

## Original Article

# Assessment of Signs of Combination Syndrome in Study Population: A Clinical Study

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### ABSTRACT:

**Background:** Combination syndrome also known as anterior hyperfunction syndrome is when an edentulous maxilla is opposed by natural mandibular anterior teeth. The present study was conducted to assess the cases of combination syndrome in study population. **Materials & Methods:** This study was conducted on 120 patients having edentulous maxilla wearing maxillary denture and partially edentulous mandible wearing mandibular removable partial denture. They were assessed for various signs of combination syndrome. **Results:** Out of 340 patients examined, 120 (35%) patients were found positive for combination syndrome. Males were 70 and females were 50. Maximum cases were recorded for lack of maxillary denture adaptation (male- 13, female- 9). The need for replacement for maxillary denture was seen equally in 10 males and 6 females. Lack of mandibular denture adaptation was seen in males (9) and females (2). Growth of the tuberosities was seen in 7 males and 6 females. Need for replacement for mandibular denture was seen in 9 males and 5 females. The difference was significant (0.01). Papillary hyperplasia was significantly higher in females (7) than males (8). Hypermobility of the anterior part of the maxilla was seen in females (7) and males (6). 5 males and 2 females showed extrusion of lower anterior teeth. The difference was significant ( $P < 0.05$ ). **Conclusion:** The prevalence rate of combination syndrome was 35% with slight male predominance. Most common sign was lack of maxillary denture adaptation and the need for replacement for maxillary denture.

**Key words:** Combination syndrome, Hypermobility, Maxilla

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### INTRODUCTION

Combination syndrome by Kelly<sup>1</sup> is defined as the characteristic features that occur when an edentulous maxilla is opposed by natural mandibular anterior teeth, including loss of bone from the anterior portion of the maxillary ridge, overgrowth of the tuberosities, papillary hyperplasia of the hard palatal mucosa, extrusion of mandibular anterior teeth, and loss of alveolar bone and ridge height beneath the posterior mandibular removable dental prosthesis bases – also called anterior hyperfunction syndrome.<sup>1</sup>

The absence of teeth can be managed by partial or complete denture if patient has few missing teeth or complete loss of teeth respectively. The prognosis depends upon various factors. The situation becomes difficult when maxillary

complete denture opposes mandibular removable partial denture.<sup>2</sup>

Saunders, et al<sup>3</sup> added six more characteristics to the Kelly's work: (1) loss of vertical dimension of occlusion, (2) occlusal plane discrepancy, (3) anterior spatial repositioning of the mandible, (4) poor adaptation of the prostheses, (5) epulis fissuratum and (6) periodontal changes. Early loss of bone from the posterior part of the mandible leads to increase in function in the anterior region as a result of posterior hypofunction. Hypertrophy of the anterior mandible with anterior hyperfunction develops. Forces originating from the lower anterior teeth are directed toward the anterior portion of the unsupported maxillary denture leading to loss of bone and ridge height anteriorly, the posterior residual ridge becomes larger with the development of enlarged tuberosity. The present study

was conducted to assess the signs of combination syndrome in study patients.

**MATERIALS & METHODS**

This study was conducted in department of Prosthodontics. It included 120 patients having edentulous maxilla wearing maxillary denture and partially edentulous mandible wearing mandibular removable partial denture (Kennedy class I). All were informed regarding the study and written consent was obtained.

General information such as name, age, gender etc. was recorded. The hypermobility of the anterior part of the maxilla (HAM), presence of loose hypermobile tissue overlying the alveolar ridge, growth of the tuberosities (GT), papillary hyperplasia (PH), extrusion of the mandibular anterior teeth (EMAT), epulis fissuratum (EF), lack of adaptation of prostheses (LA maxilla/ mandible), necessity for replacements of prostheses (NR maxilla/ mandible) were recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

**RESULTS**

**Table I** Number of combination syndrome patients

Total examined	Combination syndrome	Percentage
340	120	35%

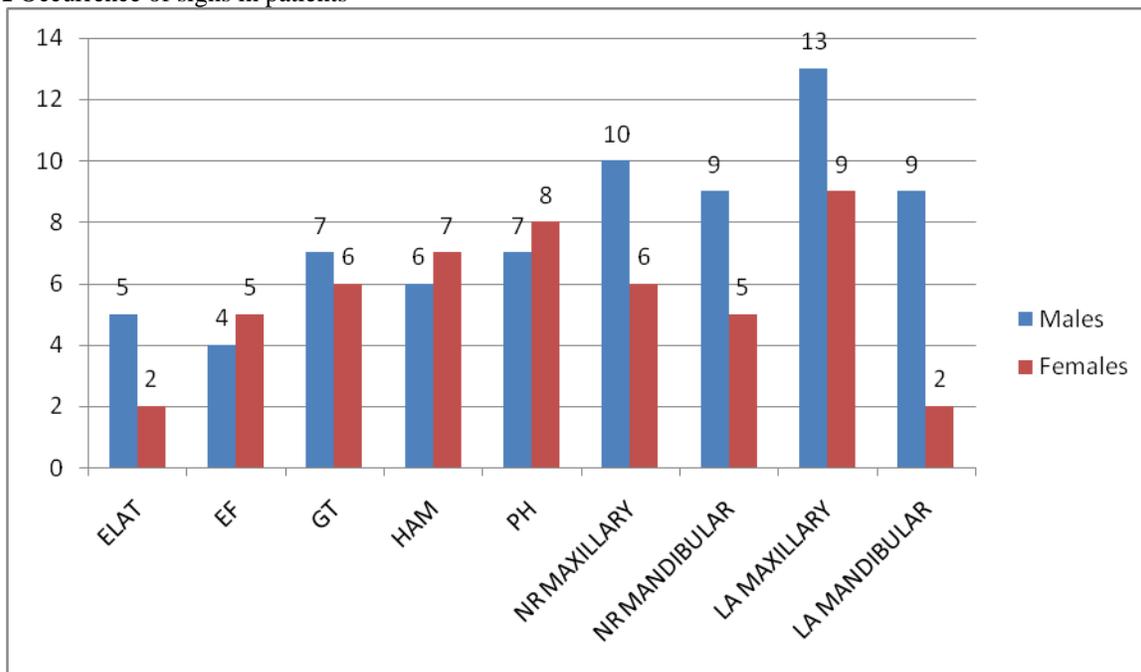
Out of 340 patients examined, 120 (35%) patients were found positive for combination syndrome.

**Table II** Distribution of patients

Total- 120		
Males	Females	P value
70	50	0.5

Table II shows that out of 120 patients, males were 70 and females were 50. The difference was non- significant (P- 0.5).

**Graph I** Occurrence of signs in patients



Graph I shows that maximum cases were recorded for lack of maxillary denture adaptation (male- 13, female- 9). The need for replacement for maxillary denture was seen equally in 10 males and 6 females. Lack of mandibular denture adaptation was seen in males (9) and females (2). Growth of the tuberosities was seen in 7 males and 6 females. Need for replacement for mandibular denture was seen in 9 males and 5 females. The difference was significant (0.02). Papillary hyperplasia was significantly higher in females (7) than males (8). Hypermobility of the anterior part of the maxilla was seen in females (7) and males (6). 5 males and 2 females showed extrusion of lower anterior teeth. The difference was significant (P< 0.05).

## DISCUSSION

The loss of bone from anterior part of maxillary jaw is the key to the other changes of combination syndrome. The changes in tissue form and health seen in this syndrome can be attributed to several factors, one of which is the biomechanical factor. When mandibular anterior teeth are present, patients tend to favor these teeth functionally because of the ability to generate maximum force. Excessive anterior function and parafunction in excursive movements constantly overload the anterior ridge to result in alveolar bone resorption and possible development of epulis fissuratum.<sup>4</sup>

We found that out of 340 examined patients, 120 had this syndrome. Another paramount aspect of the combination syndrome as a repercussion of ridge resorption is impairment in established posterior occlusal contact leading to the progressive collapse of vertical dimension of occlusion causing the mandible to move forward resulting in pseudomandibular prognathism. The Bone resorption beneath the mandibular distal extension, wearing of artificial teeth, positional changes in anterior teeth instigate parafunctional activities, thereby augmenting the force per unit area on the maxillary alveolar bone.<sup>5</sup>

A study by Milton et al<sup>6</sup> found 44 patients completely edentulous maxilla. Thirty-two patients had a Kennedy Class I removable partial denture and 12 a Kennedy Class II. Three major alterations were observed in 20.5% of the studied population. Nevertheless, these changes were present only in 25% of patients with Kennedy Class I removable partial denture. Crum RJ<sup>7</sup> in his study have found 27% prevalence rate. However in our study, it was 35%. Males were more as compared to females.

Lack of maxillary denture adaptation, need for replacement for maxillary denture and lack of mandibular denture adaptation showed higher prevalence rate as compared to other indices. This is in agreement with Shenet al.<sup>8</sup>

The growth of the tuberosities was often seen unilaterally, accentuating the lack of occlusal stability provided by acrylic teeth. One can theorize that disocclusion on the working side with natural teeth would generate a lever force on the non-working side with acrylic teeth, dislodging the complete prosthesis, giving space for down growth of the tuberosities and leading to the resorption of mandibular residual ridges.<sup>8</sup> There is need to check for denture flanges to avoid these complications.<sup>9</sup>

Maximum support of the denture-bearing area, preservation of the mandibular posterior abutment, and balanced occlusion were all proposed to prevent bone loss and excess pressure on the anterior maxillary alveolar ridge. Similarly, Van Waas et al<sup>10</sup> suggested the avoidance of total tooth extraction, the preservation of a few teeth, and the use of overdentures.

According to Langer et al.<sup>11</sup> both well designed removable partial dentures and over denture can be suggested for patients with an edentulous maxilla and some remaining anterior mandibular teeth.

## CONCLUSION

The prevalence rate of combination syndrome was 35% with male predominance. Most common sign was lack of maxillary denture adaptation and the need for replacement for maxillary denture.

## REFERENCES

1. Kelly E. Changes caused by a mandibular removable partial denture opposing a maxillary complete denture. *J Prosthet Dent* 1972;27:140-50.
2. Burns DR, Unger JW, Elsewick RK Jr, Giglio JA. Prospective clinical evaluation of mandibular implant overdentures. Part II: patient satisfaction and preference. *J Prosthet Dent* 1995;73:364-9.
3. Saunders TR, Gillis RE, Desjardins RP. The maxillary complete denture opposing the mandibular bilateral distal-extension partial denture: treatment considerations. *J Prosthet Dent* 1979;41:124-8.
4. Lechner SK, Mammen A. Combination syndrome in relation to osseointegrated implant-supported overdentures: a survey. *Int J Prosthodont.* 1996; 9: 58-64.
5. Maxson BB, Powers MP, Scott RF. Prosthodontic considerations for the transmandibular implant *J Prosthet Dent.* 1998; 63: 554-8.
6. Tallgren A. The continuing reduction of the residual alveolar ridges in complete denture wearers: a mixed-longitudinal study covering 25 years. *J Prosthet Dent* 1972; 27: 120-32.
7. Crum RJ, Rooney GE Jr. Alveolar bone loss in overdentures: a 5-year study. *J Prosthet Dent.* 1978; 40: 610-3.
8. Shen K, Gonglo\_ RK. Prevalence of the 'combination syndrome' among denture patients. *J Prosthet Dent* 1989; 62: 642-4.
9. Palmqvist S, Carlsson GE, Owall B. \_e combination syndrome: a literature review. *J Prosthet Dent* 2003; 90: 270-5.
10. Van Waas MA, Jonkman RE, Kalk W, Vant Hof MA, Plooi J, Van Os JH. Differences two years after tooth extraction in mandibular bone reduction in patients treated with immediate overdentures or with immediate complete dentures. *J Dent Res.* 1993; 72: 1001-4.
11. Langer. The use of linear occlusion to treat a patient with combination syndrome: A clinical report. *J Prosthet Dent* 2001;85:15-9.

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