

Threatened miscarriage in the first trimester and retrochorial hematomas: sonographic evaluation and significance

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Summary

Background: Vaginal bleeding during the first half of pregnancy occurs in approximately

25% of women and about half of these pregnancies terminate in abortion. In many instances a retrochorial hematoma (RCH) is sonographically found. **Objective:** The aim of the present study was to determine the frequency of a RCH in the group of threatened miscarriages and to examine the possible relationship of parity, previous miscarriages, hematoma size and localization, and duration of vaginal bleeding to pregnancy outcome. **Materials and Methods:** The study group consisted of 45 women of 852 (5.2 %) referred for ultrasound examination due to vaginal bleeding in the first trimester of pregnancy, who were found to have a RCH in the presence of a singleton live embryo. The control group consisted of 807 women with the same gestational age, with vaginal bleeding, and vital singleton pregnancy without sonographically proven RCH. All were followed with repeated sonograms at seven days intervals until bleeding ceased, the RCH disappeared or abortion occurred. The authors have examined the possible relationship of duration of vaginal bleeding, hematoma size and localization, parity, and previous miscarriages to pregnancy outcome (spontaneous abortion, term or preterm delivery). **Results:** The researches have shown that the previous miscarriages and deliveries do not affect the occurrence of RCH. In the group with a RCH on the back wall of uterus, as well as repeated bleedings affect higher frequency of spontaneous miscarriages. Hematoma size itself does not affect higher frequency of spontaneous miscarriage. **Conclusion:** Ultrasound is the method of choice for diagnosing the existence of aRCH. The frequency of RCH in the group of threatened spontaneous miscarriages is 5.2 %. A RCH on the back wall and repeated bleedings affect higher frequency of spontaneous miscarriages.

Therapy procedure is based on strict bed rest and administration of: pregnyl, gestagenic drugs, progesterone, antihistamines, and sedatives.

Key words: Retrochorial hematoma; Spontaneous miscarriage; Ultrasound; Therapy.

Introduction

Vaginal bleeding during the first trimester of pregnancy occurs in approximately 25% of women and about half of these pregnancies terminate in abortion [1]. The main reasons for vaginal bleeding are retrochorial hemorrhage and retrochorial hematoma (RCH) [2].

RCH may be detected sonographically in the first trimester by the presence of a crescent-shaped echo-free area outlining the intact gestational sac [3].

Its etiology is unknown [4]. The risk of abortion in early pregnancies complicated by RCH remains controversial. Bennett et al [5] concluded that fetal outcome depends on the size of the hematoma, whereas Pedersen and Mantoni [6] claimed that even large hematomas do not pose a serious threat. Tower and Regan and Mandruzzato *et al.* [7,8] concluded that miscarriage occurred in 17.7 % patients with a RCH.

Jouppila [3] in a broadly cited study concluded that there are no therapeutic options, and Ben-Haroush *et al.* [9] doubted the benefit of bed-rest. The aim of the present study was to determine the frequency of a RCH in the group of threatened miscarriages and to examine the possible relationship of parity, previous miscarriages, hematoma size and localization, and duration of vaginal bleeding to pregnancy outcome.

Materials and Methods

The present study included 852 women referred for ultrasound examination because of vaginal bleeding in the first trimester of pregnancy from 2010.-2011 in the present Center.

The study group consisted of 45 women of 852 (5.2 %) who were found to have a RCH in the presence of a singleton live embryo. The control group consisted of 807 women with vaginal bleeding in the first trimester of pregnancy, which were not found to have a RCH in the presence of a singleton live embryo. The sonographic criterion for RCH in the first trimester was a crescent-shaped echo-free area outlining the intact gestational sac.

All patients were clinically followed at seven-day intervals, including bimanual and sonographic examination until the bleeding ceased, the RCH disappeared or abortion occurred.

All sonographic examinations were performed by experts. 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, parity, previous miscarriage, duration and frequency of bleeding, size and localization of the RCH, and pregnancy outcome (spontaneous abortion, preterm or term delivery). The intensity and course of bleeding were monitored daily and the therapy was dosed accordingly, with the ultimate goal to stop bleeding. None of the patients suffered from: diabetes mellitus (laboratory analysis confirmed regular glucoregulation), hypertension or autoimmune diseases. The time of bleeding and the time of coagulation were within the limits of referential values in all the patients with a RCH. The number of thrombocytes was in the range of 150,000 - 400,000.

Categorical data were analyzed statistically with Chi-square, Fisher's exact test, and Student t-test, as appropriate. A *p* value less than 0.05 was considered statistically significant.

Revised manuscript accepted for publication February, 26, 2013

Results

In relation to parity the patients in the present study were almost equally proportioned: primiparas 53% and multiparas 47%. The percentage of patients bleeding in the period to eight weeks of gestation was 24.4%, and of the percentage of patients bleeding after eight weeks of gestation was 75.6 %. Only five of the patients (11.1%) had one previous spontaneous miscarriage. The authors' research has shown that previous deliveries and miscarriages do not affect the occurrence of a RCH, which is statistically confirmed ($p > 0.05$).

Eight pregnancies (17.7%) in the group with RCH ended in abortion, and 247 (30.6%) in the control group. In none of them did the weekly ultrasonographic or clinical follow-up reveal any signs of cervical incompetence. The present study has shown that a RCH does not increase the risk of spontaneous miscarriage. By observing the varying sizes of hematomas in the present study, miscarriage occurred with large but also with very small hematomas, which leads to the conclusion that the hematoma size in itself is not an initiating factor for the occurrence of miscarriage. The critical factor is the position of hematoma, as miscarriage was more frequent with localization on the back wall (62.5 %), which might be explained by poorer circulation in the spiral arteries on the back wall of uterus (Table 1). The initiating factor for occurrence of miscarriage is bleeding. Miscarriages occurred in the patients with a RCH who bled twice heavily or several times mildly, although they were on an adequate therapy (Table 2). In the patients that bled once and in which bleeding stopped with the prescribed therapy experienced hematoma regression.

Discussion

In view of the presented results as well as the results of other authors' studies [10,11], the present authors believe that an ultrasound examination is the method of choice for diagnosing the existence of a RCH in patients with signs of threatened miscarriage. In the present study, RCH was found in 5.2 % of patients with clinical signs of threatened abortion, which is similar to the results of Stabile *et al.* [10]. Miscarriage occurred in 17.7% of the presented patients with RCH (mostly due to repeated bleeding), which complies with the results of other authors [7,8]. In the control group (without RCH), miscarriage occurred in 30.6% women. The present study has shown that RCH does not increase the risk of spontaneous miscarriage by itself. Abu-Yousef *et al.* [1] claim that the poor outcome of pregnancy with a RCH is in connection with the intensity of vaginal bleeding and increase of hematoma volume accompanied with pain. All the patients in this study that had miscarriage bled twice heavily or several times mildly, although they were on adequate therapy. In the patients that bled

Table 1. — *Localization of hematoma and miscarriage.*

Miscarriage	IZNAD UN. UŠĆA	Back wall	Front wall	Fundus	Total
Yes	3	5	0	0	8
No	16	13	6	2	37
total	19	18	6	2	45

Table 2. — *Hemorrhage and miscarriages in the examined group.*

Hemorrhage	Miscarriage	No miscarriage	Total
Once	0	37	37
Twice	5	0	5
More than twice	3	0	3
Total	8	37	45

once and in which bleeding stopped with the prescribed therapy experienced hematoma regression. Other authors [3,5,12,13] reported similar results in their researches, whereas Ben Haroush *et al.* [9] claimed that there was no association of pregnancy outcome with duration of vaginal bleeding. In the present study, miscarriage occurred in large but also in very small hematomas, which leads to the conclusion that the hematoma size itself is not an initiating factor for the occurrence of miscarriage. The initiating factor is bleeding, especially repeated bleeding. The study has shown that the critical factor for miscarriage is the position and not the size of the hematoma. Miscarriage occurred more frequently with hematomas localized on the back wall (62.5%), which might be explained by poorer circulation in the spiral arteries on the back wall and perhaps by more difficult discharge of hematoma due to its position. The important indication is the course of hematoma therapy is much bed rest throughout the duration of bleeding. Women who rested during vaginal bleeding had lower percentage of spontaneous miscarriages (9.9%) in relation to those that did not rest (23.3%), as claimed by Ben-Haroush *et al.* [9]. With the present study, the authors did not succeed in assessing the importance of bed rest in reducing the percentage of miscarriage, because severe cases were admitted to the clinic with signs of threatened miscarriage, so that the lowest percentage of miscarriages was in the group of two patients lying more than 20 days (0 %) and less than ten days (6.6 %) of bed rest, and the highest was in the group of the women with to to 20 days (46%) of bed rest. However, if the average of miscarriages is taken, regardless of the duration of bed rest, which is 17%, it complies with the results of Ben-Haroush *et al.* [9]. All the present patients with a RCH were monitored until the final outcome of pregnancy, which was: spontaneous miscarriage (17.7%), or delivery (82.3%) premature or on term. All patients had a vaginal delivery. Newborns had somewhat lighter weight, but without the need for a long term intensive care.

Conclusion

Currently, an ultrasound is the method of choice for diagnosing the existence of a RCH in patients with signs of threatened miscarriage. The frequency of RCH in the group of patients with the signs of threatened miscarriage is 5.2%. RCH in this study group did not experience an increased risk of spontaneous miscarriages (17.7% vs. 30.6%). Parity and previous miscarriage did not cause a more frequent occurrence of a RCH. The size of a hematoma did not substantially affect the final outcome of pregnancy. A RCH localized on the back wall and repeated bleedings caused higher frequency of spontaneous miscarriages. Therapy procedure is based on strict bed rest and administration of: pregnyl, gestagenic drugs, progesterone, antihistamines, and sedatives.

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