

## Sweet to Bitter Perception Parageusia: Case of Posterior Inferior Cerebellar Artery Territory Diaschisis

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**Abstract :** Although distortion of taste perception following a cerebrovascular event may seem to be a frivolous consequence of a classic stroke presentation, altered taste perception places patients at an increased risk for malnutrition, weight loss, and depression, all of which negatively impact the quality of life. Impaired taste perception can result from a wide variety of cerebrovascular lesions to various locations, including pons, insular cortices, and ventral posteromedial nucleus of the thalamus. Wallenberg syndrome, also known as a lateral medullary syndrome, has been described to impact taste; however, specific sweet to bitter taste dysgeusia from a territory infarction is an infrequent event; as such, a case is presented. One year prior to presentation, this 64-year-old right-handed woman, suffered a right posterior inferior cerebellar artery aneurysm rupture with resultant infarction, culminating in a ventriculoperitoneal shunt placement. One and half months after this event, she noticed the gradual onset of lack of ability to taste sweet, to eventually all sweet food tasting bitter. Since the onset of her chemosensory problems, the patient has lost 60-pounds. Upon gustatory testing, the patient's taste threshold showed ageusia to sucrose and hydrochloric acid, while normogeusia to sodium chloride, urea, and phenylthiocarbamide. The gustatory cortex is made in part by the right insular cortex as well as the right anterior operculum, which are primarily involved in the sensory taste modalities. In this model, sweet is localized in the posterior-most along with the rostral aspect of the right insular cortex, notably adjacent to the region responsible for bitter taste. The sweet to bitter dysgeusia in our patient suggests the presence of a lesion in this localization. Although the primary lesion in this patient was located in the right medulla of the brainstem, neurodegeneration in the rostral and posterior-most aspect, of the right insular cortex may have occurred due to diaschisis. Diaschisis has been described as neurophysiological changes that occur in remote regions to a focal brain lesion. Although hydrocephalus and vasospasm due to aneurysmal rupture may explain the distal foci of impairment, the gradual onset of dysgeusia is more indicative of diaschisis. The perception of sweet, now tasting bitter, suggests that in the absence of sweet taste reception, the intrinsic bitter taste of food is now being stimulated rather than sweet. In the evaluation and treatment of taste parageusia secondary to cerebrovascular injury, prophylactic neuroprotective measures may be worthwhile. Further investigation is warranted.

**Keywords :** diaschisis, dysgeusia, stroke, taste

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