



## **Subchorionic Haemaorrhage in First Trimester and Its Effects on Pregnancy Outcome**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

**Background:** Subchorionic haemorrhage which may or may not be associated with vaginal bleeding is definitely of concern as it predisposes to adverse pregnancy outcomes. This study is done with a aim to find how subchorionic haemorrhage affects pregnancy outcome.

**Methodology:** The study was carried out from January 2020 till July 2020. 57 antenatal women with singleton viable pregnancy from 6 weeks to 12 weeks gestation having subchorionic haemorrhage on USG with or without bleeding were included in the study after informed consent. High risk pregnancies with any medical disorder were excluded. Size of Subchorionic haemorrhage was described as percentage involvement of gestational sac. Patient were closely followed for outcome as miscarriage, preterm delivery, abruption, intrauterine fetal death, IUGR or term delivery.

**Conclusion:** 52.63% of the patients were less than 30 years of age, 57.89% of the patients were primipara and 42.10% were multipara. 24.56% of females had previous abortion, 14.03% suffered an abortion. Maximum 5 patients with miscarriage had large subchorionic haemorrhage with more than 50% gestational sac. Intra uterine fetal demise occurred in only one patient with

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size of subchorionic haematoma between 26%-50%. 6 patients experienced preterm delivery before 37 weeks. Term delivery was seen in 42 patients and maximum 19 patients had SCH 11%-25% of Gsac. Though the outcome is variable, size of SCH definitely affects the outcome.

**Keywords:** *Pregnancy; Hemorrhage; gestation period; subchorionic haematoma.*

## 1. INTRODUCTION

First trimester scan reports the incidence of subchorionic haematoma as between 0.46%-39.5%. There is wide range for its incidence, but the clinical outcomes are conflicting [1,2,3]. A subchorionic hematoma is the pooling of blood between the chorion and the endometrium which may happen spontaneously and is generally associated with vaginal bleeding. Many studies have been inconclusive in finding any relation between subchorionic haemorrhage and adverse pregnancy outcomes like preterm labour, abruption of placenta, abortions and intrauterine fetal demise or death [4,5]. There is still controversy regarding how subchorionic haemorrhage is responsible for adverse pregnancy outcomes. One proposed theory is perfusion of the intervillous space prematurely to deal with oxidative stress [6]. The presence of haematoma can have mechanical pressure effects, dysfunctional angiogenesis and creation of weakened area attributing to adverse pregnancy outcome [7]. Generally, we cannot spot any cause for a subchorionic clot, pre-existing medical conditions, autoimmune diseases, and immunological factors have been associated with intrauterine hematoma, but the etiology of this condition is still unknown [8]. It was also reported in various studies [9,10] that relation between the volume of the hematoma and complications of pregnancy, particularly in relation to spontaneous abortion, is controversial.

Therefore this study was carried out to study the effect of subchorionic haemorrhage in first trimester and its pregnancy outcome

## 2. MATERIALS AND METHODS

This was an observational study carried over period of 6 months at Shalini tai Meghe hospital Wanadongiri Nagpur. The study was carried out on 57 antenatal patients between 6 to 12 weeks of gestation who presented with or without per vaginal bleeding/ spotting and had subchorionic haematoma on ultrasonography. Informed consent were taken from the patients for the study.

## 2.1 Inclusion Criteria

Singleton pregnancy between 6 to 12 weeks gestation

Viable fetus.

Low risk pregnancy.

## 2.2 Exclusion Criteria

Multiple pregnancy.

Non viable fetus.

High risk pregnancy (preeclampsia, anaemia, bad obstetrics history, GDM, infertility conception).

Medical disorders (Diabete Mellitus, Sickle Cell disease, Thalasemia, epilepsy, etc)

Patients with subchorionic haematoma were followed every weekly till first trimester or till haematoma resolves, later on follow up was monthly. Patients were prescribed oral progesterone and folic acid tablets. At each visit examination and sonography was done. Patient was followed till delivery. if patient suffered abortion or IUFD, details were recorded. Bed rest and avoidance of coitus was advised. Decision of admission was taken depending upon patients clinical condition. Basic data of patients were noted like Age, BMI, gestational age, parity, previous abortions. Size of Subchorionic haematoma was measured as percentage fraction of gestational sac – 10% or less, 11% to 25%, 26 %to 50 % and more than 50%. Outcome parameters were measured as abortion, intrauterine fetal demise, preterm delivery (delivery before 37 completed weeks), term delivery, fetal growth restriction.

## 3. RESULTS

More than half of the study population were less than 30 years of age i. e 52.63%. and 47.36% of the study subjects were more than 30 years of age. 57.89% of the patients were primipara and 42.10 % were multipara. 24.56% of females had previous abortion, which included both first

trimester as well as second trimester abortions. 2 of the patients had previous intra uterine fetal demise. One patients gave history of meconium stained liquour as the cause of the IUFD . Other patient gave no details regarding IUFD.

Maximum number of patients, 40.35%, had subchorionic haematoma occupying 11% - 25% of the gestational sac followed by 26.31% of patients with subchorionic haematoma occupying 26%-50% of the G sac. 22.80% of the women has small SCH, occupying less than 10% of the gestational sac. Large subchorionic haematoma occupying more than 50 % of the gestational sac was seen in 10.52% of the females.

8 patients, i.e 14.03 %, suffered an abortion. Maximum 5 patients with miscarriage had large

subchorionic haemorrhage with more than 50 % gestational sac. One patient with SCH <10 % of G sac, and other with SCH occupying 11%-25% of G sac had threatened abortion. Both were advised best rest and started on progesterone support , but could not continue the pregnancy and had complete abortion. Similarly only 1 patient with SCH 26%-50% of Gsac had abortion at 14 weeks of gestation.

Intra uterine fetal demise occurred in only one patient with size of subchorionic haematoma between 26%-50%. 6 patients experienced preterm delivery before 37 weeks. 1each with SCH <10% and SCH >50 %. 2 patients had SCH between 11%-25% and 2 patients with preterm delivery had SCH between 26%-50%.

**Table 1. Baseline characteristics**

|                          | Number | Percentage |
|--------------------------|--------|------------|
| <b>Age</b>               |        |            |
| <30 YEARS                | 30     | 52.63%     |
| >30 YEARS                | 27     | 47.36%     |
| <b>PARITY</b>            |        |            |
| PRIMIPARA                | 33     | 57.89%     |
| MULTIPARA                | 24     | 42.10%     |
| <b>PEVIOUS ABORTIONS</b> | 14     | 24.56%     |
| PREV IUFD                | 2      | 3.50%      |

**Table 2. Size of subchorionic haematoma as percentage fraction of gestational SAC**

| Size of SCH | Number of patients | Percentage |
|-------------|--------------------|------------|
| <10%        | 13                 | 22.80%     |
| 11%-25%     | 23                 | 40.35%     |
| 26%-50%     | 15                 | 26.31%     |
| >50%        | 6                  | 10.52%     |

**Table 3. Relation between size of SCH and pregnancy outcome**

| SCH Size<br>(% fraction<br>of G sac) | Outcome Parameters            |                     |                                   |                                |
|--------------------------------------|-------------------------------|---------------------|-----------------------------------|--------------------------------|
|                                      | miscarriage<br>(n= 8), 14.03% | IUFD<br>(n=1, 1,7%) | Preterm Delivery<br>(n=6, 10.52%) | Term Delivery<br>(n=42,73.68%) |
| <10 %                                | 1                             | -                   | 1                                 | 11                             |
| 11%- 25%                             | 1                             | -                   | 2                                 | 19                             |
| 26%-50%                              | 1                             | 1                   | 2                                 | 11                             |
| >50 %                                | 5                             | -                   | 1                                 | -                              |

**Table 4. Relation between size of sch and placental abruption and fetal growth restriction**

| SCH size<br>(% fraction of G sac) | Placental abruption | Fetal growth restriction |
|-----------------------------------|---------------------|--------------------------|
| <10 %                             | N=2 ( 3.5%)         | N=8 (14.03%)             |
| 11%- 25%                          | -                   | 2                        |
| 26%-50%                           | 1                   | 2                        |
| >50 %                             | -                   | 4                        |
|                                   | 1                   | -                        |

Term delivery was seen in 42 patients. 11 patients each with SCH <10 % and 26%-50%. 19 patients with SCH 11%-25% had delivery at term gestation.

Placental abruption was seen in 2 patients, one with SCH between 11%-25% and other with SCH >50%. Fetal growth restriction was seen in 8 patients. 2 patients had SCH <10 % and 2 with SCH 11%-25%. Maximum 4 patients had IUGR with SCH between 26%-50%.

#### 4. DISCUSSION

The results obtained from the present study revealed that the presence of SCH in patients with threatened abortion is an important factor for the continuation of pregnancy. The presence of SCH in patients with threatened abortion increases the risk of miscarriage. Maximum patients definitely achieved term delivery but, the chances of preterm delivery and intrauterine growth restriction were also more. Many observational studies revealed a significant correlation between large haematomas and adverse outcome of pregnancy [11,12]. On the other hand, some of them failed to demonstrate this association [13].

Abortions was seen in 14.03 % of patients, which is less than the study done by E. o' zkaya, et al [14] where 25.6% miscarriages were observed in first trimester . In this study maximum patients 52.63% had age <30 years , which is similar to the study done by Shayesta Rahi et.al. [15] which had 32% of patient with age between 26 – 30 years.

The size of the haematoma can be the factor affecting the miscarriage rate. In our study term delivery was achieved in 73.68% patients and preterm delivery in 8.77 % patients , comparable to study done by O' zkaya, et al [14]. A number of studies on complications during pregnancy were reported [16-19]. Some interesting studies on pregnancy related complications were reviewed [20-23].

As per our study, none of the patient with SCH >50% could reach term gestation. Maximum patients who had preterm delivery had SCH 11%-50% and delivered between 34 and 37 weeks. One patient with SCH > 50% delivered at 30 weeks gestation due to placental abruption. Intrauterine fetal demise was seen in 1 patient with SCH 26%-50%. The result is similar to study done by Shayna M. Norman et al [24] where it

was 1.3 %. The cause for intra uterine fetal demise can be multifactorial but the size of SCH in this patient was more i.e 26%-50% of Gsac. Intra uterine growth restriction was found in 14.03% of patients and maximum were between SCH 26%-50%, similar to study done by O' zkaya, et al (18.6%).

#### 5. CONCLUSION

Subchorionic haemorrhage definitely adversely impacts the pregnancy outcome but multiple underlying factors are also underplay. Study on larger sample is needed to study in depth the subchorionic haemorrhage and its effects.

#### CONSENT

Informed consent were taken from the patients for the study.

#### ETHICAL APPROVAL

It is not applicable.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

#### REFERENCES

1. Seki H, Kuromaki K, Takeda S, Kinoshita K. Persistent subchorionic hematoma with clinical symptoms until delivery. *Int J Gynaecol Obstet.* 1998;63:123–8.
2. Johns J, Hyett J, Jauniaux E. Obstetric outcome after threatened miscarriage with and without a hematoma on ultrasound. *Obstet Gynecol.* 2003;102:483–7.
3. Xiang L, Wei Z, Cao Y. Symptoms of an intrauterine hematoma associated with pregnancy complications: a systematic review. *PloS One.* 2014;9:e111676.
4. Nagy S, Bush M, Stone J, Lipinski RH, Gardo S. Clinical significance of sub chorionic and retro placental hematomas detected in the first trimester of pregnancy. *Obstetric Gynecol.* 2003;102(1):94-100.
5. Bennett GL, Bromley B, Lieberman E, Benacerraf BR. Subchorionic hemorrhage in first- trimester pregnancies: prediction of pregnancy outcome with sonography. *Radiology.* 1996; 200:803-6.
6. Jauniaux E, Watson AL, Hempstock J, Bao YP, Skepper JN, Burton GJ. Onset of

- maternal arterial blood flow and placental oxidative stress. A possible factor in human early pregnancy failure. *Am J Pathol* 2000; 157: 2111-22
7. Tuuli MG, Norman SM, Odibo AO, Macones GA, Cahill AG. Perinatal outcomes in women with subchorionic hematoma. *Obstet Gynecol.* 2011;117: 1205-12.
  8. Johns J, Hyett J, Jauniaux E. Obstetric outcome after threatened miscarriage with and without a hematoma on ultrasound. *Obstetric Gynecol.* 2003;102(3):483-7.
  9. Sharma G, Kalish RB, Chasen ST. Prognostic factors associated with antenatal sub chorionic echolucencies. *Am J Obstet Gynecol.* 2003;189:994-6.
  10. Mäkikallio K, Tekay A, Jouppila P. Effects of bleeding on uteroplacental, umbilical coplacental and yolk-sac hemodynamics in early pregnancy. *Ultrasound Obstet Gynecol.* 2001;18:352-6
  11. Mantoni M, Pederson JF. Intrauterine hematoma: an ultrasonic study of threatened abortion. *British Journal of Obstetrics and Gynaecology.* 1981;88: 47–51.
  12. Bennett GL, Bromley B, Lieberman E, Benacerraf BR. 1996. Subchorionic hemorrhage in first-trimester pregnancies: prediction of pregnancy outcome with sonography. *Radiology.* 200;803–806.
  13. Goldstein SR, Subramanyam BR, Raghavendra BN, Horii SC, Hilton S. Subchorionic bleeding in threatened abortion: sonographic findings and significance. *American Journal of Roentgenology* 1983;141:975–978.
  14. Ozkaya E, Altay M, Gelisen O. 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
  15. Shayesta Rahi et.al. A study on pregnancy outcome in women with subchorionic haemorrhage detected in first and second trimester of pregnancy in Kashmir valley. *International Journal of Science and Healthcare Research.* 2020;5(1).
  16. Singh, Rohan Kumar, Akhita Singhania, Gaurav Vedprakash Mishra, and Perna Anup Patwa. Congenital Pulmonary Airway Malformation in One of the Monochorionic Diamniotic Twins - A Rare Encounter. *Journal Of Evolution Of Medical And Dental Sciences-JEMDS.* 2020;9(48): 3694–96. Available: <https://doi.org/10.14260/jemds/2020/810>.
  17. Kashikar, Shivali V, Bhushan N, Lakhkar. Assessment of Fetal Nasal Bone Length and Nasofrontal Angle in the Second Trimester in Normal Indian Pregnancies. *Journal of Fetal Medicine.* 2014;1(3): 137–41. Available: <https://doi.org/10.1007/s40556-015-0026-2>.
  18. Bhatia, Avni, Aditya Bhagwat, Sourya Acharya, Amol Bhawane, and Neema Acharya. Postpartum Haemolytic Uremic Syndrome (PHUS) with Posterior Reversible Encephalopathy Syndrome (PRES) Complicating Pregnancy: A Rare Case Report. *Journal of Clinical and Diagnostic Research.* 2019;13(4):OD1–3. Available: <https://doi.org/10.7860/JCDR/2019/40900.12748>.
  19. Gaikwad, Kapila B., Nitin G. Joshi, and Sohan P. Selkar. Study of Nitrosative Stress in 'Pregnancy Induced Hypertension'. *Journal of Clinical and Diagnostic Research.* 2017;11(3):BC6–8. Available: <https://doi.org/10.7860/JCDR/2017/23960.9396>.
  20. Inamdar, Saunitra A., Himanshi Agarwal, Sourya Acharya, and Anil Inamdar. "Coexistence of Hypertriglyceridemia and Hypercholesterolemia with Gestational Diabetes Mellitus in Pregnancy: A Case Report. *Medical Science.* 2020;24(102):594–98.
  21. Salampuria, Shruti, Shubhada Jajoo, and Sourya Acharya. Acute Respiratory Distress Syndrome during Pregnancy and Post-Partum - A Case Series with Spectrum of Near Miss to Mortality. *Journal of Evolution of Medical and Dental Sciences-JEMDS.* 2019;8(49):3724–26. Available: <https://doi.org/10.14260/jemds/2019/806>.
  22. Singh, Harshika, Manjusha Agrawal, Arvind Bhake, and Nihar Gupta. Colour Doppler Evaluation in High-risk Pregnancy and Perinatal Outcome. *Journal of Evolution of Medical and Dental Sciences-JEMDS.* 2018;7(43): 4603–8. Available: <https://doi.org/10.14260/jemds/2018/1027>.
  23. Agarwal, Himanshi, Neema Acharya, Deepti Shrivastava, and Shazia Mohammad. Pregnancy with Uterine

- Prolapse - Rare Cases with Distinct Labour Outcomes. Journal of Evolution of Medical and Dental Sciences-JEMDS. 2021;10(5): 329–32.  
Available:<https://doi.org/10.14260/jemds/2021/74>.
24. Shayna M. Norman, O. Odibo, George A. Macones, Jeffrey M. Dicke, James P. Crane, Alison G. Cahill, Ultrasound-Detected Subchorionic Hemorrhage and the Obstetric Implications Obstet Gynecol. 2010;116:311–5.

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