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Original ARTICLE

Assessment of profile of patients undergoing peri-apical surgeries: A retrospective study

Sanjeev Chauhan[1], Tanuj Singh[2]

[1]Senior Lecturer, Department of Conservative Dentistry and Endodontics, H.P.G.D.C, Shimla (H.P), [2]Medical Officer (Dental), Himachal Pradesh

ABSTRACT
Background: Several surveys indicate that endodontically treated teeth are commonly associated with a high rate of periapical lesions and poor endodontic quality. The decision to perform periapical surgery should be based on comprehensive examination of the patient's dental, oral and medical conditions. Hence; the present study was undertaken for assessing the profile of patients undergoing peri-apical surgery. **Materials & methods:** Data records of a total of 40 patients were obtained who underwent peri-apical surgeries. After meeting the exclusion criteria, complete demographic and clinical data of all the patients was obtained. Detail data about the procedure and outcome of peri-apical surgery was also obtained. Radiographs were obtained from record files and separate analysis was done. **Results:** Peri-apical surgery was performed in incisors in 50 percent of the cases while it was performed in canines in 30 percent of the cases. Maxillary arch was involved in 57.5 percent of the cases. Peri-apical cyst/granuloma was the reason for peri-apical surgery in 55 percent of the cases, while broken instrument was the reason in 20 percent of the cases. **Conclusion:** Peri-apical surgeries are one of the routine dental procedures performed these days, mainly because of instrument breakage during root canal therapy or due to presence of peri-apical pathologies after finishing of endodontic therapy.
Key words: Peri-apical, Surgery

Corresponding author: Dr. Tanuj Singh, Medical Officer (Dental), Himachal Pradesh
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INTRODUCTION

Several surveys indicate that endodontically treated teeth are commonly associated with a high rate of periapical lesions and poor endodontic quality. The canals are frequently either underprepared, under-filled, or both. This type of failure usually responds most favorably to proper retreatment.[1- 3]

Technical considerations include the presence of a crown or a post as well as the presence of broken instruments or silver points that may prevent access to the infected canal. Extremely curved canals and perforations that cannot be repaired from within the canal may also be included in this group. Among these technical obstructions, a crown on an abutment tooth presents a unique problem, especially when a post is also present. Traditionally attempts to perform endodontic therapy through such a restoration were considered risky and were thought to potentially lead to disaster and were therefore not recommended. When removal of the restoration was not practical, apicoectomy became the only alternative.[4- 6]

The decision to perform periapical surgery should be based on comprehensive examination of the patient's dental, oral and medical conditions. In fact, however, treatment decisions are often based on the preferences and experience of the clinician. Moreover, patients often tend to choose the least costly option, i.e. tooth extraction, overlooking the functional, esthetic and psychological results of tooth loss. Few previous studies have assessed the relative importance of the different factors involved in the decision to perform periapical surgery.[7] Hence; the present study was undertaken for assessing the profile of patients undergoing peri-apical surgery.

MATERIALS & METHODS

The present study was undertaken for assessing the profile of patients undergoing peri-apical surgeries. Data records of a total of 40 patients were obtained who underwent peri-apical surgeries. Exclusion criteria for the present study included:

- Diabetic patients,
- Hypertensive patients,

- Patients with history of any systemic illness,
- Patients with history of any known drug allergy

After meeting the exclusion criteria, complete demographic and clinical data of all the patients was obtained. Detail data about the procedure and outcome of peri-apical surgery was also obtained. Radiographs were obtained from record files and separate analysis was done. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. Chi- square test was used for evaluation of level of significance.

RESULTS

In the present study, data of a total of 40 patients was analyzed. Mean age of the patients was found to be 33.8 years. 45 percent of the patients belonged to the age group of 30 to 45 years. 62.5 percent of the patients were males while the remaining were females. Peri-apical surgery was performed in incisors in 50 percent of the cases while it was performed in canines in 30 percent of the cases. Maxillary arch was involved in 57.5 percent of the cases. Peri-apical cyst/granuloma was the reason for peri-apical surgery in 55 percent of the cases, while broken instrument was the reason in 20 percent of the cases.

Table 1: Demographic profile

Parameter		Number	Percentage
Age group (years)	Less than 30	12	30
	30 to 45	18	45
	More than 45	10	25
Gender	Males	25	62.5
	Females	15	37.5

Table 2: Data in relation to tooth involved

Tooth involved in peri-apical surgery	Number	Percentage
Incisors	20	50
Canine	12	30
Premolars	8	20
Molars	0	0

Table 3: Distribution of cases according to arch

Arch	Number	Percentage
Maxilla	23	57.5
Mandible	17	42.5

Table 4: Reasons of peri-apical surgery

Reasons	Number	Percentage
Root canal therapy failure	10	25
Broken instrument	8	20
Peri-apical cyst/granuloma	22	55

DISCUSSION

Clinical indication of apical surgery is persistent periapical inflammation after the failure of an orthograde root canal treatment. The aim of apical surgery is the removal of the infected apical delta and the surrounding pathological tissue to ensure a hermetic seal between the periodontium and the root canal. Apical surgery is an established surgical method of tooth preservation, and in appropriate cases, it is a valid alternative to tooth extraction. The traditional apicoectomy technique has been performed with surgical burs and utilised amalgam as the root-end filling.[6- 8] After the introduction of microsurgical instruments in the early 1990s, the treatment outcomes of the teeth treated with apical surgery improved significantly. Despite the fact that case and treatment selection represent the first stage of treatment, only three retrospective studies to date have investigated the decision-making process involved in periapical surgery, which has been examined mainly in terms of contemporary microsurgical techniques and prognostic factors.[8, 9] Hence; the present study was undertaken for assessing the profile of patients undergoing peri-apical surgery.

In the present study, data of a total of 40 patients was analysed. Mean age of the patients was found to be 33.8 years. 45 percent of the patients belonged to the age group of 30 to 45 years. 62.5 percent of the patients were males while the remaining were females. Peri-apical surgery was performed in incisors in 50 percent of the cases while it was performed in canines in 30 percent of the cases. Şimşek-Kaya G et al evaluated the factors that affect the decision-making process for periapical surgery. This study retrospectively assessed clinical and radiographic data from patients undergoing 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 suggest that it is very important for patients to be informed and encouraged about endodontic retreatment in order to reduce unnecessary surgical procedures.[10]

In the present study, Maxillary arch was involved in 57.5 percent of the cases. Peri-apical cyst/granuloma was the reason for peri-apical surgery in 55 percent of the cases, while broken instrument was the reason in 20 percent of the cases. Sutter E et al conducted retrospective analysis of the outcomes of teeth treated with apical surgery after a 1-year follow-up period. To be eligible for inclusion, all patients were required to have undergone apical surgery with a retrograde root-end filling, and a 1-year follow-up examination. Treatment success at the 1-year follow-up time-point was defined as an absence of clinical complaints and radiographically determined healing. Parameters that were analysed included tooth localisation, periapical index of the preoperative lesion, administration of antibiotics, smoker status, histopathology of the apical lesion, radiographically determined sufficiency of root canal treatment pain and clinical signs of inflammation at the initial examination. A total of 81 teeth fulfilled all the inclusion criteria. At the 1-year follow-up, 91.4% of the teeth exhibited successful clinical and radiographic healing. The type of tooth was significantly associated with the success of the surgery ($p = 0.006$), but radiological severity of periapical inflammation, lesion histopathology, administration of antibiotics, smoker status, the quality of the root canal treatment, and preoperative pain and clinical signs of inflammation were not. The results of the present study suggest that apical surgery with retrograde root-end filling is a reliable therapy for the preservation of teeth.[11]

CONCLUSION

From the above results, the authors concluded that peri-apical surgeries are one of the routine dental procedures performed these days, mainly because of instrument breakage during root canal

therapy or due to presence of peri-apical pathologies after finishing of endodontic therapy.

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