

CHAPTER V

DISCUSSION

The results showed the differences in many cephalometric aspects of Class I anterior deepbite (Class I deepbite), Class II division 1 anterior deepbite (Class II div. 1 deepbite) and normal groups. There were also the differences between gender as well. Many topics were discussed as follows.

1. CEPHALOMETRIC VARIATIONS

1.1 Skeletal Pattern

The relationships of the maxilla to anterior cranial base (SNA) of the Class I deepbite, Class II div.1 deepbite and normal groups were not different to one another.

For the positions of the mandible, the most retrognathic position in relation to the anterior cranial base (SNB) and the maxilla (ANB) was found in the class II div. 1 deepbite group and then the Class I anterior deepbite and normal respectively.

The retrognathic mandible in deepbite groups was contrast to the study of Karlsen (1994) which indicated that the mandible was more prognathic in the Class II div.1 deepbite samples than that in the Class II div.1 normal overbite samples. That was also contrast to the study of Opdebeek (1978). The difference between this study and Opdebeek's study maybe due to the sample selection. The SARGo angle of both deepbite groups was relatively greater than the normal group which was contrast to the study of Richardson (1969). However, Richardson (1969) compared his anterior deepbite subjects to open bite subjects.

The cranial base angle (NSBa) in the present study was not different between the Class I deepbite, Class II div. 1 deepbite and normal groups. This result indicated that the cranial base flexure was not affected in the anterior deepbite. This result is similar to the study of Nanda (1990) showing no significant differences in NSBa angle between the skeletal deepbite and open bite subjects.

The present result showed that the gonial angle (ArGoGn) in both groups of deepbite was not different from the normal group. This result corroborated with the study of Nanda (1990) showing that the gonial angle was not different between facial types. However, this study showed that the ArGoGn angle was lesser in the Class I deepbites than that was in the Class II div.1 deepbites.

The palatal plane angle (SN-PP) was not different by type of occlusion. The mandibular plane angle (SNGoGn) was more obtuse in the Class I deepbite than in the normal group which contrast to the study of Opdebeek (1978). Although the SNGoGn angle was not significantly more obtuse in the Class II div.1 deepbite than that in the normal but there was tendency to be. The palatomandibular plane angle (PPGoGn) were more obtuse in both groups of deepbite subjects than in the normal. This indicated that most of deepbite samples in the present study had skeletal open bite deformity usually arised inferiorly to the palatal plane. The increased value in PPGoGn angle seemed to be mainly due to a downward and backward tipping of mandibular plane and a shortened ascending ramus. The NSGn angle was also greater in the Class II deepbite than the normal groups which showed the more tendency of vertical growth in this group than that in the normal group.

For the vertical facial height, the results of this study showed that the total anterior facial height (TAFH) and lower anterior facial height (LAFH) was significantly lesser in the Class II div. 1 than in the normal group whereas the upper anterior facial height (UAFH) was not different. This implied that the reduced TAFH in the Class II div. 1 deppbite subject was the expression of a reduction in the LAFH. Although the TAFH and the LAFH were not significantly different between the Class I deepbite and the normal group, both facial heights were relatively lesser in the Class I deepbite.

The total posterior facial height (TPFH) and the lower posterior facial height (LPFH) were not significantly different between both groups of deepbite. Those facial heights were significantly lesser in the deepbite groups than the normal group. This implied that the deepbite groups had reduced TPFH which was the expression of reduction in the LPFH. This present result was disagree with Nanda (1988).

1.2 Dentofacial Pattern

In the Class I deepbite and the Class II div. 1 deepbite, the upper anterior teeth were more proclined in relation to the anterior cranial base compared to the normal group. Furthermore, the interincisal angle (UII) was more acute in both groups of deepbite samples than in the normal group. However, these two angles were not significantly different between the two groups of deepbite. In contrast, many studies (Sassouni, 1969, Richardson, 1970, Beckmann, 1998) reported that the upper anterior teeth were more upright in the deepbite samples. The lower anterior teeth were more proclined in the Class II div. 1 deepbites than that in the Class I deepbite and normal samples.

Interestingly, another factor that contributed in the anterior deepbite deformity was the development of dentoalveolar areas. The present study showed the increased upper anterior dentoalveolar height and the decrease lower posterior dentoalveolar height in both groups of deepbite subjects, compared to the normal group. This agrees with the reports of many authors (Prakash and Margolis , 1952, Sassouni,1969, Richardson, 1970). For the Class I deepbite group, there were not only the increased upper anterior dentoalveolar height and the decrease lower posterior dentoalveolar height that contributed in the deepbite development but also the decreased upper posterior dentoalveolar height and the increased lower anterior dentoalveolar height.

Those differences showed on the UPDH/UADH ratio. Hence the UPDH/UADH ratio was significantly lesser in the both groups of deepbites than that in the normal group.

1.3 Soft Tissue Pattern

There was no any difference in the upper lip length between deepbite groups and normal group. However the maxillary incisor exposure was greater in the deepbite sample than in the normal group that might be due to the more proclined upper anterior teeth.

2. SEXUAL DIMORPHISM

The SN-PP angle was significantly different by gender in the Class I deepbite and normal groups, but in the Class II div. 1 deepbite.

The facial heights, dentoalveolar heights and ramus height were significantly larger in male than that in females of all groups of occlusion. For the facial height ratios there was no difference by gender except the UPFH/LPFH ratio in the Class I deepbite and normal groups. The UPFH/LPFH ratio in the Class I deepbite and normal groups was greater in the females than in the male which agree with the normal Caucasian samples reported by McNamara (1984). In the case of dentoalveolar heights ratios, the sex difference was found only in the LPDH/LADH ratio in the Class I deepbite group. These results suggested that both gender and type of occlusion had influences on the facial heights, dentoalveolar heights and ramus height.

3 CLINICAL IMPLICATIONS

This reports showed the fundamental morphologic characteristics of the deepbites in both Class I and Class II div.1. The differences to the normal subjects in many aspects would be helpful for the diagnosis and treatment planning of the deepbite patients. The difference between the Class I deepbite and the Class II div. 1 deepbite groups can be pointed that they need the individual diagnosis and difference treatment approaches.

In the anterior deepbite treatment, there were some characteristics of those patients that should be aware. The lower anterior facial height was decreased in both the Class I deepbite and the Class II div.1 deepbite patients. Both groups of deepbite patients also had decreased lower posterior dentoalveolar height and increased upper anterior dentoalveolar height. Thus, the mechanics which trend to increase the lower posterior dentoalveolar heights would helpful for patient facial proportion. However those patients had tendency of downward and backward inclination of the mandible, the extrusion of lower posterior teeth should be very carefully especially in the Class II div.1 deepbite patient. In the Class II div. 1 patients the intrusion of upper anterior teeth was

also possible because of the increased upper anterior dentoalveolar and the retrognathic mandible.

4. ERRORS AND LIMITATIONS

- 1) The cephalograms in this retrospective study were from the patient files and taken without the randomization. This limits the population explanation with the data from those samples.
- 2) Lateral cephalograms in this study were obtained from various sources. Thus, the techniques and magnification factors might be different.
- 3) Most of orthodontic patients were treated at rather young ages so this caused the difficulty of adult sample collection. The sample size in this study was not enough for the gender separated stepwise multiple regression analysis.
- 4) Tracing and measurement errors could be occurred in each lateral cephalogram.

5. SUGGESTIONS

- 1) Further study with increasing sample size should be useful to indicate any differences between genders.
- 2) The longitudinal and prospective study in the deepbite samples would be a clinical guide to detect the vertical dysplasia.
- 3) Further study to compare between samples with various vertical skeletal relationships would be helpful to specify the differences between those different groups.