ABSTRACT

There is a massive growth in endodontic treatment in recent years, along with this there is also an increase in number of teeth requiring endodontic retreatment. The rural population of India cannot afford the retreatment charges in private dental clinics using expensive instruments and equipments. This article presents the common causes for the failure of endodontic therapy encountered in rural areas and also series of cases successfully retreated with minimal charges at Sri Siddhartha Dental College, Tumkur.

KEY WORDS: Endodontic therapy, Periapical lesions, Healing, Endodontic Retreatment.

INTRODUCTION:

There has been massive growth in endodontic treatment in recent years. This increase can be attributed to general public’s growing selection of root canal treatment as an alternative to the extraction procedure. Along with the salvation of millions of teeth every year comes the inevitable percentage of non-healed and unsuccessful treatments. Endodontic failures must be evaluated, so that a decision can be made among nonsurgical retreatment, surgical retreatment or extraction. The goals of nonsurgical retreatment are to remove materials from the root canal space and if present, address deficiencies or repair defects that are pathological or iatrogenic in origin.

India is a country with over one billion population. Despite the robust economic growth, India continues to face many major problems. The recent economic development has widened the economic inequality across the country. Approximately 80% of its population lives on less than $2 a day. 40% of children under the age of three are under weight and third of all men and women suffer from chronic energy deficiency. The rural population is still deprived of quality health care.

Sri Siddhartha Dental College and Hospital is a teaching hospital for dental undergraduate and post-graduate training.
and catering to the needs of rural population around Tumkur. Treatment is heavily subsidized and the charges to the patients are limited to nominal material and laboratory cost. Most dental procedures are carried out by dental students under the supervision of the staff, with a minority being provided by faculty members as well. Many failed cases are referred to our college for treatment. In many of the occasion’s patient’s do not want their teeth to be extracted but are also not willing to spend for the retreatment. All the cases presented in this report are retreated, without using any specialized equipments or materials keeping in mind the financial constraints of the rural patients.

The purpose of the article is to bring awareness among the general dental practitioners in rural areas about the causes of root canal failures and their prevention.

CASE SERIES

In all the cases presented here the chief complaint was pain and/or tenderness which had not subsided even after the root canal treatment was done. All of them were treated in multiple visits, using sodium hypochlorite as irrigating solution and calcium hydroxide powder mixed with saline as intra canal medicament. Zinc oxide eugenol was used as inter appointment restorative material. H- Files and xylene were used for removal of previous treatment filling material from the root canals. K-files and Ni-Ti hand files were used for cleaning and shaping. Iso taper gutta-percha and zinc oxide eugenol sealer were used for obturation. Symptoms subsided in all the patients after retreatment (Fig.1, 2, 3, 4, 5, 6, 7, 8, 9 and 10).

DISCUSSION:

Healing of lesions in retreatment cases ranges from 56% to 84%, where as initial treatment of apical periodontitis is 83% to 100%. Indicating the success of retreatment is not as predictable as primary endodontic therapy. Considering the financial constraints of rural patients and non affordability of using sophisticated instruments, equipments and materials like ultra sonic tips, retreatment rotary files, dental operating microscope and MTA by the general dental practitioners it is better from practitioner point of view to do a better initial root canal treatment to avoid failures.

We have observed that the following are the common causes for endodontic failures in the cases we encounter.

1. Inadequate attention to the pre-operative radiograph and poor quality radiographs leading to missed roots and canals.
2. Incomplete removal of the roof of the pulp chamber and over conservative access cavity preparation leading to incomplete removal of pulp tissue.
3. Use of over strained endodontic files leading to instrument separation in the canal.
4. Poor quality, inter appointment temporary restoration leading to contamination of pulp space.
5. Use of silver points as obturating material without proper shaping of the canal.
6. Inadequate lateral condensation leaving gaps between canal walls and gutta-percha causing leakage.
7. Incomplete removal of caries from coronal portion before giving post endodontic restoration.
8. Poor quality post endodontic restoration.
9. Lack of knowledge and skill of the clinician.
10. Not keeping the appointments on patients’ part.

Regardless of the etiology, the sum of all causes is leakage and bacterial contamination\(^6\). We have observed that whenever primary endodontic therapy fails many of the general dental practitioner’s think of extraction for posterior teeth and apicectomy and retrograde filling in case of anterior teeth with the hope that retrograde material will incarcerate biological irritants within the root canal system over the life of the patient. Although this clinical scenario occurs anecdotally it is not as predictable as non surgical retreatment.

**CONCLUSION:**

Considering the economics and motivation of the rural patients every effort should be made to prevent failures in initial endodontic therapy. This case series has proved that many of the failures in rural areas can be retreated to success with minimum cost to the patient instead of sacrificing the tooth. To conclude basic dental treatment is the right of every one not the privilege of few.

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**Figure 1:** Pre-operative radiograph.

**Figure 2:** Post-operative radiograph.

**Figure 3:** Pre-operative radiograph

**Figure 4:** Post-operative radiograph
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