

## ORIGINAL RESEARCH

### Profile of patients undergoing peri-apical surgery

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#### ABSTRACT:

**Background:** 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. Hence; the present study was undertaken for analyzing profile of patients undergoing peri-apical surgery. **Materials & methods:** A total of 50 patients who underwent peri-apical surgery were enrolled. Complete demographic and clinical details of all the patients were obtained. Analysis of Radiographs was done. The factors involved in deciding to perform peri-apical surgery in this study were classified into technical, biological, and combined factors. All the results were recorded in Microsoft excel sheet and were analyzed by SPSS software. **Results:** Incisor was involved in 42 percent of the cases, while canine and premolars were involved in 36 percent and 22 percent of the cases. Technical reasons were responsible for peri-apical surgery in 32 percent of the patients, while biological reasons were responsible were in 44 percent of the cases. **Conclusion:** Incisors are the most commonly tooth to be involved in peri-apical surgery with biological reasons being the most common etiological factors for peri-apical surgery.

**Key words:** Peri-apical surgery, Incisor

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#### INTRODUCTION

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.<sup>1-3</sup>

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.<sup>4-7</sup> Hence; the

present study was undertaken for analyzing profile of patients undergoing peri-apical surgery.

#### MATERIALS & METHODS

The present study was conducted for assessing profile of patients undergoing peri-apical surgery. A total of 50 patients who underwent peri-apical surgery were enrolled. Complete demographic and clinical details of all the patients were obtained. Diabetic and hypertensive patients were excluded. Analysis of Radiographs was done. The factors involved in deciding to perform peri-apical surgery in this study were classified into technical, biological, and combined factors. The technical factors were root-canal treatment, post, coronal restoration, broken instrument, extruded material, calcification, and others. The biological factors included persisting clinical symptoms, peri-radicular lesions such as cyst. All the results were recorded in Microsoft excel sheet and were analyzed by SPSS software.

**RESULTS**

In the present study, a total of 50 patients were analyzed. Mean age of the patients was found to be 38.4 years. Majority of the patients belonged to the age group of 25 to 40 years. 58 percent of the patients were males while the remaining were females. Incisor was involved in 42 percent of the cases, while canine and premolars were involved in 36 percent and 22 percent of the cases. Technical reasons were responsible for peri-apical surgery in 32 percent of the patients, while biological reasons were responsible were in 44 percent of the cases.

**Table 1:** Demographic data

Parameter		Number of patients	Percentage of patients
Age group (years)	Less than 25	12	24
	25 to 40	25	50
	More than 40	13	26
Gender	Males	29	58
	Females	21	42
Socio-economic status	Upper	5	10
	Middle	16	32
	Lower	29	58

**Table 2:** Distribution of patients according to type of tooth involved

Tooth type	Number of patients	Percentage of patients
Incisor	21	42
Canine	18	36
Premolar	11	22

**Table 3:** Factors responsible for peri-apical surgery

Reason for peri-apical surgery	Number of patients	Percentage of patients
Technical	16	32
Biological	22	44
Combined	12	24

**DISCUSSION**

Endodontic treatment is usually performed in teeth with periapical lesions. However, in some cases the pathology persists. Thus, periapical surgery has to be performed. It is considered to be the last treatment option before the extraction of a tooth. The main objective of periapical surgery is to seal the root canal system, thereby enabling healing by forming a barrier between the irritants within the confines of the affected root and the periapical tissue.<sup>8-10</sup> Hence; the present study was undertaken for analyzing profile of patients undergoing peri-apical surgery.

In the present study, a total of 50 patients were analyzed. Mean age of the patients was found to be 38.4 years. Majority of the patients belonged to the age group of 25 to 40 years. 58 percent of the patients were males while the remaining were females. Alghamdi F et al gathered updated data in regard to the surgical root canal (retrograde) retreatment to heal the periapical lesions. The electronic databases PubMed and Google Scholar were searched in this review using specific inclusion and exclusion criteria. The search was performed in June

2019 and updated in November 2019. Among 3900 studies, 10 studies satisfied the eligibility criteria and were included in the review to be analyzed. The 10 studies showed the importance of surgical root canal retreatment as a treatment option in removing infections within the root canal system and its efficiency in periapical tissue healing. These studies investigated different aspects of healing of periapical lesion after surgical (retrograde) retreatment including success rates, follow-up duration, and updated studies in surgical (retrograde) retreatment. Surgical root canal (retrograde) retreatment demonstrates its efficiency in reducing the period needed for healing of the periapical lesions in short-term follow-up compared to conventional orthograde retreatment.<sup>10</sup>

In the present study, Incisor was involved in 42 percent of the cases, while canine and premolars were involved in 36 percent and 22 percent of the cases. Love RM et al determined the types of periapical lesions associated with root filled teeth with persistent periapical pathosis that required surgical treatment based on specific inclusion and exclusion criteria. Periapical lesions from a consecutive clinical sample of 100 patients were examined histopathologically to determine a definitive diagnosis. Females were more represented (n = 56), the average age was 46.5 years and there were no age differences between gender or lesion type. A diagnosis of periapical granuloma was the most common finding with a similar number present in females (n = 40) and males (n = 37). A cyst was present in 18% of the cases with a majority of females (n = 12) represented in the sample. Evidence of foreign material, with an appearance consistent with endodontic sealer materials, was seen in 25 periapical granulomas, two cysts and one scar. Two periapical scars were seen, one had a history of apicectomy and amalgam root-end filling while the other was associated with extruded root filling material. By using defined clinical inclusion and exclusion criteria a predictable clinical diagnosis of a persistent periapical lesion due to endodontic origin can be reliably made.<sup>11</sup>

In the present study, technical reasons were responsible for peri-apical surgery in 32 percent of the patients, while biological reasons were responsible were in 44 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

suggested that it is very important for patients to be informed and encouraged about endodontic retreatment in order to reduce unnecessary surgical procedures.<sup>12</sup>

## CONCLUSION

From the above results, the authors concluded that incisors are the most commonly tooth to be involved in peri-apical surgery with biological reasons being the most common etiological factors for peri-apical surgery.

## REFERENCES

1. Von Arx T. Apical surgery: A review of current techniques and outcome. *Saudi Dent J*. 2011;23:9–15.
2. Danin J, Linder LE, Lundqvist G, Ohlsson L, Ramsköld LO, Strömberg T. Outcomes of periradicular surgery in cases with apical pathosis and untreated canals. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 1999;87:227–32.
3. Kim S, Kratchman S. Modern endodontic surgery concepts and practice: a review. *J Endod*. 2006;32:601–23.
4. Lieblich SE. Endodontic surgery. *Dent Clin North Am*. 2012;56:121–32.
5. von Arx T, Peñarrocha M, Jensen S. Prognostic factors in apical surgery with root-end filling: a meta-analysis. *J Endod*. 2010;36:957–73.
6. Ebell MH, Siwek J, Weiss BD, Woolf SH, Susman J, Ewigman B. Strength of recommendation taxonomy (SORT): a patient-centered approach to grading evidence in the medical literature. *J Am Board Fam Pract*. 2004;17:59–67.
7. Barone C, Dao TT, Basrani BB, Wang N, Friedman S. Treatment outcome in endodontics: the Toronto study--phases 3, 4, and 5: apical surgery. *J Endod*. 2010;36:28–35.
8. Kabak Y, Abbott PV. Prevalence of apical periodontitis and the quality of endodontic treatment in an adult Belarusian population. *Int Endod J*. 2005;38:238–45.
9. Rahbaran S, Gilthorpe MS, Harrison SD, Gulabivala K. Comparison of clinical outcome of periapical surgery in endodontic and oral surgery units of a teaching dental hospital: a retrospective study. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2001;91:700–9.
10. Alghamdi F, Alhaddad AJ, Abuzinadah S. Healing of Periapical Lesions After Surgical Endodontic Retreatment: A Systematic Review. *Cureus*. 2020;12(2):e6916. Published 2020 Feb 7. doi:10.7759/cureus.6916
11. Love RM, Firth N. Histopathological profile of surgically removed persistent periapical radiolucent lesions of endodontic origin. *Int Endod J*. 2009 Mar;42(3):198-202. doi: 10.1111/j.1365-2591.2008.01500.x.
12. Şimşek-Kaya G, Saruhan N, Yapıcı-Yavuz G, Ertaş Ü. A decision analysis for periapical surgery: Retrospective Study. *J Clin Exp Dent*. 2018;10(9):e914-e920. Published 2018 Sep 1.