

ORIGINAL ARTICLE

EVALUATION OF OUTCOME OF PATIENTS UNDERGOING ENDODONTIC THERAPY- A RETROSPECTIVE STUDY

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ABSTRACT:

Background- Many studies have shown that endodontic treatments can provide a high rate of success despite the complexity of the endodontic space. Nevertheless, a wide range of results is still reported by systematic reviews using clinical and radiographic measures of periapical healing. So, for a variety of reasons, endodontic failures still occur and some practitioners delegate endodontic treatments to qualified endodontists. **Materials and method-** A total no. of 300 patients were endodontically treated in the private Dental Clinic between November 2007 to July 2008 by endodontic treatment (initial or retreatment) on one tooth or more. The sample population included all patients referred to us from general dental practice and other clinical units of the dental hospital except those who had a medical contraindication. The detailed medical and dental history was obtained from each patient. Patients were informed about the various treatment alternatives and the benefits and risks associated with each solution. Informed consent was signed by all patients before treatment. **Results-** Among the 300 teeth, 230 were retained and 70 were extracted. The 300 teeth, 60 treated by specialists, 90 by interns, and 150 by staff. The 70 extracted teeth were 13 treated by specialists, 30 by interns, and 27 by staff. The 70 extracted teeth were 10 maxillary premolars, 30 maxillary molars, 20 mandibular premolars, and 10 mandibular anterior. Using Chi-square tests, successful endodontic healing were 30 treated by specialists, 30 by interns, and 115 by staff. Survival endodontic cases which had uncertain to successful endodontic healing are 30 treated by specialists, 60 by interns, and 35 by staff. **Conclusion:** A larger sample size is needed to assess all outcome predictors of endodontics treatment more precisely. Within the limits of this retrospective study, this work highlights the reliability of the initial endodontic treatment and the strong potential of endodontic retreatment when performed by trained and competent practitioners. The effectiveness of initial treatment is maximal and remains very high for retreatment.

Keywords: Endodontic failure, periapical healing, retained, extracted.

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INTRODUCTION-

Many studies have shown that endodontic treatments can provide a high rate of success despite the complexity of the endodontic space.^[1,2] Nevertheless, a wide range of results is still reported by systematic reviews using clinical and radiographic measures of periapical healing.^[3-5] So, for a variety of reasons, endodontic failures still occur and some practitioners delegate endodontic treatments to qualified endodontists. Therefore, some patients are referred to the Graduate Endodontic Clinic at the Bretonneau Hospital (Paris, France) for both initial treatments and re-treatments. One of the criteria of the students' evaluation is the outcome of the endodontic treatments. The management team of the hospital wanted to study the effectiveness of this clinic too; and a retrospective study was carried out. The purpose of this study was to (a) assess the 1-4-year outcome of endodontic treatment performed by

postgraduate students and (b) to examine the outcome predictors after a minimum follow-up period of 1 year.^[6]

MATERIALS AND METHODS-

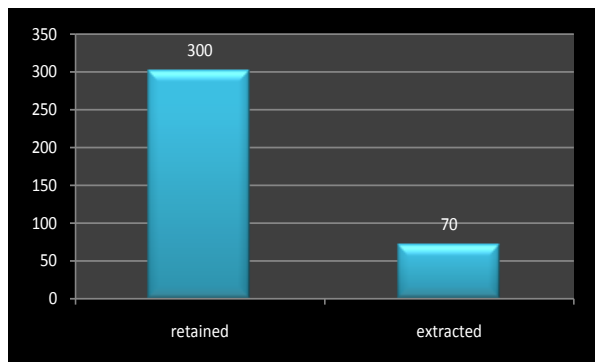
A total no. of 300 patients were endodontically treated in the private Dental hospital between November 2007 to July 2008 by endodontic treatment on one tooth or more. The endodontic treatments were performed by specialists, interns, and dental staff of the hospital. The sample population included all patients referred to us from general dental practice and other clinical units of the dental hospital except those who had a medical contraindication. The detailed medical and dental history was obtained from each patient. Patients were informed about the various treatment alternatives and the benefits and risks associated with each solution. Informed consent was signed by all patients before treatment. The exclusion criteria were the patient with high risk of bacterial endocarditis or immunocompromised patients. All treated patients were in good general health. Aseptic techniques were

systematically observed, with rubber-dam isolation, and if needed, reconstruction of missing walls with glass ionomer cement. The root canal preparation was carried out in accordance with the biological and mechanical principles. Canals were cleaned and shaped using hand files and Protaper system. They were irrigated with a 3% sodium hypochlorite solution using Endoneedle syringe. The working length was determined using an apex locator and the canal was prepared at a minus 0.5mm with respect to the zero reading position length.

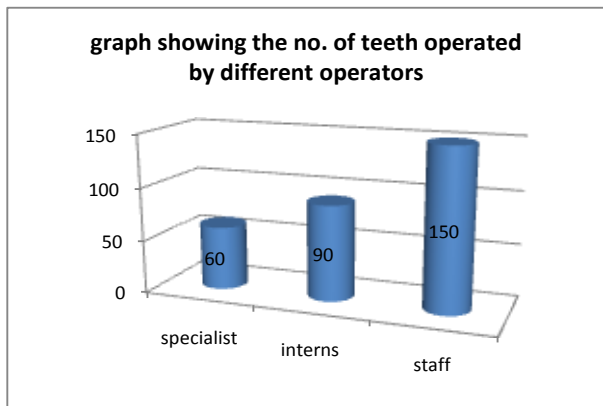
RESULTS

Among the 300 teeth, 230 were retained and 70 were extracted. The 300 teeth, 60 treated by specialists, 90 by interns, and 150 by staff. The 70 extracted teeth were 13 treated by specialists, 30 by interns, and 27 by staff. The 70 extracted teeth were 10 maxillary premolars, 30 maxillary molars, 20 mandibular premolars, and 10 mandibular anterior. Using Chi-square tests, successful endodontic healing were 30 treated by specialists, 30 by interns, and 115 by staff. Survival endodontic cases which had uncertain to successful endodontic healing are 30 treated by specialists, 60 by interns, and 35 by staff.

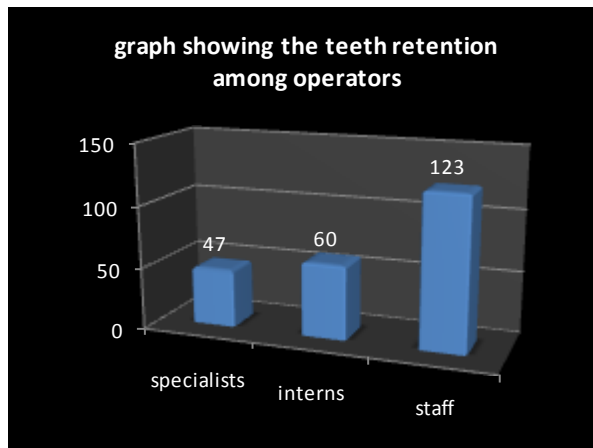
Graph 1- Showing the no. of retained and extracted teeth



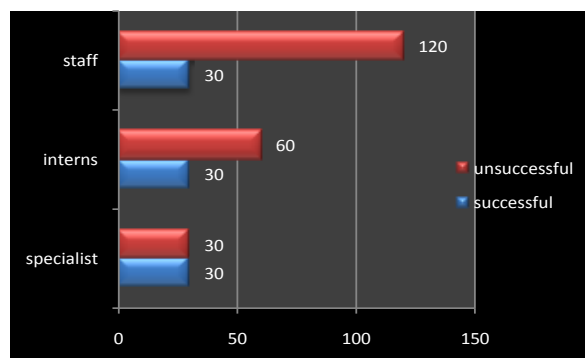
Graph 2- Showing the no. of teeth operated by different operators



Graph 3: Showing the teeth retention among operators



Graph 4- Showing the healing status among operators



DISCUSSION

The outcome of endodontic treatment was assessed by several studies. The treatment outcomes were reported from 30% to 98%. This huge difference in the outcomes is mainly because of variable evaluation criteria.^[7] In this study, we analyzed the outcomes of initial endodontic treatment considering lesion healing and tooth retention as evidence of treatment success and survivability, respectively. Healing rate (success) was low while the survivability (uncertain to healed lesions) was average. Our results matched with most of the endodontic outcomes studies. Endodontic clinical failures were seen within the first 3 years. This comes in accordance with Nobuhara and Del Rio study.^[8] All 70 teeth, which were extracted during the recall period, were not crowned. That may be the main failure factor lead to extraction. This fact repeated the finding of Fuss et al.^[9] study, when they found the quality of the crown restoration is a major cause of failure (43.5%). The same was found in Vire^[10], when they reported 59% of the failed cases were because of prosthodontics reasons. Zadik et al.^[11] found <1% of the failure is due to prosthetic reasons which contradict ours, Fuss et al. and Vire.^[12] Among the 205 patients, there were 12 hypertensive patients. It is interesting to note that most endodontic

clinical failures requiring additional intervention such as orthograde retreatment, apical surgery, or extraction were recognized within the first 3 yr. This is in agreement with the observations of Nobuhara and Del Rio^[13] who found that the majority of apical surgeries were performed within the first 2 yr after completion of orthograde endodontic therapy. It is most likely that such failures may have resulted from unresolved sign and symptoms, failing restorative treatment, root fractures, and/or iatrogenic causes. However, this specific information could not be obtained from the Delta Dental database. Most of the extracted teeth with full coronal coverage had no post. No significant differences were found between teeth with and without post. This is in agreement with Sorensen and Martinoff^[14] who suggested that the role of the core is more critical than the post for the long-term success of endodontically treated teeth. It is therefore recommended that teeth undergoing endodontic treatment be restored as soon as possible to prevent coronal leakage or coronal fracture. If the tooth does not require a post, a core should be placed upon completion of canal obturation or soon thereafter. Final restoration with full cuspal coverage should be done if the tooth has lost three or more surfaces.

CONCLUSIONS

Despite the limited sample size and the questionable recall rate, the results of this study confirm partially data from previous studies. It confirms the importance of identified predictors, including the initial symptoms and quality of initial treatment, as significant factors in the prognosis of the treatment. In the sample of patients involved, the presence of periapical radiolucency, the number of sessions, and the quality of the coronary restoration were not identified as statistically significant predictors. The study investigates other factors such as the intra operative incidents (broken instrument, perforations). However, for these factors due to the limited number of cases, the relative importance of each is not statistically significant. A larger sample size is needed to assess all outcome predictors of endodontics treatment more precisely. Within the limits of this retrospective study, this work highlights the reliability of the initial endodontic treatment and the strong potential of endodontic retreatment when performed by trained and competent practitioners. The effectiveness of initial treatment is maximal and remains very high for retreatment.

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