# Intra Uterine Fetal Death (IUFD)
# Causes and Rout of delivery

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**Abstract:**

**Background**: There is a growing awareness of the significance of fetal death. This parental crisis not only involves the actual death of the fetus, but also shatters dreams and hopes for the future.

**Objective**: To determine incidence & causes of intrauterine fetal death (IUFD).

**Materials and Methods**: Retrospective analysis of vital records. A detailed information from patients' files including gestational age and causes of intrauterine fetal death. This study was conducted in Sebha Medical Center from 1st October 2008 to the 31st March 2009. The total deliveries were 3720 out of which 78 cases were intrauterine fetal death.

**Results**: The incidence of IUFD is 2.09 %, less than 30% (29.49%) of cases the etiology of anteparum fetal death is not known, abruption placenta 19.24% & Pregnancy induced hypertension 15.38%. About 30.77% of the cases were primigravida. About 66 of IUFD (84.62%) were successfully vaginally delivered by induction of labor.

**Conclusion:** unexplained causes, Apraptio placenta, and PIH were the most common causes of IUFD. Most cases of IUFD were delivered vaginally with good response to induction of labor

**Keywords**: IUFD incidence causes & route of delivery.

**Introduction:**

Death is rarely predicted at any but the final stages of life cycle. There is a growing awareness of the significance of fetal death has on parents. This parental crisis not only involves the actual death of the fetus, but also shatters dreams and hopes for the future.

IUFD is define as pregnancy loss after 20-week gestation.

IUFD complicates about 1% of pregnancy. Worldwide rate vary considerably depends on the quality of medical care available in country in question.[1]

IUFD is classified into early IUFD from 20 to 28 weeks, and late from 28 to 40 weeks.

The most common causes of IUFD are: unknown cause, about 35%.[2]

Maternal: Systemic illness as diabetes mellitus, infection and trauma. The rate of IUDF is related to severity of hypertension; in mild disease, the rate is 5%, severe disease is 15% while in cases of HELLP syndrome the rate may go up to 30%.[3]

Fetal: Malformation/ structural or chromoso-mal & Metabolic disorders.

Infection: bacterial, viral ,protozoal.

Cord accident: Prolapsed, thrombosis, strangulation, knots, or torsion.

Placenta: Unexplained placental insufficiency, abruption placenta 15%-20%,[4] Pl. Previa 10%,[5] Infection & twin to twin transfusion & post maturity.

Other causes of IUFD are fetal immune hemolytic disease & Fetal to maternal hemorrhage.[6]

**Diagnosis:**[7,8]

- Absence of fetal movement
- Disappearance of symptoms of pregnancy such as sickness & breast discomfort
- Regression of uterine size
- No fetal heart beat on stethoscope.
- U\S showed -ve FHR presence of gas in fetal heart & great vessels (Robert's sign)
- X-ray / USG overlapping of the skull bone (Spalding's sign).
- X-ray: marked curvature or angulations of the spine
- Amniocentesis: ↑creatine phosphokinase & ↑α feto-protein

**Pathological anatomy**:[9]

The fetus is usually born in a macerated condition.

Skin is peeling and stained reddish-brown

The whole body is softened and toneless

The cranial bones are loosened and easily moveable

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**Complications:**
Infection occurred if the membrane is ruptured and maternal distress.
Coagulopathy can occur only if the fetus retained in utero > 4 weeks.

**Investigations:**[10]
Maternal: Complete blood count, Blood group & Rh factor.
Fasting and random blood sugar, Coagulation profiles.
Serologic screening for common infection.
Fetal: U/S and karyotype
Amniotic fluid culture for virology & bacteriology.
Post mortem examination

**Management:**
Monitoring of coagulopathy & Parenteral psychosocial care.
About 80% of patients will experience the spontaneous on set of labor within 2/3 weeks.[11]
Induction of labor may done with Misoprostol (PGE2) vaginal tab. 400mg or by laminaria insertion, caesarean delivery may be advice if there is contraindication to vaginal delivery.[12,13]

**Aim of study**:
To determine the incidence, causes of intrauterine fetal death and route of delivery.

**Materials and method:**
Retrospective analysis of vital records, a detailed information from patients' files including gestational age and causes of intrauterine fetal death.
This study was conducted in Sebha Medical Center from 1st October 2008 to the 31st March 2009. The total delivers were 3720 deliveries out of which 78 cases were intrauterine fetal death (IUFD).

**Results:**
Key:
- *Intrauterine fetal death (IUFD).*
- *Pregnancy induced hypertension(PIH)*
- *Diabetes mellitus (DM)*
- *Premature rupture of membranes (PROM)*

In our study we have found that the incidence of IUFD is 2.09 % (78 cases out of 3720) and from 73 out of 78 (93.5%) of cases were Libyans.
In this study, 30.77% of the cases were primigravida. The incidence of IUFD is high at parity (1-5) 51.28% (Table 1, Fig. 1).

**Table 1: IUFD related to mother parity.**

| parity | Number | % |
|---|---|---|
| Primigravida | 24 | 30.77 |
| 1-5 | 40 | 51.28 |
| 6-10 | 14 | 17.95 |
| Total | 78 | 100 |

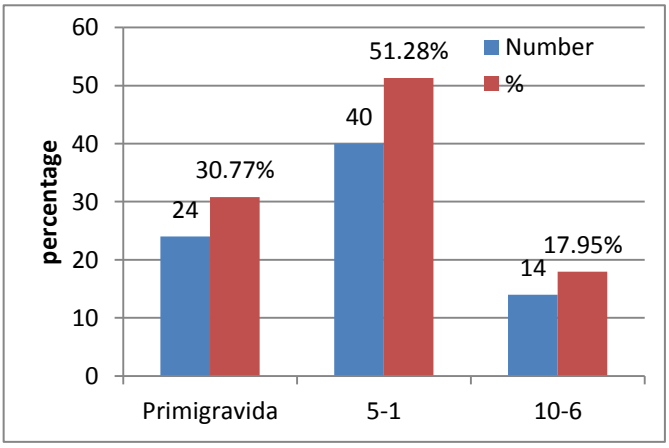


**Fig. 1: Relation of IUFD number to parity of mother**

The incidence of IUFD is higher in the age group of second and third decades with an average of 47.40 % and 46.35% respectively (Table 2, Fig. 2).

**Table 2: IUFD related to mother age.**

| Age / year | Number | % |
|---|---|---|
| 20-30 | 37 | 47.40 |
| 31-40 | 36 | 46.35 |
| 41-50 | 5 | 6.41 |
| Total | 78 | 100 |

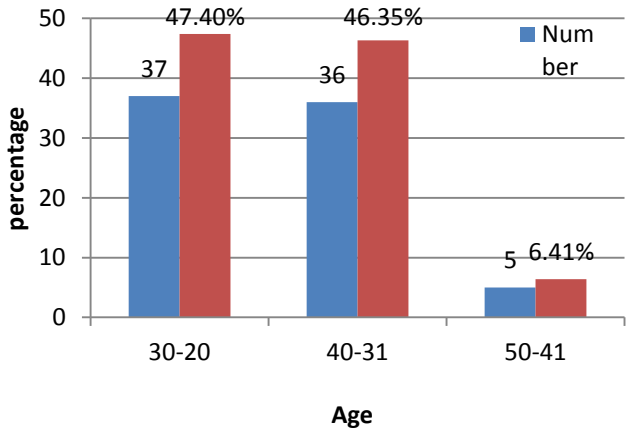


**Fig 2: Relation of IUFD number to mother age.**

About 30% of IUFD occurs at term (37-40), while only 11.54 occurred <28weeks and 10.26% more than 40 weeks; late IUFD or at term mostly related to pregnant diabetes mellitus (table 3).

**Table 3: IUFD related to gestational fetus age in weeks.**

| Gestational age / weeks | Number | % |
|---|---|---|
| 24-28 | 9 | 11.54 |
| 29-32 | 16 | 20.51 |
| 33-36 | 21 | 26.93 |
| 37-40 | 24 | 30.76 |
| >40 | 8 | 10.26 |
| Total | 78 | 100 |

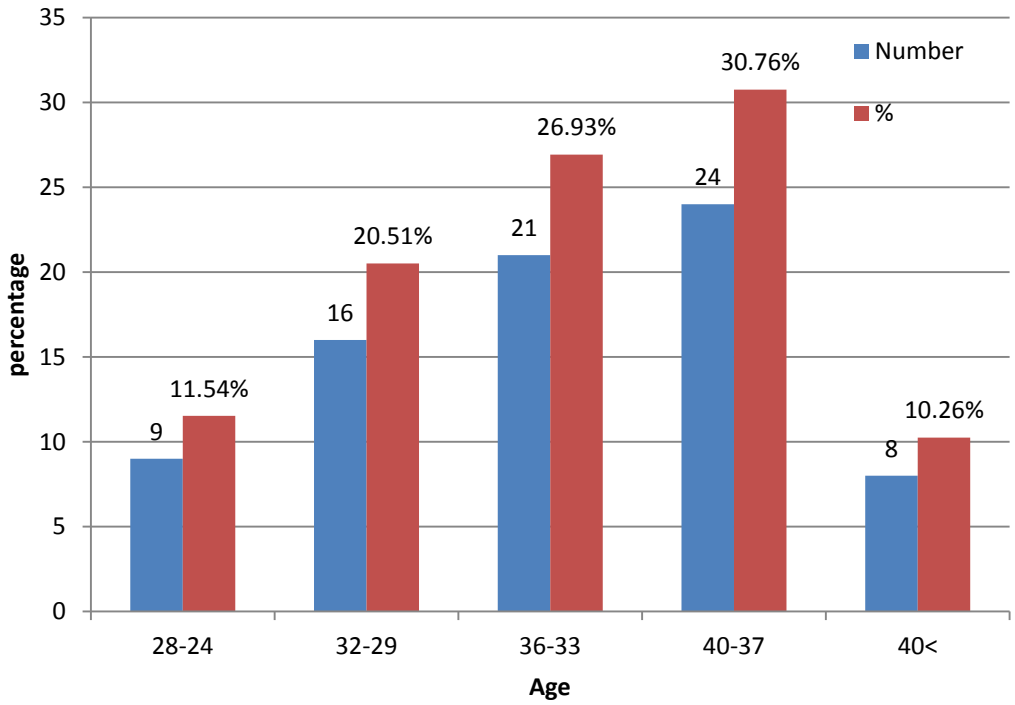


**Fig 3: Shows gestational age of IUFD.**

**Causes of Intrauterine fetal death:**

In less than 30% (29.49%) of cases, the etiology of anteparum fetal death is not known or cannot be determined. Abruption placenta 19.24%, Pregnancy induced hypertension 15.38% while diabetes mellitus constitutes only 8.97% of cases. No cases of external congenital abnormality were recorded.

There were three cases of IUFD secondary to anemia and another three cases were found due to placenta previa. The result of this study shows that three cases of infection were found which are as follows: chest infection, urinary tract infection and intraamniotic infection. PROM with oligohydramnios and cord prolapsed are about 7.69%. The other causes of IUFD are listed in Table 4, Fig 4.

**Table 4: Causes of intrauterine fetal death.**

| Cause | Number | % |
|---|---|---|
| Unknown cause | 23 | 29.49 |
| Apraptio placenta | 15 | 19.49 |
| Pregnancy induced hypertension(PIH) | 12 | 15.38 |
| Diabetes mellitus | 7 | 8.97 |
| Oligohydramion & PROM | 4 | 5.12 |
| Anemia | 3 | 3.84 |
| Placenta previa | 3 | 3.84 |
| Cord prolapse & PROM | 2 | 2.57 |
| Post data | 2 | 2.57 |
| Rupture uterus | 2 | 2.57 |
| Infection | 3 | 3.84 |
| Rhesus incompatibility | 1 | 1.28 |
| Jaundice of unknown cause | 1 | 1.28 |
| Total | 78 | 100% |

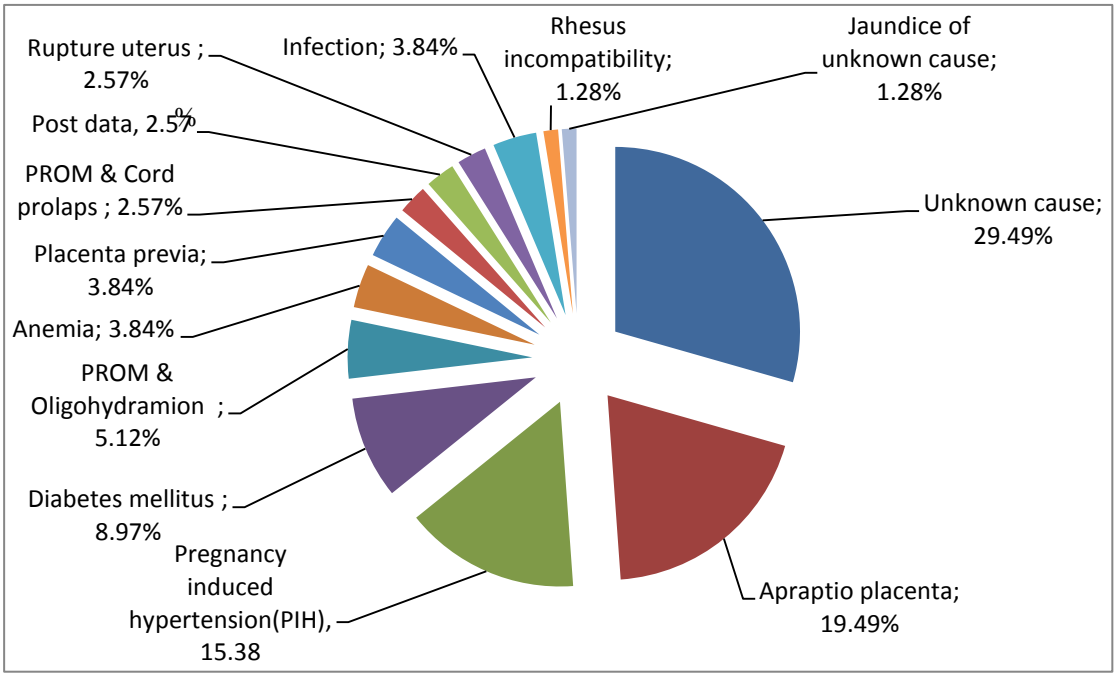


**Fig. 4: Shows causes of IUFD.**

From the total number of IUFD, 52.56% were males & the rest were females. It is clear that there are no differences between the two groups (Table 5, Fig. 5).

**Table 5: IUFD related to sex of babies.**

| Sex | Number | % |
|---|---|---|
| Male | 41 | 52.56 |
| Female | 37 | 47.44 |
| Total | 78 | 100 |

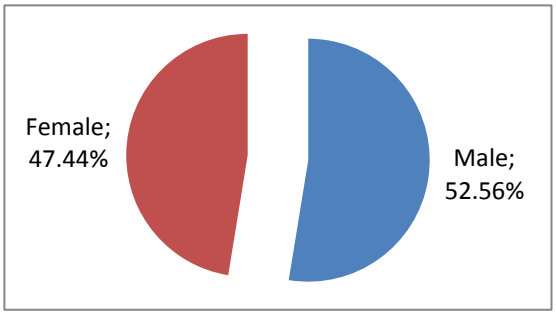


**Fig 5: Shows sex of IUFD.**

About 66 of IUFD (84.62%) were successfully vaginally delivered by induction of labor with Misoprostol (PGE1) vaginal tab. 400mg or by catheter balloon insertion with or without oxytocine. The rest of cases were delivered by caesarean section due to either no response to induction or for indication of caesarean section as fetal macrosomia in case of uncontrolled D.M. (Table 6, Fig. 6).

**Table 6: IUFD related to route of delivery.**

| Type of delivery | Number | % |
|---|---|---|
| Vaginal delivery | 66 | 84.62% |
| Cesarean section | 12 | 15.38% |
| Total | 78 | 100% |

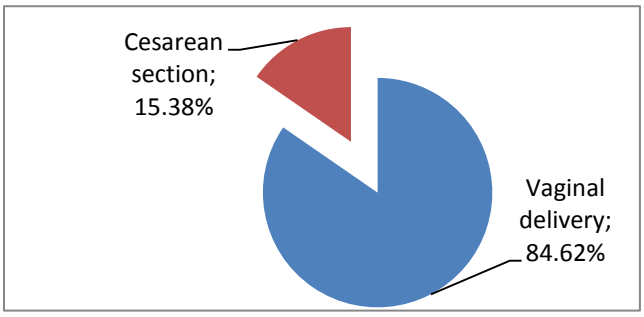


**Fig 6: Rout delivery of IUFD.**

**Discussion:**

Telling a patient about bad news is one of the most difficult tasks most physician face on a regular basis. The problem now is or not whether it is necessary to tell the patient, but how to deliver IUFD. The incidence of IUFD differs according to factors such as geographical locality and age/parity profile of the pregnant population. In our study we found that the incidence of IUFD is 2.09 % which is above to the prevalence of IUFD, and other studies just show only 1%.[1]

The high incidence of IUFD during this study is related to poor antenatal care.

In this study, the majority of cases of IUFD cannot be determined the causes (unexplained) (29.49%) compared to another study 35.00%[2] that may be due to no real diagnosis causes of the IUDF as chromosomal study, Post mortem examination or Doppler ultrasound. Unexplained intrauterine fetal death may occur due to multiple factors, including chronic hypoxia, ketoacidosis, polycythemia and lactic acidaemia.[14]

Regarding the other cause of IUFD in our study; abruption placenta constituted 19.24% of the cases, placenta previa 3.84% and pregnancy induced hypertension 15.38% while diabetes mellitus constituted only 8,97% of cases. Different figures were noticed in another study, as hypertension disease rated 5%-15%[3] while in abruption placenta 15%-20%,[4] Pl. Previa 10%.[5]

A significant association also exists between intrauterine fetal death and diabetes complicated pregnancy .About 8.976%of the pregnant diabetics in our study were bearing a demised fetus, while in general population the figure was 1.2%.[15]

Premature rupture of membranes may predispose to IUFD from 5% to 8% secondary to cord prolapsed, infection or oligohydramnios[16] which is near in this study 7.69%. One case of IUFD results from Rhesus incompatibility (Hydrops fetalis).

The fetus is extremely vulnerable to the effects of maternal trauma especially blunt or penetrating trauma to the abdomen, common fetal effects as preterm rupture of membranes, placental abruption & fetal injuries.[17]

Chromosomal abnormality is the explanation of 15% of ante partum IUFD.[18] In this study, no single case of gross congenital abnormality was recorded.

The incidence of IUFD is higher in the age group of second & third decades. There is an incidence of 47.40 % and 46.35% respectively, and that is normal because of the high fertility at this age.

About 30.77% of the cases were primigravida and were most likely the cause of IUFD related PIH and abruption placenta.

From the total number of IUFD, 52.56% were male & the rest were female. By comparison, the incidence of IUFD related fetal sex; there were no differences between the two groups.
Concerning the mode of delivery 84.62% patients had normal vaginal delivery while 15.38% delivered by caesarean section.
The incidence, compared to another study, reported that the normal vaginal delivery was about 80% of cases and 20% of cases of IUFD were delivered by caesarean section.[11] There is no big difference between this study and references.

**Conclusion:**
The first priority in management of IUFD is emotional & psychological support of the parents and the second priority is to find an explanation of causes of IUFD.
Unexplained causes, Apraptio placenta, PIH & Diabetes mellitus were the most common causes of IUFD.
About 30.77% of the cases were primigravida and there was no big difference in fetus sex of IUFD.
The majority of cases of IUFD were delivered vaginally with good response having induction of labor.
For more information about the causes of IUFD we recommend advanced investigation, such as Karyotype, Post mortem examination & Doppler ultrasound for proper detection of causes.

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