

# Research Journal of Pharmaceutical, Biological and Chemical Sciences

## Role Of USG Parameters In Predicting Miscarriage.

Nirupa<sup>1</sup>, and Akanksha Singh<sup>2\*</sup>.

<sup>1</sup>35/15 48tg street, Ashok Nagar, Chennai 600083, Tamil Nadu, India.

<sup>2</sup>D-4, Dwarika Complex, 20 Currie Road, Howrah 711104, West Bengal, India.

### ABSTRACT

Miscarriage is a pregnancy outcome that is devastating to women physically and mentally. Early warning directs us for proper counseling of the couples regarding probable miscarriage in future. USG, is a non invasive procedure that has various use in women in antenatal period. It can be used as a reliable predictor for miscarriage. Reliable prediction of miscarriage would allow, close monitoring, early diagnosis and initiation and treatment at the earliest. It can allow proper counseling of patients regarding prognosis and pregnancy.

**Keywords:** miscarriage, yolk sac diameter, crown rump length, gestational sac diameter

<https://doi.org/10.33887/rjpbcs/2021.12.2.10>

*\*Corresponding author*



## INTRODUCTION

The prevalence of miscarriage in Indian population is about 10% (of clinically recognized pregnancies).

Miscarriage is a pregnancy outcome that is devastating to women physically and mentally. By predicting miscarriage at an earlier stage did not prevent miscarriage in most of the instances. Yet, early warning directs us for proper counseling of the couples regarding probable miscarriage in future. This will help them to cope up with this traumatic event in a woman's life.

Various biochemical factors have been proposed for predicting miscarriage in early trimester. However USG, is a non invasive procedure that has wide use in women in antenatal period. Hence we have conducted this study to see the role of USG parameters in predicting pregnancy outcome [1-5].

### AIM

To study the USG parameters in predicting miscarriage

### OBJECTIVE

To study the Yolk Sac Diameter (YSD), Gestational sac diameter (GSD) and Crown Rump length (CRL) and it's correlation with abnormal pregnancy outcome.

## METHODOLOGY

**Type of study:** Prospective observational study

**Place of study:** OPD

**Inclusion Criteria:** Age 18-35 years  
6-10 weeks  
Singleton pregnancy

**Exclusion criteria:** Structural uterine anomalies

For all antenatal women coming to the OPD, YSD, GSD and CRL was measured between 6-10 weeks through Trans-vaginal Sonography. They were followed up and incidence of miscarriage in these women was noted.

GSD was measured as the average of three perpendicular diameters with calipers placed at inner edge of the trophoblasts.

YSD was measured as the average of three perpendicular diameters with calipers placed at the center of the yolk sac wall.

CRL was measured in sagittal section of the embryo, with care taken to avoid inclusion of yolk sac.

The heart rate was measured as the distance between two heart waves in frozen M mode images.

Normal outcome pregnancies were continued beyond 20 weeks. Abnormal outcome pregnancies ended with unintentional miscarriage.

**RESULTS**

200 women recruited to the study. 176 continued pregnancy beyond 20 weeks. 24 had miscarriage. GSD vs Pregnancy outcome

	Normal outcome	Abnormal outcome	Total
Value within 2 SD	164	12	176
<2SD	1	15	16
>2SD	2	6	8

P value <0.05

GSD <2SD AND >2SD predicts miscarriage – statistically significant

CRL vs Pregnancy outcome

	Normal outcome	Abnormal outcome	Total
Normal	150	4	154
<2SD	22	20	42
>2SD	4	0	4

P value <0.05

CRL length >2SD predicts miscarriage – statistically significant with high specificity

YSD and Pregnancy outcome

	Normal outcome	Abnormal outcome	Total
Normal	140	4	144
<2mm	10	6	16>
>6	22	18	40

YSD >6mm predicts miscarriage - statistically significant

Our study showed positive association between YSD and abnormal pregnancy outcome. This is similar to studies by Lindsay et al, Stampene et al

Like our study, Abuelgher et al, observed high rate of CRL <2SD among women who miscarried.

Falco et al, Makrydimer et al, observed that small GSD is associated with increased risk of miscarriage.

**CONCLUSION**

YSD >6mm

GSD <2SD/>2SD

CRL<2SD are statist significant in predicting miscarriage.

Reliable prediction of miscarriage would allow, close monitoring, early diagnosis and initiation and treatment at the earliest. It can allow proper counseling of patients regarding prognosis and pregnancy. Further studies can be conducted for intervention like progesterone support that could alter the pregnancy outcome.

**REFERENCES**

[1] The investigation and treatment of couples with recurrent first trimester and second trimester miscarriage. RCOG Green – top guidelines No 17. Royal College of Obstetricians and Gynaecologist. 2011 April p 2



- [2] National institute of Health and Clinical Excellences. Ectopic pregnancy and miscarriage: diagnosis and initial management in early pregnancy of ectopic pregnancy and miscarriage. NICE Clinical guidelines 154. Manchester. (UK): NICE; 2012
- [3] Lindsay DJ, Lovett IS Lyons EA, Levi CS, Zheng XH, Holt SC et al. Radiology. 1992Apr; 183 (1): p 115-8
- [4] Albuelghar WM, Fathi HM, Ellaithy MI, Anwar MA. Can a smaller than expected crown rump length reliably predict the occurrence of subsequent miscarriage in a viable first trimester pregnancy? J Obstet Gynaecol Res 2013; 39: p 1449\_1455
- [5] Falco P, Milano V, Pilu G, David C, Grisolia G, Rizzo N, Bovicelli L. Sonography of pregnancies with first trimester bleeding and a viable embryo: a study of prognostic indicators by logistic regression analysis Ultrasound Obstet Gynaecol. 1996; 7 : p165-169