

Necessity of Advanced Dental Imaging Techniques in Determining Bizarre Dental Anomalies: - A Case Report

Abstract : The article highlights to further state the need for inclusion of a CBCT scan as better radio diagnostic aid before performing extractions. CBCT is a medical imaging technique with many superior features, compared to conventional radiographs. A patient reporting to clinic with tooth pain was diagnosed with a grossly decayed, carious left upper molar. While opting to extract the intended tooth, the molar placed posteriorly to it showed significant mobility thus forcing us to extract both. Using only conventional X-ray, the unforeseen mishap of missing out on an existing anomaly occurred which could be easily identified had CBCT been used.

Keywords: Ankylosis, CBCT, Concrescence, Fusion, Gemination.

Dental ankylosis being a rare disorder of tooth is characterized by fusion of the tooth to the bone, preventing both eruption and orthodontic movement, with unknown prevalence. Whereas, concrescence is a condition of teeth, where the cementum overlying the roots of at least two teeth join together due to trauma or crowding of teeth. Most obvious treatment needed is surgical separation if the offending tooth is to be extracted.¹ Gemination and fusion are anomalies in size, shape and structure of teeth. Gemination more frequently affects the primary teeth, but may occur in permanent teeth as well, usually in the incisor region. Teeth are typically disfigured in appearance due to irregularities of the enamel.² Fused teeth can have separated pulpal space, one pulp chamber and two canals or take the form of a large bifid crown with one pulpal space.³ It is hard to differentiate between gemination and fusion, as well as between ankylosis and concrescence

Cone beam computed tomography (CBCT) is a radiographic technique available in dentistry for about 20 years. Its ability to display three dimensional structures is of importance for many defective maxillofacial areas.⁴ Benefits include image enhancement capabilities like superb visualization of the teeth, it's position within alveolar crest and relation to surrounding structures.⁵ Logicon (a program feature for detecting caries and its depth) in Kodak scans

also comes with contrast control, brightness control, image filters, highlight effects, and sharpening.⁶ More relevant information is available as because intraoral and panoramic tomography technologies only provide 2D representation of 3D tissues, so if any element of the geometric configuration is compromised, the image can demonstrate errors.⁷ Moreover CBCT is regarded superior over medical CT and 2D X rays as there is no distortion, offers multiple views, has minimal exposure and narrow field of exposure all of which amounts in making less substance and time to interpret.⁸

Case Report: A 37 yr old female patient reported to the OPD with a chief complaint of pain and sensitivity in the left upper back tooth region on 10/11/2015. After thorough history taking and examination, it was found that of food lodgement taking place between tooth 26 and 27 resulting in decay of both 26 and 27 causing pain and sensitivity. Tooth 27 being additionally grossly decayed on buccal aspect (Fig 2.1). Patient's medical history revealed nothing significant. Patient was advised OPG and IOPA X-ray, following which patient insisted for extraction of the chief offending tooth (i.e. 27). Hence advised to extract the tooth accordingly. On attempting extraction of 27 and the pathway of delivery being unfavourable, a standard transalveolar approach was made. On, finally luxating the 27, the posterior placed 28 surprisingly showed significant mobility thus forcing us to reconsider the treatment plan and further undergo informed consent procedure from the patient and family in order to extract both the 27 and 28 (Figs. 2.3-2.5 showing teeth after removal and Fig 2.2 showing site after tooth removal), hence done the same.

Summary and Discussion: While routinely treating patients we often happen to come across the aforesaid common developmental anomalies of teeth. It is very important to thoroughly keep a note of the pathology and take into consideration while making a diagnosis and plan the treatment accordingly. Separately often while addressing an offending tooth in similar situation if plan is to extract, considerations for surgical separation is to be made and using the more updated and now getting popular, Cone

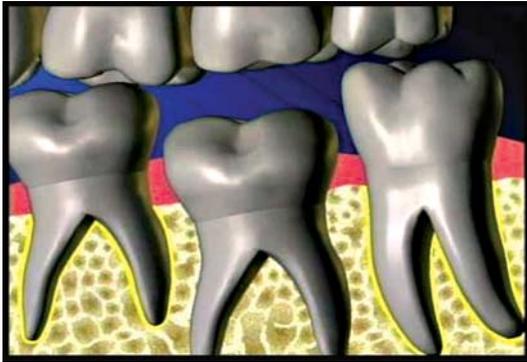


Fig. 1.1 Ankylosis of lower 2nd tooth from left shown.



Fig. 1.2 on display concrescence after extraction.



Fig. 1.3 Clinical photo of Gemination.

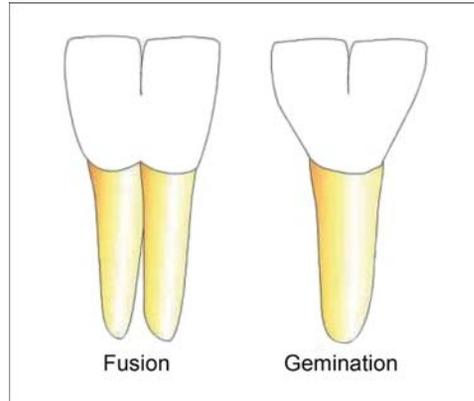


Fig. 1.4 Diagram showing both Gemination and Fusion.



Fig. 2.1 IOPA Xray of 27,28.

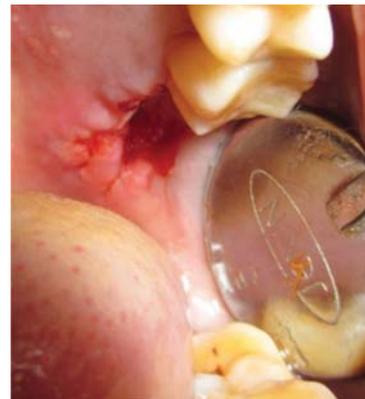


Fig. 2.2 Clinical view of Post operative site.



Fig. 2.3 Buccal view



Fig. 2.4 Distal view



Fig. 2.5 Occlusal view.

Beam Computer Tomography (CBCT) as a new treatment modality aid in adjunct to OPG and IOPA X-rays to rule out the limitations imposed by conventional X-rays needs to be done. The scenario is to be completely understood before attempting extractions to avoid complications. Mislead diagnosis and treatment if done should be managed accordingly and thus for even such a case in depth knowledge of the pathology needs to be known and understood. In our case, since we were short of CBCT facility at the time the outcome was unavoidable. Post extraction, the specimen is to be thoroughly preserved with proper information and cooperation from the patient. The preserved specimen is to be sent for necessary histopathological examinations to pinpoint the diagnosis. The Cone Beam technology is itself far superior and complex in nature to the conventional technologies and needs expert technicians to handle. Furthermore, it is costlier than its conventional counterparts which in turn affect the affordability for patients.

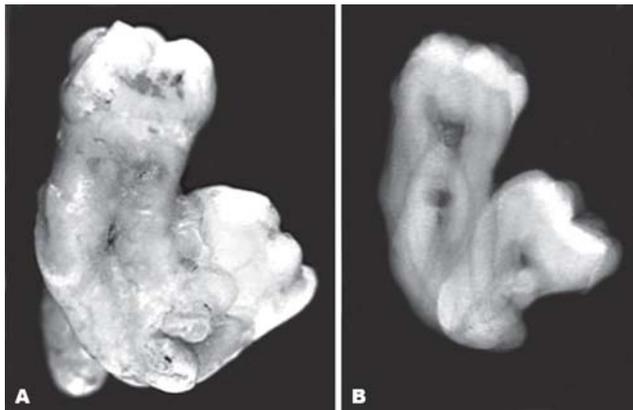


Fig. 3 showing: - **A.** Slide view of concrescence using CBCT. **B.** Conventional X- ray view of concrescence.

Conclusion: With this report it is once again pointed out that CBCT holds far superior benefits over conventional X-rays in terms of quality, high accuracy and enhancement capabilities of images. The important maxillofacial structures and bone can be very clearly viewed unlike conventional radiographs (as shown in Fig 3 A & B) and so the need to include this scan in practising exodontias has very high scopes. Here, we have been able to discuss the need over as single case report in form of a pilot study.

We need many more evidences indicating similar need to establish the motion.

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**ANKUSH ROY*,
SURAJIT BOSE****

* B.D.S. - Dental Surgeon, Smile & Profile Dental Treatment Centre Pvt. Ltd. Kolkata, WB.
Address: 145/4B, South Sinthee Road.
Kolkata-700050. West Bengal.
Email: ankush_11may@yahoo.com.

** B.Sc, B.D.S ,M.Sc (Biotechnology), Ph.D. 1st year PGT, Dept. of Oral Pathology, Awadh Dental College and Hospital, Jamshedpur. Address: 325 Diamond Harbour Road. Behala, Kolkata- 700034.
Email: sur.bose76@gmail.com.

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