CHAPTER I

INTRODUCTION

Orthodontic treatment is influenced by several factors, mainly the characteristics of malocclusions. Although the first recognition of malocclusions is in the anteroposterior dimension, abnormality in the vertical plane is also very important. The vertical abnormality can affect the success of the orthodontic treatment. Anterior deepbite is an elusive occlusal characteristic that is the most difficult to be corrected orthodontically and often relapses after the treatment. (Richardson, 1969, Bergersen, 1988). An adequate vertical analysis is a critical aid in planning of the orthodontic correction. (Biggerstaff *et al.*, 1977)

Anterior deepbite, as a clinical problem, should not be simply defined in terms of millimeters but in light of future changes on esthetics and functions (Moyers, 1988). The necessity of treatment for that problem is usually evident when the bite is so deep that the lower incisors impinge on the gingiva of the palate (Lundstorm, 1985). The sources of such abnormality can be divided into skeletal and dentoalveolar types (Graber *et al.*, 1997). Cephalometric analysis is a necessary tool for definitive diagnosis of both types since different causal factors require different treatment approaches.

Although there are some data indicating means of cephalometric profile in anteroposterior dimension of Thai adults with normal occlusion reported by Suchato (1984), comparative vertical dimension data are still meager. Dechkunakorn *et al.* (1994) reported the assessments of facial and dentoalveolar heights in Thai samples with normal occlusion. Jiraviwatana *et al.* (1998) had compared those variables between subjects with skeletal open bite, deepbite, and normal. No vertical measurements of anterior deepbite cases with different sagittal relationships of Thai population are available, although Lunstorm (1985) claimed that the anterior deepbite was closely associated with distal occlusion. The aim of this study is to investigate

whether there are any particular craniofacial values existing in anterior deepbite cases with different sagittal relationships in order to provide orthodontists more information for proper diagnosis and treatment planning.

Purposes of the Study

1. To investigate the craniofacial values of the skeletal, dental and soft tissue components in adults with Class I anterior deepbite (Class I deepbite), Class II division 1 anterior deepbite (Class II div. 1 deepbite) and normal occlusion.
2. To compare those values between the Class I deepbite, the Class II div. 1 deepbite and the normal occlusion groups.

   Therefore null hypothesis (H_0) is:

   There are no statistically significant differences for any craniofacial values between the Class I deepbite, the Class II div. 1 deepbite and the normal occlusion groups.
3. To compare the craniofacial values in the Class I deepbite, the Class II div. 1 deepbite and the normal occlusion groups by gender.

   Therefore, null hypothesis (H_0) is:

   There are no interaction effects for any craniofacial values in the Class I deepbite, the Class II div. 1 deepbite and the normal occlusion groups by gender.

Scope of the Study

This study investigated lateral cephalograms of the Class I deepbite malocclusion and the Class II div. 1 deepbite malocclusion of Northern Thai adults, both males and females. The cephalometric measurements were in skeletal, dental and soft tissue parts in anteroposterior and vertical dimensions.

Definitions

Adult:

Person who passed adolescent growth spurt and who had growth changes less than 0.2% per year;≥ 15 years and ≥17 years of age for female and male respectively (Nabangxang *et al.*, 1978).

Age:

Refer to chonological age.

Anterior deepbite:

The overbite which the incisal edges of lower incisors impinging on palatal gingiva of upper incisors.

Normal occlusion:

A good interdigitalion, with no or mild incisor crowding, good or pleasing soft tissue profile, no increased overjet or overbite, no proximal caries or filling.

Northern Thais:

Thais who had stayed in the northern part of Thailand up to the time of the investigation.