

### MANDIBULAR PLASMACYTOMA PRESENTING WITH EXTENSIVE ROOT RESORPTION

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**Clinical Presentation:** We report here an unusual case of a 67-year-old female who presented to the Faculty of Dentistry at the University of Toronto (Toronto, Canada) with a primary chief complaint of a 2-month history of dull pain in her left mandibular tooth. Clinical examination revealed percussion sensitivity and buccal palpation tenderness of the mandibular left first molar. Panoramic, intraoral, and cone beam computed tomography (CBCT) imaging showed a well-defined, irregularly shaped osteolytic lesion in the left mandibular body, with directional external root resorption of adjacent teeth.

**Differential Diagnosis:** The radiologic differential diagnosis of a well-defined osteolytic lesion resulting in extensive, directional external root resorption includes benign neoplasms and cysts. Malignant neoplasms, such as multiple myeloma, would be an unlikely consideration. In this case, the radiologic impression was of a benign neoplasm, in particular, central giant cell granuloma. Ameloblastoma and odontogenic myxoma were also considered.

**Diagnosis and Management:** A diagnosis of plasmacytoma was made through histopathologic examination. A subsequent systemic workup revealed multiple myeloma.

**Discussion and Conclusion:** Although the occurrence of root resorption in multiple myeloma is rare, it has been reported in a small number of cases in the literature. The radiologic features of this case are presented to highlight this uncommon presentation.

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### PARTIAL AIRWAY OBSTRUCTION IN AN ASYMPTOMATIC PATIENT

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**Background:** A 66-year-old female with no complaints or symptoms presented for routine preimplantation cone beam computed tomography (CBCT). CBCT demonstrated evidence of a large, well-defined, low-attenuation/soft tissue lesion with an undulating appearance, extending from the posterior left pharyngeal wall and occluding two-thirds of the airway from the

level of C2 to C4. The lesion extended laterally into the left mediopharyngeal space and inferiorly beyond the field of view. There was evidence of faint internal septations.

**Objective:** The aim of this study was to identify, diagnose, and treat a large lesion partially obstructing the airway through multiple advanced imaging modalities and interdisciplinary collaborative treatment.

**Materials and Methods:** The patient was referred for an otolaryngology consult after initial CBCT imaging. Laryngoscopy, magnetic resonance imaging (MRI) and contrast-enhanced computed tomography (CT) were performed to determine the extent of the lesion and to plan for potential surgical intervention.

**Results:** The absence of symptoms and displacement of surrounding structures without perforation suggested a benign, but fairly invasive, neoplasm with slow growth. Initial differential diagnoses included lipoma, minor salivary gland tumor, and vascular and neural tumors. Juxtaposition of T1-weighted MRI and T1 with fat suppression protocols further validated the diagnosis of benign lipoma. Resection, followed by histopathologic evaluation, confirmed a large lipoma. Periodic follow-up was recommended to monitor resolution and potential recurrence.

**Discussion:** Lipomas account for 4% to 5% of benign neoplasms, more commonly in the lower torso and extremities. Lipomas in the upper airway region account for only 0.6% of benign neoplasms, making them quite rare. Any lesion encroaching on vital structures needs prompt attention and appropriate intervention/management to avoid a life-threatening situation. The slower growth exhibited by some benign lesions may obscure symptoms because the changes are gradual and happen over an extended period. Incidental findings, such as this large and invasive benign tumor, underscore the importance of carefully evaluating the entire volume of any study and not just the region of interest.

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### REAL DOUBLE IMAGES VS REAL DOUBLE OBJECTS: OBJECTS NEAR THE PANORAMIC CENTER OF ROTATION PATH PRESENT CONFUSING IMAGING RESULTS

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**Background:** A 57-year-old male presented for routine dental care without symptoms. Panoramic imaging depicted a large, laminated radiopacity inferior to the right posterior mandible. A similar image was noted on the contralateral side with a

blurred, mirrored orientation. A smaller radiopacity was seen medial to the left larger radiopacity; however, no similar radiopacity was seen on the right. A firm, palpable mass was detected along the right lateral neck clinically, with nothing noted on the left side.

**Objective:** The aim of this study was to explain the potentially confusing imaging results of a sialolith on the panoramic center of rotation path by reviewing panoramic imaging acquisition principles and comparison with cone beam computed tomography (CBCT) results.

**Materials and Methods:** Panoramic images and a CBCT volume were acquired for implant planning purposes and for definitive assessment of the initial differential diagnosis based on the panoramic images.

**Results:** Multiple unilateral vs bilateral sialoliths, tonsilloliths, and calcified lymph nodes were considered after initial panoramic acquisition. CBCT confirmed a large sialolith on the right, with an additional, smaller sialolith in a slightly more anterior location on the left. Because of lack of symptoms, no treatment was recommended, and only periodic follow-up was suggested.

**Discussion:** Although the formation of real single, real double, and ghost images may be easy to understand, distinguishing among these entities sometimes may be challenging. The double-image area is not confined solely to the midline, and the area expands laterally, depending on the diverging path of the center of rotation. A large sialolith on the right side positioned in the lateroposterior aspect of the double-image area yielded a double image on the contralateral side with a mirrored orientation and similar proportions. The left sialolith yielded only a real single image due to the small difference of the anterior position. Objects just anterior to the double image area, but outside the focal trough, may have a similar blurred appearance to a real double image projected from the contralateral side. Recognizing the wider region of the double-image area, as well as proper patient positioning, is important for accurate diagnosis of real double images vs real double objects.

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## X-RAY IMAGING PRACTICES OF GENERAL DENTISTS IN ONTARIO, CANADA R.

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**Background:** Imaging practices in dentistry have changed remarkably in the past 30 years with the introduction of digital intraoral and panoramic systems, and cone beam computed tomography (CBCT). There is little information about how general dentists practice oral and maxillofacial radiology since the introduction of these new imaging technologies.

**Objectives:** The aim of this study was to determine what imaging technologies general dentists use in their practices, the clinical scenarios in which these technologies are used, and the influence of the dentists' background and practice environment on their ordering practices.

**Study Design:** This cross-sectional study involved an e-mail survey of general dentists in Ontario, Canada.

**Results:** Preliminary results from a pilot study of the survey sent to 34 general dentists in Canada have been collected. Approximately 74% use digital sensors, 24% use photostimulable phosphor plates, and 9% continue to use film. Approximately 79% utilize CBCT, and 20% have a CBCT machine in their practice settings. Imaging prescription for clinical situations varied considerably among dentists.

**Discussion:** There is widespread adoption of digital imaging technologies. However, imaging practices vary considerably, and some of these practices do not conform to published guidelines. The results of this study will assist in determining the need for changes in dental education, continuing education offerings, and regulatory requirements.

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## BITEWING DOSIMETRY OF 3-DIMENSIONAL INTRAORAL TOMOSYNTHESIS DENTAL X-RAY IMAGING SYSTEM B.

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**Background:** There is substantial evidence for a cumulative dose-related response to ionizing radiation in the form of cancer development years after initial exposure. Therefore, this study focused on effective dose, a quantity with direct correlations to biologic risk from dental x-ray exposures.

**Objective:** The purpose of this study was to measure doses and to calculate the effective doses (E) resulting from exposure parameters that are used for stationary intraoral tomosynthesis (s-IOT) and conventional imaging for adult posterior bitewing examinations of the dentition. Additionally, this study sought to evaluate the effect of sensor attenuation on patient dose.

**Materials and Methods:** To meet these aims, a human tissue equivalent adult phantom and optically stimulated luminescent (Landauer, Inc., Glenwood, IL) dosimeters were used to