FURCATION ENTRANCE DIMENSIONS IN MALAYSIAN PERMANENT MOLARS AND ITS PERIODONTAL IMPLICATION IN ROOT PLANING


ABSTRACT

The objectives of this study were to measure the Furcation Entrance Dimensions of first and second permanent molars in Malaysian samples and to compare the Furcation Entrance Dimensions with the blade widths of periodontal Gracey’s curette used for root surface instrumentation. A total of 199 extracted permanent teeth were measured, which comprised of 51 mandibular first molars, 51 mandibular second molars, 45 maxillary first molars and 52 maxillary second molars. Furcation Entrance Dimension was measured using calibrated test gauges. Results showed 51.91% of Furcation Entrance Dimension was ≤0.70mm. Forty eight percent (48.09%) of Furcation Entrance had Furcation Dimension of more than 0.70mm. It was concluded that 51.91% of all the Furcation Entrance Dimensions of these teeth were less than the blade width of new Gracey curettes. Therefore, new periodontal Gracey’s curette of small dimension may be the best choice of instrumentation and that ultrasonic debridement using a narrow tip may be a more appropriate choice.

Key words: Furcation entrance; molars; therapy; instruments

INTRODUCTION

Methods for the treatment of furcation involving molars have been shown to have variation degrees of success. The goals of furcation areas therapy are the same as the goals in all of periodontal therapy: arresting the disease process and ultimately, maintaining the teeth in health and function with appropriate esthetics. Furcation areas present some of the greatest challenges to the success of periodontal therapy. It has been shown to reduce the efficacy of periodontal therapy that had been found in multirotted teeth with furcal involvement, regardless of the treatment modality employed. Molar root morphology influences the diagnosis, prognosis and treatment of periodontal disease. Numerous studies have documented a high loss of maxillary and mandibular molars because of periodontal disease. This is due, at least in part to difficulty in instrumenting the furcation areas. Effective instrumentation is considered more difficult to achieve when periodontal pockets are deeper and when the root furcations of multirooted teeth have become involved in periodontal pockets. The difficulties imposed by furcation involvement have been confirmed by studying root surfaces within the furcation regions of teeth extracted subsequent to instrumentation. It has been reported that various morphological characteristics of the first permanent molars may contribute to difficulties in cleaning surfaces within the furcation regions. Above all, Furcation Entrance Dimension was identified to be of prime importance. The purpose of this study was therefore to measure the Furcation Entrance Dimension in Malaysian first and second upper and lower permanent molars and to compare these dimensions with the blade of periodontal curettes which have been used in root debridement within furcation at the Faculty of Dentistry, University of Malaya.

MATERIALS AND METHODS

A total of 199 extracted teeth were retrieved, whereby 51 were mandibular first molars, 51 were mandibular second molars, 52 were maxillary first molars and 45 maxillary second molars. The extracted teeth were obtained following normal extraction from the Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, University of Malaya. All the teeth had intact furcation with unaltered tooth substance which could be due to dental caries, fractures or tooth wear. All the teeth were immersed in 5.25% sodium