

Pregnancy Outcome of Threatened Abortion with Subchorionic Hematoma: Possible Benefit of Bed-Rest?

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Abstract

Background: Bleeding in the first trimester of pregnancy is a common phenomenon, associated with early pregnancy loss. In many instances a subchorionic hematoma is found sonographically.

Objective: To evaluate the possible benefit of bed-rest in women with threatened abortion and sonographically proven subchorionic hematoma, and to examine the possible relationship of duration of vaginal bleeding, hematoma size, and gestational age at diagnosis to pregnancy outcome.

Methods: The study group consisted of 230 women of 2,556 (9%) referred for ultrasound examination because of vaginal bleeding in the first half of pregnancy, who were found to have a subchorionic hematoma in the presence of a singleton live embryo or fetus. All patients were advised bed-rest at home; 200 adhered to this recommendation for the duration of vaginal bleeding (group 1) and 30 continued their usual lifestyle (group 2). All were followed with repeated sonograms at 7 day intervals until bleeding ceased, the subchorionic hematoma disappeared, or abortion occurred. The groups were compared for size of hematoma, duration of bleeding, and gestational age at diagnosis in relation to pregnancy outcome (spontaneous abortion, term or preterm delivery).

Results: The first bleeding episode occurred at 12.6 ± 3.4 weeks of gestation (range 7–20 weeks) and lasted for 28.8 ± 19.1 days (range 4–72 days). The women who adhered to bed-rest had fewer spontaneous abortions (9.9% vs. 23.3%, $P = 0.006$) and a higher rate of term pregnancy (89 vs. 70%, $P = 0.004$) than those who did not. There was no association between duration of vaginal bleeding, hematoma size, or gestational age at diagnosis of subchorionic hematoma and pregnancy outcome.

Conclusions: Fewer spontaneous abortions and a higher rate of term pregnancy were noted in the bed-rest group. However, the lack of randomization and retrospective design of the outcome data collection preclude a definite conclusion. A large prospective randomized study is required to confirm whether bed-rest has a real therapeutic effect.

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Vaginal bleeding in the first half of pregnancy occurs in approximately 25% of women; about half of these pregnancies terminate in abortion [1]. The main reasons for vaginal bleeding between 10 and 20 weeks of gestation are subchorionic hemorrhage, subchorionic hematoma, and rupture of a marginal placental sinus [2]. SCH accounts for about 11% of cases [3]. It may be detected sonographically in the first trimester by the presence of a crescent-shaped echo-free area outlining the intact gestational sac [4]. Its etiology is unknown [5], although uterine malformations, history of repeated abortions [3], and infection [6] have been suggested as possible predisposing factors.

SCH = subchorionic hematoma

The risk of abortion in early pregnancies complicated by SCH remains controversial. Abu-Yousef et al. [1] have suggested a grave prognosis, whereas Pedersen and Mantoni [7] claimed that even large hematomas do not pose a serious threat. Bennett et al. [8] concluded that fetal outcome depends on the size of the hematoma, maternal age and gestational age.

Although the clinical and sonographic features of SCH in pregnancy have been well investigated [1–12], there are few reports on treatment options. Jouppila [4], in a broadly cited study, concluded that there are no therapeutic options, and Mantoni [10] doubted the benefit of bed-rest.

The aim of the present study was to examine the effect of complete bed-rest on pregnancy outcome in women with a singleton live fetus and ultrasound-proven SCH in the first half of pregnancy. We also sought to determine the possible relationship of pregnancy outcome to duration of vaginal bleeding, hematoma size, and gestational age at diagnosis of SCH.

Patients and Methods

Between May 1995 and December 1996, 16,000 women underwent ultrasound scanning in our center. Of these, 2,556 were referred for vaginal bleeding in the first half of pregnancy. In 230 women (9%) a SCH was detected at 7–20 weeks gestation in the presence of a singleton living embryo or fetus. The sonographic criterion for SCH in the first trimester was a crescent-shaped echo-free area outlining the intact gestational sac [Figure 1], and beyond 13 weeks gestation, an echo-free, usually elongated area between the uterine wall and the fetal membranes [4].



Figure 1. Subchorionic hematoma (SCH) at 12 weeks of gestation. Note the membrane elevation (arrow).

Table 1. Duration of bleeding and pregnancy outcome

	< 14 days of bleeding			≥ 14 days of bleeding		
	Group 1: bed-rest	Group 2: usual activity	Total	Group 1: bed-rest	Group 2: usual activity	Total
No. of cases	69 (100%)	10 (100%)	79 (100%)	131 (100%)	20 (100%)	151 (100%)
Spontaneous abortion *	5 (7.3%)	2 (20%)	7 (8.9%)	8 (6.1%)	5 (25%)	13 (8.6%)
Preterm delivery *	3 (4.3%)	0	3 (3.8%)	6 (4.6%)	2 (10%)	8 (5.4%)
Term delivery *	61 (88.4%)	8 (80%)	69 (87.3%)	117 (89.3%)	13 (65%)	130 (86%)

* Pregnancy outcome was not significantly different when bleeding lasted more or less than 14 days for each group separately and for the whole sample.

Table 2. Gestational age at diagnosis of subchorionic hematoma and pregnancy outcome

	10–12 weeks gestation			13–20 weeks gestation		
	Group 1: bed-rest	Group 2: usual activity	Total	Group 1: bed-rest	Group 2: usual activity	Total
No. of cases	71(100%)	11 (100%)	82 (100%)	129 (100%)	19 (100%)	148 (100%)
Spontaneous abortion *	3 (4.2%)	2 (18.2%)	5 (6.1%)	10 (7.8%)	5 (26.3%)	15 (10.1%)
Preterm delivery *	2 (2.8%)	0	2 (2.4%)	7 (5.4%)	2 (10.5%)	9 (6.1%)
Term delivery *	66 (93%)	9 (81.8%)	75 (91.5%)	112 (86.8%)	12 (63.2%)	124 (83.8%)

* Pregnancy outcome was not significantly different when subchorionic hematoma was diagnosed in the first or second trimester for each group separately or for the whole sample.

Table 3. Size of hematoma and pregnancy outcome

	Mean diameter of hematoma < 4 cm			Mean diameter of hematoma = 4 cm		
	Group 1: bed-rest	Group 2: usual activity	Total	Group 1: bed-rest	Group 2: usual activity	Total
No. of cases	141 (100%)	19 (100%)	160 (100%)	59 (100%)	11(100%)	70 (100%)
Spontaneous abortion *	8 (5.7%)	4 (21%)	12 (7.5%)	5 (8.5%)	3 (27.3%)	8 (11.4%)
Preterm delivery *	6 (4.3%)	1 (5.3%)	7 (4.4%)	3 (5.1%)	1 (9.1%)	4 (5.7%)
Term delivery *	127 (90%)	14 (73.7%)	141 (88.1%)	51 (86.4%)	7 (63.6%)	58 (82.9%)

* Pregnancy outcome was not significantly different when the hematoma measured more or less than 4 cm, for each group separately or for the whole sample.

Complete bed-rest at home was recommended in all cases. Of the 230, 200 adhered to this recommendation for the duration of the vaginal bleeding (group 1), and the other 30 continued their usual lifestyle (group 2), that is, continued working and did not confine themselves to bed-rest.

All patients were followed at 7 day intervals clinically, including bimanual examination, and sonographically until the bleeding ceased, the SCH disappeared, or abortion occurred. All sonographic examinations were performed by experienced physicians using a commercially available ultrasound machine (ATL Ultramark 9, USA).

Initially, the women were followed prospectively from the time of the first bleeding episode, and data were collected on gestational age at onset of vaginal bleeding, duration of bleeding, and size of the SCH (defined as the mean diameter of the transverse, sagittal and coronal planes of the intrauterine hematoma). Data on pregnancy outcome (spontaneous abortion, preterm or term delivery) were collected retrospectively.

Categorical data were analyzed statistically with chi-square or Fisher's exact test, as appropriate. *P* values of less than 0.05 were considered statistically significant.

Results

The first bleeding episode occurred at 12.6 ± 3.4 weeks of gestation (range 7–20 weeks) and lasted for a mean time of 28.8 ± 19.1 days (range 4–72 days). Twenty pregnancies (8.7%) ended in abortion; in none of them did the weekly ultrasonographic or clinical follow-up reveal any signs of cervical os incompetence. Of the remainder, 11 (4.8%) delivered prematurely (≤ 37 weeks gestation) and 199 (86.5%) at term. None of the newborns had a congenital malformation.

The women who adhered to bed-rest had fewer spontaneous abortions (6.5% in group 1 versus 23.3% in group 2, $P = 0.006$), and a higher rate of term pregnancy compared to the women who did not (89% in group 1 vs. 70% in group 2, $P = 0.004$). However, there was no association of pregnancy outcome with duration of vaginal bleeding, gestational age at diagnosis, or size of the SCH [Tables 1–3].

Discussion

Sonographically proven SCH has been associated with threatened abortion in 9–11% [3,13], 18–20% [5,11], and up to 48% of cases [14]. The reported incidence of early miscarriages associated with a

finding of SCH ranges from 9.3% [8] to 12–44% [1]. This high variation can be partly explained by the small number of patients studied in different populations [9]. Possible predisposing factors include uterine malformations, history of habitual abortions [4], and infection [6]. Some authors recommend that affected patients be tested for autoantibodies regardless of their obstetric history [15].

Since there is currently no known treatment for threatened abortion, physicians traditionally prescribe complete bed-rest as the standard care regimen [10]. However, the benefit of this practice has not been proven.

In this study, the typical ultrasonographic picture of SCH in the second trimester consisted of a large fluid collection surrounded by a thin wall extending around the gestational sac and fetal membranes, often arising from the placental margin. No signs of placental separation from the uterine wall were detected in any of the patients. Thus, the origin of the intrauterine bleeding could not be specifically determined, although minor placental abruption seems the most likely cause. Kaufman et al. [5] described two types of intrauterine membrane abnormality: separation of the chorion and amnion, and elevation of the chorion. The first, lack of apposition between the chorion and the amnion, appears on ultrasound as a free-floating interface adjacent to an anechoic space involving the fetal surface of the placenta. The second, elevation of the chorion, is caused by separation of the chorion from its underlying maternal decidua. They considered the first as more detrimental to pregnancy outcome, but it was difficult to distinguish between the two types sonographically.

Bennett et al. [8] conducted a retrospective study of 516 patients with first-trimester vaginal bleeding, a live fetus, and a subchorionic hematoma. The overall spontaneous abortion rate was 9.3%. This figure almost doubled when the separation was large – 18.8%, compared to 7.7% for small hematomas and 9.2% for moderate ones; it also rose in association with high maternal age (35 years or older) and bleeding at 8 weeks gestation or less.

In our study, SCH was found in 9% of patients with clinical signs of threatened abortion; pregnancy terminated in abortion in 20 cases (8.7%). Women who had complete bed-rest had fewer spontaneous abortions (9.9% vs. 23.3%) and a higher rate of term pregnancy (89% vs. 70%) than the women who did not. However, owing to lack of true randomization and the retrospective design of the outcome data collection, we cannot conclude definitively that this represents a real therapeutic effect.

Furthermore, unlike Bennett et al. [8] and Mantoni [10], but in agreement with Saurbrei and Pham [2], we did not find any effect of duration of vaginal bleeding or gestational age at diagnosis of SCH on pregnancy outcome. It should be stressed, however, that Mantoni's sample had other sonographic abnormalities, and SCH was not the only finding evaluated. Regarding the possible impact of hematoma size on pregnancy outcome, several studies [1,2,8] have demonstrated a positive correlation of larger hematomas and poor prognosis, whereas other studies, like ours [7,8,16], failed to confirm this finding.

In conclusion, we sonographically examined 2,556 women with vaginal bleeding during the first half of pregnancy and found a SCH

in the presence of a singleton live embryo or fetus in 230 (9%). On follow-up, 8.7% of the women aborted. The women who had complete bed-rest had fewer spontaneous abortions and a higher rate of term pregnancy than those who did not. There was no association of duration of vaginal bleeding, gestational age at diagnosis, or size of SCH and pregnancy outcome. A large prospective randomized study is required to determine the true therapeutic role of bed-rest in improving pregnancy outcome.

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