Placental thickness: a sonographic parameter for estimating gestational age of the fetus

P Mital, N Hooja, K Mehndiratta
Department of Obstetrics & Gynecology, S.M.S Medical College Jawahar Lal Nehru Marg, Jaipur, (Rajasthan), India

Abstract

Aim: The study was conducted with the aim of evaluating placental thickness, measured at the insertion of the umbilical cord, as a parameter for estimating gestational age of the fetus. Materials and Methods: The study was conducted on 600 normal antenatal women of all gestational ages (10 weeks of gestation) attending Antenatal Clinic at the Department of Obstetrics and Gynecology, S.M.S. Medical College, Jaipur (Rajasthan) from August 2001 to February 2002. USG was done by using Toshiba Canassee II machine with a 3.75 MHz sector probe. After estimating the fetal age by CRL, BPD, HC, AC, and FL, the placental thickness with standard deviation was calculated for all gestational ages. Results: It was observed that the placental thickness gradually increased from 15 mm at 11 weeks of gestation to 37.5 mm at 39 weeks. From the 22nd week to the 35th week of gestation the placental thickness coincide almost exactly with the gestational age in weeks. Conclusion: To conclude, the measurement of the placental thickness is an important parameter for estimation of fetal age along with other parameters especially in the late mid trimester and early third trimester, where the exact duration of pregnancy is not known.

Keywords: Placental Hormones, Pregnancy, Gestational Age, Pregnancy Proteins, Data Interpretation, Statistical, Human,
A study was undertaken to evaluate the relationship between placental thickness and gestational age of the fetus.

**Material and Methods**

The study was conducted in the Department of Obstetrics and Gynecology and Department of Radiodiagnosis, Jaipur. 600 antenatal cases of all gestational ages (> 10 weeks of gestation) were selected. Patients with PIH, DM, IUGR, hydrops fetalis, congenital malformation, twins were excluded from the study. The USG was done with Toshiba Canasee II machine with a 3.75 MHz sector probe.

The patients were scanned with a full bladder in a supine position. The gestational age was determined by measuring the CRL up to the 11th week and thereafter by measuring the BPD, HC, AC and FL.

The placental thickness was measured at the level of the cord insertion.

**Results**

The mean values of placental thickness along with respective standard deviation (SD) were calculated for different gestational ages from the 11th week to the 39th week.

It was observed that the placental thickness gradually increased from approximately 15 mm at 11 weeks of gestation to 37.5 mm at 39 weeks of gestation.

In our study, up to 21 weeks of gestation the mean placental thickness was slightly higher than the gestational age (1-4 mm). From the 22nd week to the 35th week of gestation the placental thickness almost matched the gestational age in weeks, thereafter the placental thickness was lower by (1-2 mm) [Table 1].

The value of mean placental thickness increases with advancing gestational age almost matching from the 22nd week to the 35th week as shown in graph 1. [Graph 1]

**Discussion**

The present study assessed the relationship between gestational age (in weeks) and placental thickness (in millimeter) by USG.

Early reports of placental localization by ultrasound examination were published by Donald (1968), Kobayashi (1970) and Gottesfield (1966). Nyberg and Finberg (1990) also reported that placental thickness in millimeter parallel gestational age in weeks.

Our findings are consistent with the observations made by Anupama Jain, Ganesh Kumar, U Agarwal, S Kharakwal (2001) who reported that the value of mean placental thickness increases with advancing gestational age and almost match from 27 to 33 weeks.

To conclude, we can say that the measurement of placental thickness is an important parameter for estimation of fetal age. It is helpful in cases where the exact duration of pregnancy is not known (especially between the 22nd week and 35th week) where the placental thickness almost matches with the gestational age.[8]

**References**

Placental thickness appears to be a promising parameter for estimation of gestational age of the fetus because of increase in placental thickness with gestational age. In addition to the routine fetal biometry parameters, various studies were done trying to deduce a relationship between the placental thickness and gestational age. Studies by Mittal et al[4] and Jain et al[5] have reported the use of placental thickness as an indicator of gestational age. [8]. Kapoor A, Mahesh P. Sonographic evaluation of placental thickness as an indicator of gestational age. Journal of evidence based. medicine and healthcare; 2016; 3(1) 305-310.