The juxta-oral organ of Chievitz (organum yuxtaorale) updated: Embryology, anatomy, function and pathology

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Abstract
Background: The Chievitz's organ or juxta-oral organ is a mysterious bilateral structure, phylogenetically preserved, which develops from the mouth epithelium as an invagination that loses connection to it in the prenatal period. It is located laterally to the walls of the oral cavity in an imprecise anatomical location and receives abundant innervation from the buccal nerve. Structurally it consists of non-keratinizing squamous-like neuroepithelial cells surrounded by two layers of connective tissue with nerve fibers and different morphotypes of sensory corpuscles. Its function is completely unknown although based on its rich innervation it is assumed that works as a mechanoreceptor. Methods: We have performed immunohistochemistry for axonal and Schwann cells, and the putative mechanoproteins ASIC2, TRPV4 and Piezo2 in sections of fetal juxta-oral organ. Results: Intraparenchymatous nerve fibers and sensory corpuscles were observed as well as immunoreactivity for Piezo2 in both nerve fibers and epithelial parenchymatous cells. Conclusions: We add indirect evidence that the juxtaoral organ is a mechanoreceptor because in addition to its dense innervation, the epithelial cells and sensory nerve fibers display immunoreactivity for the mechanogated ion channel Piezo2. Based on current knowledge, the functional and clinical importance of the juxta-oral organ should be further investigated.

Author keywords
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