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ORIGINAL RESEARCH

Assessment of awareness about endodontic failures among dental students

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ABSTRACT:

Background: Success of endodontic treatment depends on different factors, and the probability of failures varies significantly in different cases. The present study was conducted to assess awareness about endodontic failures among dental students. **Materials & Methods:** The present study was conducted on 280 dental interns of both genders. A questionnaire was prepared and distributed among dental interns and were asked to fill it and return. It was knowledge- based, attitude-based and practice-based questions. **Results:** Out of 180 subjects, males were 70 and females were 110. In response to causes of root perforations, 45% responded acute angle of canal, 25% responded vigorous instrumentation, 15% responded poor file condition and 15% replied canal blockage. 50% replied that right method to treat endodontic failure in non surgical root canal treatment, 40% replied surgery and 10% replied extraction. In response to from which segment file is not retrievable easily response was apical in 40%, middle in 35% and coronal in 20%. In response to the main reason leading to failure, clinical diagnosis was given by 25%, radiographic diagnosis by 15%, anatomy of the tooth in 35% and debridement of root canal space in 25%. **Conclusion:** Authors found that dental students had sufficient knowledge about cause of endodontic failures.

Key words: Knowledge, endodontic treatment, Questionnaire

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INTRODUCTION

Success of endodontic treatment depends on different factors, and the probability of failures varies significantly in different cases. Although some of the problems which occur during or after endodontic treatment are not predic, some are due to the dentist's failures in attending to details.¹

Endodontic treatment is successful in almost 95% of cases; however, in 5% of the cases, the treatment fails

due to different complications.² Success of endodontic treatment depends on different factors and the probability of failure varies significantly in different cases. Although some of the complications happening during or after endodontic treatment are not predictable, some are due to therapist's failure in attending to details.³

Endodontic treatment apparently success's in some cases in spite of, our best efforts. These fortunate

circumstances can also be attributed to a tremendous capacity of body's natural defences to cope with infections and to enhance the body's survival rate.⁴ Practicing endodontist should know that lack of pain is not sole criteria of success of endodontic treatment, but they would be hard pressed to present universally acceptable criteria for success or failures. The use of term adequate clinical function is more realistic, because the retention of tooth in function is ultimate goal of endodontic therapy.⁵

Some of the most common procedural accidents include: perforation of the pulp chamber during preparation of access cavity, creating ledge, broken instruments, root perforation and vertical root breakage; such accidents can happen in various stages of endodontic treatment such as developing access chamber, canal formation and cleaning, canal filling or preparation of post chamber.⁶

Mozayeni et al⁷ reported that one of the reasons for endodontic failure is endodontic procedural errors (such as void, over filling, under filling, gouging, furcation

perforations, missed canal, over perforation, strip perforation, ledge, zipping, broken files, and apical perforation). The present study was conducted to assess awareness about endodontic failures among dental students.

MATERIALS & METHODS

The present study consisted of 280 dental interns of both genders. Ethical approval was obtained from institute prior to the study. All dental students were informed regarding the study and written consent was obtained.

Data such as name, age, gender etc. was recorded. A questionnaire was prepared and distributed among dental interns and were asked to fill it and return. It was knowledge- based, attitude-based and practice-based questions. The questionnaire contained multiple responses. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of subjects

Total- 180		
Gender	Males	Females
Number	70	110

Table I shows that out of 180 subjects, males were 70 and females were 110.

Graph I Distribution of subjects

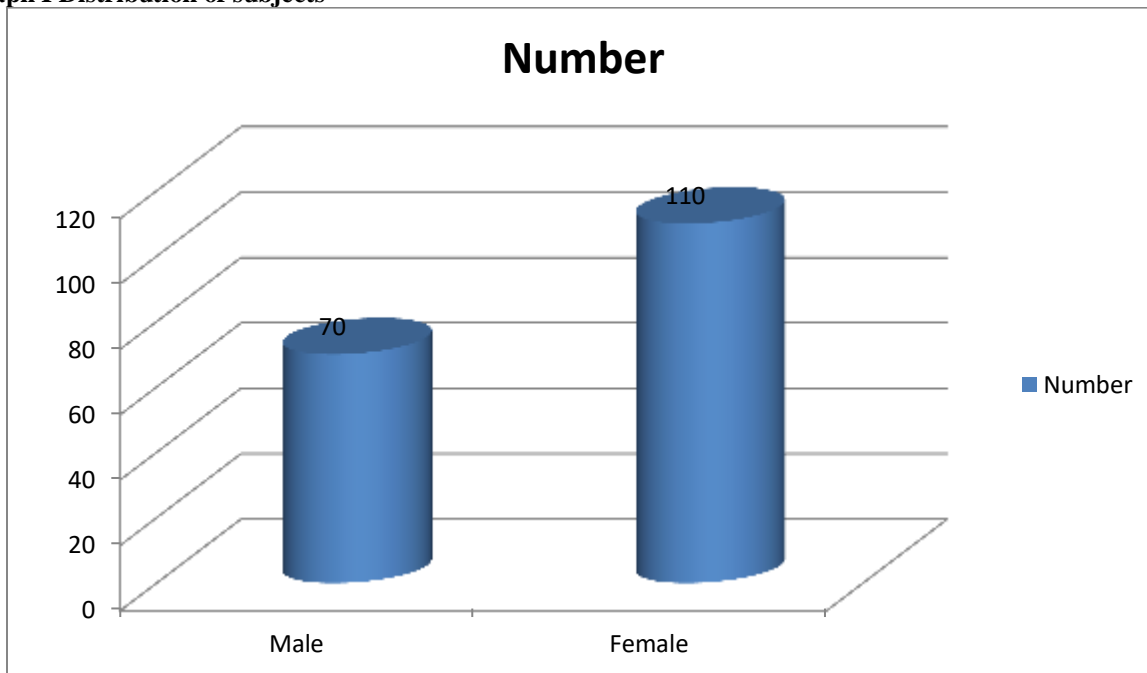


Table II Questionnaire sued for the study

Questionnaire	Number	P value
1. Most common cause of endodontic failure?		
a. Instrument separation	15%	0.01
b. Ledge formation	22%	
c. Canal blockage	45%	
d. Perforation	20%	
2. What is endodontic treatment success rate?		
a. Always successful	52%	0.71
b. Not always	48%	
3. What are causes of root perforations?		
a. Acute angle of canal	45%	0.05
b. Vigorous instrumentation	25%	
c. Poor file condition	15%	
d. Canal blockage	15%	
4. What is right method to treat endodontic failure?		
a. Non surgical root canal treatment	50%	0.02
b. Surgery	40%	
c. Extraction	10%	
5. What is importance of age in the success rate of endodontic treatment?		
a. Important	65%	0.04
b. Not important	35%	
6. In which teeth failures mostly occur?		
a. Incisor	10%	0.01
b. Canine	15%	
c. Premolar	25%	
d. Molar	50%	
7. From which segment file is not retrievable easily?		
a. Apical	40%	0.02
b. Middle	35%	
c. Coronal	20%	
8. What is the main reason leading to failure?		
a. Clinical diagnosis	25%	0.01
b. Radiographic diagnosis	15%	
c. Anatomy of the tooth	35%	
d. Debridement of root canal space	25%	

Table II shows that in response to question, most common cause of endodontic failure, instrument separation was responded by 15%, ledge formation by 22%, canal blockage by 45% and perforation in 20%. 52% responded that endodontic treatment is always successful and 48% responded not always. In response to causes of root perforations, 45% responded acute angle of canal, 25% responded vigorous instrumentation, 15% responded poor file condition and 15% replied canal blockage. 50% replied that right method to treat endodontic failure in non surgical root canal treatment, 40% replied surgery and 10% replied extraction. In response to importance of age in the success rate of endodontic treatment, 65% replied it is important and 35% replied not important. In response to question, in which teeth failures mostly occur, response given was incisor in 10%, canine in 15%, premolar in 25% and molar in 50%. In response to from which segment file is not retrievable easily response was apical in 40%, middle in 35% and coronal in 20%. In

response to the main reason leading to failure, clinical diagnosis was given by 25%, radiographic diagnosis by 15%, anatomy of the tooth in 35% and debridement of root canal space in 25%.

DISCUSSION

The term success or failures in endodontics must be defined rigidity, in order to be meaningful. A clear definition & agreement of what constitute a failure following endodontic treatment does not exist among endodontist. The dentist had reduced criteria for success of endodontic treatment to a very narrow definition to absence of pain. How convenient it would be if this concept could be totally accepted. Unfortunately absence of pain is not completely a reliable measure for good health or success in endodontic treatment.⁸ The present study was conducted to assess awareness about endodontic failures among dental students.

We found that out of 180 subjects, males were 70 and females were 110. We observed that most common

cause of endodontic failure, instrument separation was responded by 15%, ledge formation by 22%, canal blockage by 45% and perforation in 20%. 52% responded that endodontic treatment is always successful and 48% responded not always. In response to causes of root perforations, 45% responded acute angle of canal, 25% responded vigorous instrumentation, 15% responded poor file condition and 15% replied canal blockage.

Kashefi et al⁹ found that the students' knowledge was moderate in all of the fields studied including causes, prevention, treatment and prognosis of accident during endodontic treatment. Their knowledge of the causes of accidents during endodontic treatment was the lowest level and their awareness of the required endodontic treatment was the highest. There were no significant differences ($P>0.05$) in the average knowledge of students in the four areas of causes, prognosis, prevention and treatment of accidents of endodontic treatment. There was a significant difference in the average knowledge of the causes between male and female dental students ($P<0.05$); however, no significant difference in the average knowledge of other fields was observed between male and female dental students. The average knowledge of causes in female dental students was higher than male students.

We observed that 50% replied that right method to treat endodontic failure in non surgical root canal treatment, 40% replied surgery and 10% replied extraction. In response to importance of age in the success rate of endodontic treatment, 65% replied it is important and 35% replied not important. Sivakumar et al¹⁰ conducted a study in which questionnaires were given to the students during their class hours and then collected within 15 min. The answers to each question were numerically coded. According to the findings, students had a higher level of knowledge about treatment and prognosis of procedural accidents than about the causes and prevention. According to the findings of the present study, students had a higher level of knowledge about treatment and prognosis of procedural accidents than about the causes and prevention.

We found that in response to question, in which teeth failures mostly occur, response given was incisor in 10%, canine in 15%, premolar in 25% and molar in 50%. In response to from which segment file is not retrievable easily response was apical in 40%, middle in 35% and coronal in 20%. In response to the main reason leading to failure, clinical diagnosis was given by 25%, radiographic diagnosis by 15%, anatomy of the tooth in 35% and debridement of root canal space in 25%. Selzar et-al¹¹ performed SEM of the sliver cone studies revealed that the corrosion of the sliver cone was associated with sulphur. Chemical product formed predominantly a sliver amine sulfatelamide, all cells body contain sulphur primarily. Numerous studies have

shown that highest success rates were obtained when root canal terminates 1-3 mm from the radiograph open. Lin et al¹² on the impact of procedural accidents on the final outcome of the treatment, revealed that such accidents cannot be the primary cause of treatment failure. They consider treatment failure to be mostly due to the lack of proper understanding about the root canal anatomy, inefficient tools and devices of endodontic treatment, and lack of proficiency.

CONCLUSION

Authors found that dental students had sufficient knowledge about cause of endodontic failures.

REFERENCES

1. Patel S, Rhodes J. A practical guide to endodontic access cavity preparation in molar teeth. *Br Dent J* 2007;203:133-40.
2. Rahimi S, Mokhtari H. New Concepts in Management of Procedural Accidents in Endodontics 13th Congress of Iranian Endodontists Council; 2010.
3. Rasoulzadeh H, Hajhassani N. Evaluation of Procedural Errors of Root Therapy in Endodontics Department of Qazvin Dental School from 2011 to 2012. Thesis for General Dentistry of Qazvin University of Medical Science; 2014.
4. Al-Jewair TS, Qutub AF, Malkhassian G, Dempster LJ. A systematic review of computer-assisted learning in endodontics education. *J Dent Educ* 2010;74:601-11.
5. Aragon CE, Zibrowski EM. Does exposure to a procedural video enhance preclinical dental student performance in fixed prosthodontics? *J Dent Educ* 2008;72:67-71.
6. Farzaneh M, Abitbol S, Friedman S. Treatment outcome in endodontics: The Toronto study. Phases I and II: Orthograde retreatment. *J Endod* 2004;30:627-33.
7. Mozayeni MA, Asnaashari M, Modaresi SJ. Clinical and radiographic evaluation of procedural accidents and errors during root canal therapy. *Iran Endod J* 2006;1:97-100.
8. Hashemini SM, Khajavi N. Radiological survey of root canal errors in implements of dental students of Isfahan university of medical sciences. *J Isfahan Univ Med Sci* 1999;4:17-25.
9. Kashefi Nejad M, Ehsani M, Abdollahi Kalorazi H. Evaluation of dental students' awareness of endodontic procedural accidents in Babol University of Medical Sciences in 2013-2014. *Journal of Dental Materials and Techniques*. 2016 Sep 1;5(3):131-7.
10. Sivakumar NA, Raj JD. Awareness of factors affecting endodontic treatment failures among dental students. *Drug Invention Today*. 2019 Feb 1;11(2).
11. Seltzer S, Bender IB, Smith J, Freedman I, Nazimov H. Endodontic failures—an analysis based on clinical, roentgenographic, and histologic findings: part I. *Oral Surgery, Oral Medicine, Oral Pathology*. 1967 Apr 1;23(4):500-16.
12. Lin LM, Pascon EA, Skribner J, Gängler P, Langeland K. Clinical, radiographic, and histologic study of endodontic treatment failures. *Oral Surg Oral Med Oral Pathol* 1991;71:603-11.