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RESEARCH ARTICLE

TO COMPARE THE PERCEPTION OF PINK AESTHETICS WITH PAPILLA IN VARYING PROPORTION TO THE TEETH AMONG INDIAN POPULATION

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ABSTRACT

Fulfilling the aesthetic expectation of the patient is the challenging task for the dentist especially when it involves the maxillary anterior region. Aesthetic perception varies among individuals which in turn affect the outcome of the restoration. This study aims at comparing the perception of aesthetic between C.R.R.I.s and lay person. Two groups were made to evaluate the aesthetic outcome of photos of interdental papilla with varying height in the aesthetic zone. The result shows that dental professionals as well as the layperson rated the gingival smile with 1mm shortened papilla to be very attractive and good.

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INTRODUCTION

With the increase awareness among the patient regarding their facial outlook, the demand for dento-facial aesthetics has accentuated in the recent past. Dental aesthetic has grown from the point of garbled work to the point of exactly replicating the teeth and surrounding structures. Satisfying the aesthetic demand of the patients requires greater skill of the dentist and the laboratory technician involved. The situation becomes more complicate when it comes to soft tissue aesthetics especially around dental implants. Implant prosthesis in the aesthetic region not only require restoration of hard tissue but also the proper rehabilitation of the soft tissue profile. Development of interdental papilla is a challenging situation even of the most experienced implantologist. Various precautions has been taken from the incision stage through implant placement to the cementation of prosthetic component to preserve or establish the adequate interdental papilla (Backer, 1996).

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Studies have shown that position of contact point between the artificial crown or between the crown and natural teeth determine the amount formation of interdental papilla. When the distance between the base of the contact point of crowns and height of interproximal bone was less than 5, the papilla was present 100% of the time, but when the distance increased to 6 and more than 7 mm, the papilla was present only 46.5 and 24 percentage of the time respectively (Somanathan *et al.*, 2007). Insufficient formation of interdental papilla between the teeth leads to development of 'black triangle' which adversely compromise the aesthetics. Moreover the perception of aesthetics depends on the skill and previous experience of the observer. In this study the perception of aesthetic outcome of varying heights of interdental papilla in the aesthetic zone were compared between the dentist and lay people.

MATERIALS AND METHODS

Fifty randomly selected dental CRRI's and Outpatients from Adhiparassakthi dental college and hospital were involved participated in this study. A control and four altered photographs were presented for evaluation and were asked to rate the smile in each picture from the scale of 1 to 3.

Control photographs

A natural smile that correlated with Rufenacht's tooth papilla-ideal gingival proportions was identified. A digital photograph limited to the lips and teeth within the smile (high smile line), was obtained. Utilizing a computer software program (Adobe Photoshop 7.0, Adobe Systems inc), the smile in the photograph was digitally enhanced. The coronal display of the papilla and gingival levels were symmetrically aligned on both sides of the arch and constituted "the gold standard" for esthetics. The purpose of this enhancement was to eliminate discrepancies and minimize any potential bias.

Experimental photographs

Experimental photographs were obtained by digital alterations. The location of the papilla in the control photograph was first identified and then four alterations were digitally performed. Two alterations shortened the papilla between the two central incisors incrementally by 1mm from the position of the control and other two alterations lengthened the papilla between the two central incisors incrementally by 1mm from the position of its control. As the papilla was shortened, the crown contour and contact point between the incisors were altered to eliminate the presence of "black triangle" in the gingival embrasures of the photographs.

Perception survey

A control and 4 altered photographs were used.



Photo 1. 2mm shortened papilla photograph (Fig 1)



Photo 2: 1mm shortened papilla photograph (Fig 2)



Photo 3. Control photograph (Fig 3)



Photo 4. 1mm lengthened papilla photograph (Fig 4)



Photo 5. 2mm lengthened papilla photograph (Fig 5)

The control photograph was designed a rating order of 1. Evaluators viewed randomly selected 3 photographs using Research randomizer software and assigned an aesthetic rating order of 1-3 according to the following scale:

- Good
- Fair
- Poor

RESULTS

Total fifty CRRIs and lay persons were involved in the study. The table 1 shows that majority of the CRRIs (76%) and

general public (80%) felt attractive when the papilla was shortened by 1 mm (photo-2). When the papilla was either lengthened (photo-5) or shortened (photo-1) by 2mm both the groups have rated as poor.

DISCUSSION

Success of the dental treatment depends mainly on the patient's satisfaction. However when the aesthetics is concerned the difference of opinion between the restoring dentist and the patient always exist. Length of interdental papilla play an vital role in enhancing the esthetics of the patients. Loss of interdental papilla occurs due plaque associated lesions, traumatic oral hygiene procedures, abnormal tooth shape, improper contours of the restoration, spacing between teeth, loss of teeth (Iyer Satishkumar Krishnan *et al.*, 2006). According to Yung Cheng Paul, minor alterations to the teeth and surrounding tissue are perceived at varying degrees by dental professionals and lay people (Yung Cheng Paul Yu, 2015). In a study by LaVacca *et al.* dentist from different specialities were made to evaluate soft tissue esthetics by altering the papilla length by 2mm and concluded that the perception of esthetics depends on the dental professional specialty. In this study 50 dental professionals and 50 lay persons were made evaluate the aesthetic outcome altered interdental papilla height. The papilla was shortened by 1mm, 2mm and was also lengthened by 1mm and 2mm. Dental professionals as well as the layperson rated thegingival smile with 1mm shortened papilla to be very attractive and good. Dental professionals and layperson also rated that the ideal papilla length as good and attractive. So the interdental papilla either midway or shortened slightly from midway have betteresthetic rating but the lengthened interdental papilla was rated unesthetic.

Conclusion

The present study was concerned with assessing the difference in perceptibility of aesthetic variation between C.R.R. Is and lay persons. The result shows there is not much difference between perceptibility of esthetics between two groups.

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