

# Outcomes of pregnancy complicated by threatened miscarriage

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## ABSTRACT

**Introduction:** Threatened miscarriage is a common complication in the first pregnancy and is often associated with complete miscarriage, pre-term labour (PTL), pre eclampsia (PET) and intra-uterine growth retardation (IUGR). The aim of this study was to evaluate the effects of the threatened miscarriage on early and late pregnancy outcomes. **Materials and Methods:** A prospective study was carried out at the Department of Obstetrics and Gynaecology, RIPAS Hospital, Brunei Darussalam from March 2011- February 2012. A total of 102 cases of the threatened miscarriage were selected and ultrasound scan were performed for diagnosis of intrauterine pregnancy and foetal viability. The measures used for analyses were maternal age, parity, gestational age at the time of presentation, preterm premature rupture of the membrane (PPROM), PTL, IUGR and PET. **Results:** Out of 102 cases, 20 (19.6%) cases had complete miscarriage after diagnosis of threatened miscarriage. Eighty-two patients (80.4%) continued their pregnancy and among these, 16 (19.5%) had PTL, 16 (19.5%) had IUGR and 17 (20.7%) had PET. There were no significant differences in other pregnancy outcomes. **Conclusion:** Threatened miscarriage is associated with complete miscarriage, PTL, PET and IUGR.

**Keywords:** Complicated pregnancies, miscarriage, outcomes, threatened miscarriages

## INTRODUCTION

During pregnancy, first trimester bleeding is a common complication affecting between 16% and 25% of all pregnancies.<sup>1</sup> Threatened miscarriage, an important complication of pregnancy is diagnosed on the basis of documented foetal cardiac activity on ultrasound scan with a history of vaginal bleeding in the

presence of closed cervix. Bleeding during pregnancy can cause maternal anxiety and emerging evidence suggests that it may be associated with poor foetal and maternal outcome.<sup>2</sup> In such case, complete miscarriage is 2.6 times more likely, and in 17% of cases, complications later in pregnancy are expected to arise.<sup>3</sup> It is hypothesised that first trimester bleeding may indicate an underlying placental dysfunction which may manifest later in pregnancy causing adverse outcome, such as increased risk of pre-eclampsia

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PET, PTL, PPROM and placental abruptions.<sup>4</sup> We present here the prospective study of threatened miscarriage, early in the 1<sup>st</sup> trimester till the ultimate outcome. This study evaluates the maternal outcome in this low risk group.

## MATERIALS AND METHODS

This prospective study was performed in the Department of Gynaecology and Obstetrics, RIPAS Hospital, from March 2011- February 2012. A 102 women in their 1<sup>st</sup> half of pregnancy with per-vaginal bleeding were included in the study. Diagnosis of threatened miscarriage confirmed by history, clinical examination and ultrasound finding of cardiac activity.

The number of mothers in this study group was 102, and the number of controls was 88. Mothers with the age of >40 years old, with either chronic hypertension, pre-gestational diabetes mellitus, gestational diabetes mellitus, on insulin therapy, body mass index (BMI) of >35 kg/m<sup>2</sup>, previous intra-uterine foetal death (IUFD), fibroids, thyroid disorders, systemic lupus erythromatosus (SLE), thrombophilia, renal disease, cardiac disease and epilepsy were excluded.

The following outcome measures were observed. Pre-term labour (PTL), preterm premature rupture of the membrane (PPROM), PET, intra-uterine growth retarda-

**Table 1: The characteristics and outcome of patients and controls.**

Characteristics	Study group (n=102)	Controls (n=88)
Mean Maternal age (years)	32	31.6
Maternal age range (years)	21-40	21-40
Mean BMI (Kg/m <sup>2</sup> )	28.5	26.7
Maternal BMI range (Kg/m <sup>2</sup> )	19-35	19-34
POA at booking (weeks)	8.7	10

(LSCS), manual removal of placenta (MRP) and post-partum haemorrhage (PPH). The statistical analysis was performed with the use of software SPSS version 16.

## RESULTS

Out of 102 cases 43 (42.2%) were primigravida and 59 (57.8%) were multigravida. The mean age for the study group was 32 and mean period of gestation at the time of presentation was 10 ± SD.

In the course of pregnancy, 20 (19.6%) patients completely miscarried after the diagnosis of threatened miscarriage, while 82 (80.4%) continued the pregnancies. Most miscarriages occurred before the 17<sup>th</sup> weeks of pregnancy.

Among the patients who continued with the pregnancies after having been diagnosed with threatened miscarriage, 66

**Table 2: Obstetric outcomes (miscarriage) according to gestation during presentation.**

Period of Gestation (week)	Complete miscarriage	Continuation of pregnancy	P value
< 12	10 (25.0%)	30 (75.0%)	0.271 for trend
12.1 - 16	8 (22.2%)	28 (77.8%)	
17 - 20	2 (7.7%)	24 (92.3%)	

**Table 3: Obstetric outcomes of patients (n=82) who continued with their pregnancies.**

Outcomes	Study Group n (%)	Controls n (%)
Delivery		
Term delivery	67 (81.7)	66 (88.0)
Preterm delivery	16 (19.5)	9 (12.0)
Complications		
Intrauterine growth retardation (IUGR- <10 <sup>th</sup> centile)	16 (19.5)	7 (9.3)
Preterm premature rupture of the membrane (PPROM)	10 (12.2)	8 (10.7)
Preeclampsia (PET)	17 (20.7)	7 (9.3)
Placental abruption	2 (2.4)	1 (1.3)
Placenta previa	3 (3.7)	2 (2.7)
Mode of delivery		
Normal delivery	64 (78.1)	59 (78.7)
Lower section caesarian section (LSCS)	18 (21.9)	16 (21.3)
Post partum and neonatal outcome		
Post partum haemorrhage (PPH)	6 (7.3)	5 (6.7)
Manual removal of placenta (MRP)	3 (3.7)	2 (2.7)
Neonatal Intensive Care Unit (NICU) admission	12 (14.6)	9 (12.0)

(80.4%) and the remaining (n=16, 19.6%) has PTL. Common complications include IUGR was observed in 16 patients (19.4%) and PET in 17 (20.7%) patients. There were overall, differences in the rate of complications pre and post partum between subjects and controls, in particular PTL and IUGR. There was slightly more Neonatal Intensive Care Unit admission for babies born to patients who had been diagnosed with threatened miscarriage. The outcomes of pregnancies for subjects and controls are shown in Table 3.

## DISCUSSION

This study demonstrated a clear association between complete miscarriage, preterm delivery, PET, IUGR in mothers with threatened miscarriage in the 1<sup>st</sup> trimester compared to those who had not experience threatened miscarriage. In our study, 19.6% of patients diagnosed with threatened miscarriage had

miscarriages, most occurring before the 17<sup>th</sup> weeks of pregnancy. Devari Tanha *et al*<sup>5</sup> reported miscarriage rate of as high as 42.7%, where as other studies reported rates of 7.8% by the 14<sup>th</sup> weeks<sup>6</sup>, 9.3% in 1<sup>st</sup> trimester<sup>7</sup> and 5.5% by 20<sup>th</sup> weeks.<sup>8</sup> However, others have reported lower rate. Joshua *et al.* reported a miscarriage rate of 1% for those who experienced light bleeding and 2% for those who had heavy bleeding.<sup>4</sup>

The occurrence of PTD had been a consistent finding in most of previous studies looking at patients who had experience threatened miscarriage.<sup>9</sup> Not unexpectedly, IUGR is also associated with threatened miscarriage. Infants of patients with heavy bleeding had nearly a 200 gram difference in birth weight compared with control infant after accounting for PTD.<sup>4</sup> Haddow *et al.*<sup>10</sup> reported an increase risk of low birth weight (LBW) in

pregnancies that were complicated by vaginal bleeding.<sup>10</sup> The increased occurrence of PET among mothers with 1<sup>st</sup> trimester vaginal bleeding has been demonstrated by previous study done by Varma *et al.* Joshua *et al.* also had demonstrated that PET was common among mothers but then it had been restricted to mothers with mild bleeding or spotting.

Among the other parameters (placenta abruption and placenta previa, rate of normal or LSCS, PPH, MPR and NICU admission) that had we assessed, there were no differences between subjects with threatened miscarriage and controls. Joshua *et al.*<sup>4</sup> hypothesised for the PPRM that disruption of chorioamniotic plane by adjacent haemorrhage may make the membrane more susceptible to rupture. Alternatively the prolonged presence of blood may act as a nidus for intrauterine infection and it stimulates uterine contraction that results in cervical changes and eventual rupture of membranes.<sup>6</sup> In our study there was no difference between subjects (12.2%) compared to controls (10.7%).

In conclusion, our study showed that patients who had been diagnosed with threatened miscarriage or had vaginal bleeding in the first trimester of their first pregnancies, the risks for complications are higher for future complications, in particular PTD, PET and IUGR.

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