

TWO AND THREE-DIMENSIONAL COMPUTED TOMOGRAPHIC ANATOMY OF THE ENAMEL, INFUNDIBULUM AND PULP OF 126 EQUINE CHEEK TEETH: NORMAL TEETH

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Aims: Dental disorders are of major clinical importance in equine practice, however our knowledge of normal dental anatomy, especially that of the pulp, remains incomplete. Computed Tomography (CT) is being increasingly utilised in the diagnosis of dental disease, however the normal CT anatomy has not yet been fully described. The aim of this study is therefore to describe the normal two and three-dimensional CT appearance of the enamel, infundibulum and pulp of equine cheek teeth. **Methods:** One hundred and twenty-six cheek teeth with eruption ages of between 0.5 and 19 years were evaluated; occlusal surface examination with a dental probe, lateral radiographs and individual CT scans of each tooth were performed. Three-dimensional reconstructions of the enamel, infundibulum and pulp were created from the CT scans. Each tooth was sectioned transversely or longitudinally into a number of slices using a band saw and the sections compared to the corresponding CT images. **Results:** The three-dimensional CT reconstructions enabled the pulpar anatomy of the mandibular and maxillary cheek teeth to be fully described for the first time. The number of inter-pulpar communications between pulp horns and the pulpar volume of each tooth decreased with increasing age. The inter-pulpar communications of the maxillary cheek teeth were found to be of greater complexity and variety in comparison to their mandibular counterparts. Both mandibular and maxillary cheek teeth showed consistent patterns in their pulpar and enamel morphology. **Conclusions and Practical Significance:** The detailed description of the normal two and three-dimensional CT appearance of equine cheek teeth provides a reference tool enabling the accurate and maximum use of CT as a diagnostic tool in the investigation of dental disease. Accurate knowledge of the pulpar anatomy of equine cheek teeth is a prerequisite if endodontic therapy is to develop in the future.