HEALING OF PERIAPICAL RADIOLUENCIES ASSOCIATED WITH SINGLE VISIT, TWO VISITS AND MULTIPLE VISITS ENDODONTICS

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ABSTRACT

Thirty six mandibular molars were root canal treated in single visit, two visits and multiple visits divided into three groups accordingly. All the treated teeth were examined clinically and radiologically after 6 weeks, 12 weeks, 6 months and 12 months period of observation. Clinically all the treated teeth were successful except one flare up in group B. Radiologically the mean decrease in radiolucency with group A after 12 months was 0.59; with group B: 1.12 and with group C: 1.08 and the percentage decrease was 94.26, 85.92 and 86.76 respectively. There was no statistical difference in all the three groups. The post operative complications were minimum with all the groups. Single visit root canal therapy can be recommended as treatment modality in today’s fast moving world, as it definitely saves time, prevents flare-ups and fracture of teeth between the visits.

INTRODUCTION

In today’s fast moving world, patients are requesting for treatment modalities requiring minimum visits. This has created interest in clinicians to study the advisability and efficacy of root canal therapy in one visit. Total endodontic care of a tooth in a single visit is an old concept in clinical practice. It was displaced by multi visit procedures as endodontic treatment became more exacting and sophisticated and thereby required more time to complete properly. Dentists were taught that endodontic care required multiple visits and as a result single visit care fell by the wayside. Nevertheless, it continued to practice single visit endodontics. Usually surreptitiously, became such treatment was considered radical and substandard in quality.

Although accomplishment of root canal treatment in single visit is not a new phenomenon. Historically, the single-visit procedure can be traced through the literature for at least 100 years. Yet most practitioners practice multiple visit approach. Fox et al (1970) compared single visit root canal therapy and multiple visit root canal therapy and observed no statistical difference in post operative sequelae in both. Raane et al (1983) reported that post operative pain was twice in multiple visit approach as compared to single visit approach. Oliet (1993) favoring single visit root canal therapy quoted disadvantages of multiple visit approach as loss of provisional restoration, inter appointment leakage, fracture of tooth and loss of time. Landers (1980) reported no difference in flare ups between the two. Oliet, in a long term study, compared single-visit endodontics for postoperative pain and swelling as well as healing. Excluded from this study were patients with acute symptom that were relieved by establishing drainage, such as patients with acute alveolar abscess, those whose teeth had a persistent, continuous flow of exudates and, those whose teeth had anatomic difficulties and so could not be treated fully within the prescribed appointment time. Examination of data showed that only 4 teeth on both groups had slight swelling that disappeared within 48 hours; 3% of the 264 teeth treated in 2 visits caused severe pain within 24 hours, and approximately 7% of the single-visit group had moderate pain, as compared to 4% of

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the 2-visit group. The difference was not statistically significant.

Immura and Zuolo (1995)⁷, Ashkenaz (1984)¹ and Wahls (1996) summarizing the advisability of attempting single visit root canal therapy stated that the approach is not the answer for every clinical situation; however, operator's skill, knowledge and patient's selection is very important to achieve success in single visit approach.

The purpose of the present study is to evaluate the role of different approaches in healing of periapical radiolucencies.

MATERIALS AND METHODS
Thirty six mandibular molars requiring root canal treatment were selected from healthy patients between the age group of 18-30 years visiting the Department of Operative Dentistry and Endodontics at Liaquat University Hospital, Hyderabad. The teeth were divided into three groups, comprising equal number of teeth viz. Group A, B and C. In group A, single visit, in group B two visits and in group C multiple visit approaches were used.

Pre-operative intra oral periapical radiograph was taken following bisecting technique. The selected tooth was isolated with rubber dam. The root canals were prepared following Grossman's technique. The instrumentation was carried out exactly according to the calculated working length. The canals were irrigated, dried and filled with Guttapercha and sealer using lateral condensation technique. Post operative radiograph was taken to check the obturation. The access cavity was lined with zinc phosphate cement and filled with silver amalgam. A periapical radiograph was taken. The total procedure was carried out in one sitting in group A, two sittings in group B and in multiple sittings in group C under strict aseptic conditions. The patients were instructed not to chew from the side for eight hours. They were requested to report immediately in case of pain, discomfort and/or swelling. Patients were further instructed to report after 6 weeks, 12 weeks, 6 months and 12 months period for follow up examination both clinically and radio logically.

On each follow up examination patients were examined clinically as regard to intactness of restoration, pain, discomfort and/or swelling. The concerned tooth was radio graphed and the decrease/increase in periapical radiolucency was measured. The data was noted and compiled.

RESULTS AND DISCUSSION
The concept of performing root canal treatment in one visit is not new; however, controversy still exists regarding its efficacy and advisability in routine use. The present study was conducted comparing different approaches in healing of periapical radiolucencies. The decrease/increase in periapical radiolucency was noted after six weeks, 12 weeks, six months and 12 months period of observation. The periapical radiolucency over mesial and distal roots were combined for calculations.

On each follow up, patients were examined clinically as regard intactness of restoration, pain, discomfort and/or swelling. One patient in group A, reported with signs of flare up the very next day. The concerned tooth was disoccluded and the patient was put on anti inflammatory drugs, he was later comfortable. All other patients were clinically successful. Only one flare up cannot be related to the technique. Imura and Zuolo (1995) have reported that incidence of flare ups were much more with multiple visit approach as compared to single visit approach. Mulhern et al (1982) and Fava (1995) have reported that the post operative pain after single visit therapy was minimum.

Radiological results are tabulated in table 1. The mean reduction in the periapical radiolucency in group A, after 6 weeks are 6.37, after 12 weeks 4.37, after 6 months 2.18 and after 12 months 0.59. The percentage decrease was 25.34, 47.41, 73.76 and 94.26 respectively (Table 1). In group B, the mean reduction was 5.91 after 6 weeks, 4.17 after 12 weeks, 2.65 after 6 months and 1.12 after 12 months. The percentage decrease was 25.75, 47.61, 66.70 and 85.92 respectively (Table 1). In group C, the mean reduction was 6.17 after 6 weeks, 4.21 after 12 weeks, 2.76 after 6 months and 1.08 after 12 months. Percentage reduction was 24.38, 48.40, 66.17 and 86.76 respectively (Table 1). Statistically, there was no difference in the groups.

Fava (1994)⁵ found no difference in one appointment and two appointment root canal treatments in anterior teeth using calcium hydroxide. He further reported no difference of post operative pain using
TABLE I: GROUPWISE DECREASE IN RADIOLUCENCY IN MILLIMETERS

<table>
<thead>
<tr>
<th>Group</th>
<th>IPO</th>
<th>6W</th>
<th>12W</th>
<th>6M</th>
<th>12M</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Mean</td>
<td>8.31</td>
<td>6.37</td>
<td>4.37</td>
<td>2.18</td>
<td>0.59</td>
</tr>
<tr>
<td>Percentage</td>
<td>25.34</td>
<td>47.41</td>
<td>73.76</td>
<td>94.26</td>
<td>94.26</td>
</tr>
<tr>
<td>B. Mean</td>
<td>7.96</td>
<td>5.91</td>
<td>4.17</td>
<td>2.65</td>
<td>1.12</td>
</tr>
<tr>
<td>Percentage</td>
<td>25.75</td>
<td>47.61</td>
<td>66.70</td>
<td>85.95</td>
<td>85.95</td>
</tr>
<tr>
<td>C. Mean</td>
<td>8.16</td>
<td>6.17</td>
<td>4.21</td>
<td>2.76</td>
<td>1.08</td>
</tr>
<tr>
<td>Percentage</td>
<td>24.38</td>
<td>48.40</td>
<td>66.17</td>
<td>86.76</td>
<td>86.76</td>
</tr>
</tbody>
</table>

(IPO = Immediate Post Operative  W = Weeks  M= months)

three different instrument techniques. Stamos et al (1987) has advocated the use of ultrasonics in single visit root canal treatment. Citing factors of failure of root canal treatment, Pekruhn (1986)\textsuperscript{11,12} and Vive (1991) has reported that only 8.6% failures were reported because of poor endodontics and the rest were because of various other reasons especially post and core preparation and the periodontal problems. Southard (1984) treated acute periapical abscess in one visit root canal therapy and Boggia (1983)\textsuperscript{2} treated septic root canal with single visit therapy using endomethasone. The study strongly favours the efficiency of single visit root canal therapy with any sealer, preferably calcium hydroxide preparation. Ashkenaz (1984)\textsuperscript{1} has advised that the single visit therapy should be carried out only by skilled workers. Wahls (1996) has cautioned that the thorough knowledge of the morphology and the efficiency in obturating techniques was mandatory to achieve success in single visit root canal therapy.

CONCLUSION

Single visit root canal therapy can be recommended as treatment modality in today's fast moving world, as it saves time.

REFERENCES