

## **Ultrasonographic measurement of fetal nasal bone in the Korean population at the first and second trimester**

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### **Objectives**

To establish the reference range of fetal nasal bone length (NBL) at the 1<sup>st</sup> and 2<sup>nd</sup> trimester in Korean and to determine the accuracy of prenatal NBL by postmortem examination including radiographs and autopsy.

### **Methods**

A total of 484 consecutive ultrasound examinations were performed at 11-14 weeks of gestation for nuchal translucency and nasal bone measurement and 965 consecutive fetuses underwent ultrasound examination at 18-26 weeks of gestation in Asan Medical Center. And the association between chromosomal abnormality and nasal bone absence or hypoplasia (smaller than 2.5 percentile) was analysed. Thirty-three fetuses with congenital anomaly or intrauterine death had undergone sonographic measurement of NBL before termination of pregnancy and were examined by radiographs and autopsy following termination.

### **Results**

At the 1<sup>st</sup> trimester, the visualization of fetal profile was obtained in 474 fetuses(97.9%), and linear regression was performed. The incidence of nasal bone absence was 5/474(1.05%). One fetus had T.21, three with T.18 and the other one was acrania with euploidy. At the 2<sup>nd</sup> trimester, fetal profile was successfully examined in 962 fetuses(99.7%) and the mean NBL increased linearly with gestation. During this period, 6 fetuses with chromosomal abnormality (including two of T.21) were detected and only one fetus with T.21 had hypoplastic nasal bone. Hypoplastic nasal bones were seen in 20/962 (2.1%) chromosomally normal fetuses. NBL measured by ultrasound was similar to that confirmed by autopsy and longer than by postmortem radiograph.

### **Conclusions**

We present the normal range of NBL at the 1<sup>st</sup> and 2<sup>nd</sup> trimester and their linear relationship with gestational age. Although numerically limited, our experience shows that the fetal NBL in the 2<sup>nd</sup> trimester in Korean seems to be shorter than that of Caucasian and similar to Chinese. So different normal ranges for different races are required, and relative percentile is more reliable than absolute value. And the accuracy of the NBL measured by ultrasonography was confirmed by postmortem autopsy.

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