

Relationship between smile line, gingival biotype, tooth shape, and gingival zenith of maxillary central incisors in a group of Thai young adults

Supranee Benjapattananan, Papatpong Sirikururat

College of Dental Medicine, Rangsit University

Objectives: To evaluate the relationship between smile line, gingival biotype, tooth shape, smile line and gingival zenith in a group of Thai young adults.

Materials and Methods: One hundred and three Thai young adults; 43 males and 60 females, aged between 18 to 35 years old participated in the study. Two photographs were taken from each volunteer, including maximum smile and lip retracted for data collecting of gingival zenith and tooth shape with 2-mm diameter reference dot. The classification of gingival biotype was performed by insertion of periodontal probe at labial aspect of gingival sulcus. Chi-square test was used to evaluate the relationship between smile line, gingival biotype, tooth shape, and gingival zenith with statistical significance of 95%.

Results: There was no statistical evidence that smile line were related to tooth shape, gingival biotype and gingival zenith. However, the relationship between tooth shape and gingival biotype showed statistically significant ($p < 0.05$). Ovoid tooth shape had the tendency to relate with thick gingival biotype, whereas triangular tooth shape appeared to show the relation to thin gingival biotype. Moreover, the statistical result showed that square tooth shape did not relate with gingival biotype.

Conclusions: Thick gingival biotype was likely to be observed in ovoid tooth shape, while triangular tooth shape was quite common with thin gingival biotype.

Keywords: smile line, tooth shape, gingival biotype, gingival zenith

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Introduction

In social interaction, facial appearance has become vital as it has many morphological elements. Because the mouth is the center of communication within the face, the smile performs a crucial function in facial esthetics, expression and appearance. The smile arc and the position of maxillary anterior teeth including healthy periodontium are the key esthetic factors of a smile. Smile line can be classified into low, average and high smile line according to visibility of tooth and gingiva during smiling. [1] High smile

line is regarded as “gummy smile” which is recognized undesirable appearance.

Gingival biotypes, the thickness of gingiva in facio-palatal dimension, were divided by Seibert and Lindhe as thick flat and thin scalloped biotypes. [2] Thick biotype is dense and fibrotic attachment with wide board band of keratinized tissue, while thin biotype is more translucency, highly scalloped and tendency to recession. The shape of the teeth is related to the thickness of gingiva and surrounding bone. [3] Previous studies has been suggested that thin gingival biotype associated with triangular crown morphology, subtle cervical convexity and minute proximal