

Gingival Biotype and Morphometric Data Related to Maxillary Central Incisors in a University Student Population



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Aim

To evaluate the distribution of gingival biotype based on transparency of the periodontal probe and its correlation with morphometric data related to maxillary central incisors and surrounding soft tissues among a Palestinian university student population.

Materials and Methods

Population:

From the senior dental students (class of 2011) at Al-Quds University, eighty-three students were evaluated. Ten other students either refused or were unavailable for examination. Exclusion criteria was any of the following: (i) Missing of any of the maxillary incisors. (ii) Any dental restorations involving the maxillary incisors. (iii) Clinical signs of periodontal disease. (iv) Pregnant or lactating females. (v) Taking medication with any known effect on the periodontal soft tissue. (vi) Systemic disease that may affect periodontal tissue. (vii) History of previous periodontal surgery in upper anterior region. (viii) Previous or current orthodontic treatment.

Clinical parameters:

Clinical parameters were recorded one week after having oral hygiene instructions with scaling and polishing. For assessment of the gingival and morphometric data related to the maxillary central incisors, the following parameters were recorded:

(1) **Crown width/crown length ratio (CW/CL)** of both central incisors was determined according to Olsson & Lindhe (1991). Assessments of width and length were recorded to the nearest 0.5 mm using a caliper.



(2) **Probing depth (PD)** was measured to the nearest 0.5 mm at the midfacial aspect of each maxillary central incisors.

(3) **The width of the gingiva (GW)** was measured midbuccally at maxillary central teeth, with a periodontal probe to the nearest mm.

(4) **Gingival thickness (GT)** was evaluated and categorized into thick or thin on site. This evaluation was based on the transparency of the periodontal probe through the gingival margin while probing the sulcus at the midfacial aspect of each central incisor (Kan et al. 2003, De Rouck 2009).

(5) **Architecture of the gingiva** was visually decided on site where the examiners had to choose either "scalloped gingiva" or "flat gingiva" after considering the morphology of the gingiva of the whole anterior teeth.



Results

Forty-four participants were included; 32 females and 12 males all of whom ages were within the range of 22-24 years.

Table. Clinical characteristics of tooth form and gingiva [mean (SD)]

	Cluster A (thin-scalloped) 4 M & 8 F	Cluster B (thick-scalloped & thin-flat) 4 M & 15 F	Cluster C (thick-flat) 4 M & 9 F
Prevalence (%)	12 (27.27%)	19 (43.18%)	13 (29.55%)
Crown width/Crown length ratio	0.7 (1.1)	0.78 (0.62)	0.81 (0.71) *^
Gingival width (mm)	4.85 (0.84)	5.5 (1.4)	6.3 (1.1) *^
Probing depth (mm)	1.52 (0.5)	1.4 (0.34)	2.3 (1.7) *^

* Significant difference between clusters A & C (p<0.05)

^ Significant difference between clusters B & C (p<0.05)

SD standard deviation

Conclusion

Nearly one-third of the examined population had clear thin-scalloped gingiva with similar portion for thick-flat gingiva. Positive correlation is present between thick-flat gingiva and greater clinical parameters of CW/CL, GW, and PD. While thin-scalloped gingiva is significantly associated with lower values of these clinical parameters.

References

- Olsson M. & Lindhe J. (1991) Periodontal characteristics in individuals with varying form of the upper central incisors. *J Clin Periodontol*/18: 78-82.
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- De Rouck, T., Eghbali, A., Collys, K., DeBruyn, H. & Cosyn, J. (2009) The gingival biotype revisited. Transparency of the periodontal probe through the gingival margin as a method to discriminate thin from thick gingiva. *J Clin Periodontol*/36, 428-433.

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