LETTER TO THE EDITOR

Cone beam CT detection of foramen tympanicum or foramen of huschke

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In reference to the article “Foramen tympanicum or foramen of Huschke: anatomical cone beam CT study”,¹ I wish to congratulate the authors for an informative study on foramen tympanicum by use of the latest cone beam CT images. The authors took great effort in mentioning multiple factors determining the ossification of tympanic bone-like mastication, deglutition and respiration. We wish to address certain aspects of embryonic development of tympanic bone not reported in this article. The tympanic membrane is formed *in utero* by the connection of the first entoblastic and epiblastic pouches. At 9 weeks’ gestational age, four ossification centres develop around the tympanic membrane, fusing to form a U-shaped bone.² This bone fuses with the squamous portion of the temporal bone during the 35th week of gestational age. Therefore, at birth, the entire tympanic bone is incompletely developed and forms a U shape. Two prominences, one anterior and one posterior to the U-shaped bone, arise and grow towards each other. These two points of ossification fuse at the age of 1 year. Reviewed literature also hypothesized that dehiscence of the tympanic bone is linked to abnormal development of the first branchial arch.³ Furthermore, the tympanic ring could have a role in ossification of the tympanic bone, as congenital cholesteatoma has been

linked to abnormal development of the tympanic ring, which cannot stop the migration of the external auditory canal (EAC) ectodermal tissue into the middle ear.⁴ Therefore, an anomaly of the tympanic ring during embryogenesis could lead to an abnormal ossification of the tympanic bone and to a persistent foramen tympanicum. Also, genetic factors lead to delays in ossification.⁵ Complications reported for persistence of foramen tympanicum include ear injury during temporomandibular joint arthroscopy performed with an endoscope of less than 3 mm diameter, which may penetrate into the EAC by traversing the persistent foramen.³ Reported otologic complications are tympanic membrane rupture, dislocation of the incus, injury to the tympanic segment of the facial nerve, labyrinthine disruption and ear infection.

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