Undergraduated Dental Students' Perception on NiTi Rotary Instrumentation in Relation to their Didactic Scores

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INTRODUCTION

Contemporary endodontic practice has concurrently advanced in technologies in instrumentation. Rotary instrumentation become common among endodontists and general practitioners. This leads to an impact in endodontic teaching resulted in widely taught in dental school. In Rangsit university, dental students have been taught to use rotary instrumentation since they were in fourth year, and also used it in clinical practices under supervision of professor. However, errors still occurred in laboratory practice and clinical practice. Ledging, perforation and instrument fracture are found. Students are discouraged and frustrating especially in teeth with complex canal anatomy.

To date, there is insufficient data to determine which teaching model is suitable for teaching undergraduate students to perform rotary instrumentation with minimum risk of common and complicated errors. Therefore, the purpose of this study will consider whether the didactic score has any influence on the student skill in preventing the errors from rotary instrumentation during the 4th year preclinical endodontic course for academic years 2018-2019 at Rangsit University.

OBJECTIVE

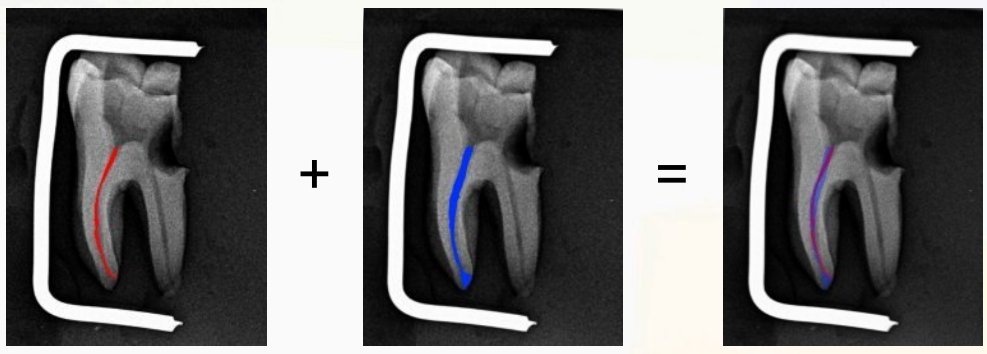
This study examined the relationship between students' didactic scores and laboratory score among forth year dental students of Rangsit university. This study evaluated the frequency of errors during students' laboratory practice.

MATERIAL AND METHOD

All data was collected from 99 students enrolled in endodontics II course (DRD432), performed rotary instrumentation on the mesiobuccal (MB) and mesiolingual (MLi) canals of a mandibular molar tooth. The quality of instrumentation and iatrogenic errors were evaluated, classified and scored by one blinded examiner. Errors were measured by hand files and superimposition of preoperative and post-operative radiographs. These canals were evaluated for uncontrolled working length, ledging, perforation, deviation, zipping and broken instrument.

Furthermore, there were a total of three didactic examinations. The first took place after the class lecture on rotary instrumentation. The second after the students had performed rotary instrumentation on the mesiobuccal (MB) canal of a mandibular molar or distobuccal (DB) canal of a maxillary molar. The third before rotary instrumentation of the mesiobuccal (MB) and mesiolingual (MLi) canals of a mandibular molar.

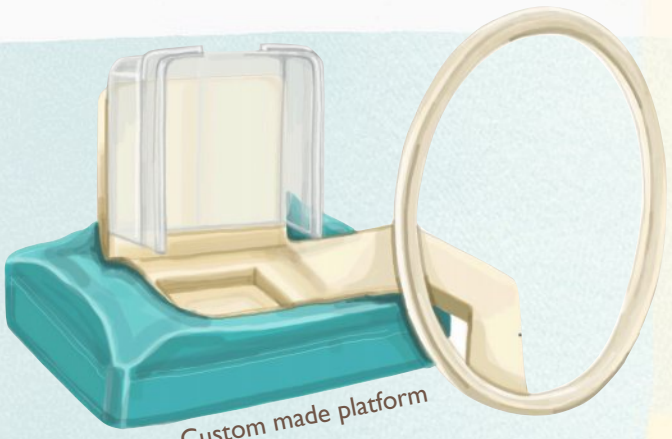
The laboratory and didactic scores were compared to evaluate the correlation between the clinical and didactic aspect of rotary instrumentation in dental students. This result is expected to aid the development of a proper teaching method of rotary instrumentation in the future.



Pre-instrumentation + Post-instrumentation = Superimposition

DATA ANALYISIS

The relationship between the laboratory scores and didactic examination scores were determined normality using Kolmogorov-Smirnov Test. According to non-normally distributed variable, the data was analyzed with Spearman correlation. A *p-value* < 0.05 was considered statistically significant.

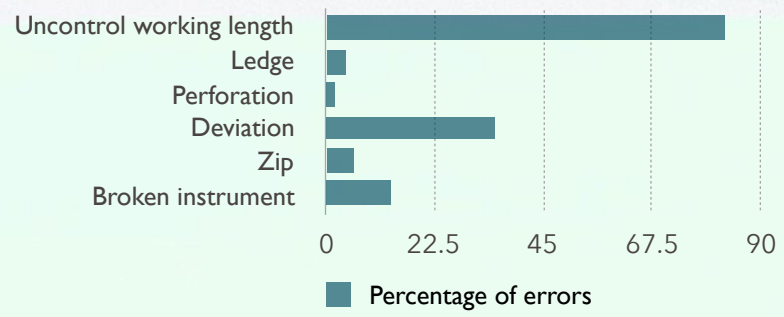


Custom made platform

Silicone jig

RESULTS

In the present study, there was no statistically significant correlation between laboratory scores and didactic examination scores. 90% of students had performed at least one type of errors. The highest percentages of error were uncontrolled working length (82.4%) followed by deviation (35.3%), broken instrument (13.7%), zipping (5.9%), ledging (3.9%) and perforation (2%) respectively. For didactic scores, out of 49, maximum was 44, minimum was 20 and the average scores was 34.99.



CONCLUSION

There was no correlation between didactic scores and laboratory scores. Sample size was reduced from 99 to 51 students mostly due to student changing their prepared teeth which could not be interrupted during the course. In addition, we believe that there is a need to improve student awareness of previous theoretical knowledge and laboratory practices to avoid endodontic mishaps. In further study, we could follow and re- evaluate this relationship over the long term to see better correlation for clinical performances improvement.

KEYWORDS

Rotary instrumentation, Written examination, laboratory examination, 6 common errors of instrumentation

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