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ORIGINAL RESEARCH

Assessment of cases of peri-apical surgery

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ABSTRACT:

Background: The present study was conducted to assess profile of patients undergoing apical surgery. **Materials & Methods:** 68 patients were recruited for peri- apical surgery of both genders. Follow-up was done at 1, 3, 6, and 12 months. Clinical and radiographic examinations were performed at each recall. **Results:** out of 68 patients, males were 38 and females were 30. Teeth involved was maxillary incisor in 20, maxillary cuspids in 20, mandibular incisors in 10 and mandibular cuspids in 18 cases. Prostheses were present in 24 and absent in 44 cases. Post was present in 22 and absent in 46 cases. Bony destruction pattern was apical in 28 and apico-marginal in 40 cases. Maximum healing was seen in maxillary incisor in 68% followed by maxillary cuspids in 53%, mandibular incisors in 66% and mandibular cuspids in 55%, 56% in teeth with prostheses, 80% in apical bone destruction and 75% in teeth with post. The difference was significant ($P < 0.05$). **Conclusion:** There was superior healing in maxillary incisors, teeth with prostheses present, teeth with apical bone destruction and teeth with post.

Key words: Healing, Apical surgery, Prostheses

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INTRODUCTION

Apical surgery is an option for the management of endodontically-treated tooth with persistent periapical lesions or symptom/sign. Several epidemiological studies have suggested that 33-60% of endodontically-treated teeth still presented the pictures of apical periodontitis¹. The possible causes may be persistent primary infection, secondary infection after endodontic therapy, vertical root fracture or cemental tears. Nonsurgical retreatment is preferable as the first choice for management of teeth with symptoms/signs, apical lesions and prior root canal treatment.² However, there were some limitations restricting the possibility of nonsurgical root canal retreatment, e.g., obstructed canal pathway, irretrievable materials within the root canal and persistent symptoms, which could not be resolved even after the meticulous performance of nonsurgical

treatment, persistent pain or swelling/sinus tract even after endodontic treatment and re-treatment.³ 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.⁴ Conventional root-canal treatment is considered to be the best method of managing periapical disease, with success rates varying between 48%-98%.⁵ If root canal treatment fails, the reasons for this must be accurately assessed before any further intervention. The present study was conducted to assess profile of patients undergoing apical surgery.

MATERIALS & METHODS

The present study was conducted among 68 patients of peri- apical surgery of both genders. All were

informed regarding the study and their consent was obtained.

Demographic data such as name, age, gender etc. was recorded. Preoperative periapical radiograph was taken before starting periapical surgery which followed all standardized methods under strict asepsis. Antibiotics and analgesics medication were prescribed. Follow-up was done at 1, 3, 6, and 12 months. Clinical and radiographic examinations were done. Results thus obtained were subjected to statistics. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 68		
Gender	Males	Females
Number	38	30

Table I shows that out of 68 patients, males were 38 and females were 30.

Table II Assessment of parameters

Variables	Parameters	Number	P value
Pre-operative clinical examination	Teeth Maxillary incisor	20	0.07
	Maxillary cuspids	20	
	Mandibular Incisors	10	
	Mandibular cuspids	18	
Prostheses	Present	24	0.01
	Absent	44	
Post	Present	22	0.04
	Absent	46	
Bony destruction pattern	Apical	28	0.01
	Apicomarginal	40	

Table II shows that teeth involved was maxillary incisor in 20, maxillary cuspids in 20, mandibular incisors in 10 and mandibular cuspids in 18 cases. Prostheses were present in 24 and absent in 44 cases. Post was present in 22 and absent in 46 cases. Bony destruction pattern was apical in 28 and apico-marginal in 40 cases. The difference was significant ($P < 0.05$).

Table III shows that maximum healing was seen in maxillary incisor in 68% followed by maxillary cuspids in 53%, mandibular incisors in 66% and mandibular cuspids in 55%, 56% in teeth with prostheses, 80% in apical bone destruction and 75% in teeth with post. The difference was significant ($P < 0.05$).

Table III Assessment of outcome

Variables	Parameters	Healed (%)	P value
Pre-operative clinical examination	Teeth Maxillary incisor	68%	0.12
	Maxillary cuspids	53%	
	Mandibular Incisors	66%	
	Mandibular cuspids	55%	
Prostheses	Present	56%	0.09
	Absent	44%	
Bony destruction pattern	Apical	80%	0.01
	Apico-marginal	54%	
Post	Present	75%	0.54
	Absent	62%	

DISCUSSION

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.⁴ Few previous studies have assessed the relative importance of the different factors involved in the decision to perform periapical surgery. 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.⁷

Whenever possible, nonsurgical retreatment is regarded as the treatment of choice.⁸ 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.⁹ The present study was conducted to assess profile of patients undergoing apical surgery.

In present study, out of 68 patients, males were 38 and females were 30. We found that teeth involved was maxillary incisor in 20, maxillary cuspids in 20, mandibular incisors in 10 and mandibular cuspids in 18 cases. Prostheses were present in 24 and absent in 44 cases. Post was present in 22 and absent in 46 cases. Bony destruction pattern was apical in 28 and apico-marginal in 40 cases. Bony destruction pattern was apical in 45 and apico-marginal in 13 cases. Post was present in 14 and absent in 42 cases. Kim and Kratchman¹⁰ suggested that surgical treatment can be more conservative than non-surgical treatment in

certain cases, particularly in the frequently observed instance of a tooth with satisfactory endodontics, a new post-and-coronal restoration, but a refractory or growing periapical lesion. Breaking or disassembling the coronal before removing the post and then retreating the canal, the authors argue, would be more traumatic, time-consuming and expensive and the results more uncertain than a root-end microsurgical approach.

We found that maximum healing was seen in maxillary incisor in 68% followed by maxillary cuspids in 53%, mandibular incisors in 66% and mandibular cuspids in 55%, 56% in teeth with prostheses, 80% in apical bone destruction and 75% in teeth with post. Liao et al¹¹ investigated the correlation between the demography, preoperative, postoperative factors and healed rate of apical surgery. Total 187 patients and 234 teeth receiving apical surgery were included. 53 male and 134 female patients were collected. The age was ranged between 17 and 89 years old and the mean age was 43.64 years old. Better healed rate with significant differences were observed in female patient ($p < 0.05$), age >60 years old ($p < 0.01$), preoperative root canal filling material >2 mm short of apex ($p < 0.01$), lesion size from >2 mm to >12 mm ($p < 0.05$) and follow-up period ≤ 12 months ($p < 0.01$) groups.

Serrano et al¹² assessed the most important prognostic factors when performing periapical surgery and compare the success rates of distinct authors. 33 articles were selected from 321 initially found. Ten articles from 33 were excluded and finally the systematic review included 23 articles: 1 metaanalysis, 1 systematic review, 2 randomized clinical trials, 6 reviews, 12 prospective studies and 1 retrospective study. They were stratified according to their level of scientific evidence using the SORT criteria. Factors associated with a better outcome of periapical surgery are patients ≤ 45 years old, upper anterior or premolar teeth, ≤ 10 sized lesions, non cystic lesions, absence of preoperative signs and symptoms, lesions without periodontal involvement, teeth with an adequate root-filling length, MTA as root-end filling material, uniradicular teeth, absence of perforating lesions, apical resection < 3 mm, teeth not associated to an oroantral fistula and teeth with only one periapical surgery.

CONCLUSION

Authors found that there was superior healing in maxillary incisors, teeth with prostheses present, teeth with apical bone destruction and teeth with post.

REFERENCES

1. Ebell MH, Siwek J, Weiss BD, Woolf SH, Susman J, Ewigman B, et al. 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.
2. 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.
3. Kreisler M, Gockel R, Aubell-Falkenberg S, Kreisler T, Weihe C, Filippi A, et al. Clinical outcome in periradicular surgery: effect of patient- and tooth-related factors--a multicenter study. *Quintessence Int.* 2013;44:53-60.
4. Peñarocha-Diago MA, Ortega-Sánchez B, García-Mira B, Maestre-Ferrín L, Peñarocha-Oltra D, Gay-Escoda C. A prospective clinical study of polycarboxylate cement in periapical surgery. *Med Oral Patol Oral Cir Bucal.* 2012;17:276-80.
5. von Arx T, Jensen SS, Hänni S, Friedman S. Five-year longitudinal assessment of the prognosis of apical microsurgery. *J Endod.* 2012;38:570-9.
6. García B, Peñarocha M, Martí E, Martínez JM, Gay-Escoda C. Periapical surgery in maxillary premolars and molars: analysis in terms of the distance between the lesion and the maxillary sinus. *J Oral Maxillofac Surg.* 2008;66:1212-17.
7. Pop I. Oral surgery: part 2. Endodontic surgery. *Br Dent J.* 2013;215:279-86.
8. Song M, Jung IY, Lee SJ, Lee CY, Kim E. Prognostic factors for clinical outcomes in endodontic microsurgery: a retrospective study. *J Endod.* 2011;37:927-33.
9. Kim S, Kratchman S. Modern endodontic surgery concepts and practice: a review. *J Endod.* 2006;32:601-23.
10. Kim E, Song JS, Jung IY, Lee SJ, Kim S. Prospective clinical study evaluating endodontic microsurgery outcomes for cases with lesions of endodontic origin compared with cases with lesions of combined periodontal-endodontic origin. *J Endod.* 2008;34:546-51.
11. Liao WC, Lee YL, Tsai YL, Lin HJ, Chang MC, Chang SF, Chang SH, Jeng JH. Outcome assessment of apical surgery: a study of 234 teeth. *Journal of the Formosan Medical Association.* 2019 Jun 1;118(6):1055-61.
12. Serrano-Giménez M, Sánchez-Torres A, Gay-Escoda C. Prognostic factors on periapical surgery: A systematic review. *Medicina oral, patología oral y cirugía bucal.* 2015 Nov;20(6):e715.