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Research Article

ANALYSIS OF MINIMALLY INVASIVE TREATMENT OF
AN ADULT WITH SEVERE PSEUDO CLASS III
MALOCCLUSIONDr Aiza Rehman¹, Dr Areeba Talib¹, Dr Sheikh Muhammad Awais Ali¹¹Demontmorency College of Dentistry, Lahore**Abstract:**

Introduction: Pseudo class III malocclusion is reverse anterior occlusion or anterior cross-bite with first molars and canines in a class I relationship. **Aims and objectives:** The basic aim of the study is to analyse the minimally invasive treatment of an adult with severe pseudo class III malocclusion. **Material and methods:** This descriptive study was conducted in Demontmorency College of Dentistry, Lahore during January 2019 September 2019. The data was collected from 50 patients. The camouflage group comprised of 36 patients (15 males and 21 females) with the mean age of 23.5 years. Treatment of the camouflage patients included treatment with fixed orthodontic appliances in both jaws. **Results:** The data was collected from 50 patients. Mann-Whitney test showed that significant differences ($P < 0.05$) were found in eight measurements. The camouflage group centroid was 0.637, and the surgery group centroid was $- .791$. The threshold score, the mean centroid of the two groups, was $- 0.077$ which corresponded to Holdaway H angle of 10.3° and Wits appraisal $- 5.8$. **Conclusion:** It is concluded that class III malocclusion patients who have a Holdaway angle greater than 10.3° would be treated successfully by camouflage alone, while surgery should be the treatment of choice in borderline class III malocclusion patients with a Holdaway angle of less than 10.3° .

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INTRODUCTION:

Pseudo class III malocclusion is reverse anterior occlusion or anterior cross-bite with first molars and canines in a class I relationship. It is very important to diagnose the pseudo class III from true skeletal class III. The combination of anterior displacement of the mandible, tooth wear, and loss of occlusal vertical dimension (OVD) in adults may result anterior cross-bite [1]. Class III malocclusion was originally described by Angle as a condition in which the relationship of the jaws is abnormal and all of the mandibular teeth occlude mesial to normal by the width of one bicuspid or more. The etiology is associated with environmental and genetic factors, and a higher incidence has been observed in an Asian population [2].

The etiological factors of this malocclusion have been classified into three groups: (a) functional, which includes abnormal tongue position, nasal-respiratory problems, and neuromuscular conditions; (b) skeletal, such as during maxillary transversal deficiency; and (c) dental, which includes ectopic eruption of the maxillary central incisors and early loss of the deciduous molars [3]. Pseudo-Class III malocclusion is characterized by the presence of an anterior crossbite due to a forward functional displacement of the mandible. In the mixed dentition, the mesial step cannot exceed 3 mm, the maxillary incisors present retroclination, and the mandibular incisors are proclined and spaced [4]. When patients are guided into a centric relationship, they usually show an end-to-end incisor relationship involving the performance of a forward functional mandibular shift due to a muscular reflex so that the posterior teeth are able to occlude. It is for this reason that this type of malocclusion has been described as a pseudo- or functional Class III malocclusion [5].

Class III malocclusion is characterized by a variety of skeletal and dental components, including a large or protrusive mandible, retrusive maxilla, protrusive mandibular dentition, retrusive maxillary dentition, and combinations of these components [1]. Its diagnosis, prognosis, and treatment have always been a challenge for clinicians. A normal occlusion and improved facial esthetics of skeletal class III malocclusion can be achieved by growth modification [3], orthodontic camouflage, or orthognathic surgery.

Aims and objectives

The basic aim of the study is to analyse the minimally invasive treatment of an adult with severe pseudo class III malocclusion.

MATERIAL AND METHODS:

This descriptive study was conducted in Demontmorency College of Dentistry, Lahore

during January 2019 September 2019. The data was collected from 50 patients. The camouflage group comprised of 36 patients (15 males and 21 females) with the mean age of 23.5 years. Treatment of the camouflage patients included treatment with fixed orthodontic appliances in both jaws. While the majority of camouflage group patients were treated without teeth extractions, 6 of them underwent the extraction of the lower first premolars and the upper second premolars. The treatment of all of these patients was focused on flaring of the upper incisors and retraction of the lower incisors throughout class III mechanics, especially by application of class III elastics.

Statistical analysis

Mann-Whitney U test was used to compare the variables between the two groups. Stepwise discriminant analysis was applied to identify the dentoskeletal variables that best separate the groups.

RESULTS:

The data was collected from 50 patients. Mann-Whitney test showed that significant differences ($P < 0.05$) were found in eight measurements. The camouflage group centroid was 0.637, and the surgery group centroid was -0.791 . The threshold score, the mean centroid of the two groups, was -0.077 which corresponded to Holdaway H angle of 10.3° and Wits appraisal -5.8 . Therefore, 81.5% of our patients were properly classified. Seven patients in the camouflage group and 5 patients in the surgical group were misclassified.

Table 02: Stepwise discriminant analysis in both groups

| Predicted variables | Canonical coefficients of the discriminant function |
|---------------------|---|
| Wits | 0.408 |
| Holdaway H angle | 0.199 |
| Constant | 0.232 |

DISCUSSION:

The functional excursions are not usually a problem because Class I canines and good overbite/overjet relations are established. Incisal and canine guidance can be achieved. Group function in lateral excursions can also be achieved but is more difficult because of the molar/premolar occlusion [6]. The present study investigated and focused on successfully treated borderline class III patients in order to provide some guidelines which can assist the clinicians in choosing the best treatment modality for them, namely, surgical or camouflage correction. Treatment success was assured through using cases in which the patients were satisfied with the end results [7]. Furthermore, three board-certified orthodontists had also approved the

treatment course and results of the selected cases. The severity of class III malocclusion ranges from mild dentoalveolar to severe skeletal problems [8]. Generally, orthognathic surgery is recommended to non-growing patients with larger dento-skeletal discrepancies, while dentoalveolar compensation or camouflage is recommended for milder discrepancies; however, the decision as to which treatment should be chosen is not always an easy task especially in borderline cases. Borderline cases refer to patients with mild to moderate skeletal problems that can be treated by either orthodontic or surgical means. Also, this important fact should not be overlooked that this decision primarily belongs to the patients [9].

CONCLUSION:

It is concluded that class III malocclusion patients who have a Holdaway angle greater than 10.3° would be treated successfully by camouflage alone, while surgery should be the treatment of choice in borderline class III malocclusion patients with a Holdaway angle of less than 10.3° .

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