

BIOMETRICAL STUDY ON THE ZONE OF ATTACHED GINGIVA.

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》 국문초록 《

저자는 한국인 부착치은의 폭경을 측정하기 위하여 건전한 치은 및 치주조직을 가진 10명의 남자를 대상으로, 기능적인 방법과 조직화학적 방법을 이용하여 부착치은 경계부인 Mucogingival Junction에서부터 marginal gingiva의 crest까지를 측정하였다.

이때 측정된 부위로, 상, 하악 공히 우측 제1대구치 원심면 Papilla로부터 시작하여 좌측 제1대구치 원심면 Papilla까지 각각 25개 부위로 구분하여 모두 50개 부위를 측정 하였다. 따라서 上記한 방법에 의한 측정을 토대로 다음과 같은 결과를 얻었다.

1. 기능적인 방법을 이용하여 측정한 측정치는 조직화학적인 방법에 의한 측정치보다 약 0.30~0.80mm의 높은 수치로 나타냈다.
2. 측정치중 가장 높은 폭경을 나타내는 부착치은의 부위는 상악측절치 근심면(9.03~8.84mm 기능적인 방법, 8.49~8.12mm 조직화학적인 방법)이며, 가장 적은 측정치를 나타낸 부위는 하악제일 소구치 cervical부위이다. (3.87~3.70mm 기능적인 방법, 2.82~2.77mm 조직화학적방법).
3. Frenum 부착부위 치은폭경은 상악 6.27~6.56mm, 하악 6.95~6.07mm
4. 부착치은 폭경중 가장 측정키 어려운 하악 제 1 대구치 cervical부위는 4.17~3.82mm 기능적인 방법, 3.86~3.49mm 조직화학적인 방법

INTRODUCTION

The attached gingiva has a quality designed to be resistant physically to the intrusion of bacteria, bacterial toxins, enzymes debris, and other potentially irritative and damaging factors into the tissue and mechanically to serve on buffering function against pulling of skeletal muscle fiber. From the histological view point, the attached gingiva is demarcated from the loosely anchored and movable alveolar mucosa by a recognizable line which is called mucogingival junction. In the field of periodontal reach, this line serves as a landmark for measurement to determine on the width of the attached gingiva (Bower, 1963; Bernimoulin et al. 1971) or currently, to evaluate the results after mucogingival surgery, such as apically repositioned flaps, free gingival graft and vestibular sulcus extension. For this reason, to measure of attached gingival zone is important not only to diagnose but also to determine the prognosis of surgical therapy. Among the histological differences between alveolar mucosa and attached gingiva,

attached gingiva is histologically a dense connective tissue and presence of keratinized epithelium but absence of elastic fibers, while alveolar mucosa are of elastic fibers, loosely textured connective tissue and absence of keratinized presence epithelium. Simultaneously, alveolar mucosa is distinguished by the movable mucosa during passive motion of the lip or cheek as compared with attached gingiva functionally. Thereafter attached gingiva and alveolar mucosa can be also identified histochemically using iodo-glycerin solution (Fasske and Morgenroth, 1958) because the alveolar mucosa which has a high glycogen content, gives an iodo-positive reaction but in with a low glycogen content, it gives an iodo-negative reaction.

According to the reason of the above mentioned results, the border line was distinguished by the iodo-positive and iodo-negative zone (Fasske and Morgenroth, 1958: Mutschelknauss; 1971). The author's investigation of present paper was to study of standard values on the zone of attached gingiva by the use of the functional and the histochemical methods.

MATERIALS AND METHODS.

This investigation was performed on 10 subjects (on an average age of 22 years Male), with good oral hygiene which was defined within 1 degree of Sulcus bleeding index. and Plaque index. The distance from the mucogingival junction to gingival margin (attached plus free gingiva) was measured to the nearest 0.5mm at 100 sites for one subject using a 1/500m graduated ruler and compass. (Fig. 1) The mucogingival junction was determined by 1) functionally (tissue movability differences by traction on the lip) and 2) histochemically (demarcation line after topical application of iodo-glycerin solution).

The total 1000 measurement which was performed from maxillary right 1st molar portion to left 1st molar and mandibular right 1st molar portion to left 1st molar portion were submitted to above mentioned two methods of variance.

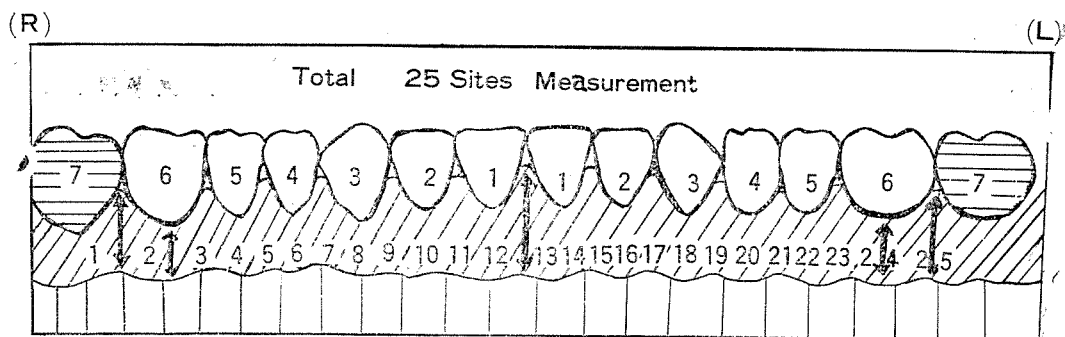


Fig. 1 Twenty five measurement sites from the gingival margin to the mucogingival junction in the mandible and maxillae.

Table 1. Measurement on the zone of attached gingiva

	Tooth	condition site	Maxillae		Mandible	
			Functional	Histochemical	Functional	Histochemical
R	6	Distal	8.30	7.87	5.61	5.93
		Cervical	5.60	4.65	3.82	3.86
		Interproximal	7.20	6.98	5.85	5.85
I	5	Cervical	5.10	4.66	3.51	3.24
		Interproximal	7.50	6.98	6.02	6.15
G	4	Cervical	4.75	4.19	3.70	2.82
		Interproximal	8.44	7.98	7.24	7.54
H	3	Cervical	5.41	4.55	4.2	3.23
		Interproximal	9.03	8.49	7.77	7.76
T	2	Cervical	5.81	5.68	4.95	4.58
		Intorproximal	7.91	7.47	8.04	7.44
		Cervical	5.22	5.00	4.72	4.42
	1	Interproximal	6.27	6.56	6.95	6.07
		Cervical	5.23	4.86	5.21	4.30
		Interproximal	7.95	7.68	8.00	8.50
L	2	Cervical	5.23	5.04	5.08	4.61
		Interproximal	8.84	8.12	7.04	7.81
E	3	Cervical	5.39	4.70	4.21	3.22
		Interproximal	8.81	8.17	7.30	6.17
F	4	Cervical	5.62	4.35	3.87	2.77
		Interproximal	7.70	7.19	6.23	5.86
T	5	Cervical	5.54	4.90	3.84	3.15
		Interproximal	7.51	7.00	6.37	6.11
		Cervical	5.61	4.66	4.17	3.49
	6	Distal	8.33	7.51	6.16	5.80

RESULTS AND DISCUSSION

In this study, results are listed in table 2 with the mean of total values on the functional and histochemical determination. In the same results obtained by the investigation of Bernimounlin et al, there is significantly higher differences in the functional values than in the histochemical values. In all values (with 3 excepted site in mandible), that is to say, and in all measurement sites, the

values of functional experiment resulted in higher average than that of histochemical landmark. The higher values from the above results are due to collagen fibers inserted in attached gingiva area. The highest zone of attached gingiva in this study was revealed on the site of distal papillae on the maxillary incisors. In spite of massive collagen bundle, frenum insertion area was shown by this paper the most narrow zone was seen in the mandible at the 1st premolar and 2nd premolar portion of mandible. it was suggested that this region was angle by the arch form and muscle attachment which was undergone to trauma by toothbrushing or muscle reflection.

There was great discrepancy between foreign investigation and the author concerning on the zone of attached gingiva in 1st molar area. this paper shows that the values of attached gingival zone in 1st molar area was similar to the 1st and 2nd premolar area on an average mean of 5-6mm width. On the whole values of this paper, maxillary attached gingival zone was revealed higher values than that of mandible about 2 mm disparity.

References

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