

Pregnancy outcome in patients with threatened abortion and abnormal early sonographic markers: A prospective study

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Abstract

Objectives: The study examines the pregnancy outcome in patients with threatened abortion and patients with abnormal early sonography markers.

Study Design: This was a prospective study

Method: This prospective study was conducted at Department of Obstetrics and Gynecology, GCS Medical College, Ahmedabad, Gujarat, India from 2012 to 2014. Women with threatened abortion and abnormal early sonography markers were included in the study that fulfilled the inclusion criterias. Women with normal sonography markers were taken as control.

Conclusions: Transvaginal sonography should be used adequately to look for early pregnancy markers like Size of Gestational sac, size and shape of yolk sac, fetal heart rate and in cases of threatened abortion presence of subchorionic haematoma and its size because all these markers are good predictors of pragnacy outcome and can prove helpful in patient counseling.

Keywords: Threatened abortion, Yolk sac, Subchorionic haemorrhage, Bradycardia, IUGR.

1. Introduction

Threatened Abortion is the most common complication in the first half of pregnancy. Its incidence varies between 20-25%. [1] The main reasons for vaginal bleeding in early pregnancy are subchorionic haemorrhage, subchorionic haematoma and rupture of a marginal placental sinus. [2] In majority of the cases of threatened abortion the bleeding is of unknown origin and usually slight. Most of these pregnancies continue to term with or without treatment.

Spontaneous abortion occurs in less than 30% of these women Sonographic visualization of a subchorionic hematoma is important in a symptomatic woman because pregnant women with a demonstrable hematoma have a prognosis worse than women without a hematoma. However, small, asymptomatic subchorionic hematomas do not worsen the patient's prognosis.

Threatened abortion had been shown to be associated with increased incidence of antepartum haemorrhage, preterm labour and intra uterine growth

retardation [3,4,14-18]. A subchorionic hematoma can be considered large if it is greater than 50% of the size of the gestation sac, medium if it is 20-50% and small if it is less than 20%. Large hematomas by size (>30-50%) and volume (>50 mL) worsen the patient's prognosis.

Figure 1: Subchorionic haemorrhage



Figure 2: Large yolk sac



The early first trimester of pregnancy is a fragile period for pregnancy viability, with up to 50% of embryos being lost before the pregnancy is clinically detected, and up to 15% to 25% of clinical pregnancies spontaneously aborting.[7]

Sonography is the pivotal examination in the evaluation of pregnant. The first demonstration of an early intrauterine pregnancy by means of transvaginal ultrasound (TVS) was reported by Kratochwil in 1967. Ultrasound has not only changed the medical approach to spontaneous miscarriage but also the patient’s perception of normal and abnormal fetal development in utero Numerous sonographic signs of predictors of poor outcome have been described by various authors, including an excessively large, excessively small, or irregularly shaped gestational sac[8], a low implantation site, a large or irregular yolk sac[9][10], a weak decidual reaction[11][12], and a slow embryonic heart rate[6].

2. Methods

2.1 Study design

This was a prospective study .Institutional ethical Committee and departmental review board approval was taken for this study. Informed consent was obtained before the enrollment.

2.2 Study Setting and Population

This propective study was conducted at Department of Obstetrics and Gynecology, GCS Medical College, Ahmadabad, Gujarat, India from 2012 to 2014.Women with threatened abortion and abnormal early sonography markers were included in the study who fulfilled the inclusion criterias. Women with normal sonography markers were taken as control. After taking the consent, Evaluation of patients was done which included Obstetrical history, clinical examination, relevant investigation and Lastly Ultrasonic examination which included after early scan all study subjects were scheduled for 11 -14 weeks scan, 20 weeks scan to rule out any structural abnormality. Followed by follow up scan at 28, 34

and 38 weeks for growth and as and when necessary to look for IUGR, oligohydramnios and abnormal doppler findings.Same patients were followed up till delivery to find out fetal outcome.

Logiq -3 Sonography Machine from GE was used for sonographic evaluation. Transvaginal sonography was done with the real-time sector scanner using high-frequency endovaginal probe (5/7.5 MHz), after the patient voids urine. Transabdominal ultrasound scanning was done with real time scanners with low frequency probe (3/3.5 MHz);

2.3 Inclusion Criteria

- 1)All pregnant patients who present in our Antenatal Clinic at 6- 8 weeks of gestation.
- 2)Pregnant patients with history of bleeding per vaginum during present pregnancy.
- 3)Pregnant patients with Abnormal Sonographic Markers e.g Large or calcified yolk sac, Slow Embroynic Heart Rate, Small or Irregular Gestational Sac, Retrochorionic or Retroplacental collection.

2.4 Exclusion Criteria

- 1) Patients presenting with Extrauterine Pregnancy and Multiple pregnancy.
- 2) Patients diagnosed with Missed Abortion on First visit to our Antenatal clinic.
- 3) Patients who want to terminate the pregnancy.
- 4) Patients who are known case of Chronic Hypertension, Patients who are on Antiepileptic, Antipsychiatric drugs.

3. Results

Table 1: Size of subchorionic haemorrhage and pregnancy outcome (n=144)

	< 4cm ² (Group A)	>4 cm ² (Group B)
Spontaneous abortion	24 (16.66%)	36 (25%)
Preterm delivery	18 (12.5%)	6 (4.1%)
Term delivery	54 (37.5%)	6 (4.1%)

In our study patients who presented with bleeding and had subchorionic haematoma <4 cm² had less incidence of spontaneous abortion (16.66%) as compared to 25% in group with haematoma >4 cm². The patients in Group ‘A’ had better chances of Term delivery with supportive treatment i.e 37.5% as compared to 4.1% in Group ‘B’.

Table 2: Incidence of complications in patients with threatened abortion (n=144)

Preterm delivery	8	5.5%
IUGR	50	34.7%
APH	2	1.3%
Preterm PROM	8	5.5%
IUD	0	0
Term delivery	76	52.77%

In our study patients with history of threatened abortion especially the patients who had bleeding which was excessive or for prolonged duration had maximum chances of IUGR (34.7%) followed by Preterm PROM (5.5%) and preterm delivery (5.5%).

Table 3: Abnormal early sonography markers and pregnancy outcome

	Small GS (n=7)	Large GS(n=1)	Large yolk sac (n=7)	Bradycardia (n=7)	Tachycardia (n=4)	Control (n=297)
Abortion	1(14.28%)	-	5(71.42%)	2(28.57%)	-	14 (4.7%)
Abruption	1(14.28%)	-	-	-	-	2 (0.67%)
IUGR (Early onset/ Late onset)	-	-	1(14.28%)	1(14.28%)	2(50%)	23(7.7%)
PIH	-	-	-	1(14.28%)	-	11 (3.7 %)
Caesarean section	2 (28.57%)	-	1(14.28%)	1(14.28%)	1(25%)	49 (16.49%)
Normal vaginal delivery	3(42.85%)	1(100%)	-	2(28.57%)	1(25%)	198(76.43%)

In our study, we concluded that patients with abnormal early sonographic markers especially Large yolk sac and Tachycardia showed higher incidence of complications like Abortion, IUGR, Abruptio and Pregnancy induced hypertension.

4. Discussion

In our study we found that patients with symptomatic subchorionic haemorrhage had more increased risk of complications like Spontaneous abortion, IUGR and preterm labor as compared to patients with subchorionic haematoma < 4 cm².

According to Nagy et al, A retroplacental position of the hematoma was significantly correlated with an increased risk for adverse maternal and neonatal complications. The presence or absence of symptoms of threatened abortion did not affect these outcomes. The rates of pregnancy-induced hypertension (RR 2.1; CI 1.5, 2.9) and preeclampsia (RR 4.0; CI 2.4, 6.7), were significantly greater in the hematoma group.

Placental abruption (RR 5.6; CI 2.8, 11.1) and placental separation abnormalities (RR 3.2; CI 2.2, 4.7) were also significantly more frequent in the hematoma group. Perinatal complications, including the rate of preterm delivery (RR 2.3; CI 1.6, 3.2), fetal growth restriction (RR 2.4; CI 1.4, 4.1), fetal distress (RR 2.6; CI 1.9, 3.5), meconium-stained amniotic fluid (RR 2.2; CI 1.7, 2.9), and neonatal intensive care unit admission (RR 5.6; CI 4.1, 7.6), were also significantly increased in this group.[5]

In our study we found that pregnant women with large yolk sac had normal fetal and maternal outcome while patients with small gestational sac had more incidence of missed or spontaneous abortion (14.28%) and abruption placentae (14.28%).

In the study performed by Cunningham and colleagues, 40 pregnant women were examined with transvaginal ultrasonography between week 5-12 and it was observed that gestational sac of the cases which

experienced abortus were smaller than normal, starting from week 5.

In our study it was concluded that pregnant women with large yolk sac had high incidence of abortion (71.28%) followed by IUGR. Pregnant women with bradycardia also showed poor outcome.

According to Fotios et al, EHR and YSD progressively increase in healthy pregnancies during the first trimester. Embryonic bradycardia and absence of yolk sac or even a smaller yolk sac diameter than expected for any gestational age are predictors of poor pregnancy outcome during the first 12 weeks.[13]

5. Conclusions

In today's time with availability of high end Sonography machines, Transvaginal sonography should be best utilized by not only looking at beating heart but also yolk sac, size of gestational sac, Heart rate because like uterine artery Doppler these markers are also predictors of complications to great extent especially in early pregnancy when uterine artery Doppler is not useful and can screen out cases which need close follow up. But still large case control studies are needed to establish the role of these markers. In pregnant patients with threatened abortion size of subchorionic haematoma can definitely predict the outcome of pregnancy and can be helpful in patient counseling.

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