

Unusual Radiographic Presentations

REPORT OF FIVE CASES

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Abstract

Five examples of radiographic oddities, culled from the records of private dental practitioners, are presented. Two cases feature radiographic manifestations of systemic disease, and three cases display anomalous oral findings. Each illustration is furnished with a short narrative and interpretation.

RADIOGRAPHIC IMAGING is an integral part of the practice of dentistry and requires recognition of normal anatomic structures and distinction from a vast array of pathologic processes. At times, clinicians are confronted with interpreting various radiographic curiosities, artifacts and unusual presentations of disease. Five case reports of diagnostic challenge are provided. They are accompanied by a brief explanation as to their identity.

Case One

A 29-year-old female sought urgent care from her attending dentist for progressive swelling and soreness of five days' duration of the maxillary right posterior region. Suspecting pulpal disease of teeth # 3, #4 and #5, the patient was referred to an endodontist for root canal therapy. Her past medical history was significant for insulin-dependent diabetes, mild hypertension and aspirin-induced asthma.

Subsequent clinical examination revealed that teeth #3, #4, #5 and #6 were each mildly tender to percussion, although pulp vitality testing was normal. Probing depths and mobilities were all within normal limits. An indurated, tender swelling in the buccal fold, extending from the distal of tooth #2 to the mesial of tooth #6, was evident. No swelling or tenderness to palpation was discerned along the palatal aspects of these teeth.

Radiographically, tooth #2 manifested diffuse widening of the periodontal ligament spaces, and teeth #3, #4 and #5 each displayed well-defined periapical radiolucencies (Figure 1). Upon further discussion, the patient admitted, "I can't feel anything on the palate. It's been numb since dinnertime last night."

Suspecting disease of non-odontogenic origin, the practitioner should consider performing or referring for an immediate biopsy in the maxillary right posterior quadrant. The clinical presentation of regional paresthesia, concurrent with periapical radiolucencies associated with caries-free, unrestored vital teeth, and without signs of periodontal disease is an ominous sign, and it would be prudent to consider malignant disease.

Histopathologic assessment revealed a high-grade, B-cell lymphoma. Radiographic changes of lymphoma of the jaws typically manifest as ill-defined radiolucencies and may gradually coalesce within the adjacent bone. Root resorption may also be evident.¹⁻³

Case Two

An otherwise healthy and asymptomatic 12-year-old female present-

ed for a dental recall examination and prophylaxis, including periodic bitewings. Radiographic evaluation revealed a well-corticated radiolucency associated with the coronal aspect of tooth #29 (Figure 2).

Because of the slightly buccal eruption path of the second premolar, the primary second molar was displaced lingually and rotated almost 90 degrees on its side. The primary tooth was so resorbed that all that remained was a thin, enamel shell that was minimally attached by the gingiva. Hence, the superimposition of the rotated primary molar alongside the premolar created the anomaly observed.

The radiolucent lesion with a sclerotic border resembled a dentigerous cyst;⁴ however, the inclusion of the clinical examination ruled out this pathologic process.

Case Three

Having noticed a subtle periapical radiolucency associated with tooth #18, an attending dentist referred an otherwise healthy and asymptomatic 28-year-old male to an endodontist for evaluation (Figure 3). Endodontic therapy had been completed 11 years previously.

When the integrity of a root canal is suspect, the clinician should find it advantageous to take several views of the tooth for assessment, varying the angulation of the central beam of radiation. Radicular pathoses attributed to pulpal or systemic disease may not always be discernable with use of only a single, straight-on radiographic view. By changing the horizontal or vertical projections, previously undetected periapical changes may be appreciated.⁵

In the case cited here, changing from the steep vertical angulation to a horizontal positioning of the tube head led to the discovery of a well-defined periapical radiolucency associated with the second molar, indicative of unsuccessful root canal treatment (Figure 4).

Supplemental preoperative radiographs may also provide hints as to the buccolingual dimensions of the tooth, aid in identification of root curvature and elucidate the presence of unforeseen structures resulting from superimposition. Additional exposures may also distinguish the buccal and lingual root orientation employing the "buccal object rule."

Case Four

A 29-year-old male presented for periodic dental examination, prophylaxis and bitewings. The radiographs displayed widening of the periodontal ligament space (PDL) involving many of the posterior teeth. A panograph was subsequently taken, confirming PDL enlargement of the mandibular second premolars and first and second molars (Figure 5). Periodontal probing depths and mobilities were all within normal limits.

Having completed the clinical assessment, the practitioner should suspect systemic involvement and further question the patient about any subsequent changes in his medical status. The patient then admitted that he had recently been diagnosed with scleroderma (sys-



Figure 1. Periapical radiolucencies associated with teeth #3, #4 and #5.



Figure 2. Radiolucent lesion with well-defined radiopaque border is evident in proximity to tooth #29.



Figure 3. Subtle periapical radiolucency is noted with endodontically treated tooth #18. Slight rarefaction between roots is also apparent.



Figure 4. By changing vertical angulation of central beam of radiation, well-delineated periapical radiolucency is discerned with tooth #18, which confirmed endodontic failure.



Figure 5. Panorograph reveals widened PDL spaces with mandibular second premolars and mandibular first and second molars.

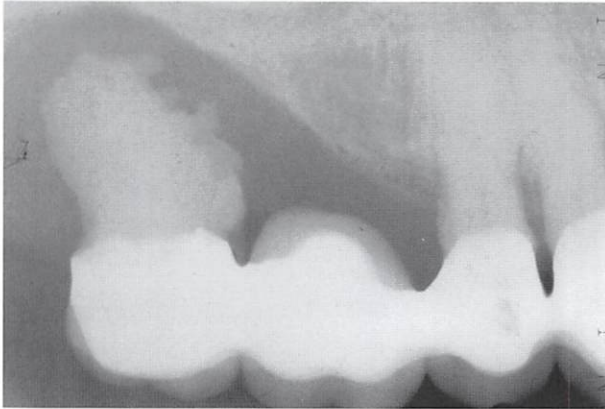


Figure 6. Posterior abutment of periodontal prosthesis lacking any bone support and exhibiting highly irregular root morphology.

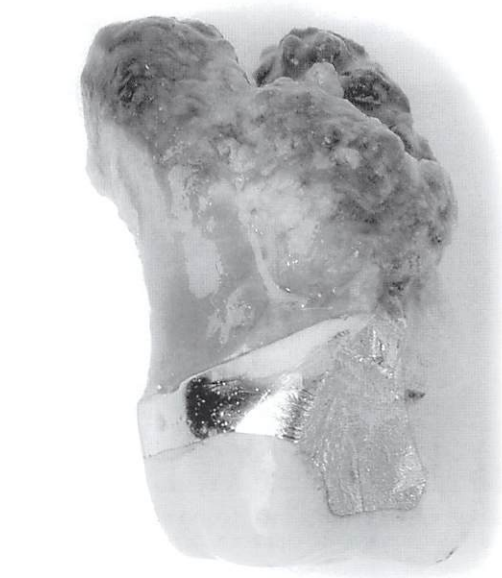


Figure 7. Visualization of extracted tooth demonstrating heavy calculus formation along roots.

temic sclerosis). Various studies have reported widening of the PDL spaces in 3% to 100% of affected patients, usually associated with the posterior teeth.⁶⁻⁹ Widened PDL spaces may also be seen with periodontitis, occlusal traumatism, osteosarcoma, chondrosarcoma, and during the active phase of orthodontic therapy.¹⁰

Additional clinical findings noted in our patient were mild microstomia, tightness of the skin along the face, neck and hands, and telangiectasia and ulcerations involving the fingertips. The patient also elicited Raynauds phenomenon, dyspnea and episodes of gastric reflux.

When a patient presents with widening PDL spaces involving multiple sites, a comprehensive periodontal evaluation, including parafunctional habits, should be undertaken, and in the absence of periodontal disease, the clinician should suspect a systemic disorder.

Case Five

A 63-year-old female presented for consultation concerning a defective maxillary fixed periodontal prosthesis. The patient reported occasional, non-painful, mild swelling in the maxillary right posterior region. Medical history was significant for pericarditis associated with meningitis in 1966 and carcinoma in situ of the uterus in 1970, for which the patient underwent a partial hysterectomy. Medications included 81 mg aspirin, calcium supplements and vitamin C. Periapical radiographs revealed mild-to-moderate periodontitis affecting the maxillary arch, with the exception of tooth #2. This abutment was devoid of any bony support and appeared to be “floating.” In addition, an unusual irregularity of the root surfaces was discerned (Figure 6).

The presumptive identity of these radicular changes was external resorption. Because severe periodontitis was present, the abutment tooth was severed from the prosthesis and easily extracted. Clinical inspection of the surgical specimen disclosed fused roots that were circumferentially encrusted with calculus (Figure 7). Extreme examples of supragingival calculus deposition may also occasionally be seen in the dental practice.^{11,12}

Summary

Five provocative cases compiled from the files of various private dental practices have been showcased. Accurate diagnostic assessment often entails recognition of abnormal radiographic features coincident with the synthesis of available clinical and historical information. ■

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