



## CBCT or not CBCT: That is the Question

Luigi Paglia<sup>1</sup>

<sup>1</sup>Head, Department of Pediatric Dentistry, Istituto Stomatologico Italiano, Milan, Italy. E-mail: [luigipaglia@hotmail.com](mailto:luigipaglia@hotmail.com).

Root fractures comprise approximately 0.5–7% of all traumatic injuries to the permanent dentition and frequently are diagnosed after trauma to the face and mouth.

Horizontal fractures are most frequent in the middle third of the root and rare in the apical third, it occurs more often in the maxillary central incisors of male patients. According to Andreasen, the healing process of horizontal root fractures depends on several variables, such as the age of the patient, the mobility of the coronal fragment, the location of the root fracture and the stage of root formation.

Traumatic dental injuries prognosis depends on the time elapsed between the traumatic event and the beginning of the treatment. For this reason, the correct diagnosis is decisive in order to influence the therapy and therefore the prognosis.

The diagnosis of the root fracture is generally based on intra-oral signs and symptoms and confirmed by an intra-oral radiography.

But...are we sure that periapical radiography give us a correct view of what happened? Conventional radiographs can be helpful for the diagnosis only when the x-ray beam is parallel to the plane of the fracture but this is not always possible! There is a significant risk of misdiagnosing the location (or the presence!) of a root fracture on an anterior tooth when intra-oral radiography is used. Currently, 3D images using CT methods have been developed to overcome the disadvantages associated with the conventional radiographic methods. 3D visualization of the presence, the location, the extent and the direction of a root fracture allows the clinician to determine an accurate diagnosis choosing in this way the appropriate course of treatment.

Cone bean computed tomography should be considered as the most reliable imaging choice for the diagnosis of horizontal root fracture.

Despite the possible advantages of using this method, it should be borne in mind that CBCT still has a higher radiation dose and this option should not be prescribed until a precise clinical examination has been conducted and it should be recommended when the diagnostic information gathered by 3D view improve the treatment results.

Remember that the first diagnosis is made by a clinician mind able to see clinical sign and symptoms!