

## A SIMPLE GRAPHICAL METHOD FOR PREDICTING GESTATIONAL AGE BY ULTRASONOGRAPHY

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### SUMMARY

Two hundred antenatal women underwent single real time ultrasonography examination between 32-40 weeks of gestation. Two parameters femur length (FL) and abdominal perimeter (AP) having positive correlation with gestational age were measured. A nomogram for predicting gestational age, using FL and AP values was prepared. The nomogram thus prepared correctly predicts gestational age in 90% cases within  $\pm 5$  days, when compared to calculated values.

### INTRODUCTION

The knowledge of precise gestational age is very essential for the proper management of obstetric patients. Wherever the knowledge of LMP is not forthcoming the ultrasonographic measurements of various fetal parameters in early pregnancy serve as a reliable guide for later evaluation of growth and normalcy of the fetus. This requires serial ultrasonic examinations and is only possible when the patients comes for check up in early pregnancy and in subsequent periods.

Often there are situations when the women presents herself for the first time in the third trimester of pregnancy with a vague knowledge of her pregnancy duration and many a time no idea about her LMP. In a number of these cases

the decision to continue or terminate pregnancy rests on the precise knowledge of gestational age. The clinician in such a situation is in a dilemma and feels the need for some simple and reliable means to estimate the correct gestational age. Keeping in view such a genuine need, the present study was undertaken to prepare a nomogram for estimating gestational age, between 32-40 weeks of pregnancy by a single ultrasonographic examination.

### MATERIAL AND METHOD

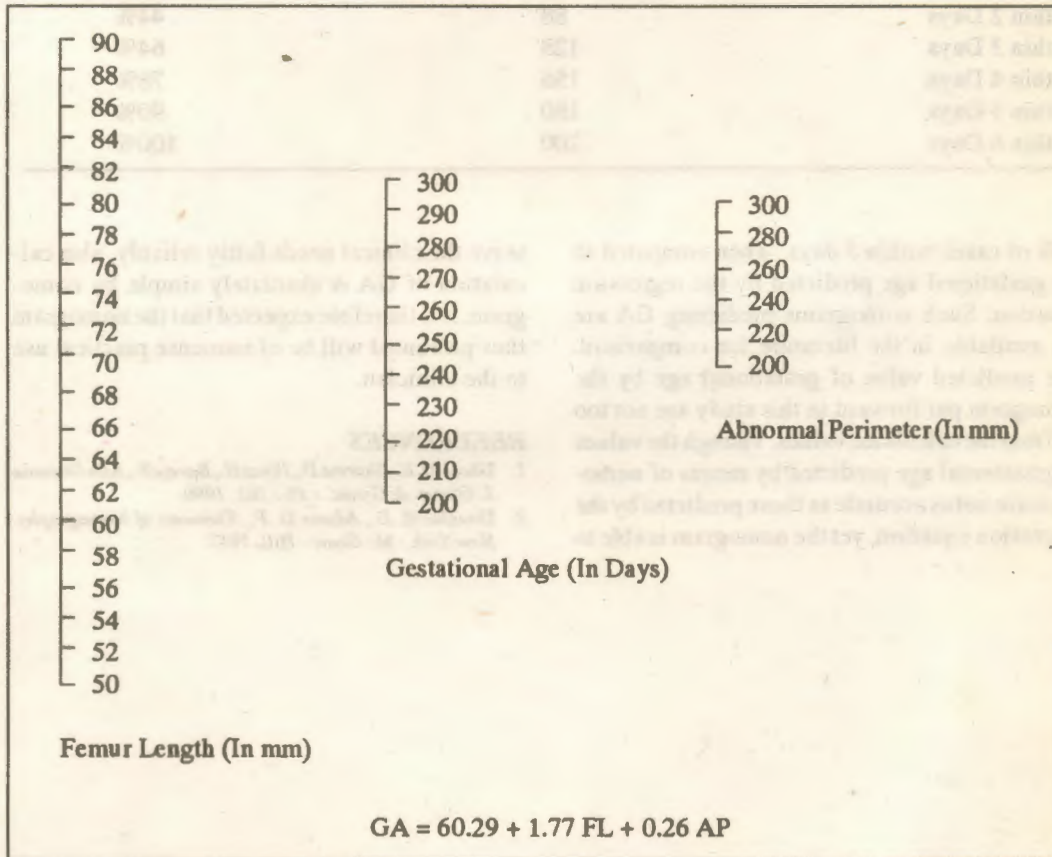
Ultrasonographic examination was performed on 200 antenatal patients attending Medical College Hospital, Allahabad. Two parameters FL (femur length) and AP (abdominal perimeter) were measured using standard procedure. Gestational age was calculated from the multiple regression equation published by use earlier (Ghosh et al, 1990) which is as follows -

$GA = 60.29 + 1.77 FL + 0.26 AP$

A nomogram (fig. 1) was drawn with the help of this regression equation (Douglas & Adams,

gestational age correctly in 90% of cases within 5 days when compared to the regression equation (Table I).

**Nomogram for Prediction of Gestational Age (From 32 - 40 weeks)**



1947). To get the GA prediction from the nomogram a transparent straight edge is laid across the nomogram cutting the ultrasonographically measured FL and AP. GA (in days) was predicted by the point at which the transparent edge cut the GA column on the nomogram.

**RESULTS**

The nomogram prepared in the study predicts

**DISCUSSION**

The literal meaning of nomogram is graphical representation of relation between quantities, whereby value of one may be found by simple geometrical construction (eg. by drawing a straight line) from those of the others.

The nomogram presented by us is able to predict gestational age in the third trimester of pregnancy in all the cases within 6 days and in



Table - I

Prediction by Nomogram in Comparison to Regression Equation.

Prediction in Days	No. of Cases	Percentage
Within 1 Day	52	26%
Within 2 Days	88	44%
Within 3 Days	128	64%
Within 4 Days	156	78%
Within 5 Days	180	90%
Within 6 Days	200	100%

90% of cases within 5 days, when compared to the gestational age predicted by the regression equation. Such nomograms predicting GA are not available in the literature for comparison. The predicted value of gestational age by the nomogram put forward in this study are not too far from the calculated values. Though the values of gestational age predicted by means of nomogram are not as accurate as those predicted by the regression equation, yet the nomogram is able to

serve the clinical needs fairly reliably, also calculation of GA is absolutely simple by nomogram. It is therefore expected that the nomogram thus presented will be of immense practical use to the clinician.

REFERENCES

1. Ghosh U.K., Sharma D., Ilyas H., Baveja R., *Asia Oceania J. Obstet. & Gynec.* : 16 : 161, 1990.
2. Douglas R. D., Adams D. P., *Elements of Nomography.* New York : Mc Graw - Hill, 1947.