

**Research Article****Association of First Trimester Threatened Miscarriage with PPROM  
and Preterm Delivery****Atiqa Nisar, Sana Babar  
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House Officer, Allied Hospital, Faisalabad  
House Officer, DHQ Hospital Hospital, Sahiwal**ABSTRACT**

**Objective:** to record the association of first trimester threatened miscarriage with PPROM and Preterm delivery. **METHODOLOGY:** This cohort study was conducted at the Department of Obstetrics & Gynaecology, Allied Hospital, Faisalabad during 2016-17, we included 100 cases (50 in each group), in Group-A, we included all booked women with bleeding in first trimester i.e. before 14 completed weeks of gestation assessed by dating scan and presence of fetal heart activity whereas in Group-B all booked women with no bleeding in first trimester and presence of fetal heart activity, age range in both groups was 20-35 years and parity was upto 5. Our exclusion criteria was twin pregnancy, congenital uterine anomaly, large leiomyomata distorting the uterine cavity and history of chronic diabetes or gestational diabetes, hypertension vaginal spotting and the finding of an open cervix, polyhydramnios diagnosed and those with history of preterm labour and PPROM. All women from both groups were followed from their first appointment until delivery. Demographic data was examined including maternal age, gestation at recruitment. First-trimester miscarriage was defined as miscarriage before 14 completed weeks of gestation. Preterm labor was defined as Birth of a baby of less than 37 weeks of gestational age, and PPROM was defined as rupture of the fetal membranes before 37 weeks of gestation. Patients were followed till delivery in both groups to look for presence or absence of PPROM& preterm labour.

**RESULTS:** Association of first trimester threatened miscarriage with preterm delivery was compared in both groups which shows 52%(n=26) in Group-A and 18%(n=9) in Group-B relative risk was calculated 2.889 i.e. >2, association of first trimester threatened miscarriage with PPROM was also compared in both groups and found a significant difference in both groups, 18%(n=9) was presented in Group-A and 12%(n=6) in Group-B, Relative risk was 2.25. **CONCLUSION:** The association of first trimester threatened miscarriage with PPROM and Preterm delivery was higher as compared to those without first trimester threatened miscarriage

**Key Words:** First trimester threatened miscarriage, PPROM, Preterm delivery, association

**INTRODUCTION**

Pregnancy related complications are more common in first trimester period compared to other trimesters. Vaginal bleeding and pain are the most common complications.<sup>1</sup> Threatened miscarriage, defined as vaginal bleeding before 24 weeks of gestation, is a common complication affecting about 20% of pregnancies,<sup>2</sup> and is the commonest reason for general practitioner

emergency gynecology referrals in the United Kingdom.<sup>3</sup> The presumptive diagnosis of a threatened miscarriage is based on a history of vaginal bleeding in early pregnancy in the presence of a closed cervix. The diagnosis is confirmed by ultrasonic evidence of an intrauterine gestational sac with a positive fetal heart.<sup>4</sup> It is hypothesized that first-trimester may

indicate an underlying placental dysfunction, which may manifest later in pregnancy causing adverse outcomes such as increased risk of pre-eclampsia, preterm delivery, preterm prelabour rupture of membranes, placental abruption and intrauterine growth restriction.<sup>5</sup> While maternal death is rare in the first trimester.<sup>6</sup> In general, if a viable fetus is noted at ultrasound examination after first-trimester vaginal bleeding, 95% to 98% of such pregnancies still continues beyond 20 weeks of gestation.<sup>2</sup>

Knowledge about the outcome of ongoing pregnancies following first trimester bleeding will be helpful in order to plan antenatal care and consider clinical intervention in pregnancy. In our institute a large number of patients are presenting with threatened miscarriage with vaginal bleeding. As no study in our institute is conducted to know that whether first-trimester vaginal bleeding is an independent risk factor for adverse obstetric outcome or not, I therefore, want to conduct this study, and this study will be helpful for the patients with threatened miscarriage with vaginal bleeding and obstetricians to decide antenatal surveillance and management of these pregnancies.

## METHODOLOGY

This cohort study was conducted at the Department of Obstetrics & Gynaecology, Allied Hospital, Faisalabad during, we included 100 cases (50 in each group), in Group-A, we included all booked women with bleeding in first trimester i.e. before 14 completed weeks of gestation assessed by dating scan and presence of fetal heart activity whereas in Group-B all booked women with no bleeding in first trimester and presence of fetal heart activity, age range in both groups was 20-35 years and parity was upto 5. Our exclusion criteria was twin pregnancy, congenital uterine anomaly, large leiomyomata distorting the uterine cavity and history of chronic diabetes or gestational diabetes, hypertension vaginal spotting and the finding of an open cervix, polyhydramnios diagnosed and those with history

of preterm labour and PPRM.

Two equal groups were formed, Group-A and Group-B, Group-A was allotted to the study group patients (with first trimester vaginal bleeding) and Group-B was allotted to the control group. All women from both groups were followed from their first appointment until delivery. Demographic data was examined including maternal age, gestation at recruitment. First-trimester miscarriage was defined as miscarriage before 14 completed weeks of gestation. Preterm labor was defined as Birth of a baby of less than 37 weeks of gestational age, and PPRM was defined as rupture of the fetal membranes before 37 weeks of gestation. Patients were followed till delivery in both groups to look for presence or absence of PPRM & preterm labour.

Relative risk was calculated taking  $RR > 2$  as significant to see the association between threatened miscarriage and PPRM and preterm labour (RR was calculated for both variables separately) with the help of SPSS-17.

## RESULTS

Age distribution of the patients in both groups was recorded, 58% (n=29) in Group-A and 66% (n=33) in Group-B were between 20-30 years of age whereas 42% (n=21) in Group-A and 34% (n=17) in Group-B were between 31-35 years of age, mean  $\pm$ sd was calculated as  $24.12 \pm 2.98$  years in Group-A and  $26.18 \pm 2.41$  years in Group-B. (Table No. 1)

Association of first trimester threatened miscarriage with preterm delivery was compared in both groups which shows 52% (n=26) in Group-A and 18% (n=9) in Group-B relative risk for comparison of significance was calculated on SPSS which found 2.889 i.e.  $> 2$ . (Table No. 2)

Association of first trimester threatened miscarriage with PPRM was also compared in both groups and found a significant difference in both groups, 18% (n=9) was presented in Group-A and 12% (n=6) in Group-B, Relative risk was 2.25. (Table No. 3)

**TABLE No. 1:** Age Distribution (N=100)

Age (in years)	Group-A(n=50)		Group-B(n=50)	
	No. of patients	%	No. of patients	%
20-30	29	58	33	66
31-35	21	42	17	34
<b>Total</b>	<b>50</b>	<b>100</b>	<b>50</b>	<b>100</b>
<b>Mean±sd</b>	<b>24.12±2.98</b>		<b>26.18±2.41</b>	

**TABLE No. 2:** Association of First Trimester Threatened Miscarriage with Preterm Delivery (N=100)

Preterm delivery	Group-A(n=50)		Group-B(n=50)	
	No. of patients	%	No. of patients	%
Yes	26	52	9	18
No	24	48	41	82
<b>Total</b>	<b>50</b>	<b>100</b>	<b>50</b>	<b>100</b>

Relative Risk=>2 i.e. 2.889

**TABLE No. 3:** Association Of First Trimester Threatened Miscarriage With Pprom (N=100)

Preterm delivery	Group-A(n=50)		Group-B(n=50)	
	No. of patients	%	No. of patients	%
Yes	9	18	6	12
No	41	82	44	88
<b>Total</b>	<b>50</b>	<b>100</b>	<b>50</b>	<b>100</b>

Relative Risk=>2 i.e. 2.25

## DISCUSSION

Knowledge about the outcome of ongoing pregnancies following first trimester bleeding will be helpful in order to plan antenatal care and consider clinical intervention in pregnancy. In our institute a large number of patients are presenting with threatened miscarriage with vaginal bleeding. No study in our institute was conducted to determine whether first-trimester vaginal bleeding is an independent risk factor for adverse obstetric outcome or not, therefore, the current was planned which will be helpful for the patients with threatened miscarriage with vaginal bleeding and obstetricians to decide antenatal surveillance and management of these pregnancies.

We recorded association of first trimester threatened miscarriage with preterm delivery was compared in both groups which shows 52%(n=26) in Group-A and 18%(n=9) in Group-B relative risk for comparison of significance was calculated on SPSS which found 2.889 i.e. >2. Association of first trimester threatened miscarriage with PPROM was also compared in

both groups and found a significant difference in both groups, 18%(n=9) was presented in Group-A and 12%(n=6) in Group-B, Relative risk was 2.25.

It is hypothesised that first-trimester bleeding may indicate an underlying placental dysfunction, which may manifest later in pregnancy causing adverse outcomes i.e. increased risk of preterm delivery, preterm prelabour rupture of membranes (PPROM), placental abruption and intrauterine growth restriction (IUGR).<sup>7</sup>

The association between vaginal bleeding and preterm delivery has also been noted by others.<sup>8-10</sup> Batzofinetal<sup>11</sup> and Williams *et al*<sup>12</sup> reported that patients with bleeding had double the risk of preterm delivery compared with patients without bleeding. The study of Williams *et al.* was limited to first trimester bleeding;<sup>12</sup> Batzofinetal included patients with bleeding up to 20 weeks.<sup>7</sup> Strobino and Pantel-Silverman failed to show an association between preterm delivery before 36 weeks of gestation with light vaginal bleeding in the first or second trimester of

pregnancy.<sup>13</sup> Another study found that preterm delivery is increased significantly in patients with either light (OR, <2.0) or heavy (OR, 3.0) first-trimester bleeding.<sup>14</sup>

Davari-Tanha<sup>2</sup> is also of the view that first-trimester vaginal bleeding is an independent risk factor for adverse obstetric outcome and showed statistically significant difference in patients with first trimester vaginal bleeding, preterm delivery in 52.9% (46/150) versus 14.7% (66/450) and PPROM 16%(24/150) versus 6.4% (29/450), these findings are highly in agreement with the results of the current study.

The results of the current with the support of other studies are helpful for the patients with threatened miscarriage with vaginal bleeding and obstetricians to decide antenatal surveillance and management of these pregnancies.

## CONCLUSION

- The association of first trimester threatened miscarriage with PPROM and Preterm delivery was higher as compared to those without first trimester threatened miscarriage

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