

- Szarek D, Marycz M, Laska J, et al. Assessment of in vivo behavior of polymer tube nerve grafts simultaneously with the peripheral nerve regeneration process using scanning electron microscopy technique. *Scanning*. 2013;35:232-245.

IMAGING APPEARANCES OF FACIAL COSMETIC AUGMENTATIONS AND POTENTIAL COMPLICATIONS

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Background: Cosmetic augmentation procedures are used for facial rejuvenation procedures. One category of materials used for augmentation is prefabricated silastic implants. Injectable materials used for augmentation include calcium hydroxyapatite microspheres, which stimulate dermal fibroblast proliferation. In general, these cosmetic procedures are safe, and the rate of complications is low. With increasing use of computed tomography (CT) for a variety of dental applications, the oral and maxillofacial radiologist is likely to encounter patients who have had prior cosmetic augmentations. The radiologist should be familiar with the radiographic appearances and locations of commonly used facial cosmetic augmentation materials, and differentiate these from pathologic entities.

Discussion: We present representative cases to demonstrate the radiographic appearances of facial cosmetic enhancements. These include dermal fillers and silastic implants. The presented cases also illustrate potential complications of these augmentations and their importance to diagnosis of problems in the oral and maxillofacial region. Complications include infection and movement or dislodgement of these grafts. The radiologist should be familiar with the principles of the surgical techniques so that deviations from the natural history of the graft can be promptly recognized and managed as necessary. Depending on severity, surgical intervention may be needed to prevent augmentation instability. Therefore, referral to a physician is necessary for complete evaluation and appropriate treatment. Nevertheless, the purposive contributions of the oral and maxillofacial radiologist provide key insight and support to health care providers in evaluating interval cosmetic augmentation stability.

References

- Mundada P, Kohler R, Boudabbous S, Toutous Trellu L, Platon A, Becker M. Injectable facial fillers: imaging features, complications, and diagnostic pitfalls at MRI and PET CT. *Insights Imaging*. 2017;8:557-572.
- King M, Bassett S, Davies E, King S. Management of delayed onset nodules. *J Clin Aesthetic Dermatol*. 2016;9:E1-E5.
- Kwon YE, An CH, Choi KS, Lee DH, An SY. Radiographic study of dermal fillers in the facial area: a series of 3 cases. *Imaging Sci Dent*. 2018;48:227-231.

ATYPICAL SPINDLE CELL NEOPLASM OF THE JAW MIMICKING A BENIGN LESION—

A RARE CASE REPORT *N.P. SELVAM, M. HANSEN, and D. KASHTWARI, UNIVERSITY OF FLORIDA COLLEGE OF DENTISTRY, GAINESVILLE, FL*

Clinical Presentation: Atypical spindle cell neoplasms are extremely rare lesions, especially in the jaws, and are well known for their aggressive behavior.¹ We present the case of a 58-year-old male in whom this tumor was incidentally noted on routine dental examination. The tumor resembled a benign odontogenic lesion on computed tomography (CT) and magnetic resonance imaging (MRI). Because of its propensity for metastasis, positron emission tomography (PET)/CT was performed to rule out distant metastasis.

Differential Diagnosis: Correlating the innocuous clinical presentation with the radiographic appearance of well-defined nature of the lesion and its paracoronal position with respect to an impacted tooth, the differential diagnosis included dentigerous cyst, other odontogenic cyst, cystic ameloblastoma, and other benign odontogenic tumor. Because of the irregular margins, we assumed the lesion could have been secondarily infected.

Diagnosis and Management: Histopathologic examination revealed an atypical pleomorphic spindle cell neoplasm of indeterminate origin. The patient underwent segmental mandibulectomy with radical neck dissection. Follow-up PET/CT revealed mild fluoro-2-deoxy-D-glucose (FDG) avidity in the left intraparotid lymph nodes. This could be a reactive process or recurrent/second primary tumor. A close follow-up after 3 months was recommended.

Discussion: Undifferentiated spindle cell sarcomas are high-grade, aggressive soft tissue sarcomas with no specific line of differentiation. To our knowledge, fewer than 30 cases have been reported. This case would be of specific interest to oral and maxillofacial radiologists because of its resemblance to a benign odontogenic lesion on CT and MRI. In conclusion, this malignancy can mimic benign lesions, and this may have significant influence on formulating the treatment plan, favoring a more conservative approach.

References

- Varadarajan V, Collins W, Sawhney R. Atypical spindle cell neoplasm of the nasal sidewall. *Otolaryngol Case Rep*. 2017;3:18-20.
- Senel FC, Bektas D, Caylan R, Onder E, Gunhan O. Malignant fibrous histiocytoma of the mandible. *Dentomaxillofac Radiol*. 2006;35:125-128.

RARE PRESENTATION OF RADICULAR CYST WITH REVIEW OF THE LITERATURE

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Clinical Presentation: A 61-year-old male with a non-contributory medical history and a facial swelling of 1 week's duration reported to his local emergency room. The physician prescribed penicillin and made a dental referral. The dentist obtained a pantomograph and, upon visualization of the lesions, referred the patient to the University of Florida Emergency Department, where cone beam computed tomography (CBCT) was performed. The pantomograph illustrated 2 well-localized, partially corticated, radiolucent entities, which appeared hydraulic in nature, in the maxilla and a well-defined, corticated, mixed-density entity, which appeared hydraulic in nature, in the right parasymphiseal region of the mandible. Evaluation of the CBCT scan affirmed the maxillary lesions to be consistent with radicular cysts. The mandibular lesion was well defined, expansile, corticated, and unilocular

and was predominantly radiolucent but with internal radiopaque entities. There was thinning of the mandibular buccal and lingual cortices, with possible disruption of the lingual cortex.

Differential Diagnosis: Calcifying odontogenic cyst (COC), ameloblastic fibro-odontoma, calcifying epithelial odontogenic tumor (CEOT), and ossifying fibroma were considered in the differential diagnosis.

Diagnosis and Management: The histologic investigation determined all 3 lesions to be radicular cysts. The radiopaque entities seen in the mandibular lesion were identified as cholesterol granulomas with multiple foci of calcification. Management included extraction of tooth #29 and surgical removal of all 3 radicular cysts.

Discussion: Radicular cysts with internal calcifications have been described in histopathologic evaluations but rarely in radiographic evaluations of radicular cysts. The differential diagnosis of COC was believed to be the most likely diagnosis because of its variable presentation. CEOT was not considered because of the advanced age of the patient but could not be ruled out. Similarly, the differential diagnosis of an ameloblastic fibro-odontoma was unlikely because it is typically seen in a much younger age group, but was included in the differential diagnosis. Radicular cyst was not initially considered in the differential diagnosis because of the presence of internal radiopaque entities. This case reinforces the importance of correlating clinical findings with radiographic findings. Even though radicular cysts with internal calcifications are rare and not often documented in the literature, under the right circumstances and with the aid of proper clinical information, a radicular cyst should be considered in the differential diagnosis of a lesion with internal calcifications. The proper diagnosis of radicular cysts may lead to a more conservative treatment approach, such as endodontic therapy vs enucleation, greatly improving the patient's comfort and prognosis.

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References

1. Johnson NR, Gannon OM, Savage NW, Batstone MD. Frequency of odontogenic cysts and tumors: asystematic review. *J Investig Clin Dent.* 2014;5:9-14.
2. Bernardi L, Visioli F, Nör C, Rados PV. Radicular cyst: an update of the biological factors related to lining epithelium. *J Endod.* 2015;41:1951-1961.

CONE BEAM COMPUTED TOMOGRAPHY IS SUPERIOR TO DIGITAL PERIAPICAL RADIOGRAPHY FOR DIAGNOSIS OF STRIP

ROOT PERFORATION L. ALMUFLEH, S.R. SINGER, M. STRICKLAND, C.S. HIRSCHBERG, and A.G. CREANGA, PRINCE SATTAM UNIVERSITY, AL-KHARJ; RUTGERS SCHOOL OF DENTAL MEDICINE, NEWARK, NJ

Background: Strip root perforation requires meticulous diagnosis and may compromise the prognosis, if left undiscovered. It is a common reason for endodontic failure. Strip perforations, usually seen in the mid-section of a curved canal, may result from excessive instrumentation. Radiographic detection of strip perforations may be challenging.

Objective: The aim of this study was to compare the sensitivity, specificity, and accuracy of digital periapical (PA) radiography compared with cone beam computed tomography (CBCT) in detecting simulated perforation in filled and unfilled canals in extracted teeth.

Materials and Methods: After obtaining institutional review board approval, canals of 30 extracted mandibular molar teeth were prepared. Mesial roots of the 15 study teeth were perforated, and all canals were filled in the 15 study and 15 control teeth. The teeth were mounted in simulated D-3 bone. All teeth were imaged by using CBCT and triangulated PA radiography before and after obturation. Discontinuity seen near the furcations was considered perforation. Receiver operating characteristic (ROC) analysis was used to show sensitivity, specificity, and accuracy. Analysis of variance (ANOVA) was used to compare the results, and the kappa statistic for interobserver agreement.

Results: Az values for CBCT before and after obturation were 0.941 and 0.873, respectively, and for PA radiography, the values were 0.640 and 0.776, respectively ($P < .01$). In unfilled canals, the sensitivity and specificity of CBCT were 91% and 100%, respectively, and for angled PA radiography, these values were 52.5% and 49.5%, respectively. In obturated canals, the sensitivity and specificity of CBCT were 82%, and 90%, respectively; in angled PA radiography, the values were 70% and 88%, respectively. Interexaminer agreement was significantly better for CBCT than for PA radiography ($P < .01$).

Discussion: CBCT is more reliable than PA radiography for the detection of perforations, especially in unfilled canals. The accuracy of CBCT decreased after filling because of artifact formation. Accurate diagnosis of perforations in unfilled canals using PA radiography is limited.

References

1. D'Addazio PS, Campos CN, Özcan M, Teixeira HG, Passoni RM, Carvalho AC. A comparative study between cone-beam computed tomography and periapical radiographs in the diagnosis of simulated endodontic complications. *Int Endod J.* 2011;44:218-224.
2. Eskandarloo A, Mirshekari A, Poorolajal J, Mohammadi Z, Shokri A. Comparison of cone-beam computed tomography with intraoral photostimulable phosphor imaging plate for diagnosis of endodontic complications: a simulation study. *Oral Surg Oral Med Oral Pathol Oral Radiol.* 2012;114:e54-e61.
3. Shemesh H, Cristescu RC, Wesselink PR, Wu MK. The use of cone-beam computed tomography and digital periapical radiographs to diagnose root perforations. *J Endod.* 2011;37:513-516.
4. Shokri A, Eskandarloo A, Noruzi-Gangachin M, Khajeh S. Detection of root perforations using conventional and digital intraoral radiography, multidetector computed tomography and cone beam computed tomography. *Restor Dent Endod.* 2015;40:58-67.
5. Adel M, Tofangchiha M, Yeganeh L, et al. Diagnostic accuracy of cone-beam computed tomography and conventional periapical radiography in detecting strip root perforations. *J Int Oral Health.* 2016;8:75-79.

SYSTEMATIC REVIEW OF CONE BEAM COMPUTED TOMOGRAPHY USE IN DIAGNOSIS OF MEDICATION-RELATED OSTEO-NECROSIS OF THE JAW G.M. BADABAAN, S.R. SINGER,