

What does the normal fetal face look like? MR imaging of the developing mandible and nasal cavity

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Objective

Analyze fetal facial structures using MR imaging scans in an aim to establish normal biometrical measures of fetal nasal and mandibular structures for multiple gestational weeks, comprise nomograms and compare female and male fetuses.

Methods

A Historic cohort study of 255 fetal facial MR imaging scans was performed at a tertiary medical center during a 4-year period. Clinical data was collected from electronic medical charts. Length of septal height (SH), septal length (SL), Interocular Distance(IOD), maximal nasal length(MNL), mandibular vertebral length(MVL), antero-posterior diameter(APD), inferior facial angle(IFA) and biparietal diameter(BPD) were measured and compared with gender and gestational age (GA). Interrater and intrarater reliability was investigated.

Results

Normal measures were established for each gestational age. We found that all parameters but IFA correlated with GA. Males had a longer SL, BPD and MNL while females had a wider IFA.

Conclusion

Novel facial biometric parameters that correlate with GA hold cardinal information for the prenatal evaluation of facial development and thus surface the need for additional research in order to asses these findings as radiologic markers for facial structural pathologies.