

Application of Cone Beam Volumetric Tomography in Endodontics

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Abbreviations and acronyms: ALARA = As Low As Reasonably Achievable; CBVT = cone beam volumetric tomography; FOV = field of view; MB2 = second mesiobuccal; MDCT = multidetector CT; VRF = vertical root fracture.

Introduction

In a 2008 article on cone beam volumetric tomography (CBVT) and dentoalveolar applications, Tyndall and Rathore wrote, "It is in the area of endodontic applications that the literature has proved most fruitful to date (1)." This statement is even truer today than in 2008. A review of the literature has demonstrated that, in many cases, CBVT is more efficacious than traditional forms of 2-D imaging. Endodontic applications of CBVT include the diagnosis of periapical lesions due to pulpal inflammation, identification, and localization of internal and external resorption, the detection of vertical root fractures, the visualization of accessory canals, and elucidation of the causes of non-healing endodontically treated teeth. Prior to 2008 most published articles on CBVT applications in endodontics were either case reports or in vitro studies. Since that time more well designed clinically related scholarly activity has been published. This article attempts to survey the field of CBVT applications in endodontics and provide the readers with an overview of what has been found. The authors hope that this knowledge will form a foundation for appropriate clinical decision making with specific reference to selection criteria for the endodontic applications of CBVT.

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DISCLOSURE: Dr Tyndall teaches a CBVT course for Sirona Galileos users and occasionally presents lectures sponsored by Sirona Dental Systems.

Abstract

In a 2008 article on cone beam volumetric tomography (CBVT) and dentoalveolar applications, Tyndall and Rathore wrote:

"It is in the area of endodontic applications that the literature has proved most fruitful to date." This statement is even truer today than in 2008. A review of the literature has demonstrated that, in many cases, CBVT is more efficacious than traditional forms of 2-D imaging. Endodontic applications of CBVT include the diagnosis of periapical lesions due to pulpal inflammation, identification, and localization of internal and external resorption, the detection of vertical root fractures, the visualization of accessory canals, and elucidation of the causes of non-healing endodontically treated teeth. Prior to 2008, most published articles on CBVT applications in endodontics were either case reports or in vitro studies. Since that time more well designed clinically related scholarly activity has been published.

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KEY WORDS:

Endodontics, radiography, cone beam volumetric tomography.

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