



ROLE OF ULTRASOUND IN FIRST TRIMESTER OF PREGNANCY- CASE SERIES

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ABSTRACT

In early stages of pregnancy, ultrasound is an extremely specific method of examination with a specificity of 97.6%. Ultrasound usually determines the location and viability of a pregnancy, as well as the gestational age, by 5 weeks of pregnancy. The embryonic period starts at the beginning of the sixth week and is the time of development. In addition to pregnancy, uterine anomalies, adnexal diseases, and cervical length can all be diagnosed in the first trimester.

KEYWORDS : Routine ultrasound, early pregnancy, crown rump length.

INTRODUCTION

In early stages of pregnancy, ultrasound is an extremely specific method of examination with a specificity of 97.6% (1). Ultrasound usually determines the location and viability of a pregnancy, as well as the gestational age, by 5 weeks of pregnancy (1). By fifth week, the products of conception have formed a gestational sac that usually measures 5 mm in diameter. While a yolk sac may be identified at this stage, the embryo remains below the level of detection using current ultrasound technology (2). The embryonic period starts at the beginning of the sixth week and is the time of development. During this period the embryo first becomes visible sonographically (3). The organ systems start to develop, and cardiac activity becomes visible by the beginning of the sixth week (3). The embryonic period is complete at the end of tenth week. At this time the crown rump length (CRL) of the embryo measures 30 mm (3). The final two weeks of the first trimester are known as the fetal stage(3). In addition, first trimester ultrasound can predict the chorionicity, type of twinning in multiple gestations, allowing for appropriate counseling and management(2). First- trimester problems can be detected even before they become clinically apparent(3). Antenatal detection of fetal malformations has shown to reduce maternal and perinatal morbidity and mortality by allowing elective termination of malformed fetus(2).In addition to pregnancy, uterine anomalies, adnexal diseases, and cervical length can all be diagnosed in the first trimester (1).

AIMS AND OBJECTIVES:

To evaluate the importance of routine ultrasound in first trimester of pregnancy in detecting and dating gestation, its viability, location and early detection of anomalies. To diagnose an early pregnancy failure and multiple gestation. To detect uterine anomalies, adnexal diseases, and cervical length. To Know the first trimester ultrasound findings of a normal intrauterine pregnancy.

METHODOLOGY:

After taking informed consent, detailed history, thorough clinical examination was made and all the women were subjected to trans abdominal sonography (TAS).The parameters measured and studied are gestational sac number and location, presence or absence of fetal pole, cardiac activity absent or present, crown-rump length (CRL) measurements, any uterine anomalies and tumors, presence of corpus luteal cysts, pelvic or adnexal mass, cervical length. Depending on the gestational age findings varies from patient to patient and all the measurements were recorded.

CASE STUDY:**Table1: Distribution Of Cases According Age**

S.NO	AGE	TOTAL (n = 30)
1.	≤ 20	2(6.66%)
2.	21 – 25	22(73.3%)

3.	26 – 30	4(13.3%)
4.	31 – 35	2(6.66%)

Table2: Distribution Of Cases According To Parity

S.No	GRAVIDA	TOTAL (n=30)
1.	RIMIGRAVIDA	13(43.3%)
2.	MULTIGRAVIDA	17(56.6%)

Table3: Distribution Of Cases According To Gestational Age

S. No	Gestational Age	Total (n=30)
1.	5 - 5 weeks	0(0%)
2.	6 - 6 weeks	0(0%)
3.	7 - 7 weeks	5(16.6%)
4.	8 - 8 weeks	7(23.3%)
5.	9 - 9 weeks	5(16.6%)
6.	10 - 10 weeks	7(23.3%)
7.	11 - 11 weeks	6(20%)
8.	12 weeks	0(0%)

Table4: Distribution Of Cases According To Gus Gestational Age

S. No	GESTATIONAL AGE	TOTAL (n=30)
1.	5 - 5 weeks	2(6.66%)
2.	6 - 6 weeks	2(6.66%)
3.	7 - 7 weeks	5(16.6%)
4.	8 - 8 weeks	8(26.6%)
5.	9 - 9 weeks	5(16.6%)
6.	10 - 10 weeks	5(16.6%)
7.	11 - 11 weeks	3(10%)
8.	12 weeks	0 (0%)

Table5: Distribution Of Cases According To Status Of Fetal Pole

S.No	FETAL POLE STATUS	TOTAL (n=30)
1.	PRESENT	27(90%)
2.	ABSENT	3(10%)

Table 6 Distribution Of Cases According To Gestational Age By USG And CRL

S. No	GESTATIONAL AGE BY USG IN WEEKS	TOTAL NO CASES (n=30)	MEAN OF CRL IN (mm)	STANDARD DEVIATION
1.	5 - 5 weeks	2	-	-
2.	6 - 6 weeks	2	-	-
3.	7 - 7 weeks	5	13.4mm	4.59
4.	8 - 8 weeks	8	18.7mm	1.19
5.	9 - 9 weeks	5	26.5mm	1.58
6.	10-10 weeks	5	35.7mm	1.94
7.	11-11 weeks	3	45.03mm	5.02
8.	12 weeks	0	0	0
			Total mean- 25.6	Total SD- 11.01

Table 8 Distribution Of Cases According To USG Findings

S. No	Ultrasonography Findings	Total No Of Cases (n=30)
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1.	EARLY PREGNANCY FAILURE	2 (6.66%)
2.	SUBCHORIONIC COLLECTION	1 (3.33%)
3.	MYOMETRIAL FIBROID	1 (3.33%)
4.	BICORNUATE UTERUS	1 (3.33%)
5.	NORMAL	21 (70%)
6.	HEMORRHAGIC CYST	1 (3.33%)
7.	FOLLOWUP SCAN FOR VIABILITY	3 (10%)

RESULTS:

This study involved 30 pregnant women in the first trimester of which 6% were ≤ 20 years, 74% were aged between 21 and 25 years, 13.3% between 26 and 30 years and the remaining 6% were between 31 and 35 years. Of all the pregnancies 43.3% were primigravida and 56.6% were multigravida. Fetal pole was present in 90% cases and absent in 10% of cases. Of the total 30 pregnancies that are compared between expected delivery dates by gestational age and Ultrasonography, 9 cases have discrepancy of more than 1 week and were redated. Majority of the women in this study i.e 23% were screened between 10 to 10 weeks 6 days. The ultrasonography findings were normal in 21 cases, and 2 cases showed early pregnancy failure, 1 with normal pregnancy with incidental finding of myometrial fibroid. Detection of a pregnancy early can greatly improve the outcome of the pregnancy through a lot of ways, for example avoidance of practices that are harmful to a pregnant woman such as radiation, use of certain drugs or through early initiation of supplements such as folic acid which help in preventing neural tube defects. In this study 30% of the cases has been reduced due to discrepancies between LMP based EDD and ultrasonography-based EDD, so that unwanted induction of labor is avoided.

In this study the crown rump length was available for 25 cases as the other cases includes early pregnancy failure and some required follow up scan, and the CRL measurements were corresponding to respective gestational age.

The total of mean of CRL and standard deviation gives the average CRL of the study group which is 25.6 ± 11.01 mm and CRL value increases as the gestational age of the fetus increases making it an accurate parameter to determine the gestational age of the fetus in the first trimester.

CONCLUSION:

Ultrasonography is useful in detecting any uterine anomalies or pelvic or adnexal masses. In this study one case of fibroid is noted and in other hemorrhagic cyst is an incidental finding which prompts for early intervention.

Thus ultrasound is a noninvasive, nonradioactive, effective, highly accessible and relatively cheap method to date pregnancy, identify non-viable pregnancies, fetal abnormalities and early trimester complications, hence it is a reliable method and should be offered to all the patients as a screening tool.

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