

Opinion

by

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ABOUT

the dissertation of Dr. Slavena Svetlozarova Georgieva – assistant professor at the Department of Conservative Dentistry and Oral Pathology, Medical University of Varna, Faculty of Dental medicine, on the topic "Application of cone-beam computed tomography in the endodontic practice", presented for obtaining the educational and scientific degree "Doctor" with supervisor Assoc. Prof. Dr. Tsvetelina Borisova-Papancheva, MD, PhD, in accordance with an order of the Rector of MU-Varna R-109-470 / 05.11.2021.

Biographical data

Dr. Slavena Svetlozarova Georgieva was born in 1991 in the city of Varna, Bulgaria. In 2017 she graduated the Faculty of Dental Medicine, MU-Varna. Since 2017 she has been a part-time assistant, and since 2018 - a full-time assistant at the Department of Conservative Dentistry and Oral Pathology at the Faculty of Dental medicine, Medical University of Varna. In 2018 she begins her specialization in Operative Dentistry and Endodontics with training base University Medical and Dental Center, Faculty of Dental Medicine, MU-Varna. Since 2019 she is a PhD - student in full-time educational program at the same department.

Relevance of the problem

In endodontics, preliminary examination is very important for the proper diagnosis and the choice of a treatment method. Conventional radiographic images are most often used in practice, despite their limited diagnostic potential - their two-dimensional nature, the superposition of anatomical structures, difficult visualization of more complex morphology, etc. Obtaining a three-dimensional image, the ability to perform accurate measurements are the other advantages of CBCT, make it applicable in more complex endodontic cases.

The presented study aims to investigate the application of cone-beam computed tomography in the field of endodontics and to clarify its diagnostic potential. This is what makes the presented study interesting, useful and applicable in the clinical practice.

Structure of the dissertation.

The dissertation is written on 228 pages. It is illustrated with 100 figures and 115 tables. The literature contains 376 sources, of which 5 in Cyrillic and 371 in Latin.

The introduction directs us to the studied problem. The literature review reflects current knowledge about the role of imaging in endodontics. The disadvantages of intraoral radiographic images, as well as the advantages and limitations of CBCT are reflected. The use of CBCT in endodontic practice before, during and after endodontic therapy is described in detail and comprehensively.

The aim is clearly formulated and corresponds to the title of the dissertation, concentrating on exploring the possibilities of CBCT in the detection and diagnosis of anatomical variations of the endodontic space and root canal system among the Bulgarian population. The set 4 tasks logically follow the idea and allow the implementation of the study.

Materials and methods include in the first and second task 127 patients in need of CBCT in order to diagnose and plan upcoming dental treatment. The subject of the analysis of the third task is to determine the average working length by groups of teeth, examining 140 patients. Task four plans to study the frequency of denticles in 30 patients and root fractures in 71 patients in need of CBCT in order to diagnose and plan upcoming dental treatment.

As a result of the research, Dr. Svetlozarova found that the frequencies of bilateral symmetry of the individual groups of teeth in terms of the number of roots, root canals and the type of configuration of the RCS differ to varying degrees from the results of similar studies. The differences are explained by the different ethnicity, the different methodology of the researches and the technical characteristics of the CBCT-devices and image processing software used. The results of the first task show that it is incorrect to judge the configuration of the RCS of the tooth to be treated by the condition of the RCS of the symmetrical one.

The analysis of the results for the maxillary first molars revealed a high frequency of available additional second mesio-vestibular root canal - in 70.9%. The high frequency of the presence of this additional root canal located in the medio-vestibular root in maxillary first molars among the Bulgarian population necessitates its special search. The existence of an additional root canal is difficult to diagnose by X-ray images due to their limited diagnostic potential.

Dr. Svetlozarova establishes the working lengths of the different groups of teeth. The results of the study also point out that working length measurement using CBCT in single-rooted teeth was comparable to the results of the electrometric method.

The presence of calcifications in the RCS was observed in 7.3% of the 738 teeth included in the study. In 57% the calcifications are found in the pulp chamber, and in the remaining 43% - in the root canals. Most denticles and calcifications in RCS are found in the group of molars. The age distribution shows a predominance in the incidence of denticles / calcifications in patients at/over 40 years of age - 59%.

The results showed that about 86% of the endodontically treated distal teeth examined did not show radiographic signs of an existing root fracture, such as the presence of a fracture line and / or atypically located around the root of the tooth bone resorption.

5 **conclusions** were drawn as a result of the research. Five **contributions** with original and confirmatory character are described. The bibliographic reference is in-depth, including a large number of sources, reflecting the world experience on the topic.

Publishing activity

Dr. Slavena Svetlozarova Georgieva is the author of two of the publications and the first author together with her supervisor in the third article related to the dissertation. This shows her leading role in the development of the problem investigated. The research has been presented at two scientific congresses in recent years.

Summary

The summary corresponds to the content of the dissertation and is in accordance with the accepted requirements. The aim, tasks, material and methods and the obtained results are presented on 84 pages. Also included are the conclusions, contributions, publications and participation in scientific events of Dr. Slavena Svetlozarova Georgieva.

Conclusion

The dissertation is structured according to the generally accepted requirements, has scientific and applied value and its structure fully complies with the accepted norms. All that gives me a reason to strongly recommend to the members of the scientific jury to support Dr. Slavena Svetlozarova Georgieva to obtain an educational and scientific degree "Doctor" and I will therefore vote in favor.

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