

Definitive Interpretation: The scan data were able to provide the indicated periapical assessment, particularly of the third molars. Postural compromises were also noted in the anterior alignment of the odontoid process—C1 articulation and their alignment to the clivus of the occipital bone. There was also cervical vertebral aplasia with complete fusion of C2-C7. These findings were contributory to his altered posture.

Discussion of Imaging: The availability of large volume CBCT scanners, with their larger footprint, scanning circumference, and larger scanning size area, provide an imaging option for patients with mental and physical disabilities. In the past, a single large field of view (FOV) CBCT scan has been purported by CBCT manufacturers to be a one-stop imaging solution for all extraoral imaging. Dosimetry data and FDA selection criteria have since contraindicated the use of large volume FOV scanning to replace standard periapical, panoramic, and cephalometric imaging. This case report supports the alternative use of CBCT to acquire standard extraoral images when standard imaging is not possible.

References

- 1 Gorlin RJ, Cohen MM, Hennekam RCH. Syndromes of the Head and Neck. p 1142, 4th ed. New York: Oxford University Press; 2001. p. 1142-1145.
- 2 Floemer F, Magerkurth O, Jauckus C, et al. Klippel-Feil syndrome and Sprengel deformity combined with an intraspinal course of the left subclavian artery and a bovine aortic arch variant. *AJNR Am J Neuroradiol.* 2008;29:306-307.
- 3 Clarke RA, Catalan G, Diwan AD, Kearsley JH. Heterogeneity in Klippel-Feil syndrome: a new classification. *Pediatr Radiol.* 1998;28:967-974.
- 4 American Academy of Oral and Maxillofacial Radiology. Clinical recommendations regarding use of cone beam computed tomography in orthodontics. Position statement by the American Academy of Oral and Maxillofacial Radiology. *Oral Surg Oral Med Oral Pathol Oral Radiol.* 2013;116:238-257.

DETECTION OF PERINEURAL SPREAD OF PALATAL ADENOID CYSTIC CARCINOMA BY CT. G. GUESS, R. DALLEY, A. SHUMACHER, P. LEE. UNIVERSITY OF WASHINGTON, SEATTLE, WA

Background: A large fraction of adenoid cystic carcinoma (ACC) tumors progresses to perineural spread (PNS), with correspondingly low long-term survival rates, and ACC is often not diagnosed in early stages because the primary tumor site is hard to detect.

Objective(s): This study aimed to improve detection of ACC by better understanding the imaging features of PNS. Specific aims included (1) determining whether ACC could be effectively diagnosed by CT alone using a CT bone window to examine osseous changes; (2) determining the accuracy of CT-based diagnosis; and (3) exploring the relationship between the presenting clinical features and perineural spread.

Study Design: A retrospective medical records search was performed from 2000 to 2017 to identify patients with a diagnosis of ACC, clinical history, and pretreatment imaging with CT and/or MRI. Descriptive statistics, as well as sensitivity and specificity data, were compared using likelihood ratio test.

Results: Forty-four patients (median age 51 years; range 20–87 years) met the inclusion and exclusion criteria. The most common symptoms, not mutually exclusive, included pain (41%), mass (41%), paresthesia or numbness (39%), and sinonasal congestion (21%). Most (46%) patients presented to their dentist for initial evaluation, and 55% were evaluated by a dentist at some point before diagnosis. The most common initial impressions were infection (50%) and/or dental disease (32%). Average time to histologic diagnosis from initial symptoms was 18 months. PNS was identified in 82% of all patients. Significantly, findings of erosion and/or enlargement of any foramina, fossae, or canals noted via bone-windowed CT were 97% sensitive and 100% specific for PNS. PNS was statistically associated with paresthesia ($P = .003$; specificity 100%; sensitivity 47%) but not with tumor size ($P = .096$).

Discussion/Conclusions: Palatal ACC PNS can be reliably diagnosed via bone-windowed CT. Dentists are often the first care providers and should be aware that patients presenting with numbness should be evaluated for PNS.

References

- 1 Barrett AW, Speight PM. Perineural invasion in adenoid cystic carcinoma of the salivary glands: a valid prognostic indicator? *Oral Oncol.* 2009;45:936-940.
- 2 Kato H, Kanematsu M, Makita H, et al. CT and MR imaging findings of palatal tumors. *Eur J Radiol.* 2014;83:e137-e146.
- 3 Luksic I, Suton P, Macan D, Dinjar K. Intraoral adenoid cystic carcinoma: is the presence of perineural invasion associated with the size of the primary tumour, local extension, surgical margins, distant metastases, and outcome? (Reprinted from *Br J Oral Maxillofac Surg.*). *Croatian Med J.* 2014;55:180.
- 4 Hanna E, Vural E, Prokopakis E, Carrau R, Snyderman C, Weissman J. The sensitivity and specificity of high-resolution imaging in evaluating perineural spread of adenoid cystic carcinoma to the skull base. *Arch Otolaryngol Head Neck Surg.* 2007;133:541-545.
- 5 Shimamoto H, Chindasombataroen J, Kakimoto N, Kishino M, Murakami S, Furukawa S. Perineural spread of adenoid cystic carcinoma in the oral and maxillofacial regions: evaluation with contrast-enhanced CT and MRI. *Dentomaxillofac Radiol.* 2012;41:143.

DIAGNOSTIC PERFORMANCE OF INTRAORAL AND EXTRAORAL RADIOGRAPHS DISPLAYED ON TABLET COMPUTER AND LED MONITOR RETRIEVED USING VIRTUAL DESKTOP APPLICATION AND CLOUD-BASED PACS. S.G. SARAH, A. JADHAV, S. KIAT-AMNUAY, C. YEN. UNIVERSITY OF TEXAS SCHOOL OF DENTISTRY AT HOUSTON, HOUSTON, TX

Background: Information retrieval and sharing is key for today's multidisciplinary patient care. Radiographic interpretation of conventional 2-D images is the standard protocol for most dental schools across the United States, and it is imperative to assess image quality on various display devices as well as image retrieval systems.

Objective(s): The purpose of this study was to investigate whether common dental conditions seen on conventional 2-D intraoral and extraoral radiographs can be diagnosed with the similar accuracy on handheld tablet computer and LED display as on a dedicated radiology diagnostic display. In addition, to investigate