lead to disfigurement and loss or altered mandibular function, if not treated.

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THE BEATEN-COPPER PATTERN ON CONE BEAM COMPUTED TOMOGRAPHY.

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Background: Convolutional markings are inner-table indentations that conform to the cerebral surface of growing brain in infants. If they are pronounced over the more anterior parts of the skull, this is referred to as a *beaten-copper skull* (BCS). The significance of BCS has been debated, and is generally considered a normal finding in children. However, a diffuse beaten-copper pattern has been shown to be associated with raised intracranial pressure (ICP).

Objective(s): The aim of this study was to increase awareness of the features of BCS on cone beam computed tomography (CBCT).

Results: A CBCT study of a 4-year-old male was referred for interpretation of radiolucent spots in his head and skull. Findings included diffuse scalloping of the inner table of the anterior and posterior cranial compartments, with localized thinning of the diploe in over 50% of the visualized portions of the frontal, parietal, and occipital bones. No sellar erosion or suture diastases were present. The sagittal suture was not included in the field of view; however, coronal, lambdoidal, frontosphenoidal, frontonasal, sphenosquamous, sphenoparietal, occipitomastoid sutures, and the spheno-occipital synchondrosis were visualized and perceive as not fused.

Discussion/Conclusions: The appearance of BCS is age dependent in both normal children and those with craniosynostoses. Clinically, children with craniosynostoses should be managed by a multispecialty team providing interdisciplinary care; they have unique oral health and craniofacial growth problems and may require CBCT. The wormian bones are considered abnormal or clinically significant when radiolucencies are greater than 10 in number, measuring over 6×4 mm, and presenting with a general mosaic pattern. The majority of patients with craniosynostoses who have elevated ICP have no related symptoms. The associated finding of BCS using CBCT may be incidental; however, physician referral to further evaluate patients for ICP may be warranted in addition to follow-up over a period of time.

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THE ROLE OF MONITORS IN THE VISUALIZATION AND ASSESSMENT OF THE INFERIOR ALVEOLAR CANAL.

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Background: The inferior alveolar canal (IAC) is a familiar landmark for dentists. Clear visualization of the IAC and its relationship with developing or impacted mandibular third molars is especially important. Cone beam computed tomography (CBCT) has improved the ability for more accurate assessment of the IAC.

Objective(s): The aim of this study was to determine if there is a difference in the ability to appropriately assess the third molar−IAC relationship between 3 different monitor types.

Study Design: In all,105 scans were randomized and evaluated by 2 calibrated and masked evaluators. Evaluation was performed on 3 different monitors: BARCO 3 MP medical-grade monitor, a prototype BARCO 2 MP monitor, and DELL ultrasharp monitor. Evaluations were completed in a dimly lit area. The luminance and ambient light were measured using a light meter. All 3 monitors were placed in same position for the evaluators and were adjusted such that the luminance was the same. The gold standard was established by 2 board-certified oral and maxillofacial radiologists and 1 oral and maxillofacial radiology resident, who assessed the data sets after the evaluation was completed and reached a consensus on the location of the IAC.

Results: The medical 3 MP monitor demonstrated the best interrater reliability with a percent agreement of 87% and a kappa value of 0.83. Accuracy was significantly greater with the medical-grade 3 MP compared with the consumer-grade display monitor, with an average increase in accuracy of 10.1%. A significantly higher accuracy (7.2%) was also obtained for the medical-grade 3 MP in comparison with the medical-grade 2 MP by 1 observer.

Discussion/Conclusions: This study found that the IAC can be well visualized and with a higher degree of accuracy on medical-grade display (3 MP) monitors compared with consumer-grade display monitors. The 2 MP prototype medical monitor showed a higher degree of accuracy compared with the consumer-grade monitor, although the differences were not statistically significant.

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ULTRASONOGRAPHIC EVALUATION OF THE MASSETER MUSCLE BEFORE AND AFTER BOTULINUM TOXIN INJECTION IN PATIENTS WITH BRUXISM.

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Background: Bruxism is defined as a diurnal or nocturnal parafunctional activity of the masticatory muscles, with a prevalence of 20% and an impact of life quality. It is characterized by the compression and/or grinding of the teeth without purpose. In cases where conventional therapies are insufficient, botulinum toxin type A can be used as an alternative therapeutic treatment for patients who present masticatory muscle hyperfunction.

Objective(s): The purpose of this case series was to assess the masseter muscles before and after injection of botulinum toxin type A by using ultrasonography.

Study Design: Ethical approval and patient consent were obtained. Botulinum toxin injection was performed on 4 patients with bruxism. Masseter muscles on both sides were assessed before and 1 month after injection by using ACUSON S 2000 (Siemens, Munich, Germany) with a 9-18 MHz linear probe. Maximum width, height, and volume measurements of the masseter muscles were obtained, along with elastography and virtual touch IQ elastography measurements in both rest and contraction positions.

Results: Measurements obtained from the patients before and after injection at rest position showed a decrease of 10% and 3% in masseter muscle width and volume, respectively. Measurements obtained from the masseter muscles before and after injection at contraction position again showed a decrease of 20% and 3% in muscle width and volume, respectively. According to virtual touch IQ elastography values, approximately 20% reduction was found at both positions. However, we were unable to reveal any constant variation before and after injection at both positions in consideration of height and elastography.

Discussion/Conclusions: Certain measurements of the masseter muscle with ultrasonography before and after botulinum type A injection in patients with bruxism may provide useful information in the follow-up process. Further research is essential, with more patients evaluated at different follow-up intervals.

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UNCOMMON FORM OF ECTODERMAL DYSPLASIA: TRICHO-DENTO-OSSEOUS SYNDROME.

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Background: Tricho-dento-osseous syndrome (TDOS) is an autosomal dominant genetic disorder, which is characterized by inherited defects in tissues that arise from epithelial−mesenchymal interaction. The minimal diagnostic criteria for TDOS include enamel hypoplasia, posterior taurodonts, autosomal dominant inheritance pattern, tightly curly hair at birth, and/or radiographic evidence of bone sclerosis. Some authors have questioned whether amelogenesis imperfecta of the hypomaturation−hypoplasia type with taurodontism (AIHHT) and TDOS are distinct conditions or denote a spectrum of the same disease.

Objective(s): The aim of this study was to increase awareness of TDOS.

Results: A 25-year-old female patient was seeking restorative treatment for the yellowish-brown discoloration of her teeth. Clinical evaluation revealed that she had multiple missing teeth, discolored teeth, frontal bossing, and a concave profile. She was otherwise healthy and not taking any medications. Her medical history indicated a previous diagnosis of ectodermal dysplasia (ED). Panoramic radiography and cone beam computed tomography (CBCT) revealed multiple missing and impacted teeth, as well as retained primary teeth. Reduction in enamel thickness on deciduous and permanent teeth was observed, in addition to taurodont appearance of second permanent molars. Generalized homogeneous ground-glass trabecular pattern in the maxilla and the mandible with a square shape of mandible was noted.

Discussion/Conclusions: In this report, we describe an unusual phenotype of ED, which represents a group of inherited conditions in which 2 or more ectodermally derived anatomic structures fail to develop. TDOS is an uncommon form of ED. The dental findings are clinically similar between TDOS and AIHHT; however, patients with AIHHT lack changes in their hair and bone. In cases where hair, bone, and nail changes are not significant, genetic analysis may help in differential