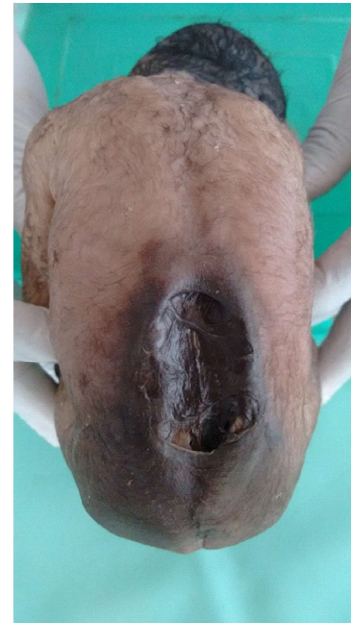
**Fig. 2:** Phocomelia.



**Fig. 3:** Congenital Hydrocephalus.



**Fig. 4:** Meningocele.



**Fig. 5:** Spina bifida with Meningomyelocele.

## DISCUSSION

A study conducted by PrajktaBhide et al in 2016, suggested that the prevalence of major congenital anomalies was 230.51 per 10,000 births among which congenital heart defects were common when compared to other anomalies [4]. According to a study by Anne George et al in 2016, the incidence of birth defects was 12.5 per 1000 live births in which the Musculoskeletal disorders were common [5]. In the present study the prevalence of congenital anomalies was found to be 1.33 % which was more in comparison to previous studies. This could be due to regional variation. Also, the present study shows more limb abnormalities compared to a study by Prajkta Bhide.et.al. [4] which reported more cardiac anomalies.

The present study shows the prevalence of congenital anomaly as 1.33% on an average for a duration of 3 years from 2016 to 2018. This percentage is less compared to a study by Dr.S Lakshmi Vinodh et.al conducted in the year 2017 in which the incidence was 2.48% of the total number of fetus and babies born after 14 weeks. When we compare the pattern of anomalies, our findings showed higher prevalence of limb abnormalities (59.10%) similar to the study by Dr S.Lakshmi Vinodh et al in which it was 24% [6].

According to a study done by Jayashree S. et al in 2018, prevalence of structural birth defects

in fetuses older than 24 weeks of gestation was 0.84% out of which 60.8% of the anomalous babies were males, 37% were females and 2.1% had ambiguous genitalia. Most common was anomalies of renal system (29.75%) and the next common was anomalies of Skeletal system (24.15%) [7]. In the present study the most common anomaly was of limbs with a prevalence of 59.10% followed by anomalies of face with a prevalence of 40.10%. Among the limb anomalies Congenital Talipes Equinovarus deformity was the most common and among the anomalies of face, high arched palate with cleft lip and cleft palate were more common. In a study conducted by Jayashree et al, 2018, 60.8% of anomalous babies were males similar to the present study. The reason could be that female babies with such severe congenital malformation would not have survived up to an advanced gestation of over 24 weeks [7].

A study conducted by PrajktaBhide in 2018, it is reported that a systematic review and meta-analysis revealed pooled prevalence of congenital anomalies to be 184.48 per 10,000 births out of 8,02,658 total births. Musculoskeletal anomalies were highest in live births while CNS defects were highest in still births [8]. On comparison with the meta-analysis, in the present study the prevalence of congenital anomaly was more, and the most common type of anomaly was of musculoskeletal system. Among the anomalies of musculoskeletal

system, vast majority of the babies had CTEV deformity compared to other types of musculoskeletal defects.

Another study by Gupta et al, CNS malformation was the commonest congenital anomaly (41.9%) and this is in agreement with a study by Mashuda et al. [9,10]. In the present study, 3 fetuses out of 90 found to have CNS anomalies which included meningocele and anencephaly. In contrary to a study by Dr.LakshmiVinodh, our study found congenital hydrocephalous condition to be more common [6].Bhide.P. et al found heart defects as the common congenital anomaly in their studies however there was racial difference among different populations [11].

The knowledge of prevalence and types of congenital anomaly will help us to understand the geographical distribution of different types of congenital anomalies. There is a need for conduction of prospective study to identify the etiological factors for Congenital anomalies in Wayanad population.

## CONCLUSION

In the present study, the prevalence of congenital anomalies was 1.33% for a period of 3 years from 2016 to 2018. Out of all the anomalies identified in 90 foetuses, the anomalies of musculoskeletal system were the most prevalent type compared to other types such as CNS, CVS, renal etc. Congenital TalipesEquino Varus deformity was the most common type of the musculoskeletal anomalies. Congenital anomaly was more common in male foetuses than female foetuses. There is a need for a prospective study in order to understand the predisposing factors for congenital anomalies in Wayanad district of Kerala state.

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**Conflicts of Interests: None**

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