BACKGROUND & PURPOSE:

The timing of the appearance of different types of sulci in a feotus is so precise that neuropathologists consider gyration to be a reliable estimate of gestational age and consequently a good marker of fetal brain maturation. Our purpose is to establish, with a considerable prospective series, the normal sulcation landmarks according to gestational age by using in utero MR imaging in our local population.

AIM & OBJECTIVES:

The aim of this study is to provide a standard of reference that can be used to assess normality of fetal sulcation. Our objective is to determine the utility and capability of antenatal foetal MRI in postulating a normogram for sulcal development in antenatal fetuses to estimate the correct gestational age.

MATERIALS & METHODS:

Assessment of cerebral sulcation by two experienced radiologists is done in 74 ultrasonically labelled normal fetuses of gestational age 22 to 36 weeks using foetal MRI standard turbo spin echo sequence (HASTE) after blinding the gestational age of the foetuses.
RESULTS:

Based on the observation of sequential development of the various cerebral sulci, inutero 6 stages of sulcal development is proposed with respect to gestational age ranging from 22 to 33 weeks.

CONCLUSION:

This kind of evaluation of the developmental stages of sulcal formation using fetal MR images tends to allow the evaluation of fetal maturation in relation to gestational age during the second and third trimesters because the fetal brain is a dynamic structure, it is important for radiologists to get familiarize with the normal appearance of the fetal brain at different gestational ages in order to identify and characterize abnormalities of foetal brain better.

KEY WORDS: Foetal Mri, Sulcal Development, Foetal Brain, Normal Sulcation, inutero MR, Foetal Brain Maturation.