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Original Article

Wither Before Blossom: Foetal Death – A Five-Year Retrospective Study

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ABSTRACT

Foetal death remains a significant and understudied problem. Foetal autopsy and placental examination offer much valuable information for the formulation of the cause of death. The present study was undertaken with an aim to provide data regarding the cause and circumstances of foetal death and to provide autopsy findings in these deaths. The retrospective study was carried out from 2004 through to 2008. All cases listed as foetal death or stillbirths were included. The male: female ratio was 1:1.2 and their age ranged from 16 weeks to full term. Most foetuses (*n* = 26, 76.47%) were older than 28 weeks. The majority (*n* = 25, 73.52%) were externally normal, apart from decomposition and maceration, and only 2 (5.88%) had exhibited gross congenital anomaly. Considering the manner of death, 70.58% were natural, 14.70% homicidal and 14.70% were undetermined cases.

Keywords: Foetus, Autopsy, Death, Cause of death, Stillbirth, Forensic pathology

INTRODUCTION

Foetal death remains a significant and understudied problem that accounts for almost 50% of all perinatal deaths.[1] In western world, the estimated prevalence of foetal death was noted to be 5-6 cases per 1000 newborns.[2] Few studies have reported the specific cause of foetal death; however, lack of uniformity in data collection and classification of the cause of death have made comparisons difficult.[3-6] Foetal autopsy and placental examination offer much valuable information for the formulation of cause of death; nevertheless, autopsy can change clinical diagnosis or add significant information to it in as much as 44% of the cases.[7]Unfortunately, many cases of foetal death do not undergo adequate evaluation for possible cause and circumstances of death. The present study was undertaken with an aim to provide data regarding the cause and circumstances of foetal death and to provide autopsy findings in these deaths.

MATERIAL AND METHOD

This is a retrospective study carried out at the Department of Forensic Medicine, Government Medical College and Hospital, Nagpur, from 2004 through to 2008. All the cases listed as foetal death or stillbirths were included. Data were collected from the autopsy reports, police inquest papers, histology findings, toxicology findings and hospital records, if available. A total 34 cases were analysed.The data were recorded for gestational age, sex, found at what place, weight, length, history (if available), autopsy findings and cause and manner of death.

RESULTS

Amongst the 34 cases analysed, 18 (52.94%) were female, 15 (44.11%) were male and in 1 (2.94%) case, the sex could not be ascertained. The male: female ratio was 1: 1.2. Their age ranged from 16 weeks to full term and the details are shown in Figure 1. Most foetuses (*n* = 26, 76.47%) were older than 28 weeks. In all, 6 (17.64%) foetuses were known and the remaining 28 (82.35%) were unknown. In total, 26 (76.47%) were brought from outside areas, whereas 8 (23.52%) were from the hospital, as listedin Table 1. The majority (*n* = 25 , 73.52%) were

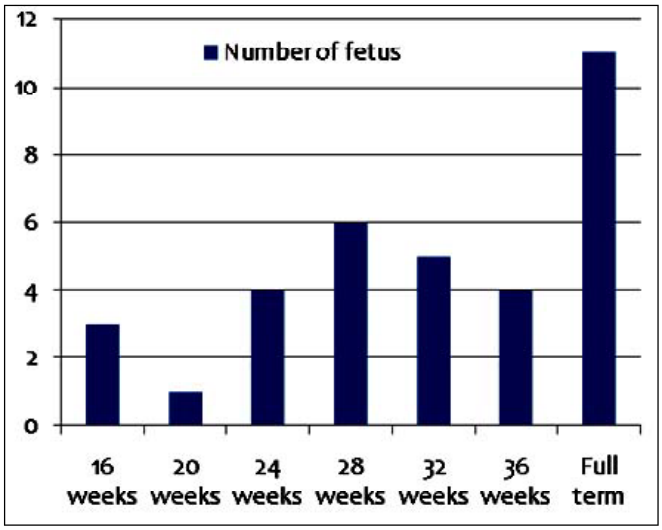

Figure 1: Showing number of foetus and their gestational age

externally normal, apart from decomposition and maceration, and only 2 (5.88%) had exhibited gross congenital anomaly in form of synpolydactyly of the left hand in one case and omphalocele in the other case. A total of 4 (11.76%) foetuses exhibited decomposition, 4 (11.76%) had maceration and 1 (2.94%) was showing partial skeletonisation. Out of the 34 cases, 8 (23.52%) placentas were available for examination and were found to be normal. No injury was noted in 24 (70.58%) cases; 1 (2.94%) was partially skeletonised; 1 (2.94%) had ante-mortem injury and 8 (23.52%) had post-mortem gnawing injuries by animals. The sites of post-mortem injuries are listedin Table 2. The manner of death was classified as natural in 24 (70.58%), homicidal in 5 (14.70%) and undetermined in the remaining 5 cases (14.70%). The causes of death are presented in Table 3.

Table 1: Place from where foetuses were brought

Place	Number of foetus (n = 34)
Canal (nalha)	4 (11.76%)
Garbage dump	1 (2.94%)
Hospital	8 (23.52%)
Near a railway line	4 (11.76%)
Open space near a bush	15 (44.11%)
Road side	1 (2.94%)
Well	1 (2.94%)

Table 2: Distribution of post-mortem injuries

Region	Number of cases (n =8)
Neck and face	4 (50%)
Chest and upper limbs	2 (25%)
Genitals	1 (12.5%)
Lower limbs	1 (12.5%)

Table 3: Cause of death

Cause of death	Number of foetus (n = 34)
Birth asphyxia	3 (8.82%)
Dead born	4 (11.76%)
Drowning	2 (5.88%)
Head injury	3 (8.82%)
Non-viable	8 (23.52%)
Meconium aspiration	2 (5.88%)
Pre-mature	3 (8.82%)
Stillborn	4 (11.76%)
Undetermined	5 (14.70%)

DISCUSSION

Certain causes of foetal loss, such as syphilis, Rh isoimmunisation, toxaemia and diabetes, have shown significant decline over the past decade. Still, many foetal deaths continue to occur from intrauterine infections, lethal malformations, foetal growth retardation, genetic conditions, foetal-maternal haemorrhage and abruption placentae.[1,3,6] Moreover, in developing countries like India, maternal malnutrition, multiple gestation, low birth weight, inadequate antenatal care and pulmonary lesions are additional factors influencing foetal mortality.[7-9] Teenage pregnancies, pregnancies in unmarried females or widows and female foeticide compound the problem.[10] Many of them get rid by disposing the product of conception by act of commission or by act of omission.

The most common associated pathologies of foetal and neonatal deaths in the United States of America were amniotic fluid infection in 17.7%, congenital anomalies in 9.5% and unexplained causes in 13.8%. In Durban, South Africa, causes of foetal deaths were amniotic fluid infection in 26%, congenital anomalies in 4.9% and unexplained causes in 1.5%.[11] In the present study, the cause of death could not be ascertained in 14.70% of the cases and this could be partially attributed to foetal decomposition and partial skeletonisation found in 11.76 and 2.94% of the cases, respectively. The high temperature environmental conditions of our country has a considerable role in the early onset of decomposition, and under such circumstances, it becomes increasingly

difficult to arrive at a conclusion. In 5.88% of the cases, gross congenital anomalies could be detected. Compared with other studies,[2,6,7,11] this figure appears low but may be deceptive due to non-availability of advance laboratory support for routine use in India.

As far as the manner of death is concerned, 70.58% were natural, 14.70% homicidal and 14.70% were undetermined cases. Probably, the high rate of homicide is due to disposal of foetuses by act of commission, and all these foetuses were brought from outside, where they were disposed near a bush, in a canal, in a garbage dump, near a railway line or in a well. In 23.52% of the cases, there were post-mortem gnawing injuries by animals. Such high rates of post-mortem injuries raise concern and emphasise the need for dignified disposal of these early ones.

In contrast to foetal and perinatal hospital autopsies conducted for the determination of cause of death, foetal forensic autopsies have instinctive restrictions. In most of the cases, the birth record, antenatal maternal record, pregnancy status, associated maternal illness, socio-economic conditions, past medical history, place of delivery/abortion and mode of delivery are not available. Consequently, analysing the foetal data under such circumstances has considerable limitations. Still, the utility of such data cannot be dispensed-off. The past several decades have seen much greater reductions in neonatal death rates than in foetal death rates.[1] Improved application of current knowledge may help decrease the foetal death rate and aid a forensic investigator to better understand the circumstances surrounding these deaths. In the same way, it is a challenging arena for future study.

CONCLUSION

In the present study, the male: female ratio was 1: 1.2. Most foetuses (n = 26, 76.47%) were older than 28 weeks. Natural deaths were the common causes of foetal loss, followed by homicide and undetermined causes. About 5.88% had exhibited gross congenital anomaly. Foetuses brought from outside needed attention to rule out an act of commission or an act of omission. This retrospective study has identified some factors causing foetal demise and has provided the baseline data for the forensic investigators.Subsequent studies are required to throw more light and explore this infrequently visited field.

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