

Assessment of Clinical Outcome of Peri-Apical Surgeries Performed by Endodontists and Oral Surgeons: A Comparative Study

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ABSTRACT

Background: Persistent apical periodontitis following orthograde root-canal treatment is common among adult populations in various countries, with prevalence rates varying between 27%-70% and increasing with age. Despite a correct endodontic treatment or retreatment, in some cases peri-apical pathology persists. Hence; the present study was conducted for assessing the clinical outcome of peri-apical surgeries performed by Endodontists and oral surgeons.

Materials & methods: A total of 40 patients scheduled to undergo Periapical surgeries were excluded from the present study. All the patients were divided into two study groups with 20 patients in each group as follows: Group A: Oral surgeon performed the peri-apical surgery, Group B: Endodontist performed the peri-apical surgery. All the patients were recalled in the morning. All the surgeries were carried out under local anesthesia. Clinical outcome was assessed after 6 months. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software.

Results: Mean age of the patients of Group A and group B was 29.5 years and 32.7 years respectively. Among patients of group A, clinical outcome was successful in 19 patients while among group B, clinical outcome was successful in 18 patients. Non-significant results were obtained while comparing the clinical outcome among the patients of the two study groups.

Conclusion: Both oral surgeons and Endodontists can carry out peri-apical surgeries with equal efficacy.

Keywords: Peri-apical surgery, Endodontic, Oral surgery.

INTRODUCTION

Persistent apical periodontitis following orthograde root-canal treatment is common among adult populations in various countries, with prevalence rates varying between 27%-70% and increasing with age. Conventional root-canal treatment is considered to be the best method of managing periapical disease, with success rates varying between 48%-98%. If root canal treatment fails, the reasons for this must be accurately assessed before any further intervention. Whenever possible, nonsurgical retreatment is regarded as the

treatment of choice. However, where nonsurgical retreatment is not an option, periapical surgery (endodontic surgery) is considered to be a viable alternative. In order to eliminate existing extraradicular infections, foreign bodies and cystic tissue, periapical tissue is debrided by complete curettage in periapical surgery.¹⁻³

Despite a correct endodontic treatment or retreatment, in some cases periapical pathology persists. Therefore, periapical surgery may be

Received: Feb. 2, 2021; Accepted: Mar. 11, 2021

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indicated considering that is the last therapeutic option previous tooth extraction. The indications for periapical surgery are: i) periapical disease affecting a permanent tooth subjected to endodontic treatment (of good quality), with pain and inflammation; ii) periapical pathology with prosthodontic or conservative restoration proven to be difficult to remove; iii) a radiotransparent lesion measuring over 8 to 10 mm in diameter; iv) symptomatic guttapercha overfilling, or presence of a foreign body not amenable to orthograde removal (eg, fractured file); v) other indications (patient requiring endodontic treatment and periapical surgery in a single session, fracture of the apical third, etc.).⁴⁻⁶ Hence; the present study was conducted for assessing the clinical outcome of periapical surgeries performed by Endodontists and oral surgeons.

MATERIALS & METHODS

The present study was conducted for assessing the clinical outcome of peri-apical surgeries performed by Endodontists and oral surgeons. A total of 40 patients scheduled to undergo Periapical surgeries were excluded from the present study. All the patients were divided into two study groups with 20 patients in each group as follows:

- Group A: Oral surgeon performed the peri-apical surgery
- Group B: Endodontist performed the peri-apical surgery

All the patients were recalled in the morning. All the surgeries were carried out under local anesthesia. Clinical outcome was assessed after 6 months. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software.

RESULTS

Mean age of the patients of Group A and group B was 29.5 years and 32.7 years respectively. 13 patients of group A and 15 patients of Group B were males while the remaining were females. Among patients of group A, clinical outcome was successful in 19 patients while among group B, clinical outcome was successful in 18 patients. Non-significant results were obtained while comparing the clinical outcome among the patients of the two study groups.

DISCUSSION

Apical surgery belongs to the field of endodontic surgery, which also includes incision and drainage, closure of perforations, and root or tooth resections. The objective of apical surgery is to surgically maintain a tooth that primarily has an endodontic lesion that cannot be resolved by conventional endodontic (re-)treatment. It is therefore of clinical relevance to perform a thorough clinical and radiographic examination of the tooth before apical surgery (including adjacent and opposing teeth), in order to decide whether surgical or non-surgical endodontics should be considered. According to the updated guidelines by the European Society of Endodontology, indications for apical surgery comprise (1) radiological findings of apical periodontitis and/or symptoms associated with an obstructed canal (the obstruction proved not to be removable, displacement did not seem feasible or the risk of damage was too great), (2) extruded material with clinical or radiological findings of apical periodontitis and/or symptoms continuing over a prolonged period, (3) persisting or emerging disease following root-canal treatment when root canal re-treatment is inappropriate, and (4) perforation of the root or the floor of the pulp chamber and where it is impossible to treat from within the pulp cavity.⁷⁻⁹ Hence; the present study was conducted for assessing the clinical outcome of peri-apical surgeries performed by Endodontists and oral surgeons.

In the present study, mean age of the patients of Group A and group B was 29.5 years and 32.7 years respectively. 13 patients of group A and 15 patients of Group B were males while the remaining were females. Among patients of group A, clinical outcome was successful in 19 patients while among group B, clinical outcome was successful in 18 patients. As proposed by Lieblisch periapical surgery has to be performed in a tooth with no evidence of fracture and with an adequate periodontal status (less than 25% of vertical bone loss and periodontal pockets < 5 mm). Furthermore, the tooth must retain sufficient coronary structure for prosthesis and the patient should be able to tolerate the surgery. After 3 months of surgery, if the tooth remains symptomatic surgical retreatment in expert hands or extraction has to be performed, depending on each particular case. In absence of clinical signs

and symptoms, the clinician can proceed to finish the coronal restoration.¹⁰

In the present study, non-significant results were obtained while comparing the clinical outcome among the patients of the two study groups. Rahbaran S et al compared the outcome of periapical surgery performed in endodontic and in oral surgery units of a teaching dental hospital. A total of 176 teeth (endodontic unit, 83; oral surgery unit, 93) surgically treated more than 4 years previously were examined clinically and radiographically by means of strict criteria. Multiple logistic regression analysis was used. The rate of complete healing for patients treated in the endodontic unit (37.4%) was significantly ($P = .009$) higher than that for patients treated in the oral surgery unit (19.4%). The technical quality of surgery ($P < .001$), placement of root-end filling ($P = .039$), absence of a preoperative periapical lesion ($P = .042$), absence of a post ($P = .047$), and presence of an adequate coronal restoration ($P = .056$, odds ratio = 3.71) had significant effects on treatment outcome. The technical quality of periapical surgery, the presence of a periapical lesion, and adequate apical and coronal seal are important prognostic determinants of successful periapical surgery.¹¹ Şimşek-Kaya G et al analysed the factors that affect the decision-making process for periapical surgery. The factors involved in deciding to perform periapical surgery were classified into technical, biological, and combined factors. Out of 821 patients, 544 (66.3%) underwent endodontic treatment/retreatment, 204 (24.8%) were treated with coronal restorations and 60 (7.3%) were treated with post. Periapical surgery was indicated for biological reasons in 35% of patients and for technical reasons in 17.9%. The common biological factor was persistent clinical symptoms (19.7%). The most common technical cause was failure of previous endodontic treatment (66.3%). Nearly half of all periapical lesions (45%) were <5 mm in size. Periapical surgery was justified in only 434 (52.9%) subjects. They suggested that it is very important for patients to be informed and encouraged about endodontic retreatment in order to reduce unnecessary surgical procedures.¹²

CONCLUSION

Both oral surgeons and Endodontists can carry out peri-apical surgeries with equal efficacy.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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