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

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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

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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

measure dose produced during simulated posterior bitewing examinations (n = 4). Optically stimulated luminescent dosimeters were used to measure x-ray dose at 24 head and neck tissue/organ sites of interest. Dosimetry was acquired by using a tissue equivalent phantom simulating the anatomy of an average adult male (AtomMax Model 711 HN,CIRS Inc., Norfolk, VA). Exposure parameters used were 70 kV/7 mA (0.7 mAs) and 0.12 mAs for s-IOT and conventional (KaVo FOCUS, Charlotte, NC), respectively. Analysis of variance (ANOVA) and Tukey's HSD ("honest significant difference") statistics on dose were utilized to demonstrate significant data relationships.

Results:

Effective dose by modality (μSv)

Modality	Dose (μSv)
Rectangular Conventional with Sensor	1.1
Rectangular Conventional without sensor	4.6
s-IOT with sensor	5.9
s-IOT without sensor	11.9
Circular Conventional with sensor	8.2
Circular Conventional without sensor	15.7

Sensor-present doses were significantly lower than sensor-absent for all modalities (P = .0001). Significant differences in E were found for all modality combinations with the exception of s-IOT sensor-present modalities vs conventional rectangular sensor-absent modalities (P = .0482).

Discussion: Unadjusted s-IOT dose was 26% less than conventional-circular exposures and 61% greater than conventional-rectangular for sensor-absent exposures. Unadjusted sensor-present s-IOT dose was 28% less than conventional-circular exposures and 81% greater than conventional-rectangular exposures. Despite a 4-fold increase in mAs for s-IOT imaging compared with conventional imaging, E from s-IOT imaging was at least 26% less than the current most commonly implemented bitewing technique, conventional-circular, while providing substantially greater diagnostic yield in the form of 3-dimensional (3-D) information.

JOURNEY OF THE NOTOCHORD: LINKING EMBRYOLOGY TO RADIOLOGIC INTERPRETATION OF THE CRANIOCERVICAL JUNCTION

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Background: The notochord is a mesoderm-derived cylindrical midline structure and a defining feature found in all chordates. In vertebrates, the notochordal process represents the initial embryologic axial skeleton and plays important structural and signaling roles in the development of the vertebral column, nervous system, and skull base. Besides persisting postnatally as the nucleus pulposus of the intervertebral disks, the remaining notochord typically regresses during fetal development after completion of its principal tasks. However, remnants of the notochord can persist along its developmental path within the craniocervical region. These remnants present as a spectrum of entities, ranging from anatomic variants, benign tumors, and malignant neoplasms of notochordal origin. Radiologists who interpret imaging in the area along the embryologic path of the notochord should be knowledgeable about its development and be able to recognize its wide array of potential pathologies.

Discussion: This presentation will review notochord embryology and the anatomic and pathologic relevance of notochordal remnants and demonstrate the vast range of imaging features and behavioral properties of these postnatal remnants in the area of the posterior cranial base and cervical spine. We present 3 cases of inferior median clival canal, a notochordal anatomic variant typically discovered as an incidental finding. Also known as *canalis basilaris medianus*, this notochord remnant manifests as a narrow, well-defined corticated canal passing through the sagittal plane of the clivus. Depending on its course and extent, 2 groups with 6 subtypes have been described. We also present imaging features of pathologic abnormalities, including Tornwaldt cyst, benign remnant ecchordosis physaliphora, and chordoma, a notochord malignancy. Awareness of the full spectrum of pathologic consequences of persistent notochord tissue, recognition of their imaging features, and directing appropriate referral add to the value provided by an oral and maxillofacial radiologist.

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OSTEOBLASTOMA VS OSTEOID OSTEOMA: 2 CASE REPORTS

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Clinical Presentation: Case 1: A 17-year-old male presented 3 months −after third molar extraction with progressively worsening pain in the lower left extraction site. Clinical examination was unremarkable. Computed tomography (CT) showed a 12 × 10 × 11 mm, well-demarcated, circular, nonexpansile, mixed-density lesion with a sclerotic border and surrounded by a radiolucent rim. Lingual cortical bone defect was noted.

Case 2: A 37-year-old male presented with progressively worsening pain in the left posterior mandible and preauricular area. CT showed a 16 × 21 mm well-defined, expansile, mixed-density lesion with a soft tissue capsule, which was surrounded by a sclerotic band. Unusual features included buccal/lingual expansion, new bone apposition, and soft tissue edema in the masseter muscle. Clinically, the site was significant for swelling.

Differential Diagnosis: Given the radiographic findings and the presence of pain, osteoblastoma and osteoid osteoma