LABIAL ACCESS FOR LOWER ANTERIOR TEETH – A RATIONAL APPROACH

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ABSTRACT:
The internal anatomy of mandibular anterior teeth is more complex than previously assumed with high incidence of two canals. Performing endodontic treatment in mandibular anterior teeth can pose several challenges if the traditional lingual approach is adopted. A labial or labioincisal approach is more appropriate in managing such teeth. A case is described where a labial access preparation proved to be more successful in locating and debriding the entire root canal system in mandibular incisor teeth. A 30 year old male patient reported with pain in lower anterior region. Clinical and radiographical examination suggested acute apical periodontitis for both mandibular central incisors which required endodontic treatment. Radiographically, two distinct canals were visible in both teeth. A labial access preparation was done to perform the endodontic treatment which successfully managed the case. Virtually invisible post-endodontic restorations were achieved using composite resins.

Keywords: Mandibular anteriors, Labial access, Root canals.

INTRODUCTION:
Access preparation can be considered one of the most important technical phases of endodontic treatment. The objectives of an ideal access are to locate all canal orifices and to achieve straight line access to the apex for easy instrumentation while conserving maximum tooth structure. Traditionally, a lingual approach has been advocated for anterior teeth for esthetic and restorative reasons. This works well for most anterior teeth.

However, mandibular anteriors pose a greater challenge. This is because of their small size (they are the smallest teeth in the dental arch) and a high prevalence of two canals. This makes them difficult to treat endodontically. In fact, Weine considers them “only slightly less difficult than molars and as difficult as bicanaled mandibular premolars”. The crown of the mandibular incisor is flattened labiolingually and the root is flattened mesiodistally. This makes access preparation fraught with danger as it is difficult to stay exactly within the long axis while preparing the access.

The internal anatomy of mandibular anterior teeth has been studied for nearly a hundred years now. The prevalence of two canals in these teeth has been reported to be as high as 41.4%. It is well worth remembering that roots that are wide buccolingually often harbor a second canal.

While preparing a lingual access for mandibular anterior teeth, the lingual canal is often undetected due to two reasons:

- the natural inclination of the bur and endodontic instruments is towards the labial canal and

- the presence of a lingual bulge of dentin overlying the orifice of the lingual canal. (Figure 1)

In order to optimize the access preparation, extending the access more towards the cingulum has been advocated. This aids in easy location and debridement of the lingual canal. Other researchers have described a facial approach for ease of treatment.

This article describes a case where the labial access was successfully adopted for the endodontic treatment of both mandibular central incisors.

CASE REPORT:
A 30 year old male patient reported with pain in the lower
anterior region of one week duration. His medical history was non-contributory.

Intra oral examination revealed generalized crowding of lower anteriors with traumatic occlusion. Both mandibular central incisors were extremely tender on percussion. Thermal and electric pulp tests elicited an exaggerated response. Radiographic examination did not reveal any periapical changes. A diagnosis of acute apical periodontitis was made and endodontic treatment of both the central incisors was planned. After obtaining the patient’s consent it was decided to access the teeth through the labial surface.

The factors which influenced this treatment plan were:

- Retroclination and crowding of the lower anteriors.

- Limited mouth opening.

- Radiographic evidence of two canals in both the teeth.

Local anesthesia was administered and rubber dam was applied. The access opening was done slightly below the incisal edge on the labial surface (Figure 2). Upon entering the pulp chamber, it was easy to locate the more elusive lingual canal as well as the labial canal in both teeth. Following cleaning and shaping of both the teeth, a calcium hydroxide intracanal medicament was placed. After two weeks when the symptoms had subsided, the canals were obturated. The post-operative radiograph revealed a Type II canal morphology as described by Weine.5 (Figure 3)

**DISCUSSION :**

An ideal endodontic access is a pre-requisite for thorough cleaning and shaping, thereby ensuring an excellent three dimensional obturation. A clear understanding of the internal anatomy of teeth enables the clinician to plan the endodontic entry in such a manner as to make total debridement of the entire root canal system possible. For mandibular anterior teeth this objective can be optimally achieved by approaching the pulp chamber from the labial rather than the lingual aspect.

An interesting study by Mauger et al.4 found that of the 179 teeth examined by them, 27.6% of lower anteriors had a straight line access slightly to the labial of the incisal edge and the remaining 72.4% through the incisal edge. None of the teeth had straight line access plotted through the lingual surface. They also observed that with incisal wear due to attrition, 97.7% of the teeth had straight line access through their incisal edges. Hence, it makes sense to adopt this approach

Another major benefit of this approach is that it conserves valuable tooth structure near the cingulum area which is the pericervical dentin. Retaining the tooth structure in this critical area maintains the strength of the clinical crown, preventing fracture of the tooth thus ensuring longevity of the endodontic treatment.13

Finally, modern composites guarantee a virtually invisible post endodontic restoration thereby removing any reservations that the dentist or the patient may have regarding adopting this approach.14(Figure 4)
CONCLUSION:

A review of the available literature on this topic reveals that researchers have been recommending the labial approach for mandibular anterior teeth since at least the 1980s. However, this fact is at best mentioned as an alternative approach in endodontic textbooks till date. Given the overwhelming body of evidence and the higher success rate that it assures it is time that endodontists switched over to the labial access for mandibular anterior teeth.

REFERENCES:


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