



TRADITIONAL LECTURE; EFFECTIVENESS OF TRADITIONAL LECTURE VERSUS VIDEO FOR ORTHODONTIC TRAINING OF DENTAL INTERNS

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ABSTRACT... Introduction: Use of audiovisual aids is not new to improve dental teaching efficiency. **Objective:** To compare the effectiveness of traditional lecture versus video for orthodontic training of dental interns. **Study design:** Prospective, Randomized trial. **Setting:** Orthodontic Dental Section, Faisalabad Medical University. **Period:** 15.7.2017 to 5.2.2018. **Materials & Methods:** Two groups of 15 dental interns were selected randomly at Orthodontic Dental Section, Faisalabad Medical University. One group was presented with traditional lecture while other group was shown a video. The learning objective of both was to train the dental interns to bond molar tubes onto extracted human lower first molars. Dental interns bonded molar tubes and results were assessed by an experienced blinded orthodontist. Results were analyzed for accuracy of molar tube bonding. **Results:** Results showed that there was insignificant difference between the two groups for accuracy of molar tube bonding onto extracted human lower first molars (P value=0.3401). **Conclusion:** Traditional lecture and video were equally effective for orthodontic training of dental interns for bonding of molar tubes.

Key words: Lecture; Video; Medical education; Orthodontic; Molar buccal tubes.

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INTRODUCTION

Lecturing is one the cost effective and most commonly used teaching method in dentistry¹ but main disadvantage of lectures are that they are not effective for demonstrating practical skills.² Video has proved effective teaching aid for demonstrating practical skills to undergraduate and postgraduate students of dentistry.³ The comparisons of both these training methods are important in order to find out the best effective way for demonstrating practical skills in subject of orthodontics.

Video has the advantages of covering wide topic in less time, doing audio-video stimulation, control of users, and demonstration of practical clinical skills.⁴⁻⁷ There are conflicting results regarding best method out of video and lecture for demonstrating practical skills in subjects of medicine and dentistry.⁸⁻¹⁰ But studies are very few regarding best method out of video and lecture for demonstrating practical skills in subjects of orthodontics.¹¹

Keeping in mind the above rationale, the current study was designed with an aim to compare the effectiveness of traditional lecture versus video for orthodontic training of dental interns. Orthodontic literature is limited regarding comparison of different teaching methods for orthodontic training of dental interns.¹¹ Therefore this prospective, randomized study was designed to compare the effectiveness of two teaching methods for orthodontic training of dental interns for bonding of molar buccal tubes on human extracted mandibular molars.

METHODS

Study design

Prospective, Randomized study.

Setting and Duration

Orthodontic Dental Section, Faisalabad Medical University. From 15.7.2017 to 5.2.2018

Selection Criteria

Inclusion Criteria

Dental interns which are new to orthodontic

department

No prior orthodontic experience of bonding molar buccal tubes or brackets

Exclusion Criteria

Senior dental interns / dental surgeons
Prior history of bonding molar buccal tubes or brackets

DATA COLLECTION PROCEDURE

Sample size calculation was done using values from previous studies^{11,17} and a statistical nomogram. With power of study set at 80%, sample size was found to be 15 in each group. Therefore, two groups of 15 dental interns were selected randomly at Orthodontic Dental Section, Faisalabad Medical University. One group was presented with 15-minutes traditional lecture of power point slides while other group was shown a 15-minutes video. The learning objective of both was to train the dental interns to bond molar tubes onto extracted human lower first molars. Content of both lecture and video was same, even pictures used in lecture were taken from same video. The practical pre-test was taken before start of study and results ensured that dental interns of both the groups had equal minimum baseline skills of placing orthodontic molar buccal tubes on acrylic molar teeth.

Dental interns bonded molar tubes (MBT prescription, 3M, Unitek, USA) immediately after training session and results were assessed for accuracy by an experienced blinded orthodontist. Each dental intern bonded one molar tube in both the groups.

STATISTICAL ANALYSIS

For Intraexaminer reliability, 10 molar buccal tubes bonded on extracted molars were randomly selected and were reassessed 1 week after the initial assessment.

The number of dental interns placing inaccurate molar tubes was recorded and comparison of its proportions was made for both the groups by calculating standard normal deviate (SND) values. SND of < 1.96 was considered to be insignificant.¹¹

The number of molar tubes placed incorrectly was recorded and standard deviation (SD) was calculated for each dental intern and t-test was used for comparison of mean SD in both the groups. The P value ≤ 0.05 was considered as statistically significant.

RESULTS

Results showed that there was insignificant difference between the two groups for number of dental interns placing inaccurate molar tubes onto extracted human lower first molars. (SND 0.443) (Table I)

Results showed that there was insignificant difference between the two groups for accuracy of molar tube bonding onto extracted human lower first molars, in terms of comparison of SD values. (P value=0.3401) (Table II)

Intraexaminer reliability results showed that data were found to be reliable after analysis of 10 molar buccal tubes bonded on extracted molars that were randomly selected and were reassessed 1 week after the initial assessment.

No. of dental interns who placed inaccurate tubes		Difference between proportions	Standard normal deviate
12 (Lecture group)	11 (Video group)	0.0666	0.443

Table-I. Comparison of proportions of dental interns who placed inaccurate tubes for the video and lecture group

Parameter	No. of dental interns	Mean SD	P value
Molar buccal tube positioning	30	Lecture 0.3762 Video 0.4173	0.3401

Table-II. Comparison of the S.D tube positions between 2 groups using t test

DISCUSSION

Use of audiovisual aids is not new to improve dental teaching efficiency. The aim of present research was to compare the effectiveness of traditional lecture versus video for orthodontic training of dental interns. Two groups of 15 dental interns were selected randomly at Orthodontic Dental Section, Faisalabad Medical University. One group was presented with traditional lecture while other group was shown a video. The learning objective of both was to train the dental interns to bond molar tubes onto extracted human lower first molars.

Results of current study showed that there was insignificant difference between the two groups for number of dental interns placing inaccurate molar tubes onto extracted human lower first molars. Results also showed that there was insignificant difference between the two groups for accuracy of molar tube bonding onto extracted human lower first molars, in terms of comparison of SD values.

Results of current study are in contrast with findings of certain other previous studies. Howell found that lectures are better than a video for orthodontic teaching.¹⁸ Beswick et al found that videos are better than a lecture for practical assessment.¹⁹ Results of current study are agreement with findings of Paegle et al,²⁰ Cohen et al,² Packer et al²¹ and Kalwitzaki et al.²² who reported that traditional lecture and video were equally effective for training different medical and dental skills.

Chen et al. reported that for training of orthodontic auxiliaries there was insignificant difference between the two groups for accuracy of bracket positioning onto acrylic teeth, in terms of comparison of SD values.¹¹ This is in agreement with the findings of present study where insignificant difference was found between the two groups for accuracy of molar tube bonding onto extracted human lower first molars.¹¹ However, for angular bracket placements, Chen et al. reported significant difference between the two groups for accuracy of bracket positioning onto acrylic teeth which is in contrast with the findings of current

study where insignificant difference was found between the two groups for accuracy of molar tube bonding onto extracted human lower first molars, in terms of comparison of SD values.¹¹

Thus traditional lecture and video were equally effective for orthodontic training of dental interns for bonding of molar tubes. Limitations of current study are its small sample size, lack of cross over design, and inherent errors in video development. However, in presence of these shortcomings still present study provided useful data regarding comparison of effectiveness of traditional lecture versus video for orthodontic training of dental interns. Future studies with larger sample size and better methodology are suggested.

CONCLUSION

Traditional lecture and video were equally effective for orthodontic training of dental interns for bonding of molar tubes.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

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1	Muhammad Azeem	Data recording and analysis, Written the manuscript.	
2	Sabir Ali	Data analysis.	
3	Ambreen Shaukat	Data analysis.	
4	Arfan ul Haq	Main supervisor, Manuscript reviewing.	