A CLINICAL STUDY ON MANAGEMENT OF MANDIBULAR MOLAR WITH LARGE PERIAPICAL ABSCESS AND FURCATION INVOLVEMENT: A CONSERVATIVE APPROACH

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ABSTRACT: Treatment of the damaged molar often presents a set of challenges unique to the posterior dentition. Traditional dental treatments continue to be refined to improve the prognosis when treating the posterior dentition. Daily treatment-planning decisions involve consideration of local host factors as well as limitations in specific therapeutic approaches. Objectives: The aim of this article is to present a case report of management of periapical abscess of mandibular right first molar associated with furcation involvement utilizing metapex followed by conventional root canal treatment. Results: Patient was evaluated after filling of canals with metapex every three months for one year. Radiographic examination showed healing of furcation defect as well as resolution of periapical radiolucencies. Clinical evaluation revealed reduction of tooth mobility. Discussion: The case was diagnosed as periapical abscess with furcation involvement. The suggested treatment of periapical abscess with furcation involvement by placement of metapex followed by conventional root canal treatment of the involved tooth could result in complete healing of tooth which was considered hopeless.


INTRODUCTION
Treatment of the damaged molar often presents a set of challenges unique to the posterior dentition. Traditional dental treatments continue to be refined to improve the prognosis when treating the posterior dentition.

Profound caries lesions may lead to invasion of microorganisms to the dental pulp. Periapical lesions develop as sequelae to pulp disease. Periapical lesions can promote the development of dentoalveolar abscess and periapical bone loss. They are generally diagnosed either during dental radiographic examination or following acute pain in tooth. Most periapical lesions can be classified as dental granulomas, radicular cysts or abscesses. The incidence of cysts within periapical lesions varies between 6 and 55%. The occurrence of periapical granulomas ranges between 9.3% and 87.1%, and of abscesses between 28.7% and 70.07%. Success rates of up to 85% have been reported after endodontic treatment of teeth with periapical lesions.

A high percentage of 94.4% of complete and partial healing of periapical lesions following nonsurgical endodontic therapy has also been reported.

Molar and premolar teeth exhibiting furcation involvement present some of the greatest challenges to successful dental treatment. The pulpal status of the tooth needs to be diagnosed when there is furcation involvement. The furcation lesion will often repair, with successful endodontic therapy, if the damage is due to pulp necrosis.

Case report
An 18-year-old female patient reported to the Department of Pedodontics, Rama Dental College, Hospital and Research Centre, with chief complaint of swelling of gum, pain and difficulty in mastication in right lower back region. The swelling was present since the 15 days. Extraoral examination revealed no swelling. Intraoral examination revealed that Oral hygiene status of patient was fair and Grade I mobility was evident in the 46. Tooth was tender on percussion and vitality test was negative.

Intra oral periapical radiograph revealed periapical radiolucencies in mesial and distal roots and furcation area of 46 (Fig.1). The clinical and radiographic findings...
Fig.1 - Radiograph --Pretreatment showing radiolucency in furcation and mesial and distal root periapical area

Fig.2. Radiograph immediate after placement of Metapex

Fig.3. Radiograph three month after placement of Metapex

Fig.4. Radiograph six month after placement of Metapex Gupta-After 6 months

Fig.5. Radiograph nine months after placement of Metapex

Fig.6. Radiograph one year after obturation with Gutta Percha points.
were suggestive of periapical pathology of in relation to
46. Emergency treatment included drainage of the
abscess with prescription of antibiotic regimen
(Amoxicillin 500 mg and Clavulanic acid 125 mg
combination) and analgesic Diclofenac sodium 50 mg
twice a day for five days. Patient was reevaluated after five
days, as the swelling and inflammation subsided;
Conventional root canal treatment was initiated at the
second appointment. After thorough preparation of canals
metapex was filled in canals and calcium hydroxide was
put in pulp chamber followed by placement of Zinc
Eugenol cement ( Fig.2) . Follow up was done after one
week and when the patient was asymptomatic, tooth was
restored with Glass inomer cement.

Further follow-up was done for one month, three
months, six months and 12 months. During follow-up it
was seen radiographically that radiolucencies in furcation
area and apical areas of roots was resolving and after one
year it has been seen that radiolucency has resolved
completely.

The radiological evaluation revealed increased bone
density in the periapical and furcation area after one year
indicating successful resolution of infection and bone fill in
the residual defect of furcation.

Finally root canal obturation was done using zinc oxide
eugenol sealer and Gutta percha points using lateral
condensation technique, followed by permanent
restoration with Glass inomer cement and crown.

Recall appointments consisted of reinforcement of oral
hygiene instructions, scaling if required and periapical
radiographs of the involved tooth.

DISCUSSION

There was evidence of carious lesion on the involved
tooth, so the lesion was diagnosed as endodontic lesion.
In the present case the pulp was non-vital and radiological
evaluation revealed periapical radiolucencies in relation to
mesial and distal roots and in furcation area.

The perfect mechanism involved in formation of
periapical lesions is not fully understood. It is considered
that if the pulp becomes necrotic the environment around
the periapical area become suitable to allow
microorganisms to multiply and various toxins enter into
the periapical tissue initiating inflammatory reaction which
leads to formation of periapical lesions 11, 12.

It has been proven that a positive correlation exists
between the number of bacteria in an infected root canal
and the size of the resultant periradicular radiolucency13.
When the disease process is of pulpal origin, the pulpal
infection and necrosis may drain not only through the
apical foramen, but also through an accessory canal,
which may present radiographically as a periradicular or
furcation radiolucency.

Without proper consideration for the cause, the pulpal
and periapical infection cannot be suitably treated;
effective patient management requires the correct
diagnosis and removal of the cause. Clinical tests are
imperative for obtaining correct diagnosis and
differentiating between endodontic and periodontal
disease 14.

Patients with pulpal disease may have a healthy
periodontium, gingivitis, or varying amount of attachment
loss (Periodontitis) on the affected or adjacent teeth.
Therefore appropriate treatment varies with the presence,
nature and extent of involvement of the diseases 15.

Periodontal treatment is not required in the absence of
any periodontal involvement. For management of
periapical abscesses, recommended protocol is drainage
and after one week the definitive treatment could be
carried out. Young molar teeth with pulp necrosis and
large periapical lesions in children are frequently treated
with root canal treatment 2.

Recent studies have shown, however, that intracanal
application of certain medicaments prior to the completion
of endodontic therapy may produce highly favorable
results when followed by conventional therapy, even when
the periapical area is very large. Copious amounts of
sodium hypochlorite are necessary to utterly dissolve all
remnants of pulp tissue as well as completely destroy all
microorganisms 16. The use of chlorhexidine gluconate
and calcium hydroxide for infection control was shown to lead
to substantial healing of a large periapical lesion 17.

CONCLUSION

The molar area presents some of the greatest
challenges to successful long-term therapy. Over time,
many techniques to preserve the damaged molar have
been developed that today appear heroic. It is accepted
that all inflammatory periapical lesions should be initially
managed with conservative nonsurgical procedures.

The periapical lesions in the present case was to large
but, it was resolved after nonsurgical therapy. Periapical
tissues have rich blood supply, lymphatic drainage and
abundant undifferentiated mesenchymal cells and
therefore good potential for healing. Thus the treatment
should be directed in removing the causative factors.

The success of the treatment depends mainly upon the
correct diagnosis. Thus if the lesion is endodontic in origin
then only proper endodontic treatment with long term
follow up will result in complete resolution of the lesion.
The approach to this problem is often multifaceted
therefore the long-term successes are as dependent upon
the oral hygiene maintaining abilities of the patient as on the technical excellence of the therapy provided.

References

17. Öztan, M.D. Endodontic treatment of teeth associated with a large periapical lesion, Int Endo J Jan 2002 35:1 pages 73-78.

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