Discussion: A Morphometric Study of the Newborn Ear and an Analysis of Factors Related to Congenital Auricular Deformities

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The introduction of commercial ear molding devices and increased parental awareness have increased the number of patients presenting for correction of ear deformities. This study clarifies the incidence and causative factors in congenital ear deformation. In addition, it provides data on the degree to which these deformations self-correct 1 month after birth. These data are helpful to the physician to provide accurate information when discussing treatment with parents.

The authors add to previously published population-based epidemiologic reports on the influences of congenital auricular deformities with their experience at five centers in a predominantly Han Chinese population within the Pearl River Delta in the People's Republic of China. Their article prospectively examined 1500 patients at two time points (1 week and 1 month of life) with auricular anomalies using standardized clinical imaging and anatomical measurements. They sought to determine the incidence of various types of auricular deformities and their rates of self-resolution at 1 month of life. They also performed single-factor and multiple-factor analyses to determine external influences on auricular deformities.

The authors report an overall incidence of auricular deformities of 57.5 percent with self-resolution, in line with previously published reports at 30 percent of all deformity types except "protruding ear" by 1 month of life.[1] They demonstrate that maternal hepatitis, an abnormal pregnancy (e.g., oligohydramnios, nuchal cord), abnormal labor, high birth weight (>4000 g), and premature rupture of membranes were all risk factors for the occurrence of congenital auricular deformities. Cesarean delivery and low birth weight (<2500 g) were protective against auricular deformities, whereas parental age and tobacco or alcohol use did not significantly influence rates of auricular anomalies. No disparity between infant genders was found.

The authors successfully expand on prior reports on a complex multifactorial problem particularly with limited previously published data in the Chinese population.[2] Their results echo the complexity of this problem seen in previous reports; however, some of their findings are the first to be published. In particular, the authors reveal the potentially protective effects of cesarean delivery and low birth weight on the development of auricular deformities. Considered together with the higher rates of defects seen with abnormal pregnancies and deliveries involving nuchal cords, oligohydramnios, or placenta previa, these findings may implicate extrinsic deformational forces acting on the external ear in the development of some auricular deformities. They may also explain why many defects resolve postpartum after the afflicting deformational forces have been removed. The authors are also the first to report maternal hepatitis as an intrinsic influence on auricular anomalies. Prior studies have pointed toward maternal illness as a risk factor; however, no study had thoroughly investigated specific diseases.[3]

In their current series, the authors show no significant difference in the incidence of auricular anomalies between male and female sexes; however, previously published reports by this group and others have pointed toward a higher incidence in the male population.[4–6] Given both the regional selectivity of this study and the gender selectivity caused by the current family planning policy of the government of the People's Republic of China, one must caution against making broad conclusions as to the incidence of these

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anomalies in each sex.[7] This study investigates causative factors by limiting analysis only to ear deformations, further clarifying our understanding of isolated ear deformities that do not include malformations.

The recent introduction of prefabricated ear molding devices has led to a rapid increase in the number of parents presenting with children who demonstrate an ear deformity. The deformities range from relatively mild to severe, and if the child presents within the first 2 weeks of life, an improvement that pleases the parents can usually be achieved. However, the treatment for ear deformities is primarily cosmetic, and the perceived significance of the deformity, and therefore the need for treatment, is determined by the parents. Furthermore, the success of the outcome will be measured by the parent's level of satisfaction with the final cosmetic result. Given these factors, it is very helpful to the surgeon to have data to show which deformities are more likely to improve without therapy and which deformities are more resistant to self-correction. Knowledge of predisposing factors of ear deformities also can aid obstetricians in counseling mothers when their baby is at higher risk of an ear deformity so that the mother is prepared to inspect her child's ears and seek treatment early if there is a disturbing deformity.

The authors should be commended for their efforts to increase the base of knowledge of a challenging and multifactorial problem. In the future, we may continue to shed light on the various causes of auricular anomalies to aid in prevention and more successfully treat these defects. With great strides made in the past decades with nonsurgical molding of congenital auricular anomalies, the authors' inclusion of anthropometric data is invaluable and may contribute toward improving molding systems in this specific ethnic cohort.

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