Original Research Paper

Volume - 13 | Issue - 01 | January - 2023 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Agriculture

MORPHOLOGICAL AND HISTOPATHOLOGICAL CHANGES IN PLACENTA, UMBILICAL CORD,AND FETUS OF INTRAUTERINE FETAL DEMISE AND STILLBIRTH

Sowmya.Ronanki 3rd yr Post Graduate Rangaraya Medical College ,kakinada

KEYWORDS :

INTRODUCTION

Intrauterine fetal death is a major obstetrical complication and a devastating experience for parents as well as obstetricians. Fetal death is death prior to complete expulsion or extraction of product of human conception, irrespective of the duration of pregnancy. Death is confirmed after extraction, no signs of breathing, pulsations of the cord or beating of heart or definitive movement of voluntary muscles. Fetal death, the largest subgroup of perinatal mortality worldwide consists of antepartum & intrapartum fetal deaths.Antepartum fetal deaths are IUFD before the onset of labour & intrapartum fetal deaths are IUFD during the process of labour. The study is to identify the etiological factor & to provide better counselling to parents, & for the better appropriate management in subsequent pregnancies, and to analyze the mechanisms & see to what extent an autopsy of a presumably normal fetus contributes to the final diagnosis & how many unexplained fetal deaths remain unexplained after examination of the placenta cord & the fetus.

AIMS AND OBJECTIVES

To analyze the morphological and histopathological spectrum in cases of intrauterine fetal demise and stillbirths.

MATERIALS & METHODS:

Study design: Hospital based Prospective observational study at Government General Hospital, Kakinada for a period of 18 months (January 2021 - June 2022)

Study subjects:

Antenatal women with Intrauterine fetal demise.

Inclusion criteria

1. All the antenatal women with Intrauterine fetal demise,and with gestational age >24weeks.
2. Antepartum IUFD
3. Intrapartum IUFD
4. Antenatal women associated with complications like Pregnancy induced hypertensioin,Gestational diabetes,anemia,fever.

Exclusion criteria: Who are not willing to participate in the study.

OBSERVATION AND RESULTS

Table1: Distribution according to age

Age in years	Number(n = 103)	Percentage(%)
<20	15	14.56
21-25	58	56.32
26-30	26	25.24
>30	4	3.88
TOTAL	103	100

Table2: Distribution according to parity

Parity	Number	Percentage(%)
Primi	53	51.46
G2	30	29.13
G3	16	15.53
≥G4	4	3.88
Total	103	100

Table3: Gestational age at delivery

Gestational age	Number	Percentage (%)
24-28 weeks	11	10.68
29-32 weeks	30	29.13
33-36 weeks	21	20.39
37-40 weeks	25	24.27
Past dates	16	15.53
Total	103	100

Table 4 : Distribution of mothers according to TIFFA

TIFFA	Number(n=103)	Percentage (%)
Not done	61	59.23
With abnormality	16	15.53
Without abnormality	26	25.24
Total	103	100

Chart 5 : Presenting complaints of antenatal women

Presenting complaints	Number	Percentage(%)
Absent fetal movements	26	25.24
Decreased fetal movements	23	22.33
Labour pains	32	31.07
leaking per vaginum	9	8.74
Incidetally diagnosed	13	12.62
Total	103	100

Table 6: Distribution of Booked/ Un-booked cases

	Number	Percentage (%)
Booked	18	17.48
Unbooked	65	63.11
Referred	20	19.41
Total	103	100

Table 7: Past history of abortions

Previous h/o Abortions	Number(n=30)	Percentage(%)
1st trimester	19	63.34
2nd trimister	11	36.66
Total	30	100

Table 8 :Maternal risk factors

Risk factors	Number	Percentage(%)
H/o Consanguinity	47	45.63
Rh negative pregnancy	05	4.85
Hypothyroidism	18	17.47
Pre- eclampsia	29	28.15
Abruption	06	5.82
GDM	11	10.67
Antepartum eclampsia	04	3.88
IUGR	08	7.76
Chronic HTN	3	2.91
Oligohydramnios	29	28.15
HELLP syndrome	3	2.91
Malaria	02	1.94
Past dates	16	15.53
Placenta previa	03	2.91
Anemia	06	5.82

Table 9: Past obstetric history

H/o IUFD	24	23.30

- IUFD with anomalies	05	20.83
- IUFD without anomalies	19	79.17
h/o still births	04	3.88
Nil significant past history	75	72.82
Total	103	100

Table 10: Mode of delivery

Mode of delivery	Number(n=103)	Percentage(%)
Vaginal	95	92.24
Spontaneous	15	15.79
Induced	80	84.21
Elective LSCS	2	1.94
Emergency LSCS	4	3.88
VBAC	2	1.94
Total	103	100

Table11: Fetal sex

Fetal sex	Number	Percentage(%)
Male	59	56.73
Female	42	40.38
Ambigious genetalia	03	2.89
Total	104	100

Chart 12: Distribution according to birth weight

Birth weight	Number	Percentage (%)
< 1kg	10	9.71
1-1.5 kgs	42	40.78
1.6 -2.5 kgs	26	25.24
>2.5 kgs	25	24.27
Total	103	100

Table 13: Fetal morphology

Gross features	Number	Percentage(%)
Fresh	40	38.83
Macerated	63	61.17

Table 14: External anomalies

	Number	Percentage(%)
With external anomalies	20	19.42
Without external anomalies	83	80.58
Total	103	100

Table 15: Cord around neck

	Number	Percentage(%)
Cord around the neck	16	15.53
Without cord around the neck	87	84.47

Table 16: Placental morphology

PLACENTA		Percentage(%)
Placental weight		
a.Appropriate for gestation	78	75.73
b.Inappropriate for gestation	22	21.36
c.Placentomegaly	03	2.91

Chart 17: Other details of placenta

Expelled in toto	70	67.96
Piecemeal	33	32.03
Meconium staining	84	81.55
Calcifications	77	74.75
Abnormal insertion of cord	01(velamentous)	0.97
Retroplacental clots	08	7.76
Fetal membranes	Squamous Metaplasia 12	11.65

Table 18 : Umbilical Cord length

UMBILICAL CORD		Percentage(%)
Length Appropriate	85	82.54
Inappropriate Less than appropiate More than appropriate	10 08	9.70 7.76

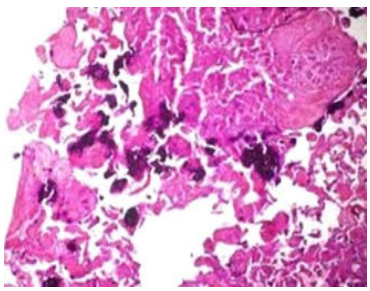
Table 19: Cord morphology

UMBILICAL CORD		Percentage(%)
Vessel abnormality 2 vessel cord	15	14.56
True knots	4	3.88
Coils (Hypercoiling)	6	5.82
Meconium staining	84	81.55
Turgidity(Wharton's jelly) Lost Maintained	65 38	63.10 36.89

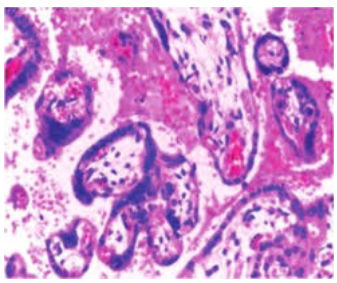
Table 20 : AUTOPSY FINDINGS NOTICED IN PRESENT STUDY

Musculoskeletal system	Limb hypoplasia(specific to potters syndrome) Cleft lip,cleft palate,micrognathia, Syndactyly	01
Gastrointestinal system	Anorectal agenesis with Imperforateanus, Omphalocele.	01 02 01
Renal system	B/L,U/L renal agenesis, ectopia vesicae, Polycystic kidney disease ,B/L absent kidneys with potter facies.	 04 01 01 01
Central nervous system	Hydrocephalus, Absent cranial vault bones (anenecephaly)	 04 02

Calcifications of the placenta



Fibrinoid necrosis in a case of GDM.



Syncytial knots

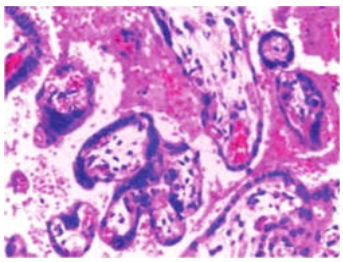
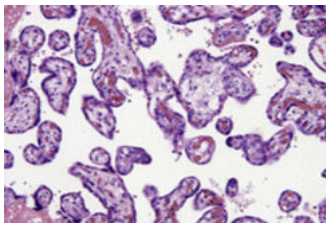
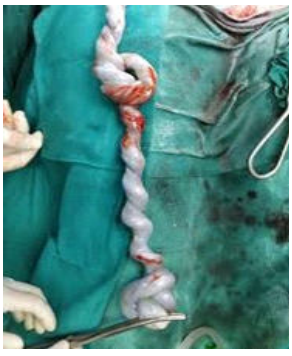


Figure: True knots





Conclusion

The mother, fetus & the placenta all are involved in the complex process of fetal death and therefore, should be addressed together. Many of the IUFD are unexplained & unpredictable, but the rates of IUFD can be brought down by the joint efforts at all the levels. Early booking with regular antenatal care, identification of high risk cases, timely intervention & referral are the key approaches to reduce the incidence of IUFD & recurrence. Counselling can be hampered by sufficient information regarding the etiology of the prior still birth. In many cases, prior stillbirth may be unexplained despite thorough evaluation.The risk of recurrence of stillbirth are higher with maternal complications such as DM, HTN or those with obstetric problems with a significant recurrence risk.The frequency of unexplained stillbirth at term reduces to less than 30-40% of cases receiving optimal evaluation. Findings in fetal autopsy can change the clinical diagnosis of the cause of fetal death or yield or can yield additional findings. This new information often can influence management of future pregnancies. The likelihood of finding diagnosis depends on the complete examination, the experience of the pathologist, & the gestational age at delivery.This provided information by the pathologist can reduce the recurrence risk by counselling in the inter-pregnancy interval, and can change recommendations for pre-conceptional care, prenatal diagnostic procedures, prenatal management & neonatal management accordingly.The present study highlights the importance of detailed morphological & pathological examination is fundamental for the comprehension & integration of poor obstetric outcomes, thereby playing an important role in timely management of mother & fetus which can improve outcome of further pregnancies.

REFERENCES

1. World Health Organization. ICD-11 for Mortality and Morbidity Statistics (ICD-11 MMS) 2018 version https://icd.who.int/browse11/l-m/en (Accesse February 25, 2020).
2. Fretts RC, Schmittdiel J, McLean FH, Usher RH, Goldman MB. Increased maternal age and the risk of fetal death. N Engl J Med 1995;333:953–7.
3. Liu S, Joseph KS, Kramer MS, Allen AC, Sauve R, Rusen ID, et al. Relationship of prenatal diagnosis and pregnancy termination to overall infant mortality in Canada. Feta Infant Health Study Group of the Canadian Perinatal Surveillance System. JAMA 2002;287:1561–7.
4. Hales CM, Carroll MD, Fryar CD, Ogden CL. Prevalence of obesity among adults and youth: United States, 2015-2016. NCHS Data Brief 2017(288):1–8.
5. Aune D, Saugstad OD, Henriksen T, Tonstad S. Maternal body mass index and the risk of fetal death, stillbirth, and infant death: a systematic review and meta-analysis. 2014;311:1536–46.
6. Goldenberg RL, Farrow V, McClure EM, et al: Stillbirth: knowledge and prac-tice among U.S. obstetrician-gynecologists. Am J Perinatol 30(10):813, 2013 Mechanisms of abruption-induced premature rupture of the fetal membranes: Thrombin enhanced decidual matrix metalloproteinase-3 (stromelysin-1) expression. Mackenzie AP, Schatz F, Krikun G, Funai EF, Kadner S, Lockwood CJ Am J Obstet Gynecol. 2004;191(6):1996.
7. Pregnancy risk increases from 41 weeks of gestation.Nakling J, Backe B Acta Obstet Gynecol Scand. 2006;85(6):663.
8. Stillbirth Associated With Infection in a Diverse U.S. Cohort. Page JM, Bardsley T, Thorsten V, Allshouse AA, Varner MW, Debbink MP, Dudley DJ, Saade GR, Goldenberg RL, Stoll B, Hogue CJ, Bukowski R, Conway D, Reddy UM, Silv RM Obstet Gynecol. 2019;134(6):1187.