

diagnosis. TDOS is genetically linked to markers on chromosome 17 q21.

### References

- 1 Crawford PJ, Aldred MJ. Amelogenesis imperfecta with taurodontism and the tricho-dento-osseous syndrome: separate conditions or a spectrum of disease? *Clin Genet.* 1990;38:4450.
- 2 Price JA, Wright JT, Walker SJ, Crawford PJ, Aldred MJ, Hart TC. Tricho-dento-osseous syndrome and amelogenesis imperfecta with taurodontism are genetically distinct conditions. *Clin Genet.* 1999;56:35-40.
- 3 Nguyen T, Phillips C, Frazier-Bowers S, Wright T. Craniofacial variations in the tricho-dento-osseous syndrome. *Clin Genet.* 2013;83:375-379.
- 4 Neville BW. *Oral and Maxillofacial Pathology.* St. Louis, MO: Saunders/Elsevier; 2009.

**A BLENDED LEARNING RADIOLOGY INTERPRETATION LAB: A QUALITATIVE APPROACH.** A. SENIOR, C. PACHECO-PEREIRA, J. GREEN, E. WATSON, S. COMPTON, K. RASMUSSEN. UNIVERSITY OF ALBERTA, EDMONTON, AB, CANADA

**Background:** Blended-learning (BL) radiographic interpretation activities were implemented into the dental hygiene curriculum with the aim of increasing student confidence in interpretation and to address this perceived gap in students' education.

**Objective(s):** This study assessed senior dental hygiene (DH) students' self-reported confidence in interpreting dental radiographs after the introduction of a BL module for radiology interpretation. Preliminary results were presented at the American Academy of Oral and Maxillofacial Radiology (AAOMR) meeting in 2017. This abstract further describes the effectiveness of this qualitative approach and the subsequent changes that were implemented into the radiology curriculum.

**Study Design:** In order to capture the context, descriptions, and differences of students' experience and confidence, a qualitative research approach was selected. Data were captured using a semistructured interview process and analyzed using the phenomenographic approach. This method involves researchers coding transcripts of the interviews to determine categories of description (commonalities and their variations) of the participants' various ways of thinking about and describing their experiences. Sixteen students, 5 months from graduation, consented to participate and were interviewed. Blinded transcripts were analyzed by the research team, and the main themes relating to confidence were extracted and arranged into categories. The categories were coded as to how confident (low, medium or high) each of the students felt, specific to varying contexts and complexities of radiographic interpretation. Quotations were extracted to exemplify each category.

**Results:** The BL module had a positive impact on DH students' confidence in interpretation of radiographic findings. However, when asked about their level of overall confidence in interpreting dental radiographs, the students still did not describe

themselves as confident with regard to all potential findings on radiographs at this point in their education.

**Discussion/Conclusions:** The phenomenographic approach revealed important themes relating to confidence and provided useful insights on the issues and attitudes affecting the students' confidence levels that can inform further course and curriculum development.

### Acknowledgments

Radiology Staff and Faculty

### Reference

- 1 McGee P, Reis A. Blended course design: a synthesis of best practices. *J Asynchronous Learning Networks.* 2012;16:7-19. Available at: <http://sloanconsortium.org/jaln/v16n4/blended-course-design-synthesis-best-practices>. Accessed November 12, 2017.

**A CLINICAL AUDIT TO ASSESS THE QUALITY OF DENTAL RADIOGRAPHIC REPORTS.**

I. PURI, I. THAKRAR, J. MAKDISSI. BARTS & THE LONDON SCHOOL OF MEDICINE & DENTISTRY, LONDON, UK

**Background:** Radiography forms an integral part of dental and maxillofacial practice, but its reporting continues to pose a variety of problems for practitioners. Chief among these are medicolegal complications and the detriment to patient care that arises from a lack of comprehensive record keeping.

**Objective(s):** This audit objectively assessed the completeness and variation of radiographic reports written by undergraduate dental students from year 2 to year 5, including dental core trainees (DCTs) and consultants. We aimed to provide recommendations enabling higher-quality reporting.

**Study Design:** Conducted at the Royal London Dental Hospital (UK), 100 radiographic reports were randomly selected for each of the chosen groups, and the data were collected retrospectively using clinical case notes. Based on national and international guidelines, we compiled a list of 10 criteria, against which all reports were judged. The data were recorded in a dichotomous manner for each criterion to minimize ambiguity. Each report was subsequently scored of ten (with equal weighting of each criterion) and the average for the group calculated.

**Results:** Data analysis revealed that less than 1% of reports met all criteria. On average, 5 criteria were met; however, there exists considerable variation between groups. A slight tendency for more comprehensive reporting with undergraduate seniority was noted, in opposition to a substantial drop at the DCT level and again at the consultant level.

**Discussion/Conclusions:** The data demonstrate a concerning lack of comprehensive reporting across all groups, especially at the higher-ranking levels. Possible explanations include a reduction in senior input and feedback; awareness of the importance of record keeping; time available for each patient encounter; and knowledge of current guidance and policy. Following these results, we recommend regular auditing of radiographic reports by every department and local publication of updates to guidelines and legislation. Raising awareness of this issue will

help improve reporting standards, thereby allowing greater patient care and protection from litigation.

#### References

- 1 Department of Health, United Kingdom. The Ionising Radiation (Medical Exposure) Regulations 2017. London, UK. Available at: [legislation.gov.uk](http://legislation.gov.uk).
- 2 Royal College of Radiologists. Standards for the Reporting and Interpretation of Imaging Investigations. London, UK: Royal College of Radiologists; 2006.
- 3 Buchanan A, Thachil National Radiological Protection Board. Guidance Notes for Dental Practitioners on the Safe Use of X-Ray Equipment. London, UK: Department of Health UK; 2001.
- 4 Faculty of General Dental Practice. Clinical Examination and Record-Keeping. 3rd ed. London, UK: Faculty of General Dental Practice (UK); 2016.

#### A RETROSPECTIVE STUDY ON MOLAR FURCATION ASSESSMENT VIA CLINICAL DETECTION, INTRAORAL RADIOGRAPHY, AND CONE BEAM COMPUTED TOMOGRAPHY. W. ZHANG, K. FOSS, B. WANG. UNIVERSITY OF TEXAS SCHOOL OF DENTISTRY AT HOUSTON, HOUSTON, TX

**Background:** It is challenging to assess molar furcation bone loss by clinical detection and intraoral radiographs in many instances. Cone beam computed tomography (CBCT) is expected to open a new horizon in periodontal assessment.

**Objective(s):** The aim of this study was to compare and correlate molar furcation assessment via clinical detection, intraoral radiography, and CBCT.

**Study Design:** Eighty-three patients, seen at the University of Texas School of Dentistry (UTSD), with chronic periodontitis who had existing CBCT scans were included. Furcation involvement was assessed on maxillary and mandibular first molars. Periodontal charts (modified Glickman classification), intraoral (periapical and/or bitewing) radiographs, and sagittal and axial CBCT reconstructions were used to identify furcation involvement on buccal and palatal/lingual sites. The correlation of furcation assessment by the 3 methods was evaluated by Pearson's analysis.

**Results:** There were significant correlations ( $P < .05$ ) between clinical detection and intraoral radiography, clinical detection and CBCT, and intraoral radiography and CBCT at all the measured sites ( $r$  values ranged from 0.230 to 0.644). CBCT exhibited generally higher correlation with clinical detection compared with intraoral radiography, especially at the distal-palatal side of the maxillary first molar ( $P < .05$ ). In addition, CBCT provided more accurate furcation assessment, because it measured up to 2 decimals in millimeters, whereas clinical detection had 3 classes, and the intraoral radiographs usually only detected the presence of furcation involvement in Glickman Class 2 and 3.

**Discussion/Conclusions:** This study validates that CBCT is a valuable tool in molar furcation assessment in addition to clinical examination and intraoral radiography.

#### Acknowledgments

This study was supported by the UTSD Student Research Program.

#### References

- 1 Muller HP, Eger T. Furcation diagnosis. *J Clin Periodontol*. 1999;26:485-498.
- 2 Walter C, Schmidt JC, Dula K, Sculean A. Cone beam computed tomography (CBCT) for diagnosis and treatment planning in periodontology: a systematic review. *Quintessence Int*. 2016;47:25-37.
- 3 Walter C, Kaner D, Berndt DC, Weiger R, Zitzmann NU. Three-dimensional imaging as a pre-operative tool in decision making for furcation surgery. *J Clin Periodontol*. 2009;36:250-257.

#### PREVALENCE OF PNEUMATIZATION OF THE CRISTA GALLI IN DENTAL PATIENTS. L.

THAI, A.Z. SYED, M. PALOMO, M. VALIATHAN, N. GUPTA. CWRU SCHOOL OF MEDICINE, CLEVELAND, OH

**Background:** A large field of view (FOV) cone beam computed tomography (CBCT) scan can show an anatomic variant, such as pneumatization of the crista galli. The crista galli is a bony projection that extends superiorly from the cribriform plate of the ethmoid bone. It is located at the midline of the anterior cranial fossa and is where the falx cerebri attaches anteriorly. As there is no literature on this topic using CBCT imaging, we undertook this study to add to the research as well as to inform dentists and specialists about pneumatization of crista galli.

**Objective(s):** The aim of this study was to report the prevalence of pneumatization of the crista galli using CBCT images and to compare the prevalence of pneumatization of crista galli in patients receiving nonsurgical versus surgical dental treatment.

**Study Design:** The study included 514 diagnostic CBCT scans from 2015 to 2016. Age, sex, treatment provided, and the size of pneumatized crista galli were recorded. The associations between age and sex versus pneumatization of the crista galli were evaluated using the Mann-Whitney U test. The associations between treatment and pneumatization of crista galli were assessed using Pearson's  $\chi^2$  and Fischer's exact tests.

**Results:** The average age of the patients was 15.69 years. Pneumatization of crista galli occurred in 20 out of 514 (3.8%) patients. The median cranial-caudal length of a pneumatized crista galli was 4.78 mm in females and 5.62 mm in males. The median width was 4.49 mm in females and 6.98 mm in males. Patients with pneumatization were statistically significantly older than the patients without pneumatization ( $U = 3041.5$ ;  $P = .004$ ). Among the nonsurgical categories, orthodontic treatment was classified as significant ( $P = .008$ ). Among surgical categories, orthognathic surgery was found to be significant in the presentation of pneumatization of the crista galli ( $P = .001$ ). Fischer's exact test showed there was a significantly higher percentage of surgical patients with pneumatization compared with nonsurgical patients ( $P = .003$ ).

**Discussion/Conclusions:** Age, orthodontic treatment, and orthognathic surgery were significantly associated with pneumatization of the crista galli. Gender did not contribute substantially to pneumatization of the crista galli.

#### References

- 1 Lee JM, Ransom E, Palmer JN, Chiu AG. Endoscopic anterior skull base surgery: intraoperative considerations of the crista galli. *Skull Base*. 2011;21:083-086.