

Press release

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Basic information

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Department of: Dentistry

Main supervisor: Associate professor Lise-Lotte Kirkevang

Title of dissertation: Apical periodontitis - Radiographic aspects of diagnosis, treatment planning and follow-up

Date for defence: 6/11-18 at (time of day): 14.00-16.00 Place: Aud 3, Institut for Odontologi og Oral Sundhed, bygn. 1613, lokale 109, Vennelyst Boulevard 9, 8000 Aarhus C

Press release (Danish)

Tandlæge forsvarer sin PhD om brugen af forskellige radiologiske metoder til diagnostik og behandling af rodspidsbetændelse.

Rodspidsbetændelse på tidligere rodbehandlede tænder er en meget hyppig tilstand, der ofte behandles kirurgisk. Formålet med kirurgien er, at tanden kan bevares smertefri i funktion så længe som muligt. I et nyt ph.d.-projekt "Apical periodontitis - radiographic aspects of diagnosis, treatment planning and follow-up" fra Aarhus Universitet, Health, er forskellige radiologiske aspekter i forhold til diagnostik og behandlingsplanlægning af tænder med rodspidsbetændelse blevet undersøgt. Projektet er gennemført af tandlæge Casper Kruse, der forsvarer det d. 16/11.

I første del af PhD-projektet blev to fyldningsmetoder (MTA vs ingen fyldning) kontrolleret med traditionel 2D røntgenteknik 1 år og 7 år efter kirurgisk behandling af rodspidsbetændelse. Det blev tydeligt vist at behandling med MTA gav den bedste prognose. Tidligere har man ment, at 1 års opfølgning var tilstrækkelig for at kunne vurdere behandlingsresultatet, men det blev i studiet også vist, at langtidsopfølgning er nødvendig for at kunne forudsige behandlingsresultatet på længere sigt.

Som alternativ til traditionel 2D røntgen er 3D Cone Beam Computed Tomography (CBCT) blevet introduceret for tandlæger. I anden del af studiet blev opfølgning efter kirurgisk behandling af rodspidsbetændelse med 2D og 3D røntgen sammelignet, og forskellen valideret histologisk i to sammenhængende studier. I det første af disse to studier blev der fundet flere tænder med fortsat tegn på betændelse, når der blev fulgt op med CBCT i forhold til 2D røntgen. Brugen af CBCT til opfølgning efter kirurgisk behandling af rodspidsbetændelse ville derfor give et større behov for rebehandling. I den anden del af studiet blev det dog vist, at i op mod 40% af disse tilfælde var der ingen betændelse, men blot arvæv efter første operation, og dermed ikke en behandlingskrævende tilstand.

I tredje del af studiet blev det vurderet om CBCT kan bruges til sikkert at diagnosticere betændelse i knoglen omkring tandrødder. Som det første større studie af sin art på mennesker, var både tænder med og uden tidligere rodbehandling inkluderet. Det blev vist, at CBCT er et godt værktøj til sikker diagnostik af rodspidsbetændelse på tænder, der ikke er rodbehandlede, mens diagnostikken var mindre sikker på tænder, der allerede var blevet rodbehandlede.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 16/11 kl. 14.00 i auditorium 3, bygn. 1613, lokale 109, Aarhus Universitet, Vennelyst Boulevard 9, 8000 Aarhus C. Titlen på projektet er "Apical periodontitis - Radiographic aspects of diagnosis, treatment planning and follow-up". Yderligere oplysninger: Ph.d.-studerende Casper Kruse, e-mail: casper.kruse@dent.au.dk, tlf. 9350 8082.

Bedømmelsesudvalg:

Hagay Shemesh, DMD, PhD, Chair, Department of Endodontology, Academic Center for Dentistry Amsterdam (ACTA), University of Amsterdam & The Free University Amsterdam, the Netherlands.

Professor Dr. Dent. Paul Lambrechts, Biomaterials - BIOMAT, Section of Endodontology, University Hospital Leuven, Department of Oral Health Sciences, KU Leuven & Dentistry, Leuven, Belgium

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Press release (English)

Dentist is defending his PhD on different radiographic methods for diagnosing and treatment of apical periodontitis.

Apical periodontitis on previously root canal treated teeth often is treated using a surgical approach. The main purpose is to keep the tooth functional and without pain for as long as possible. In a new PhD project "Apical periodontitis - Radiographic aspects of diagnosis, treatment planning and follow-up" from Aarhus University, Health, different radiographic aspects related to diagnostics and treatment of apical periodontitis have been evaluated. The project was carried out by Casper Kruse, DDS., who is defending his dissertation on 16/11.

In the first part of the project, two filling methods (MTA vs no filling) were evaluated with a traditional 2D radiographic technique 1 and 7 years after surgical treatment of apical periodontitis. It was shown that teeth treated with MTA had a more favourable prognosis. It has previously been suggested that 1-year follow-up is sufficient for evaluation of the treatment result. However, this present study showed that long-term follow-up is needed to be able to predict treatment results over a longer period of time.

As an alternative to traditional 2D radiographic technique a 3D technique Cone Beam Computed Tomography (CBCT) has been introduced in dentistry. In the second part of the project the two radiographic techniques were compared and the difference validated histologically in two interconnected studies. In the first of these two studies it was shown that when using CBCT more teeth with signs of persisting apical periodontitis were detected compared to the 2D technique, and hence the use of CBCT for follow-up after surgical intervention would lead to more retreatments. However, in the second part of the study it was shown, that in more than 40% of the suspected diseased teeth no apical periodontitis was found but rather scar tissue after the first surgical intervention.

In the third part of the project it was evaluated whether CBCT was accurate for diagnosis of apical periodontitis. As the first major study of its kind in humans, this study included both root-filled and non-root-filled teeth. It was shown that CBCT was an accurate tool for diagnosis of apical periodontitis in non-root-filled teeth, whereas for root-filled teeth the diagnosis of apical periodontitis was less accurate.

The defence is public and takes place on 16/11 at 14.00 in Auditorium 3, building 1613, room 109, Aarhus University, Vennelyst Boulevard 9, DK-8000 Aarhus C. The title of the project is "Apical periodontitis - Radiographic aspects of diagnosis, treatment planning and follow-up". For more information, please contact PhD student Casper Kruse, email: casper.kruse@dent.au.dk, Phone +45 9350 8082

Assessment committee:

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Associate professor Ellen Frandsen Lau, dr. odont., PhD, Section of PEriodontology, Department of Dentistry and Oral Health, Health, Aarhus University (chairman of the defense).

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