ORIGINAL RESEARCH PAPER

Obstetrics & Gynaecology

THE STUDY OF MATERNAL AND PERINATAL OUTCOME IN WOMEN WITH SUBCHORIONIC HEMORRHAGE IN FIRST AND SECOND TRIMESTER PREGNANCY

KEY WORDS:

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INTRODUCTION

Subchorionic haemorrhage is collection of blood between the chorionic membrane and the uterine wall. Subchorionic hematoma can be associated with adverse pregnancy outcomes and even miscarriage. It appears as a hypo echoic or anechoic crescent shape area behind the gestational sac in the first trimester and behind the fetal membranes in the second trimester. Although the exact etiology is uncertain, it is believed to result from partial detachment of the chorionic membranes from uterine wall. Trimester

AIM AND OBJECTIVES

Aim:- To study the maternal & perinatal outcome in women with usg detected subchronic hemorrhage in first and second trimester pregnancy.

Objectives:-

- To determine proportion of end outcomes of pregnancy.
- To determine various antenatal complications like preeclampsia, antepartum haemorrhages, fetal growth restriction.
- To determine proportion of delivery and intrapartum outcomes.

MATERIALS AND METHODS

This is going to be a prospective observational study including patient's in hospital at the department of obstetrics & gynaecology Dr. SN Medical College, Jodhpur and having subchorionic haemorrhage in first and second trimester as diagnosed by USG.These patients are going to be followed till term and maternal and fetal outcome is going to be studied.

Method of collection of data: A prospective study was undertaken.

Period of study: From February 2022 to October 2022.
Sample size : 100

Inclusion criteria:

- Singleton pregnancy
- Gestational age less than 24 week.
- Patient with USG detected sub chorionic haemorrhage and a live fetus.

Exclusion criteria:

- Multiple gestation
- Low lying placenta
- Women with coagulation disorders.

OBSERVATIONS AND RESULTS

TABLE 1: DISTRIBUTION OF CASES ACCORDING TO GESTATIONAL AGE:

Trimester of pregnancy	No. of patients	Percentage
First Trimester	71	71.00
Second Trimester	29	29.00
Total	100	100.00

TABLE 2: DISTRIBUTION OF CASES ACCORDING TO AGE GROUP :

Age (yrs)	Trimester				Total	
	First		Second			
	N	%	N	%	N	%
19-24	40	56.34	7	24.14	47	47.00
25-29	25	35.21	19	65.52	44	44.00
30-34	6	8.45	3	10.34	9	9.00
Total	71	100.00	29	100.00	100	100.00

Chi square 8.922, P value 0.011 (S)

TABLE 3: DISTRIBUTION OF CASES ACCORDING TO GRAVIDA:

Parity	Trimester				Total	
	First Trimester		Second Trimester			
	N	%	N	%	N	%
Primigravida	53	74.65	15	51.72	68	68.00
Multi gravida	18	25.35	14	48.28	32	32.00
Total	71	100.00	29	100.00	100	100.00

Chi square 4.972, P value 0.025 (S)

TABLE 4: DISTRIBUTION OF CASES ACCORDING TO PREGNANCY OUTCOME IN RELATION TO SUBCHORIONIC HAEMORRHAGE:

Pregnancy Outcome N = 100	Trimester				Total	
	First Trimester		Second Trimester			
	N	%	N	%	N	%

Abortion	18	25.35	2	6.90	20	20.00
Abruption	2	2.82	2	6.90	4	4.00
Preterm	10	14.08	4	13.79	14	14.00
Term	41	57.75	21	72.41	62	62.00
Total	71	100.00	29	100.00	100	100.00

Chi square 3.372, P value 0.066 (NS)

TABLE 5: DISTRIBUTION OF CASES ACCORDING TO MODE OF DELIVERY:

Mode of delivery	Trimester				Total	
	First Trimester		Second Trimester			
	N	%	N	%	N	%
PTVD	8	15.09	2	7.40	10	10.00
FTND	38	71.69	18	66.66	56	56.00
PTLSCS	2	3.77	2	7.40	4	4.00
FTLSCS	5	9.40	5	18.51	10	10.00
Total	53	100.00	27	100.00	80	100.00

Chi square 2.564, P value 0.463 (NS)

TABLE 6: DISTRIBUTION OF CASES ACCORDING TO APGAR SCORE AT 1 MIN:

Apgar Score at 1min	Trimester				Total	
	H/o First Trimester Subchorionic hematoma		H/o Second Trimester Subchorionic hematoma			
	N	%	N	%	N	%
≤3	0	0.00	1	3.70	1	1.25
4-7	8	15.09	7	25.93	15	18.75
≥8	45	84.91	19	70.37	64	80.00
Total	53	100.00	27	100.00	80	100.00

Chi square 3.555, P value 0.169 (NS)

TABLE 7: DISTRIBUTION OF CASES ACCORDING TO APGAR SCORE AT 5 MIN :

Apgar Score at 5min	Trimester				Total	
	H/o First Trimester Subchorionic hematoma		H/o Second Trimester Subchorionic hematoma			
	N	%	N	%	N	%
≤5	0	0.00	3	11.11	3	3.75
6-8	9	16.98	6	22.22	15	18.75
≥9	44	83.02	18	66.67	62	77.50
Total	53	100.00	27	100.00	80	100.00

Chi square 6.768, P value 0.033 (S)

TABLE 8: DISTRIBUTION OF CASES ACCORDING TO BIRTHWEIGHT:

Baby weight (kg)	Trimester				Total	
	First Trimester		Second Trimester			
	N	%	N	%	N	%
Very low birth weight <1.5	0	0.00	2	7.4	2	2.5
Low birth weight <2.5 kg	10	18.86	13	48.14	23	28.75
Normal birth weight _>2.5 kg	43	81.83	12	44.44	55	68.75
Total	53	100.00	27	100.00	80	100.00

Chi square 16.00, P value 0.003 (S)

TABLE 9: DISTRIBUTION OF CASES ACCORDING TO PERINATAL MORTALITY:

	Trimester				Total	
	First		Second			
	N	%	N	%	N	%
Perinatal Mortality	1	1.89	3	11.11	4	5.00
Live birth	52	98.11	24	88.89	76	95.00
Total	53	100.00	27	100.00	80	100.00

Fisher exact test, P value 0.109 (NS)

TABLE 10: DISTRIBUTION OF CASES ACCORDING TO ASSOCIATED MATERNAL COMORBIDITIES:

	Trimester				Total	
	First		Second			
	N	%	N	%	N	%
Normal	38	53.52	12	41.37	50	50.00
Anemia	25	35.21	12	41.37	37	37.00
Chronic hypertension of pregnancy	2	2.81	1	3.44	3	3.00
Hypertensive disease of pregnancy	5	7.04	3	10.34	8	8.00
Gestational diabetes mellitus	1	1.40	1	3.44	2	2.00
Total	71	100.00	29	100.00	100	100.00

Chi square 1.214, P value 0.270 (NS)

TABLE 11: DISTRIBUTION OF CASES ACCORDING TO VOLUME OF SUBCHORIONIC HEMATOMA AND PERINATAL OUTCOME:

Volume of subchorionic hematoma					Total	
	Abortion		Viable gestation			
	N	%	N	%	N	%
<1ml	1	5	32	40	33	33.00
1-10 ml	7	35	46	57.50	53	53.00
>10 ml	12	60	2	2.50	14	14.00
Total	20	100.00	80	80.00	100	100.00

Chi square 45.25, P value <0.0001 (HS)

TABLE 12: DISTRIBUTION OF CASES ACCORDING TO GESTATIONAL AGE AT TIME OF BLEEDING (WEEKS):

Gestational age (weeks)	No. of patients	Viability not attained	Viability attained
<8 weeks	19	6	13
8-12 weeks	52	8	44
12.1-16 weeks	16	2	14
16.1-20 weeks	9	2	7
21-24 weeks	4	2	2
Total	100	20	80

Chi square 11.82, P value 0.018 (S)

TABLE 13: DISTRIBUTION OF CASES ACCORDING TO PERINATAL OUTCOME:

	Trimester				Total	
	First		Second			
	N	%	N	%	N	%
Normal	56	78.87	21	72.41	77	77.00
Meconium aspiration syndrome	0	0.00	1	3.48	1	1.00

Meconium aspiration syndrome + Birth asphyxia	0	0.00	3	10.34	3	3.00
Neonatal jaundice	5	7.04	0	0.00	5	5.00
Premature	10	14.08	4	13.79	14	14.00
Total	71	100.00	29	100.00	100	100.00

TABLE 14: DISTRIBUTION OF CASES ACCORDING TO VOLUME OF SUBCHORIONIC HAEMATOMA:

Volume	Trimester				Total	
	First		Second			
	N	%	N	%	N	%
<1ml	16	22.53	17	58.62	33	33.00
1-10ml	42	59.15	11	37.93	53	53.00
>10ml	13	18.30	1	3.44	14	14.00
Total	71	100.00	29	100.00	100	100.00

Chi square 13.12, P value 0.001 (S)

DISCUSSION

In the study 100 cases 71% cases had come with first trimester and 29% cases had come with second trimester subchorionic haematoma detected by ultrasonographically. This shows that subchorionic hemorrhage is more common in first trimester rather than in second trimester pregnancy.

Most of the patients with subchorionic haematoma were in early reproductive age group rather than the late. 47% cases were of the age group 19-24 years out of which 40 patients were of first trimester and 7 patients were of second trimester and 44% cases were of the age group 25-29 years out of which 25 patients were of first trimester and 19 patients were of second trimester. 9 patients were of the age group 30-34 years out of which 6 patients were of first trimester and 3 patients were of second trimester. There was a significant change to age group. Another study conducted by Ali HZ et al found large intra uterine hematoma volume more common with advanced maternal age (>20-29 years).

In our study 68% cases were primi gravida and 32% cases were found multi gravida. A study done by Florida by a Caroline C Signore, et al,[10] 2nd trimester vaginal bleeding : with correlation of ultrasonographic findings with perinatal outcome where they concluded that subchorionic haematoma is more common in multipara as compared to primi gravida where Shayesta Rahi et al[11] study showed that the incidence of subchorionic haematoma was reported 52.67% in primi gravida and 47.33% in multigravida patients. The gestational age of 71.33% of women under study was less than 12 weeks and the gestational age and size of haematoma was associated statistically significant.

In the present study of 100 patients ,19 cases of ultrasonographically detected subchorionic haematoma were less than 8 weeks gestation out of which 13 patients did attain viability and 6 patients did not attain viability, 52 of cases were of 8-12 weeks of gestation out of which 44 patients did attain viability and 8 patients did not attain viability, 16 cases were 12.1-16 weeks gestation out of which 14 patients did attain viability and 2 patients did not attain viability, 9 cases at 16.1-20 weeks of gestation out of which 7 patients did attain viability and 2 patients did not attain viability, 4 were from 21-24 weeks of gestation out of which 2 patients did attain viability and 2 patients did not attain viability. Thus most of the cases were between 8-12 weeks gestation showing subchorionic haematomas more common in first trimester.

Gian Paolo Maso et al,[14] observed that risk of abortion is 15 times greater for causes diagnosed before 9 weeks of gestation, than for those observed after this period. Likewise Howard et al. observed that women diagnosed with subchorionic haemorrhage before 8 weeks was associated with a significantly higher risk of miscarriage. It is well known that over half of the early abortions are caused by chromosomal abnormalities such as aneuploidy. However it is unclear whether women with aneuploidy pregnancies are more prone to subchorionic haematoma because of embryogenic origin of the trophoblast cells. It is suggested that the presence of subchorionic haematoma in early pregnancy affects the normal process of trophoblast invasion, which is vital for a successful pregnancy outcome.

In our study volume of subchorionic hematoma affects the outcome directly as in the maximum 53% cases showed subchorionic haematoma size 1-10ml volume, out of which 42 patients were of first trimester and 11 patients were of second trimester, 33% patients showed subchorionic haematoma size <1ml out of which 16 patients were of first trimester and 17 patients were of second trimester and 14% patients showed subchorionic haematoma size >10ml ,out of which 13 patients were of first trimester and 1 patients were of second trimester. This was statistically significant (p value <0.05). Our study shows that volume of subchorionic hematoma affects the outcome directly as in the study, out of 14 patients having usg detected subchorionic haematoma size was >10 ml, 12 patients had abortion and 2 patients did attain viability. Out of 53 patients, 7 patient had abortion and 46 patients did attain viability, if subchorionic haematoma size was 1-10 ml and out of 33 patients, 1 patient had abortion and 32 patients did attain viability, if subchorionic haematoma size was <1ml. Thus the amount of volume of subchorionic haematoma is directly related to fetal outcome showing significant in an abortion rate as volume of subchorionic hematoma increased. This might be due to the fact as seen in doppler studies that a significant relationship exists between hematoma enlargement and reduction of blood flow velocities in spiral arteries with the potential threat to continuance of pregnancy by direct pressure volume effect. The result from available studies on hematoma volume and pregnancy outcome are again controversial. Many observational reports revealed a significant correlation between large hematoma and adverse outcome of pregnancy. While others failed to demonstrate this association.

Gian Paolo, Maso et al,[14] observed no correlation with pregnancy outcome with hematoma volume. These results were different from those of Bennett et al[18] who found that large volumes are associated with more risk of spontaneous abortion and also Taner Gunay et al[13] study in 2021 showed in their study that large size subchorionic haematomas had increased risk of adverse pregnancy outcomes such as first trimester bleeding, early pregnancy loss, intrauterine growth retardation, placental abroption or preterm delivery.

In the study of total of 100 cases 20 cases aborted out of which 18 cases of abortion had in first trimester and 2 cases of abortion had in second trimester and 80 pregnancies continued till viability. Among the who continued till viability period 14 patients had preterm birth. Perinatal mortality count in those 80 cases was 4. The perinatal outcome were affected by various factors like birth asphyxia, MAS and prematurity. In our study most of the patients 84% had normal perinatal outcome, followed by 7% cases showed pre mature delivery, 5% cases had NJ, 3% cases had MAS+BA and only 1 case was seen of MAS. Total outcome of the pregnancies in this study showed 20% abortions, 14% preterms, 4% abruptio, and 62% had continued till term. Mode of delivery were dependent both on fetal and maternal condition in which 10% cases were delivered as PTVD out of which 8 patients were from first trimester and 2 patients were from second trimester, 56% cases delivered as FTND out of which 38 patients were from first trimester and 18 patients from second trimester and 4% cases were delivered as PTLSCS out of which 2 patients were from first trimester and 2 patients were from second

trimester, and 10% cases were delivered as FTLSCS out of which 5 patients were from first trimester and 5 patients were from second trimester pregnancy. Weight of the babies also showed association with the gestational age at time of usg detection of subchorionic haematoma. Amongst those 80 patients who achieved vibility, most of 55 babies had normal birth weight of 2.5 kg and out of this 43 babies had normal birth weight in first trimester and 12 babies had normal birth weight in second trimester, 23 babies had low birth weight of <2.5 kg out of which 10 babies had low birth weight in first trimester and 13 babies had low birth weight in second trimester, 2 babies had very low birth weight <1.5kg in second trimester and no case in first trimester.There was no statistically significant difference (p value >0.05).

Rosati et al[17] reported that in 1257 patients with first and second trimester vaginal bleeding, there was no significant difference in outcome among patients with abnormal USG finding compared with those normal USG findings. Caroline C. Signore et al,[10] supports the finding of poor pregnancy outcome when USG abnormalities are detected with vaginal bleeding. Over the last few years the quality and availability of USG has progressively improved. However, previous studies incorporating USG finding in prediction of outcome for pregnancies complicated by bleeding have been less conclusive. One of major aims of proper management of subchorionic haematoma cases is to minimize the maternal and fetal morbidity and mortality. In our study 37 patients of anaemia out of which 25 cases were diagnosed with subchorionic haemorrhage in first trimester and 12 cases in second trimester, followed by 3 patients of chronic hypertension of pregnancy out of which 2 cases were diagnosed with subchorionic haemorrhage in first trimester and 1 case was in second trimester , followed by 8 patients of hypertensive disease of pregnancy out of which 5 cases were diagnosed with subchorionic haemorrhage in first trimester and 3 cases in second trimester, followed by 2 patients of gestational diabetes mellitus out of which 1 was diagnosed with subchorionic haemorrhage in first trimester and 1 was in second trimester pregnancy. Oxidative stress impairment and mechanical effects of the subchorionic haematoma are two supposed mechanisms underlying the positive associations between subchorionic haematoma and adverse pregnancy outcomes. If the pregnancy continued, the subchorionic haematoma would probably be absorbed after several months and the mechanical effects of haematoma would diminish as gestational age increases.

CONCLUSION

In this observational study, 100 antenatal patients who presented with first and second trimester ultrasonographically detected subchorionic haematoma had examined and followed up prospectively until the end of pregnancy. It was concluded from our study that the presence of an intrauterine hematoma in first and second trimester of pregnancy is associated with adverse pregnancy outcome (spontaneous miscarriage and preterm delivery) even though there are no precise management interventions to foil the unfavourable outcomes.Finally, it was concluded that most important factor which affect the outcome is gestational age at which subchorionic hematoma was diagnosed and volume of hematoma. when volume of haematoma was large than there was more chances of abortion than small size subchorionic haematoma. Chances of abortion are more if diagnosed in first trimester. The maximum viability was seen when subchorionic haematoma was detected at 8-12 weeks. There are other risks like complications to pregnancy such as stillbirth, preterm, abruption placenta, intrauterine growth restriction, fetal distress, low birth weight babies. The birth weight was found low and very low, when subchorionic haematoma was detected in second trimester than first trimester. The apgar score at 5 min was showed better in first trimester than second trimester. The associated maternal morbidities like chronic hypertension, gestational diabetes mellitus and hypertensive disease of pregnancy also affect perinatal outcome greater, if usg detected subchorionic haemorrhage in second trimester than in first trimester pregnancy. The presence of subchorionic heamatoma in early stages of pregnancy affects the normal process of pregnancy. Early diagnosis, bed rest, use of progesterone, regular antenatal check-up will help in continuing pregnancy till term with good fetal outcome.

REFERENCES

1. Tuuli MG, Norman SM, Odibo AO, Macones GA, Cahill AG. Perinatal outcomes in women with subchorionic hematoma: a systematic review and meta-analysis. ObstetGynecol 2011; 117:1205–12
2. Pelinescu-Onciul D. Subchorionic hemorrhage treatment with dydrogesterone. GynecolEndocrinol 2007;23(suppl 1):77–81.
3. Sharma G, Kalish RB, Chasen ST. Prognostic factors associated with antenatal subchorionicecholucencies. Am J ObstetGynecol 2003;189:994–6.
4. Akhlaghpoor S, Tomasian A. Safety of chorionic villus sampling in the presence of asymptomatic subchorionic hematoma. Fetal DiagnTher 2007;22:394–400.
5. Zhou J, Wu M, Wang B, Hou X, Wang J, Chen H, et al. The effect of first trimester subchorionic hematoma on pregnancy outcomes in patients underwent IVF/ICSI treatment. J Matern Fetal Neonatal Med 2017;30:406–10.
6. Xiang L, Wei Z, Cao Y. Symptoms of an intrauterine hematoma associated with pregnancy complications: a systematic review. PloS One 2014;9:e111676.
7. Heller HT, Asch EA, Durfee SM, Goldenson RP, Peters HE, Ginsburg ES, et al. Subchorionic hematoma: correlation of grading techniques with first-trimester pregnancy outcome. J Ultrasound Med 2018;37:1725–32.
8. Ji, W., Li, W., Mei, S., & He, P. (2017). Intrauterine hematomas in the second and third trimesters associated with adverse pregnancy outcomes: a retrospective study. The Journal of Maternal-Fetal & Neonatal Medicine, 30(18), 2151-2155.
9. Hashem, A., &Sarsam, S. D. (2019). The impact of incidental ultrasound finding of subchorionic and retroplacental hematoma in early pregnancy. The Journal of Obstetrics and Gynecology of India, 69(1), 43-49.
10. Caroline C. Signore, et al. Second trimester vaginal bleeding : correlation of ultrasonographic findings with perinatal outcome. Am J ObstetGynecol 1996 Feb;178(2).
11. Rahi S, Rashid M, Ashraf SS 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 & Healthcare Research. 2020; 5(1): 71-77.
12. Li, Y., Wang, E., Huang, S., Zhu, C., Zhang, K., Zhang, J. &Shu, J. (2021). Autoantibodies in association with subchorionichaematoma in early pregnancy. Annals of Medicine, 53(1), 841-847.
13. Günay T, Yardımcı OD. How does subchorionic hematoma in the first trimester affect pregnancy outcomes? Arch Med Sci. 2021 Jan 8;18(3):639-646.
14. Maso G, D'Ottavio G, De Seta F, Sartore A, Piccoli M, Mandruzzato G. First trimester intrauterine hematoma and outcome of pregnancy. ObstetGynecol 2005;105:339-44.
15. Batzofin JH, Fielding WL, Friedman EA. Effect of vaginal bleeding in early pregnancy on outcome. Obstet Gynecol. 1984;63(4):515-8.
16. Bowe, P., Murphy, H. Complications of pregnancy following threatened abortion. I.J.M.S. 1987; 156, 328–329.
17. Rosati P, Exacoustos C, Noia G, Masini L, Mancuso S. [Usefulness and limits of the ultrasonic examination in the diagnosis and prognosis of early pregnancies with vaginal bleeding] Minerva Ginecologica. 1989;41(10):485-488. PMID: 2691920.
18. Bennett GL, Bromley B, Lieberman E, Benacerraf BR. Subchorionic hemorrhage in first-trimester pregnancies: prediction of pregnancy outcome with sonography. Radiology. 1996 Sep;200(3):803-6. - PubMed