

## Root canal treatment at Hope Dental Clinic: three case reports

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### **Abstract**

Acute dental pain is the most distressing symptom with which the majority of patients attending dental clinics present. It is a clinical problem to which a range of treatment interventions may be appropriate.

In Tanzania, extraction is the most commonly reported treatment option for acute dental pain although most of them would have been saved by endodontic treatment. This paper presents three cases of endodontic treatment performed at Hope Dental Clinic, Mwanza Tanzania. In all cases, patients indicated obvious preference for saving teeth through endodontic therapy.

**Key words:** root canal treatment, case report

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### **Introduction**

Pain is a personal, unpleasant sensation ranging from mild discomfort to agonizing distress that involves sensory, emotional and behavioral factors. It is usually associated with actual or potential tissue damage (1, 2). The most distressing symptom dental patients present with is acute dental pain often associated with advanced carious lesions (pulpitis) and/or periapical abscess (3).

Most patients in Tanzanian communities are likely to report to a dentist only when they are in acute dental pain, often with pulpitis beneath dental caries lesion or already formed dental abscess after a long “wait and see” period (3). Treatment options for such conditions include root canal treatment (RCT) (4, 5) and/or extraction (6) of the offending tooth.

Matee et al reported that, most of the oral health care services in Tanzania are associated with relief of pain and discomfort (7). Studies by van Palenstein et al (6) and Nyerere et al (8) showed that tooth extraction was the commonest intervention for acute dental pain carried out at district and regional level. However, many of these teeth condemned for extraction could have been saved through endodontic intervention.

Several reasons in favor of extraction over RCT have been reported. These include relatively low cost (0.5-1.00 US\$), lesser number of visits to the clinic,

shorter time for the procedure, modest requirements in terms of personnel and equipment (4) and a lack of appropriate dental equipments/facilities and/or lack of training (6). Limited access to oral health care services due to inadequate number of qualified oral health personnel may be another reason for few reported cases of RCT in Tanzania (3, 9-11).

Nevertheless, many studies around the world report that endodontic therapy is one of the most successful intervention options for acute dental pain (12-17). The success rates reported for RCT have been consistently high (12-15).

The aim of this article is to present three successful cases of endodontic therapy done at Hope dental clinic in Mwanza Tanzania from October 2008 to September, 2010.

### **Case 1.**

A 35 year old married business woman from Tarime - Mara region presented with severe pain on the upper right second incisor, awaking her at night for one week. Medical history was unremarkable. The history revealed that she had lost a total of twelve teeth through extraction and had an acrylic upper partial denture made to replace missing 11, 21, 23 and 24. On Examination: Poor oral hygiene characterized by gross calculus with mild gingivitis and gingival recession on the lower anterior teeth was observed. The patient had existing twenty teeth; some caries

free, two carious, and two retained roots but none with restorations. Tooth number 12 had two thirds of its crown worn out by caries but was still vital whereas tooth number 13 had a distal caries. There were retained roots for tooth number 14 and 47. All molar teeth were missing except sound molars 16, 17 and 27.



**Fig. 1** A preoperative radiograph for 12 to 16 showing the remaining coronal part of 12 very close to the pulp, carious lesion on distal aspect of tooth number 13 and apical radiolucency on 14 retained root.

*Definitive diagnosis* was acute pulpitis 12. *Treatment options* included: The first option was to extract tooth 12 and 14 and replace with acrylic upper partial denture for 14, 12, 11, 21, 23, and 24 at a total cost of 130,000/= Tshs. Second option was to do RCT on 12, restore the tooth using prefabricated para-post and composite crown; extract roots of 14; prepare a new partial denture after two months at a total cost of 180,000/= Tshs.

**Case Discussion**

The patient preferred the second option, because she has had too many tooth extractions and would not want to have any more tooth extracted despite the dentist’s recommendation of option one to be the best in terms of benefit, optimal treatment option, risks on outcomes, prognosis and financial implications. As clinicians we should aspire and are obliged to communicate the risk as accurately and clearly as possible, taking into account the patient’s risk acceptance and value attached to the outcome, if we want our patients to make informed choices. In the past, patients may have been informed of what treatment they should have, but it is now increasingly accepted that the relationship between dentists and patient as well as patient satisfaction are improved by encouraging patients to participate in making treatment choices. As Kay and Nuttall (18) reported, patient’s degree of risk acceptance is an essential component when determining the best clinical decision.

Root canal treatment was done on tooth number 12 and the tooth was restored using prefabricated para-post and composite, root remnants of tooth number 14 were removed (Fig. 2). Finally, proper oral hygiene practice was prescribed as a pre-request for preparation of the prosthesis.



**Fig.2** Post-treatment periapical radiograph showing restored tooth 12 and extracted tooth 14

**Case report 2**

A 38-year old female, presented with severe pain on the lower left, awaking her at night and an extremely sensitive lower right tooth to hot and cold. The case history indicated that in the past the patient had toothache arising from tooth decay and several teeth had already been extracted. Medical history was unremarkable. On Examination: Oral hygiene was fair. Tooth number 34 had a deep distal occlusal cavity with no pulpal exposure and was vital; tooth number 35 and 46 had distal occlusal and occlusal cavities respectively. There were small carious lesions on tooth number 17, 26 and 27. Radiographic findings indicated pulpal exposure on tooth number 35 with periapical radiolucency (Fig. 3). Tooth number 34 had no pulpal involvement.



**Fig. 3** Pre-operative periapical radiograph of tooth number 35

*Diagnosis:* Acute pulpitis for tooth number 35. *Treatment options* were: first option was extraction of 35 at a total cost of Tshs 30,000/=. Second option was root canal therapy of 35 at a total cost of Tshs 115,000/=.

**Case Discussion**

The possible management options were discussed with the patient as well as the risks and benefits of each option. The patient opted for RCT despite the expenses. RCT was carried out on 35 at a single sitting (Fig. 4&5).



**Fig.4** During treatment for tooth number 35



**Fig.5** Post-treatment periapical radiograph for tooth number 35

**Case report 3**

A 37-year-old lady presented with pain and swollen gum above an upper front tooth which was tender on biting for two weeks. The case history: The patient had lost two teeth through tooth extraction. She wished to have the offending tooth restored. Medical history was unremarkable. On examination: Oral hygiene was fair; no restorations were present; tooth number 28 and 46 were missing, whereas tooth number 22 had a deep palatal cavity with pulp exposure (Fig.9). There was a mild swelling and inflammation on the apical area which was tender to gentle palpation but no sinus tract and the tooth was not mobile.



**Fig.6.** Periapical radiograph indicating pulp exposure on tooth number 22 and widened ligament space.

*Definitive diagnosis:* Acute pulpitis of tooth number 22. *Treatment options:* first, extraction of tooth number 22 at a cost of TShs.10, 000/=. Second, root canal therapy that was to be completed in two visits, at a cost of 70,000/= TShs.

**Case Discussion**

All the advantages, disadvantages and outcomes for both options were clearly discussed with the patient who consented to option two.

No drainage was observed during the procedure; thus, the canal was thoroughly cleaned, disinfected and the access cavity was sealed with a temporary filling. The patient was cautioned of post-operative pain, and antibiotics and analgesics were prescribed. Lastly, the patient was appointed for second visit after two weeks to finalize her treatment. At a revisit, two weeks later, the patient reported that she had mild pain for the first two to three days which were taken care by the prescribed medication. Otherwise, the swelling had subsided in three days. Further debridement and canal preparation continued without application of local anaesthesia. Obturation and coronal seal was done and post-operative radiograph taken as is observed (Fig. 10).



**Fig. 7** Post-operative periapical radiograph of tooth number 22

### General discussion

These three cases illustrate the type of patients who may be considered suitable for root canal treatment. It is evident that RCT is a feasible and acceptable alternative to extraction. But we do need to consider how we measure the success or failure of our endodontic treatments.

### Conclusions

This paper has shown that RCT is a feasible and acceptable alternative to extraction for the relief of acute dental pain.

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