



Huntington Village Implant & Oral Surgeons
PETER H. PRUDEN, D.D.S^{*}, P.C. & Associates

^{*}Diplomate of the American Board of Oral and Maxillofacial Surgery

^{*}Fellow of the American Dental Society of Anesthesiology

^{*}Fellow of the American College of Dentists

Don't Miss out
on our **Next**
Seminar

Thursday

**Nov. 6th,
2014**

3 CE Credits

"The Adhesive
Equation:
Predictable
and Evidenced
Based
Bonding
Techniques"

Presenter:
Howard
Golan, DDS

Registration
Dinner 5:30
pm

Lecture
8:00 - 9:00 pm

Dolan Family
Health Center

284 Pulaski
Road,
Greenlawn,
NY

This course is
sponsored by
the Suffolk
County Dental
Society, an
ADA-CERP
recognized
provider of
Cont. Ed. (CE)
approved by
the New York
State Dental
Association
and a design-
ated PACE
Program Provider
for the
Academy of
General
Dentistry.

Dental Imaging: Cone-Beam Computed Tomography

Long H, Zhou Y, Ye N, et al: Diagnostic Accuracy of CBCT for tooth fractures: A meta-analysis. J Dent 42:240-248,2014

CBCT in Dr. Pruden's Office: We have a Carestream 9300 CBCT scanner which has been very helpful in diagnosing fractured teeth, impacted wisdom teeth, teeth which can be saved with an apico instead of performing an extraction, and dental implant placement.

Clinical Significance: Cone-beam computed tomography (CBCT) is highly accurate as a diagnostic tool for tooth fractures and can be used in clinical settings. Positive findings can confidently start the clinician on a course of treatment for the patient. Negative findings are less clear, so close follow-up is recommended. CBCT is more likely to be accurate in non-endodontically treated teeth, so negative findings in endodontically treated teeth are especially suspect. The diagnostic pathway developed from the meta-analysis may prove beneficial for practitioners in making correct diagnoses and choosing appropriate treatments.

Background: The diagnosis of tooth fractures can be difficult because they can appear in so many clinical presentations and have no pathognomonic signs. Periapical radiography is used most commonly for diagnosis but has low diagnostic accuracy and leaves many fractures undetected. Cone (CBCT) allows the acquisition of three-dimensional views of teeth with high spatial resolution and low radiation exposure. A meta-analysis was conducted to determine the diagnostic accuracy of CBCT for tooth fractures.

Methods: The studies were identified through a search of PubMed, Embase, Web of Science, ProQuest Dissertations & Theses, CNKI, and SIGLE for articles published between January 1990 and April 2013. Twelve studies were chosen for inclusion in the meta-analysis, with sample sizes ranging from 10 to 135 teeth.

Results: In nearly all the studies, subjects were first evaluated using periapical radiography but received no definitive diagnosis. Thus the subjects were often considered difficult to diagnosis, which may have underestimated the diagnostic accuracy of CBCT in the meta-analysis. A quality assessment of the risk of bias and applicability concerns identified a medium to high risk of bias and a medium to low risk of applicability.

For the pooled outcomes, sensitivity was 0.92 and the specificity was 0.85. The positive likelihood ratio (LR) was 5.60 and the negative LR was 0.13. Considering the summary receiver operating characteristic (SROC), the pooled area under the curve (AUC) was 0.94. There was significant heterogeneity for tooth fractures and non-fractures. However, the pooled prevalence of tooth fractures was 0.91 and that for non-fractures was 0.91 and that for non-fractures yielded a positive test result prevalence of 0.87 and a negative test result prevalence of 0.13. Positive predictive value (PPV) and negative predictive value (NPV) were 0.99 and 0.77 respectively, for non-endodontically treated teeth and 0.98 and 0.28, respectively, for endodontically treated teeth.

Seven studies demonstrated a high risk of bias. Once these were excluded, a sensitivity analysis found a moderate but nonsignificant increase in diagnostic accuracy.

Discussion: From these findings a diagnostic pathway for patients with clinically suspected tooth fractures was developed (Fig 5). Patients who appear clinically to have a fracture should first undergo periapical radiography, with treatment begun for all those who are diagnosed with fracture using this modality. If no fracture is found but symptoms continue, patients should undergo CBCT. Fractures found by CBCT should be treated immediately. Finding no fracture should be viewed with skepticism because of the chance of false negative results with this test. Close follow-up is advised, especially if the teeth were endodontically treated.

It is important to recognize that the findings can only be applied to adults. The radiation risks for children are higher than for adults, so CBCT should be used only for pediatric cases that have appropriate justification.



Huntington Village Implant & Oral Surgeons
PETER H. PRUDEN, D.D.S.*, P.C. & Associates

*Diplomate of the American Board of Oral and Maxillofacial Surgery

*Fellow of the American Dental Society of Anesthesiology

*Fellow of the American College of Dentists

*Fellow of the American College of Dentists

Thursday

**Nov. 6th,
2014**

3 CE Credits

**"The Adhesive
Equation:
Predictable and Evidenced
Based Bond-
ing Tech-
niques"**

**Presenter:
Howard
Golan, DDS**

**Registration
Dinner 5:30
pm**

**Lecture
6:00 - 9:00 pm**

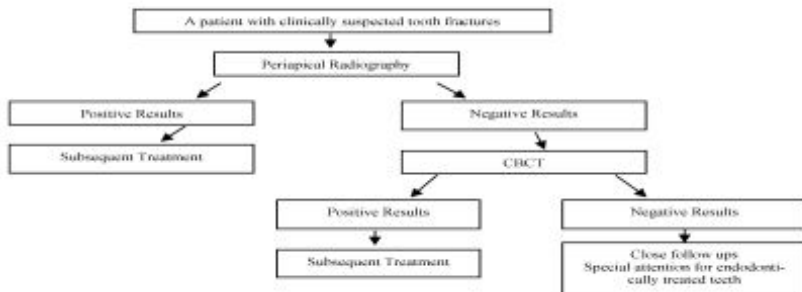
**Dolan Family
Health Center**

**284 Pulaski
Road,
Greenlawn, NY**

This course is sponsored by the Suffolk County Dental Society, an ADA-CERP recognized provider of Cont. Ed. (CE) approved by the New York State Dental Association and a designated PACE Program Provider for the Academy of General Dentistry.

Dental Imaging: Cone-Beam Computed Tomography

Discussion Continued:



**REMEMBER TO MARK YOUR CALENDARS FOR OUR
FIRST CONTINUING EDUCATION LECTURE IN 2015**

THURSDAY, JANUARY 29th, 2015 - 5:30 pm

**"PREDICTABLE DENTISTRY IN THE ESTHETIC ZONE
(FOR THE REGULAR GUY WITH AND WITHOUT IMPLANTS)"**

**PRESENTED BY
NEIL BERMAN, DDS**

**At the Dolan Family Health Center, 284 Pulaski Road, Greenlawn
Invitations will be mailed out at the beginning of December.**