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CASE REPORT

Pacinian corpuscle in the juxtaoral organ of Chievitz

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The juxtaoral organ of Chievitz (JOOC) is a normal permanent anatomical structure located within the soft tissue overlying the angle of the mandible in the buccotemporal space. Although the sensory organ nature of JOOC, repeatedly mentioned in German publications, has been neglected in the last decade by the American anatomists and pathologists, we incidentally found JOOC-type squamous epithelium accompanied by Pacinian corpuscles. This fortuitous finding appears to be the first report of the authentic Paciniform nerve endings within JOOC, supporting its mechanosensory function.

Keywords: juxtaoral organ of Chievitz; mechanoreceptor; Pacinian corpuscle

A 35-year-old man was treated by radical surgery, combined with hemimandibulectomy, under the diagnosis of well-differentiated adenocarcinoma, not otherwise specified and arising in the left buccal mucosa. Histologically, the eye-catching feature was the presence of scattered ovoid-to-spherical lamellar corpuscles intimately associated with benign, non-keratinizing squamous epithelial islands (Fig. 1A). Because of the specific anatomic location and characteristic morphology, the diagnosis of juxtaoral organ of Chievitz (JOOC) was made. Encapsulated lamellar corpuscles were composed of an outer and inner core. The outer core had less than 10 loose, onion-like concentric lamellae (Fig. 1B). The inner core was immunoreactive with neurofilament protein (2F11, 1: 200; Dako, Glostrup, Denmark), neuron-specific enolase (N3, 1:1000; Dako) and S-100 protein (polyclonal, 1:4000; Dako; Fig. 1C). The sheath-like flattened cells in the outer core were positive for epithelial membrane antigen (E29, 1:400; Dako), thus indicating the perineurial nature. These features were best compatible with those of Pacinian corpuscles (1). The squamous epithelial nests were reactive for cytokeratins (AE1/AE3, 34BE12 and MNF116, 1:400; Dako), but did not react with chromogranin (polyclonal, 1: 1000; Dako) and synaptophysin (SY38, 1 : 1000; Dako).

Comments

Pacinian corpuscles belong to the group of specialized pressure sensor receptors in the skin, and are also widely



Figure 1 (A) Pacinian corpuscle in JOOC (H&E, 40×). (B) Characteristic inner and outer core (H&E, 100×). (C) S-100 protein reactivity in the inner core (100×).

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distributed throughout the body, including the visceral organs (1). Within JOOC, several kinds of nerve endings, including simple arborizations, Ruffini-like or Krause-like structures, and lamellar corpuscles, have been observed by Europian anatomists (2, 3); however, there was no specific comment on encapsulated nerve terminals of the Pacinian type. It is our impression that the figures and descriptions of simple lamellar corpuscles with an inner core are morphologically identical to the present Paciniform nerve endings.

JOOC is not mentioned in most of the current anatomy textbooks, but has been of special interest to the surgical pathologists for oral cancer diagnosis (4–6). Because of the fortuitous finding in routine pathological specimens, it is possible that scattered specialized nerve endings, having intimate vicinity to JOOC, have escaped the notice of many pathologists. Multimodal receptor nature of JOOC, somewhat analogous to a Pacinian corpuscle proposed by Zenker (2) and D'Andrea et al. (3), is not universally accepted among both the anatomists and the pathologists in other countries. Although no attempt was made to determine the physio-functional significance of JOOC in this report, the co-existence of Pacinian corpuscles stimulates the scientific hypothesis that JOOC represents a mechanoreceptor. It underscores the need for further research into the developmental and functional relationships between squamous epithelial component and neural element of JOOC.

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