



BICUSPIDISATION AS A TREATMENT APPROACH FOR ADVANCED BONE LOSS IN FURCATION AREA OF MANDIBULAR MOLARS; A CASE REPORT

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ABSTRACT

Bicuspidization also known as separation is a surgical procedure performed on the mandibular molars with advanced bone loss in furcation areas. Here mandibular molar is separated into mesial and distal roots with their respective crown portion. Thus the furcation is eliminated and effective oral hygiene measures can be practiced for long term functioning of tooth in the dentition. In this case report, grade III furcation involvement was seen in left mandibular first molar. Tooth was non vital. After endodontic treatment completion, bicuspidisation was performed. After successful healing the patient was prosthetically restored to ensure the proper functioning.

KEYWORDS: Furcal bone loss, mandibular molar, and bicuspidisation.

INTRODUCTION

The progression of periodontal disease when left unnoticed ultimately results in attachment loss sufficient enough to affect the bifurcation and trifurcation of multirooted teeth. Furcation involvement in itself suggests advanced periodontitis with less favourable prognosis of affected tooth and has always been a challenge to treat. Treatment involves combining restorative dentistry, endodontics and periodontics to maintain the dentition in a functional harmony.^[1,2] Furcation involvement is classified into grade I, grade II, grade III and grade IV depending upon the severity. Grade I is also known as incipient or early furcation defect and treatment is mainly limited to conservative periodontal therapy. Grade II furcation lesion is a cul-de-sac with a definite horizontal component.^[3] Treatment involves various regenerative procedures like bone grafts or substitutes, guided tissue regeneration (GTR), root surface modification, and biological mediators.^[4] Grade III furcation defects in the mandibular molars have complete loss of bone in furcal areas and are rarely responsive to conservative and regenerative procedures and are managed by tunnelling, hemisection and bicuspidisation.^[5]

Bicuspidization is defined as the separation of mesial and distal roots of mandibular molars along with their coronal portion, where both segments are then retained individually.^[6] Thus the furcation is eliminated making it convenient to use various oral hygiene aids.^[7] The

indications of bisection are; Class II or III furcation involvements where the bone loss is untreatable with regenerative procedures, root recession or dehiscence Root fracture, root perforation or root caries, Root trunk fracture or decay with invasion of the biological width

CASE PRESENTATION

A 35-year-old female patient reported to the outpatient department (OPD), of Periodontology, Govt. Dental College and Hospital, Srinagar with the chief complaint of pain in left mandibular first molar. On examination, the tooth had a badly decayed crown and was sensitive to percussion. On probing the area, there was a 7-mm-deep periodontal pocket around the furcation area. On radiographic examination, severe vertical bone loss was evident at the furcation area. The bony support of both roots was completely intact. Root canal treatment of the tooth was performed. An appointment was given to the patient for performing the bicuspidisation. Under local anesthesia, a full thickness flap was reflected. The vertical cut method was used to separate the crown with the help of a long shank tapered fissure carbide bur. A vertical cut toward the bifurcation area was made. After the flap elevation, the tooth was dissected. All the surfaces of root were thoroughly instrumented. After the irrigation with saline solution, the flap was repositioned and sutured with 3-0 silk sutures. After 7 days sutures were removed and patient was referred to prosthodontic consultation for restoration.



Fig. 1: Pre-op.radiograph.



Fig. 2: Showing procedure.



Fig. 3: Suturing at the end of procedure.



Fig. 4: Final radiograph.

DISCUSSION

Bicuspidisation is a process in which a lower mandibular molar is splitted in the middle to two parts without removing any part. Non surgical management of grade III furcation involvement is not a treatment option as it does not lead to completely debridement of the root surface due to limited accessibility. The three factors which are involved for a successful bicuspidisation,^[8] include stability and adequate bone support for the individual tooth sections, absence of severe root fluting on root surface, adequate separation of roots to create embrasures for effective oral hygiene maintenance. The process of bicuspidisation requires a multidisciplinary treatment approach to preserve the teeth in whole or in part. As much tooth structure as possible is preserved which can be useful as independent single units of mastication or as abutments in simple fixed partial dentures. One of the potential disadvantage is that the remaining root or roots must undergo endodontic therapy and the crown must undergo restorative and prosthodontic management.

The tooth undergoing bicuspidisation is generally subjected to endodontic treatment prior to the procedure. However it can also be performed after the procedure if it can be determined that a successful root canal filling is practical and possible.^[9] Aspects of occlusal function such as location and size of contacts and the steepness of cuspal inclines play a significant role in over all prognosis of the tooth after treatment so during treatment, occlusal contacts were reduced in size and repositioned more favorably. Lateral forces were reduced

by making cuspal inclines less steep and eliminating balancing incline contacts.^[10]

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