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Anthropometric growth study of auricle of healthy preterm and term newborns

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Summary

Objective: Auricular abnormalities are important for early diagnosis of the birth defects in the prematures and newborns. Auricular antropometric studies in healthy premature and mature population depend on their gestational age are limited and insufficient. The aims of this study were to reveal antropometric growth and dynamics of the auricle in the healthy newborns from the 28th to the 42nd gestation weeks.
Materials and methods: A total of 600 newborns were evaluated in 40 groups. Each group comprising 20 preterm or term newborns according to their sexes and gestational weeks. Six surface dimensions were performed directly from the right ears of the subjects: the length from the superaurale to subaurale, the width from the tragus to helix, the width from the tragus to antihelix, the conchal depth, the distance from the helix to mastoid at superaural level and the distance from the helix to mastoid at tragal level. The frequency of the prominent ear deformity and lobule attachment were also noted.
Results: The results of auricular antropometric measurements of healthy preterm and term newborns in different gestational weeks were to determined. No statistical differences of auricular length were found between male and female infants. The incidence of the prominent ear deformity and attached lobule was 8.16 and 27.4%, respectively.
Conclusions: Normal anthropometric features for healthy newborns on the basis of gestational age are very important for the diagnosis of a variety of congenital malformations or syndromes. In this study, antropometric measurements of the auricle in the healthy preterm and term newborns on the basis of gestational age in our region were noted. Similar anthropometric studies in the preterm and term newborns at different geographic and various socioeconomic areas should be performed to constitute normative data in the literature.

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1. Introduction

Auricular malformations may be important for early diagnosis of some of the congenital defects of preterm and term newborns. Treacher—Collins syndrome, Fraser syndrome, VACTERL association and otocephaly are related to malformed ear [1]. Smaller auricle than healthy population have been reported as clinical characteristics in the diagnosis of Down's syndrome, mandibulofacial dysostosis and hemifacial microsomia [2,3]. Disproportionately wide ears were observed most often in patients with Apert and Crouzon syndromes [4] and disproportionately narrow ears in cleft lip and palate patiens [5].

Auricular anthropometric studies of various syndromes have been published [6—9]. Although there have been anthropometric studies of the auricle for normal population from birth to 18 years old [5,10], auricular anthropometric studies in healthy prematures and matures are quite limited and insufficient [11,12]. However, it is important to know anthropometric data for healthy populations to define the auricle as small, large, wide or narrow, etc. Therefore, anthropometric data of healthy preterm and term newborns are needed for sufficiently objective normative data. The aims of this study were determine antropometric growth and dynamics of the auricle in healthy population from the 28th to 42nd gestational weeks (GWs) in our region.

2. Materials and methods

The groups comprised of 20 newborns based on the sexuality for every GW. The gestational age was calculated from the first day of the last menstruel period. In every case gestational age was calculated by the history taken from the mother. GWs between the 28th and 37th weeks were termed as preterm, whereas GWs between the 38th and 42nd weeks were defined as term. A total of 600 newborns, 4800 measurements and observations in 40 groups were performed within 24 h of their birth.

The newborns who have uncertain gestational age, congenital abnormalities causing significant malformation in the head and neck area, chromosomal anomalies, intrauterine growth retardation, macrocephalia, hydrocephalia, microcephalia, craniosynostosis, cephal-auricular hematoma, intrauterine infection, sepsis, diabetic mother were excluded from the study.

All dimensions were performed only from the right ears of the subjects for standardization of the measurements in terms of sidedness. Six different

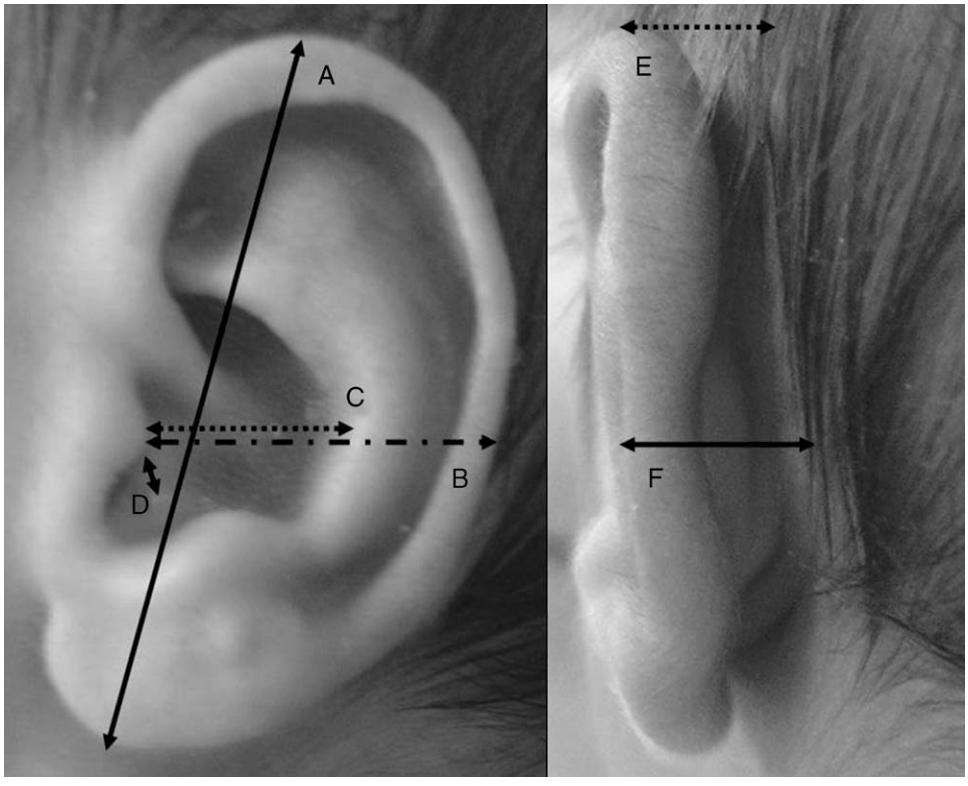

Fig. 1 The right ear. The length from the superaurale to subaurale (A), the width from the tragus to helix (B), the width from the tragus to antihelix (C), the conchal depth (D), the distance from the helix to mastoid at superauraler level (E) and the distance from the helix to mastoid at tragal level (F).