

# SOUTH CALGARY ENDODONTICS

WINTER 2015

403-474-1893

[www.southcalgaryendo.ca](http://www.southcalgaryendo.ca)

*Happy New Year!!! We at South Calgary Endodontics, would like to wish you and your families a happy, healthy and prosperous new year! We would also like to take this opportunity to sincerely thank you for your unbelievable support since our opening last June.*

*Dr.'s Staniloff and Davis look forward to providing your patients superior care for their endodontic needs in the coming year.*



Monday – Thursday 8:30 AM – 4 PM  
Friday 8:30 AM – 12 PM

**SAME DAY EMERGENCY APPOINTMENTS**

*This newsletter will focus on the growing use of three dimensional imaging, or cone beam technology. It has enhanced our diagnostic abilities, and in some cases endodontic diagnosis cannot be considered complete without the use of CBCT.*

*I would like to invite anyone interested in CBCT and its uses to call or visit our new office in South Calgary. We would also be happy to schedule an office visit with you and your team for our new “**Lunch and Learn**” meetings.*

*Please call Kelly at South Calgary Endodontics (403-474-1893) to coordinate a time for lunch.*

**Endodontic Diagnosis** – can be one of the most challenging aspects in dentistry. Patients come to your office in discomfort, looking for relief. Most of the time diagnosing an endodontic problem is quite straightforward. Vitality; percussion tests can usually give insight as to what the etiology of the patients discomfort may be.

Digital radiographs have greatly enhanced our ability to get an overall view of the tooth and boney structures, surrounding the tooth and have given us the ability to change contrast, color, magnification, enhancing our view of the teeth and surrounding support structures.

**As good as digital periapical and bite wing radiographs are – they still have their limitations, being a 2 dimensional picture of a three dimensional object.**

Diagnosing resorptive defects, fractures, unfilled canals, is difficult with traditional radiographs They have their limitations, and using angulation techniques will create varying degrees of distortion. Not to mention, the accessory structures like sinuses, zygoma, etc that can hamper our ability for a clear picture of what is going on.

In the past decade or so the limitations of classical radiography mentioned above has changed. With the introduction of CBCT radiography in endodontics and dentistry, our vision of teeth, has forever changed. The ability to see teeth and pathology in three dimensions has greatly enhanced our ability to diagnose and treat or in some cases, not treat.

Perhaps the most important advantage of CBCT in endodontics, is that it demonstrates anatomic features 3 dimensionally, that intraoral and panoramic images cannot. CBCT units reconstruct the projection data to provide inter-relational images in three orthogonal planes (axial, sagittal and coronal).

In endodontics – a small field CBCT is used ideally which reduces radiation, increases resolution, decreases time of scan, and a smaller area of interpretation or responsibility of the practitioner. Other specialties such as orthodontics and oral surgery may use a larger field CBCT.

The effective dose of radiation exposure to the patient will vary according to the size of volume or used for the scan. Typical small field scans use between 4.8-381 microseiverts of radiation per scan. The lower values correspond to the anterior region with higher values in the posterior region. For comparative purposes normal everyday background radiation exposes us to approximately 8 microseiverts with typical bite wing radiograph exposure in the 6-7 microseivert range. Contrary to popular belief, CBCT scans do not expose patients to high doses of radiation. If several angled PA's are required in an attempt to visualize teeth, CBCT's may have a lower overall exposure to the patient.



**The use of CBCT in endodontics can be used in the assessment and treatment of complex endodontic conditions. The following are case examples of how CBCT can enhance diagnosis**

**Identification of root canal system anomalies and determination of root curvature. Extra canals, unfilled canals, split canals and accessory canals.**



**Fig. 1**

**Fig. 2**

**Fig. 3**

**Fig. 4**

This case shows a failing endodontic procedure completed 5 years previous. A periapical and lateral lesion on the distal root was observed on the preop periapical radiograph (Fig 1) could indicate a possible vertical fracture in tooth 46. A CBCT (axial view Fig.2) show a untreated distolingual canal. It was successfully retreated (Fig.3) and boney healing was observed on the 5 month recall radiograph (Fig 4)

**Diagnosis of dental periapical pathosis in patients who present with contradictory or nonspecific clinical signs and symptoms.**

These teeth may have poorly localized symptoms associated with an untreated or previously endodontically treated tooth with no evidence of pathosis identified by conventional imaging.



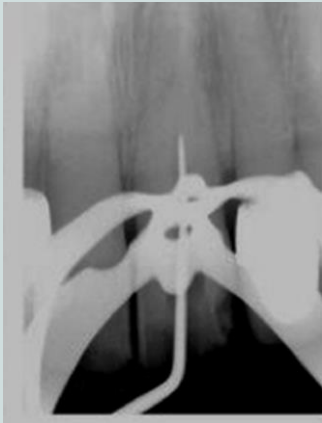
**Fig. 1 – Periapical of 26**



**Fig. 2 Sagittal view of 26 CBCT**

Tooth 26 has had a history of discomfort over the past 3 years. This patient has reported episodic pain and swelling in the tooth and surrounding tissue which would resolve spontaneously. Periapical radiographs taken over the past three years were inconclusive (Fig. 1). A CBCT of the same tooth shows the extensive abscess in the sagittal view (Fig. 2)

**Intra- or postoperative assessment of endodontic treatment complications, such as overextended root canal obturation material, separated endodontic instruments, calcified canal identification and localization of perforations.**



**Fig. 1 - Periapical**



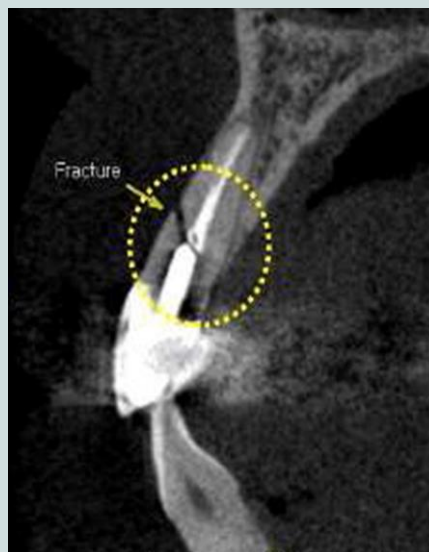
**Fig. 2 CBCT sagittal**

This case is tooth 21 with an extensively calcified canal. Access was made and canal space location was difficult. A periapical radiograph was taken with an endodontic explorer in the endodontic access (Fig.1). The instrument looks to be in the central portion of the root. The CBCT sagittal view (Fig. 2) of tooth 21 with a gutta percha marker in the access depicts a palatal access. The angulation was then shifted toward the buccal

**Diagnosis and management of dentoalveolar trauma, especially root fractures, luxation and/or displacement of teeth, and alveolar fractures.**



**Fig. 1 Periapical view**



**Fig. 2 CBCT sagittal view**

Tooth 12 was endodontically treated and a post and bridge placed 3-4 years previous. This patient was experiencing vague discomfort in the labial vestibule with some discomfort to percussion and biting on tooth 12. Periapical radiographs (Fig. 1) did not verify any periapical pathosis - which would be indicative of failing endodontic treatment. A sagittal CBCT view of tooth 12 (Fig. 2) verified an oblique fracture at the post / canal interface. Any further treatment on tooth 12 would have a poor prognosis and therefore extraction with implant replacement was recommended to this patient and their dentist

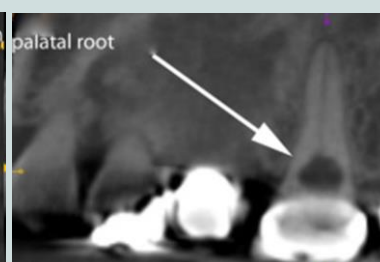
**Localization and differentiation of external from internal root resorption or invasive cervical resorption from other conditions, and the determination of appropriate treatment and prognosis.**



**Fig 1 Periapical**



**Fig. 2 CBCT coronal**



**Fig. 3 CBCT sagittal**

This case depicts a periapical radiograph (Fig. 1) of tooth 26 testing nonvital, with sensitivity to percussion and bite tests. No pathology was observed on the initial periapical radiograph, with extensive internal resorption on the palatal root evident on the coronal and sagittal views (Figs. 2 and 3)