ORIGINAL ARTICLE

A Systematic Approach to Stillbirth Examination in a Tertiary Hospital

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ABSTRACT

Background. Stillbirth has a complex pathophysiology, hence the difficulty in arriving at a specific cause.

Objectives. The study aimed to identify the probable causes of stillbirth in a tertiary hospital based on gross examination of the placenta and the fetus, as well as, to identify the demographic profile of the stillbirths.

Methods. A cross-sectional descriptive study was conducted among 29 stillbirths delivered in a tertiary hospital from March 2016 to September 2016. The probable causes of stillbirth were categorized as obstetrics complications, placental abnormalities, umbilical cord abnormalities, fetal malformations, infections, hypertensive disorders, medical complications, and undetermined causes.

Results. 86% of stillbirths in this study had a probable cause of death. Umbilical and placental abnormalities were the most probable causes (62% and 41%, respectively). The two most common identified cord abnormalities were short cord length (34%) and marginal insertion (23%), while small placenta (27%) was the most common for placental abnormalities.

Conclusion. To be able to come up with the probable cause of stillbirth, the delivering physician or health personnel should always account the gross findings of the fetus and placenta after delivery.

Key Words: fetal death in utero, placenta, stillbirth evaluation

INTRODUCTION

Obstetricians and other delivering clinicians should contribute to providing significant findings during fetal and placental examination of stillbirths. In a hospital setting where most of the patients are indigent, they would rather not do the extensive work-up for stillbirth examination. However, knowing the probable causes of stillbirth will help healthcare providers improve their counselling services and management of the next pregnancies.

In 2015, there were 2.6 million stillbirths globally, with more than 7178 deaths a day. Ninety-eight percent (98%) occurred in low- and middle-income countries.[1] This number could be an underestimation due to underreporting and different definitions of stillbirths.

Even with an extensive examination, as much as 14-47% of stillbirths have unexplained causes.[2] There have been numerous attempts to catalog causes of fetal death, using classification system but none have been universally accepted. Roberts (2013) suggested an alternative way in determining the cause of perinatal death for limited-resource settings. It includes taking clinical history (of the mother and the course

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of labor), followed by fetal and placental examination. He emphasizes that simple visual inspection and description, maybe all that is needed to establish a probable cause of the fetal death.[3]

Based from a 3-year review of records in the Philippine General Hospital, there were a total number of 14,047 deliveries, 293 of which were stillbirths (2.1%).[4]

This is a pilot study to evaluate the causes of fetal death in a way that can be used in limited-resource settings. Identification of the probable causes of stillbirth were based from those identified by the Stillbirth Collaborative Research Network Study 2011 namely: (1) obstetric complications, (2) placental abnormalities, (3) fetal malformations, (4) infections, (5) umbilical cord abnormalities, (6) hypertensive disorders, (7) medical complications, and (8) undetermined causes.[5] Evaluation included clinical history taking, fetal examination, and placental examination.

Maternal profile

Factors that have been associated with an increased risk of antepartum stillbirth include advanced maternal age, African-American race, smoking, illicit drug use, obesity, and maternal medical diseases.[4]

Placental examination

A detailed placental pathologic examination is one critical component of stillbirth evaluation given the placenta's essential role in maintaining a healthy pregnancy.[6] More often than not, the placenta will provide answer to the cause of death or will certainly provide insight into the cause(s).

Fetal examination

The diagnosis of some congenital anomalies does not require histology, but it does require training and the careful examination of the fetus. By gross examination, one may tell the extent of skin peeling, maceration, and physical malformations that may have led to a probable cause of fetal death.

Objectives of the study

The main objective of the study was to identify the probable causes of stillbirth in a tertiary hospital based on gross examination of the placenta and the fetus. The study also aimed to identify the demographic profile of the stillbirths. The probable causes of stillbirths were categorized to: (1) obstetric complications, (2) placental abnormalities, (3) fetal malformations, (4) infections, (5) umbilical cord abnormalities, (6) hypertensive disorders, (7) medical complications, and (8) undetermined causes.

METHODS

The study was conducted in a tertiary hospital and included all women admitted for singleton stillbirths, with more than 20 weeks age of gestation and fetus weighing at least 500g, and who consented to be part of the study.

Materials

The following materials were provided and used by the investigator: gloves, plastic bags, scalpel, forceps, tray, cloth (to cover the tray and be used as the background for photography purposes), saline water, weighing scale, tape measure, camera, and refrigerator.

Patients

The investigator collected the following information: age, marital status, obstetric score, medical conditions, pre-natal check-ups, congenital anomalies, and other related factors in the history taking as shown in the Mother's Profile (Appendix).

Upon delivery (either vaginally or through cesarean section), the placenta and the fetus were placed on a separate table for examination.

Placenta

The placenta was examined within 24 hours from delivery. Upon receiving, the placenta was placed in a container and rinsed briefly for about 10 seconds using tap water and was examined by the investigator. Systematic examination of the placenta was based from Manual of Benirschke and Kaufmann's Pathology of the Human Placenta by Baergen 2005) and consisted of the following:

1. Checked the odor (foul-smelling or non foul-smelling).
2. Checked the umbilicus.
    a. Checked the appearance (color).
    b. Length was measured. Using a standard measuring tape the length was measured from the fetal umbilicus up to the cord insertion in the placenta. In cases where the cord was cut, the length of the fetal cord was added to the placental cord.
    c. Coiling pattern was observed. If more than 3 in 5cm, it was labelled as hypercoiled, and if less than 3 cm, it was labelled as hypocoiled or no twisting.
    d. The investigator identified whether the placental insertion was central, marginal, or velamentous.
    e. Knots were identified. It was also indicated if how many knots, if loose or if tight. (Figure 2.6)
3. Cord was cut from the placenta at the insertion site and placed in the container.
4. Placental membrane was inspected (including color, completeness, and membrane insertion).
5. Placental parenchyma was inspected.
    a. Placenta was weighed in grams using a standard weighing scale.
    b. Placenta was measured in three dimensions: width, length, and thickness.
    c. Maternal surface was inspected for the completeness of cotyledons/ lobules. Color was checked. Presence of infarcts and hematoma was noted.
    d. Fetal surface was inspected. Color was checked.

Fetus

1. After drying, the fetus was weighed using the weighing scale in the Neonatal Section.
2. Crown rump-heel length was measured using a measuring tape.
3. Examination of the fetus per body parts was done and findings were written as indicated in the data collection tool – fetus section (Appendix).
4. After examination, photographs of the specimen were taken and saved.

Study analysis

The demographic and clinical variables were presented using the frequencies and percentages for categorical variables such as the presence of co-morbidities, cord and fetal characteristics (eg, coiling, insertion, color); or the mean, standard deviation, or range for continuous variables such as age and other anthropometric measurements (eg, placental weight, cord length, age of gestation).

Due to the limited number of abortus examined during the period of data collection, and the noticeable overlap in the probable causes of stillbirth, the analysis was limited to descriptive statistics in order to clearly present the statistics of the measured factors.

Since it would be difficult to select controls among the samples, and the cases were also highly varied with each other – the study would be treated similar to a case series. The results would still be clinically meaningful since such means of analysis tends to describe a set of individuals who show similar symptoms or outcomes.

RESULTS

Table 1 shows the demographic profile of the 29 stillbirths included in this study. The age of women who delivered stillbirths has a wide range of 16 to 40 years old with mean age of 26 ± 7.77 (Table 1). Most of them were primigravid (42%), single (68.97%), with no co-morbidities (79.31%), seen in the local health center (51.72%), with 4 ± 2.22 prenatal check-ups, and within the third trimester of pregnancy (77%).

Placental evaluation

The placental profile of all stillbirths showed that 16 (55.17%) were normal, but there was at least 1 abnormal finding noted in each of the variables (Table 2).

Obstetrics complications

Eleven of the stillbirths had obstetrical complications which included postterm pregnancy (1 case), abruptio placenta (4), malpresentation (2, breech and transverse), and small for gestational age (SGA) (4). Placenta from the postpartum pregnancy was small for gestational age and had a marginal insertion of the cord. Its cord and placental membrane were green in color.

Table 1. Clinical characteristics of women who delivered with stillbirths

Characteristic	Summary measure
Age in years	26 ± 7.77 (16 to 40 years)
Gravidity	2 ± 1.76 (1 to 7)
Primipara	11 (42%)
Parity	1 ± 1.96 (0 to 7)
History of abortion	3 (10.34%)
Civil status	
Single	20 (68.97%)
Married	9 (31.03%)
Presence of co-morbidities	
Gestational diabetes	1 (3.45%)
Gestational hypertension	1 (3.45%)
Pre-eclampsia	1 (3.45%)
Hyperthyroidism	1 (3.45%)
Pulmonary tuberculosis	1 (3.45%)
Number of prenatal consults	4 ± 2.23 (0 to 8 visits)
None	3 (10.3%)
Local health center	16 (55.17%)
Lying –in clinic	7 (24.13%)
Hospital	3 (10.3%)
Age of gestation	
20-27 weeks	7 (24.13%)
≥28 weeks	22 (75.86%)

Three of the placentas labeled with abruptio were noted with retroplacental hematoma and three of them showed indentations in their membrane. Other associated findings were: one true knot in the umbilical cord, one short cord, and one with spiral cord pattern. The breech stillborn had a stricture in its cord, while the transverse was found with small placenta.

The stillbirths labeled as small for gestational age were associated with hypertensive disorder, marginal cord insertion, cord stricture, small placenta, and hydrocephalus. The other clinical characteristics such as maternal age, gravidity, and placental weight and size were found to have no difference as compared with the other causes.

a. Placental causes

Thirteen of the stillbirths (44.83%) were noted to have abnormal findings in their placenta. These included small placenta (7 cases), large placenta (1), pale placental disc (1), green placental membrane (4), placental indentation (1) and succenturiate lobe (1). Most common placental abnormality was the small placenta (26.9%), three of which were associated with short umbilical cords, 2 with marginal cord insertion, 1 with spiral pattern in the cord, and the last one was a placenta from a fetus with hydrocephalus. On the other hand, stillbirths with large placenta were also associated with marginal cord insertions; one of them was also found with SGA fetus. A placenta with pale disc was noted with a finding of long umbilical cord. The 4 placentas noted to be with green placental membrane were associated with postterm pregnancy, small placenta, and short umbilical cords. The indentation in placenta was from a mother noted with placental abruptio. Only one was seen with succenturiate placenta, and this was also associated with a short length and velamentous cord insertion.

Table 2. Placental characteristics of stillbirths

Characteristic	Summary measure
Placental weight in grams	316.75 ± 113.34 (100 to 600 grams)
Placental weight category	
Normal	18 (64.29%)
Larger than usual	3 (10.71%)
Smaller than usual	7 (25%)
Placental size	357.03 ± 211.94 (80 to 918)
Placental cord appearance	
Central	21 (72.41%)
Marginal	7 (24.14%)
Velamentous	1 (3.45%)
Placental cord length in cm	37.12 ± 9.29 (18 to 54 cm)
Cord length categories	
Normal	16 (55.17%)
Short	9 (31.03%)
Long	4 (13.79%)
Coiling pattern	
Hypercoiled	1 (3.45%)
Undulating	4 (13.79%)
Rope	22 (75.86%)
Segmented	3 (10.34%)
Placental cord color	
Transparent	25 (86.21%)
Greenish	2 (6.90%)
Brown	2 (6.90%)
Placental cord knot	
None	25 (86.21%)
True knot	1 (3.45%)
False knot	1 (3.45%)
Strictures	2 (6.90%)
Placental membrane insertion	
Marginal	28 (96.55%)
Others	1 (3.45%)
Placental membrane color	
Normal	23 (79.31%)
Opaque	1 (3.45%)
Green	5 (17.24%)
Placental disc	
Intact	23 (79.31%)
With infarcts	3 (10.34%)
With indentations	3 (10.34%)
Presence of hematomas	4 (13.79%)
Parenchymal appearance	
Normal	26 (89.66%)
Beefy red	1 (3.45%)
Pale	2 (6.90%)

b. Umbilical cord abnormalities

Seventeen (17) stillbirths were found with umbilical cord abnormalities, the most common (58.62%) among the probable causes of stillbirths in this study. These abnormalities were abnormal cord length (short cord and long cord), abnormal insertion (marginal and velamentous), presence of stricture, spiral pattern, and knots. The most common abnormality was short cord length (9 cases, 31.03%), followed by marginal cord insertion(6, 20.69%). While most of these abnormalities were associated with other risk factors, 4 of them were only isolated cases (2 cases with short cord lengths, 1 false knot, and 1 stricture). It is important to note that ten of them have accompanying placental abnormality and the small placenta was the most common association.

c. Fetal malformations

The three stillbirths with fetal malformations were all found to be with hydrocephalus. One of them had other congenital abnormality noted through ultrasound (fetal ventriculomegaly and cardiomegaly). Other abnormalities noted in this category were small and large placenta.

d. Infectious causes

Only one case was associated with an infectious cause. It was an active pulmonary tuberculosis, where placental disc showed miliary lesions described as bubbly and glistening in appearance. Other abnormality seen was a short cord and small placenta.

e. Hypertensive disorders

Preeclampsia was noted with small for gestational age while gestational hypertension (GH) was seen with abruptio placenta, small placenta, and 1 cord abnormality (spiral cord segment).

f. Other medical complications

Medical complications elicited from the mothers were gestational diabetes mellitus and hyperthyroidism. The first one was seen with velamentous cord insertion, short cord, and succcenturiate placenta while the latter was associated with marginal insertion and small placenta. Other placental characteristics were within normal.

g. Undetermined causes

There were four cases which were not associated with any other risk factors. All the findings were normal, and no gross abnormality was seen. Looking back at the maternal profile, this category had the lowest mean age of the mother (22.5 ± 2.38) and the lowest age of gestation (25.5 ± 4.43).

Fetal evaluation

Table 3 shows the fetal characteristics of the stillbirths. The mean weight was 1668.4 ± 550-3200 grams. Most of them were within the late trimester or more than 28 weeks (75.86%). Seven (24.13%) of them were small for gestational age and three (10.34%) were large for gestational age. Among the fetal characteristics, the skin (21 cases, 72.41%) had the most number of abnormal findings which included both peeling (68.97%) and bruising (3.45%). This was followed by presence of meconium (27.59%), small for gestational age (20.69%), and foul smelling odor (13.79%).

Table 4 shows the correlation of fetal findings in the different causal categories of stillbirth. Small for gestational age fetuses were seen in those with obstetrical complications (abruptio placenta), placental and cord abnormalities, and hypertensive disorders. Peeling of the skin were highest in those with placental and cord abnormalities. Other fetal

Table 3. Fetal characteristics of stillbirths

Characteristics	Summary Measures
Fetal weight in grams	1639.64 ± 753.78 (550 to 3200 grams)
Fetal weight category	
Appropriate for GA	19 (65.52%)
Small for GA	6 (20.69%)
Large for GA	4 (13.79%)
Crown-heel length in cm	39.26 ± 7.47 (22.5 to 57)
Estimated age of gestation	32.13 ± 5.64 weeks (20 to 42 weeks)
With foul-smelling odor	4 (13.79%)
With meconium	8 (27.59%)
Skin	
Intact	8 (27.59%)
Peeling<50%	9 (31.03%)
Peeling>50%	11 (37.93%)
Bruising	1 (3.45%)
Head	
Normal	25 (86.21%)
Hydrocephalus	3 (10.34%)
Anencephaly	1 (3.45%)
With abundant fetal hair	29 (100%)
Normal eyes	29 (100%)
Normal nose	29 (100%)
Normal mouth	29 (100%)
Normal ears	29 (100%)
Normal neck	29 (100%)
Normal chest	29 (100%)
Normal back	29 (100%)
Normal hands	29 (100%)
Normal anus	29 (100%)
Abdomen	
Normal	28 (96.55%)
Asymmetric	1 (3.45%)
Feet	
Normal	27 (93.10%)
Webbing of the feet	1 (3.45%)
Clubbing of the foot	1 (3.45%)
Genitalia	
Normal	25 (96.55%)
Ambiguous	1 (3.45%)

malformations noted were hydrocephalus and clubbing of the foot. Other fetal body parts were mostly normal on physical examination.

DISCUSSION

Younger and older age had higher fetal mortality rate than those within the 25-35 years age group. Aside from old age, literature has identified primaparity, gravidity of ≥3, and unmarried women as independent factors for higher stillbirth rate.[7] This is similar to the result in this study.

Obstetric complications

Postterm pregnancy has a stillbirth risk of 4 to 7 deaths per 1000 deliveries.[8] It was one of the identified causes of stillbirth in this study, and the given case was also associated with a marginal insertion/ battledore placenta. This insertion is associated with 37% fetal distress, and both of them could have probably contributed in the demise.[9] Other noted complication is abruptio placenta which has a high fetal mortality rate. Suggestive findings of abruptio placenta are placental indentations and retroplacental hematoma which were both seen in the subjects. True knots are associated with four-to ten-fold increased risk of stillbirth, while short cord length may be associated with fetal-growth restriction, congenital malformations, intrapartum distress, and a two-fold risk of death. Cord stricture (Figure 1) on the other hand is a focal narrowing of its diameter. Characteristic pathological features of strictures are absence of Wharton jelly and stenosis or obliteration of cord vessels at the narrow segment.[7] Small for gestational age (SGA) has increased risk for stillbirth, but this is more likely a consequence of another problem. SGA fetuses noted in this study were associated with hypertensive disorders, cord stricture, marginal cord insertion, small placenta, and fetal malformation. These factors may have contributed to decreased uteroplacental

Table 4. Fetal findings in correlation with the different causes of stillbirths

Characteristics	Cause 1	Cause 2	Cause 3	Cause 4	Cause 5	Cause 6	Cause 7	Cause 8
with Foul-smelling odor	1 (3.45%)	4 (13.79%)	4 (13.79%)	-	-	-	1 (3.45%)	-
with Meconium	2 (6.90%)	5 (17.24%)	7 (24.14%)	-	1 (3.45%)	-	1 (3.45%)	1 (10.34%)
Skin								
Peeling<50%	4 (13.79%)	5 (17.24%)	8 (27.59%)	1 (3.45%)	-	1 (3.45%)	1 (3.45%)	-
Peeling>50%	3 (10.34%)	3 (10.34%)	4 (13.79%)	3 (10.34%)	-	-	1 (3.45%)	4 (13.79%)
Bruising	-	1 (3.45%)	1 (3.45%)	-	1 (3.45%)	-	-	-
Head								
Hydrocephalus	1 (3.45%)	2 (6.90%)	1 (3.45%)	3 (10.34%)	-	-	-	-
Anencephaly	-	-	-	-	-	-	-	1 (3.45%)
Abdomen								
Asymmetric	-	-	-	-	-	-	-	1 (3.45%)
Feet								
Webbing of the feet	-	-	-	1 (3.45%)	-	-	-	-
Clubbing of the foot	1 (3.45%)	-	1 (3.45%)	-	-	-	-	-
Genitalia								
Ambiguous	-	1 (3.45%)	1 (3.45%)	-	1 (3.45%)	-	-	-

Causes of stillbirths are identified as: (1) Obstetrical complications (2) Placental (3) Umbilical (4) Fetal malformations (5) Infection (6) Hypertensive complications (7) Other medical complications (8) Undetermined.

flow resulting to small fetuses, which also increases the risk from other identified factors. Malpresentation was also cited in a study of Demol et al (2000), to be associated with higher neonatal mortality (breech with p<0.0001, transverse with p <0.02).[10] There were 2 malpresented cases in the study, and both of them were associated with other findings (cord stricture and small placenta).

Placental causes

The common placental abnormality noted in this study was small placenta (26.9%). Three of the cases of small placenta were associated with short umbilical cords, marginal cord insertion, and spiral stricture in the cord. All of these cord abnormalities contributed to poor uteroplacental function resulting to small placenta. Large placenta is as well associated with increased perinatal risk and this is because of possible underlying factors such as diabetes mellitus, syphilis, and hydrops which were not seen in this study. Pale disc might be a result of an abnormal uteroplacental blood flow, which could also be attributed to a marginal insertion. Both of these findings were seen in one case. Green appearance of the placental membrane is a suggestion of chorioamnionitis, which could lead to fetal sepsis hence, the demise. Succenturiate placenta (Figure 1) is associated with velamentous cord which has increased risk for fetal hemorrhage due to the unprotected and thinned membrane in the insertion.[11]

Umbilical cord abnormalities

This is the most common probable cause noted in this study (61.54%). The most common umbilical cord abnormality was short cord length (9 cases, 34.62%), followed by marginal cord insertion (6, 23.08%). Most of the umbilical cords measured 40-70cm, and measurement of cords as to short or long was also adjusted with its gestational age. Short cord as discussed earlier is associated with fetal-growth restriction, congenital malformations, intrapartum distress, and a twofold risk of death. The risk of having cord strictures, knots, and abnormal insertion were already discussed in the previous segments. All of them were associated with increased risk of fetal demise.

Fetal malformations

The prevalence of congenital and infantile hydrocephalus in the United States has been estimated at 0.5 to 0.8 per 1000 live and still births. Untreated hydrocephalus has a mortality rate of as high as 40%.[11] The hydrocephalic fetus noted in this study was associated with other congenital abnormality such as ventriculomegaly and cardiomegaly which may have also caused the fetal demise.

Infectious causes

The only identified infectious cause in this study was the presence of active pulmonary tuberculosis in the mother which

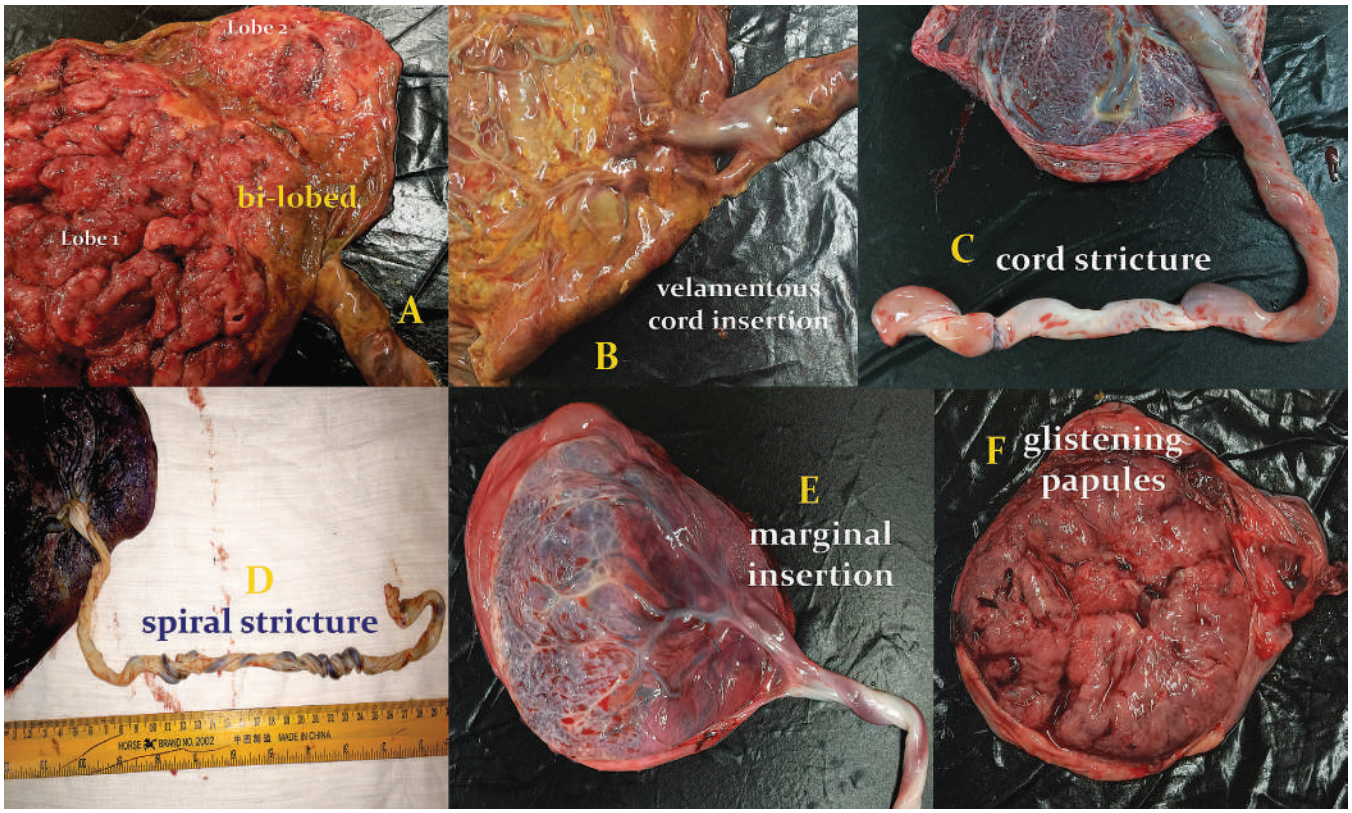

Figure 1. Gross pictures of different abnormalities noted in the placenta and umbilical cord. A. Succenturiate placenta B. velamentous cord insertion C. cord stricture D. spiral stricture E. marginal insertion F. Glistening papules found in placenta of a mother with active pulmonary tuberculosis.

was noted during history. On inspection, the placenta was noted with glistening papules, which suggests an infectious cause, primarily a tuberculosis. Congenital tuberculosis is rare but still poses an increased risk for stillbirth.[12]

Hypertensive disorders

This study showed that there is increased risk for stillbirth in women who have both hypertensive disorders and SGA fetuses.

Medical complications

Gestational diabetes mellitus is known to increase fetal death near term especially if the patient has uncontrolled blood sugar. Hperthyroidism is associated with increased spontaneous abortion and stillbirth. Both of these medical complications may have contributed to the fetal demise but going back in this study, these 2 cases were also associated with other factors. The first one was found out to have a velamentous cord and the second was with marginal insertion; both findings were said to increase risk of stillbirth.

Fetal evaluation

The physical appearance of the fetus may suggest the timing of the death of the fetus. In this study, the most common fetal abnormality is the peeling of the skin. Peeling of the skin would tell that a fetus has already been dead for more than 3 days upto 2 weeks. Among the 5 stillbirths with intact skin or up to<50% skin peeling, 3 of them had findings pointing to abruptio placenta, which is an acute event and justifies that the baby might have just recently died. Fetuses with meconium were associated with abnormal placental and cord findings such as marginal insertion, short cord, small placenta, bi-lobed placenta, and velamentous insertion. Nevertheless, a small percentage was seen in the examination of the head, and feet (hydrocephalus, clubbing and webbing of the feet, and flattened nose). These latter findings, even small, are of great significance because they might point out to probable cause of fetal demise, especially if the fetus has a malformation.

CONCLUSION

Eighty-six percent (86%) of stillbirths in this study had a probable cause of death. Umbilical and placental causes were the most probable causes (62% and 41%, respectively) and there were only 4 cases (13.79%) which had undetermined causes. The two most common identified cord abnormalities were short cord length (34.62%) and marginal insertion (23.08%), while small placenta (26.9%) was the most common for placental causes. Almost all the identified abnormalities were associated with increased risk of fetal death in utero according to the literature.

Those who are younger than 20 years and older than 30 years old have higher fetal mortality rate. Older age (30-31 years old) was also noted to have higher risk in the categories of hypertensive and other medical complications. According to Fretts (2016), primaparity, gravidity of ≥3, and unmarried women are independent factors for higher stillbirth rate,[7] and mothers in this study were noted to have the same risk factors.

To be able to come up with the probable cause of stillbirth, the delivering physician or health personnel should always account the gross findings of the fetus and placenta after delivery. Special attention should be given in examining the placenta and the umbilical cord, as this might give the probable cause of fetal demise in nearly more than half of the time.

Limitations

The study was not able to reach the desired 50 sample size. Nevertheless, this is considered a pilot study and the findings were only meant to describe the demographic characteristics and the gross characteristics of placenta and fetus of the stillbirths. The number of subjects of the study was too small to be able to come up with statistical analysis.

Recommendations

It is recommended that systematic examination of placenta and fetus after delivering a stillbirth must be done by all delivering clinicians. It would be helpful if a checklist will be provided to record all the findings. Health care providers who deliver a baby should also practice the systematic process of gross placental and fetal examination. Collection of the data will be helpful for future researches in order to address the causes of fetal death in the country.

Statement of Authorship

All authors have approved the final version submitted.

Author Disclosure

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Appendix. Data Collection Tool

Date: _____

I. Patient's Profile

Name: _____ Age ____ Civil Status _____
Address: _____ OB Score _____
Admitting impression _____
Known co-morbidities (pre-gestational or gestational) _____
Number of pre-natal checkups _____
Where: _____
AOG at 1st prenatal checkup _____ AOG at last prenatal checkup _____
Ultrasound done? (if yes please indicate the AOG and if there are noted abnormalities _____

II. Placental Evaluation

General	
Weight (grams)	_____ g ◻ normal ◻ large for the fetus ◻ small for the fetus
Size	_____ (width) x _____ (length) x _____ (thickness) cm
Cord	
Insertion	◻ central ◻ marginal ◻ velamentous
Length	_____ cm ◻ short ◻ long
No of coils per 5cm	◻ normal ◻ hypercoiled ◻ hypocoiled
Cord coiling pattern	◻ undulating ◻ rope ◻ segmented ◻ linked
Cord color	◻ greenish ◻ brown ◻ transparent
Others	◻ true/false knot ◻ others _____
Membrane	◻ marginal ◻ circumvallate ◻ circummarginate
Color	◻ opaque ◻ green ◻ normal
Placental disc	◻ intact ◻ infarcts ◻ calcifications ◻ indentations
Hematoma	◻ present ◻ absent
Parenchyma	◻ normal ◻ beefy red ◻ pale

III. Fetal evaluation

Weight (grams)	_____ grams ◻ AGA ◻ LGA ◻ SGA
Crown heel length	_____ (cm)
Gestational age	
Odor	◻ foul smelling ◻ non foul-smelling
Meconium	◻ absent ◻ present
Skin	◻ intact ◻ peeling <50% ◻ >peeling > 50% ◻ vesicle ◻ bruises ◻ others _____
Head	◻ normal ◻ hydrocephalus ◻ anencephalic ◻ others _____
Hair present	◻ yes ◻ no ◻ scant ◻ abundant
Eyes	◻ normal ◻ close together ◻ fused ◻ others _____
Nose	◻ normal ◻ flattened ◻ others _____
Mouth	◻ normal ◻ cleft palate ◻ cleft lip
Ears	◻ normal ◻ tags ◻ pits ◻ symmetric ◻ lowset
Neck	◻ normal ◻ others _____
Chest	◻ normal ◻ asymmetric
Abdomen	◻ normal ◻ asymmetric ◻ others _____
Back	◻ normal ◻ scoliosis ◻ others _____
Hands	◻ normal ◻ syndactyly ◻ webbing
Feet	◻ normal ◻ syndactyly ◻ webbing
Anus	◻ patent ◻ no
Genitalia	◻ normal ◻ imperforate ◻ ambiguous