



Use of Advanced Imaging Techniques in Differential Diagnosis of Periapical Lesions

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Editorial

Radiographs play a vital role in endodontics, particularly for detection, treatment planning and follow up of periapical bone lesions. However, two-dimensional radiographs cannot discriminate presence of each periapical lesion and they cannot able to define the true size of a lesion [1]. It was proved that in comparison to two-dimensional images, Cone Beam Computed Tomography (CBCT) can be a powerful tool in diagnosis, treatment planning and follow-up endodontic treatment [2]. Even though there is an increasing trend toward the use of cbct in endodontic practice, it is not possible to predict the nature of the lesion with this imaging modality. Accordingly, the differentiation of cystic and non cystic lesions could not be made which may change the total treatment plan. In addition, radiation dose to the patients should always be considered before prescription of each imaging modality. Thus, it is important to evaluate and consider different imaging methods for both the detection of periapical lesions and for prognosis of management. Recent developments in imaging sciences have enabled dental researchers to visualize structural and biophysical changes effectively [3]. Alternative imaging modalities such as Magnetic Resonance Imaging (MRI), radionuclide imaging and Ultrasonography (US) are used to diagnose and manage pathologic conditions of the jaws as well as early detection of physiological changes in periapical region. At this point, US is an easy and reproducible technique that has an advantage over CT scans because no ionizing radiations are used. Recent studies showed that it has the potential to supplement conventional radiography in the diagnosis and follow-up of extensive periapical lesions [4]. This alternative imaging modality may also help to make a differential diagnosis between cysts and granulomas by revealing the nature of the content of a bony lesion. Besides, doppler flowmetry option provides information regarding the presence, direction, and velocity of blood flow within the lesion that may become an important factor when making a differential diagnosis between lesions of endodontic origin (i.e., granulomas versus cysts) and also between other lesions of the maxillary bones [5]. The results of the future studies will probably increase its usage and predict a future research field in differential diagnoses of bone lesions of dental origin in the jaws.

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