



A STUDY OF COMMON LOCATIONS OF PLACENTA IN ANTENATAL ULTRASOUND AT TERTIARY CARE CENTRE

Radio-Diagnosis

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ABSTRACT

Ultrasound imaging has become an integral component of routine prenatal medical care. Knowledge of the placental location helps to provide better care for the expectant mother and her unborn child. During an obstetrical ultrasound, evaluation of the fetus is chief priority but often, the other component which is also important like the placenta is not given the attention they deserve. The aim of this study was to analyze the most common frequency of distribution of placental locations. The association factor of the highest frequency location with the total population has to be found out.

KEYWORDS

Placenta, Location, Uterus, USG

INTRODUCTION:

Ultrasound imaging is an essential part of routine prenatal check-ups. Knowing the location of the placenta helps to provide better care for the mother and her unborn child. During an obstetrical ultrasound, the fetus is the main priority, but other important components like the placenta are often overlooked [1]. Both the American College of Obstetricians and Gynecologists and the American Institute of Ultrasound in Medicine recommend that a standard obstetric sonogram in the second and third trimester can be useful for identifying the morphology and function of the umbilical cord. While Doppler velocimetry is used to detect abnormalities in amniotic fluid volume and umbilical cord [2,3], sonographic assessment of placental location, after excluding previa or marginal insertion, is often limited to a mere description without any link to possible implications on pregnancy [4-6]. Studies on its association with specific obstetric complications have reached contradictory conclusions, and no consensus has been achieved regarding the relationship between placental location and non-vertex fetal presentation at term [7, 8]. The aim of this study is to find the most common frequency of placental locations and determine its association with the total population. The findings may help radiology practitioners better locate the placenta.

AIMS AND OBJECTIVES:

To study the common locations of placenta in antenatal ultrasound.

MATERIALS AND METHODS:

This study was done in the Department of Radiodiagnosis in Darbhanga medical college and hospital, Laheriasarai. The study was done using 980 patients who had come for the routine check – up from February 2021 to January 2023 for their ante – natal care and had been referred to the Department of Radiodiagnosis for routine second trimester and third trimester scan. The patients were asked to drink sufficient water and then were asked to lie in supine position. The USG gel was applied sufficiently and the USG abdomen were carried out with GE LOGIQ P3 machine. The routine scanning was done to note the health of the baby and also particular importance was given to note the position of the placenta. The area where the placenta was located is noted in an excel sheet and necessary statistics were done.

Report:

Table 1: Mean age of the population

Sample Size	Mean age of the Population
980	22.5yr

Table 2: Location of the Placenta

Placental location	Frequency
Fundal	60
Fundoposterior	136
Fundoanterior	40
Posterior Upper	223
Anterior Upper	409
Anterior Lower	30

Posterior Lower	27
Right Lateral Wall	24
Left Lateral Wall	23
Partial Previa	6
Complete Previa	2
Total	980

Table 3: Table of Association

Type	P Value	Significance (<0.05)
Anterior Upper	0.034	Sig

DISCUSSION:

The visualization of fetal activity in the womb during different stages of pregnancy can help radiologists to understand the relationship between fetal behavior, development, and maturation [9]. In an era where reducing the rate of primary cesarean delivery is a global priority [10, 11], investigating the impact of placental location on fetal presentation at term is relevant. A recent ACOG consensus strongly recommends offering pregnant women with non-cephalic fetal presentation after 36 weeks of gestation the option of external cephalic version [12]. The human placenta is discoid in shape, hemochorial due to direct contact with maternal blood and deciduate because some maternal tissue is shed during childbirth. The placenta attaches to the uterine wall and connects the mother and fetus through the umbilical cord. The fact that maternal and fetal tissues come into direct contact without rejection suggests immunological acceptance of the fetal graft by the mother. The placenta develops from two sources: the principal component is fetal and develops from the chorion frondosum, while the maternal component consists of decidua basalis. When interstitial implantation is completed on the 11th day, the blastocyst is surrounded by lacunar spaces around cords of syncytial cells called trabeculae. From these trabeculae, stem villi develop on the 13th day, connecting the chorionic plate with the basal plate. Primary, secondary, and tertiary villi are successively developed from stem villi. An arterio-capillary-venous system in each villus' mesenchymal core is completed on the 21st day, ultimately connecting with the intraembryonic vascular system through the body stalk. Simultaneously, lacunar spaces become confluent and form a multilocular receptacle lined by syncytium and filled with maternal blood by the 3rd-4th week, becoming the future intervillous space. As embryo growth proceeds, decidua capsularis thins beginning at 6th week and both villi and lacunar spaces in abembryonic area are obliterated, converting chorion into chorion laeve. This is compensated by exuberant growth and proliferation of decidua basalis and enormous division and subdivision of chorionic villi in embryonic pole (chorion frondosum), forming discrete placenta beginning at 6th week and completed by 12th week. Until end of 16th week, placenta grows in thickness and circumference due to growth of chorionic villi with accompanying expansion of intervillous space. Subsequently, there is little increase in thickness but it increases circumferentially till term. The human hemochorial placenta derives its name from hemo (blood) in contact with syncytiotrophoblasts of chorionic tissue. In our study, Anterior Lower location was found to be most common site

followed by posterior upper and fundoposterior, in agreement with Salvatore Gizzo et al. The only limitation was that we could not know progression and final fate of specific type of placental locations. This study has a bright future and may help gynecologists know different outcomes of maternal and fetal health status. In our study there was a twin pregnancy where both placentas were found in Anterior Lower location of uterus.

CONCLUSION:

The most common location was found to be Anterior Lower location of the uterus followed by posterior upper and fundoposterior.

Limitation: This is single center study.

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