

SONOGRAPHIC EVALUATION OF SUBCHORIONIC HEMATOMA IN EARLY PREGNANCY

Ghazala Wahid, Mehreen Samad, Neelum Wahid, Mahnoor Rehman

ABSTRACT

Objective: To evaluate the intrauterine subchorionic hematoma ultrasonographically in early pregnancy in a general obstetric population.

Methods: The study is cross sectional. The study was conducted in radiology department of Hayatabad Medical Complex Peshawar. Duration of the study is from January 2014 to January 2015. A total of 150 patients in their early pregnancy presented with pervaginal bleeding or abdominal pain were included in this study.

Results: Total of 150 patients in early pregnancy having pervaginal bleeding or abdominal pain/cramps were evaluated ultrasonically. 13 (8.6%) patients shows subchorionic hematoma on ultrasound. 8 (61.3%) patients have large hematoma and 4 (38.46%) patients have small hematoma using 13.2cm² as a cutoff value. 9 (69.23%) patients have subchorionic hematoma in lower uterine segment and 4 (30.76%) patients have hematoma in upper uterine segment.

Conclusion: This study concluded that the ultrasound can detect the presence of the subchorionic hematoma in the early gestation and may identify a population of patients at high risk for adverse outcome of pregnancy. The ultrasonic evaluation of subchorionic hematoma is becoming more important. The detailed evaluation of subchorionic hematoma include its size, site and echogenecity. As the larger size and lower uterine segment of subchorionic hematoma are associated with spontaneous abortion.

Keywords: Subchorionic hemorrhage, Uterine segment, Echogenecity.

INTRODUCTION

In the first trimester of pregnancy vaginal bleeding is a common presentation in emergency department. In the first few weeks of pregnancy about 25% of all gestations present with vaginal spotting or frank bleeding. Out of these half progress into miscarriage or abortion¹. The symptoms vary from occasional spotting to severe hemorrhage, associated with cramping and abdominal pain. The bleeding is often self limiting. It is most likely caused by the conceptus implantation into the endometrium². Spontaneous abortion, ectopic pregnancy, and gestational trophoblastic disease are the important causes of first trimester bleeding. Ultrasound (US) evaluation and quantitative beta human chorionic gonadotropin (b-hCG) are diagnostic tool in these patients³. This article reviews the role of ultrasonography in the evaluation of sub chorionic hematoma in early pregnancy.

Several sonographic studies have revealed a subchorionic hematoma as a cause of vaginal bleeding during the first half of pregnancy⁴. It appears on sonograms as an anechoic or hypoechoic area in uterine

cavity outside the membranes which usually elevates part of the placental border from the uterine wall. The hemorrhage may be seen as early as 9 week of gestation⁵. There is not much information available about the frequency of subchorionic hemorrhage. There is variation in the reported risk of spontaneous abortion⁶.

20% of women that present with threatened abortion have a subchorionic hematoma⁷. In the first trimester of pregnancy the most common source of vaginal bleeding is perigestational hemorrhage from chorionfrondosum. Abruption of the edge of the chorionfrondosum– decidua basalis complex or marginal sinus rupture leads to sub chorionic hemorrhage⁸. Although the hemorrhage usually abuts or elevates the edge of the chorionfrondosum–decidua basalis complex, most of the hemorrhage is usually situated between the decidua capsularis, chorionlaeve, and the deciduavera. Relative to chorion, acute hemorrhage may be hyperechoic or isoechoic and it becomes isoechoic with the chorionic fluid in 1 to 2 weeks⁹. Several studies have shown the relation between pregnancy outcome in these patients with the size of the subchorionic hematoma, gestational age, and the maternal age. The rate of pregnancy loss increases with hematoma size, advancing maternal age, and earlier gestational age, according to one study. This study graded the size of hematoma according to the median value of 13.2 cm² as the cut-off point for small and large hematoma size because of the positively skewed distribution (1.6171) of the data as studied by Al Nuaim et al¹⁰.

Department of Radiology, HMC, Peshawar

Address for correspondence:

Dr. Ghazala Wahid

House No. 149, Street 10, Sector K-3, Phase-3,
Hayatabad, Peshawar

Cell: 0321-9861864

Email: ghazalamoez@yahoo.com

MATERIAL AND METHODS

During the period January 2014 to January 2015, 150 patients having early pregnancy with vaginal bleeding, abdominal pain or cramps referred for ultrasonographic assessment to the Radiology Department of Hayatabad Medical Complex Peshawar. Most of these patients were referred because of vaginal bleeding, occasionally associated with lower abdominal pain. Ultrasonography was performed within 24 hours of clinical assessment, using the 3.5 MHz real-time scanner (Toshiba's US machine). Out of 150 investigated patients, all with early pregnancy having PV bleeding or abdominal pain/cramps were included in the study. Subchorionic hematoma was diagnosed by fluid collection crescentic in shape between the uterine wall and gestational sac. Clinical evaluation of patient done which included patient age and gestational age, gravidity, parity, pain, and pervaginal bleeding. The patients mean age was 25 years and age range was 19-35 years old. The mean gestational age at the time of the sonographic examination was 13.4 weeks and range was 8-19 weeks. Subchorionic hematoma was sonographically evaluated which included the size of the hematoma, its echogenicity and location relative to the uterine walls and placenta.

The patients having live pregnancies with subchorionic hematoma were sonographically re-evaluated at a week interval.

RESULTS

By sonography subchorionic hemorrhage appeared as elevation of the chorionic membrane on the side of the uterus. The hematoma did not extend superficial to the placenta. Occasionally some minimal extension was seen deep to the placenta. This is a useful point in differentiating chorioamniotic separation from subchorionic hematoma. In chorioamniotic separation the membrane is elevated at umbilicus and over the placenta. The chorionic membrane is also thicker than the amniotic one¹¹.

During the period of study, 13 women showed subchorionic hematoma on ultrasonography, thus giving an incidence of 8.6% of patients with bleeding in early pregnancy. 13.2cm² was used as a cut off value for small and large subchorionic hematoma. Regarding size of the subchorionic hematoma, 5(38.46%) out of 13 patients had small hematoma and 8(61.53%) out of 13 patients had large hematoma. It was observed that with increasing gestational age the size of subchorionic hematoma is large and in early gestational age, small subchorionic hematoma is seen. Most of the patients with large hematoma ended in abortion. 4(30.76%) out of 13 patients had subchorionic hematoma in upper uterine segment and 9 (69.23%) out of 13 patients had subchorionic in lower uterine segment. Subchorionic hematoma echogenicity depended upon the stage of hematoma. In acute stage it was anechoic. In sub acute

Table 1 : Echogenecity of subchorionic hematoma on ultrasound

No. of patients	Echogenecity on ultrasound
5(38.6%)	Anechoic
3(23.07%)	Isoechoic
3(23.07%)	Hypoechoic
2(15.38%)	Hyperechoic

Table 2 : Size of subchorionic hematoma on ultrasound

Size	No. of patients
Large (> 13.2cm ²)	8(61.53%)
Small (< 13.2cm ²)	5(38.46%)

Table 3: Site of sub chorionic hematoma on ultrasound

No. of patients	Site
9(69.23%)	Lower uterine segment
4(30.76%)	Upper uterine segment

stage it was isoechoic to hyperechoic. In chronic stage it is hypoechoic. In our study 5(38.6%) out 13 patients had anechoic subchorionic hematoma, 3(23.07%) patients had isoechoic, 3(23.07%) patients had hypoechoic and 2(15.38%) patients had hyperechoic hematoma.

DISCUSSION

In sonographic literature subchorionic hemorrhage is not frequently encountered¹². It is missed diagnosed mostly due to two important factors. Firstly due to thinness of the membrane and secondly the consistency of the hematoma, which can be mistaken for amniotic fluid when it is anechoic, the myometrium when it is isoechoic, and the placenta when it is hyperechoic¹³. Subchorionic hematoma is usually misdiagnosed as a vanishing or blighted twin pregnancy when seen by sonography. In a study by Finberg and Birnholz cases diagnosed as blighted twin, the sonographic appearance in many of these cases was typical of subchorionic hematoma, especially those that had a crescent shape¹⁴.

In the first half of pregnancy the subchorionic hematoma probably results from abruption of placenta at its margins. For unknown reasons the blood, unlike third trimester in which it collects behind the placenta, passes behind the chorionic membrane and subsequently leaks into the cervical canal¹⁵. This results in its elevation from the uterine wall. The subchorionic hematoma causes compression of the gestational sac, and in two of our cases it caused premature rupture of the membranes and resulted in abortion¹⁶.

The echogenicity of subchorionic hematoma depends upon time lapse since the beginning of bleeding. Fresh blood is usually anechoic; as it organizes its

echogenicity increases, and as it starts to hemolyze within a few weeks it again becomes anechoic¹⁷.

Our study include total 150 pregnant patients who presented with PV bleeding with or with abdominal pain. Only 13 patients showed subchorionic hematoma. The percentage is 8.6% which is similar to the percentage showed by Stabile et al which is 9%¹⁸.

Of the 13% patients in our study having subchorionic hematoma 8(61.53%) patients have large hematoma which is taken to be equal or more than 13.2cm². And 5 patients (38.46%) have small hematoma having volume less than 13.1cm². These results were similar to the study by Lulu Al Nuaim in which 37% have small hematoma 55% patients have large hematoma¹⁰.

9(69.23%) of the patients have subchorionic hematoma in the lower uterine segment. 4(30.7%) have hematoma in the upper uterine segment which is similar to study done by Lulu Al Nuaim in which 30% patients have hematoma in upper segment and 62% patients have hematoma in lower uterine segment¹⁰.

In our study 5(38.6%) out 13 patients had anechoic subchorionic hematoma, 3(23.07%) patients had isoechoic, 3(23.07%) patients had hypoechoic and 2(15.38%) patients had hyperechoic hematoma which is similar to the study done by Abu Yousef MM in which the hematoma was anechoic in 9(40.9%) cases, hypoechoic in 4(18.18%), isoechoic in 4(18.18%), and hyperechoic in 4(18.18%) Cases¹⁹.

CONCLUSION

Our study concluded that subchorionic hematoma occurs in 8.6 % patients with early pregnancy having pervaginal bleeding or abdominal pain/cramps. It also suggests that the presence of a subchorionic hematoma in early pregnancy may identify a population of patients at greater risk for adverse pregnancy outcome. The detailed sonographic evaluation of subchorionic hematoma is becoming more important.

REFERENCES

1. E. Özkaya, M. Altay, and O. Gelişen, "Significance of subchorionic haemorrhage and pregnancy outcome in threatened miscarriage to predict miscarriage, pre-term labour and intrauterine growth restriction," *Journal of Obstetrics and Gynaecology* 2011; 31(3):210-212 .
2. A. T. Dulay and J. A. Copel, "First-trimester ultrasound: current uses and applications," *Seminars in Ultrasound, CT and MRI* 2008 ; 29(2):121-131.
3. M. Dighe, C. Cuevas, M. Moshiri, T. Dubinsky, and V. S. Dogra, "Sonography in first trimester bleeding," *Journal of Clinical Ultrasound* 2008 ; 36(6):352-366 .
4. Maso G, D'Ottavio G, Seta F, Sartore A, Piccoli M, Mandruzzato G. First-trimester intrauterine hematoma and outcome of pregnancy. *Obstet Gynecol* 2005; 105:339-344.
5. Jauniaux E, Johns J, Burton GJ. The role of ultrasound imaging in diagnosing and investigating early pregnancy failure. *Ultrasound Obstet Gynecol* 2005; 25:613-624.
6. Sharma G, Kalish RB, Chasen ST. Prognostic factors associated with antenatal subchorionic echolucencies. *Am J Obstet Gynecol* 2003;189:994-996.
7. Nyberg DA, Cyr OR, Mack LA, Wilson OA, Shuman WP. Sonographic spectrum of placental abruption. *AJR* 1987;148:161-164.
8. Falco P, Zagonari S, Gabrielli S, Bevini M, Pilu G, Bovicelli L. Sonography of pregnancies with first-trimester bleeding and a small intrauterine gestational sac without a demonstrable embryo. *Ultrasound Obstet Gynecol* 2003; 21:62-65.
9. Nagy S, Bush M, Stone J, Lapinski RL, Gardo S. Clinical significance of subchorionic and retroplacental hematomas detected in the first trimester of pregnancy. *Obstet Gynecol* 2003; 102(1): 94-100
10. Lulu Al-Nuaim, Noori Chowdhury, Babatunde Adelusi. Subchorionic hematoma in threatened abortion:sonographic evaluation and significance. *Ann Saudi Med* 1996;16(6):650-653.
11. Johns J, Hyett J, Jauniaux E. Obstetric outcome after threatened miscarriage with and without a hematoma on ultrasound. *Obstet Gynecol.* Sep 2003;102(3):483-7.
12. Tuuli MG, Norman SM, Odibo AO, Macones GA, Cahill AG. Perinatal outcomes in women with subchorionic hematoma: a systematic review and meta-analysis. *Obstet Gynecol.* May 2011;117(5):1205-12
13. SaUerbrei EE, Phan DH. Placental abruption and subchorionic hemorrhage in the first half of pregnancy: US appearance and clinical outcome. *Radiology* 1986;160:109-112
14. Finberg, H.J. and Birnholz, J.C. (1979) Ultrasound observations in multiple gestation with first trimester bleeding: The blighted twin. *Radiology* 1979; 132: 137-142.
15. Kyser, K L. Meta-analysis of subchorionic hemorrhage and adverse pregnancy outcomes. *Proc Obstet Gynecol.* 2012 ;2(4):9-11.
16. Deutchman M, Tubay AT, Turok D. First trimester bleeding. *Am Fam Physician.* Jun 1 2009;79(11):985-92.
17. Andy Kahn,Amy L.Kahn,J Christian Fox and Mark I langdorf . Subchorionic Hemorrhage Appearing as Twin Gestation on Endovaginal Ultrasound. *West J Emerg Med.* 2008 May; 9(2): 115-117.
18. Stabile I, Campbell S, Grudzinskas JG. Threatened miscarriage and intrauterine hematomas: sonographic and biochemical studies. *J Ultrasound Med* 1989;8:289-92.
19. Abu-Yousef MM, Bleicher JJ, Williamson RA, Weiner CP. Subchorionic hemorrhage: sonographic diagnosis and clinical significance. *AJR Am J Roentgenol.* Oct 1987;149(4):737-40.