

Combination Syndrome – Review Article

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Abstract

The sequentially damaging alterations in the oral cavity's hard and soft tissues that occur in individuals who require a single repair of an entirely edentulous arch in opposition to a natural dentition were jointly referred to as combination syndrome by Kelly in 1972. Prosthodontists attempt to cure this combination condition with meticulous preparation for treatments.

Utilising therapeutic, preventive, and functional treatment modalities that may call for a multidisciplinary approach involving surgical intervention, such as vestibuloplasty, planned extractions followed by immediate dentures, removal of flabby tissue followed by metallic denture base prosthesis, implant-supported fixed prosthesis, implant-supported over dentures, etc. It is possible to employ removable cast partial dentures, over denture prosthesis, and even traditional prosthodontic procedures with extra care for flabby tissues. The process of selecting a treatment option involves considering the requirement of stability and retention of the prosthesis must be balanced along with the preservation of the health of the oral tissues for every patient.

Keywords : combination syndrome, single completely edentulous arch, flabby tissue

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I. Definition

The glossary of prosthodontic terms defines combination syndrome as ⁶ : 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 tuberosity, papillary hyperplasia of the hard palatal mucosa, extrusion of mandibular anterior teeth and loss of alveolar bone and ridge height beneath the mandibular removable partial denture bases, also called anterior hyper function syndrome .

II. History

Ellsworth Kelly ¹ was the first person to use the term “combination syndrome.” He followed a small group of patients wearing a complete maxillary denture opposed by mandibular anterior teeth and a distal extension distal removable partial denture (rpd). Of the 6 patients followed up for 3 years, all showed a reduction of the anterior bone in the maxilla along with enlarged tuberosities. For 5 patients there was an increased bone level of the tuberosities.

He described 5 signs or symptoms that commonly occurred in this situation. They include anterior maxillary ridge resorption, papillary hyperplasia in the hard palate, maxillary tuberosity hypertrophy, extrusion of the mandibular anterior teeth, and bone loss under the partial denture base.

Saunders et al. Later designated six additional signs associated with the syndrome.

They comprise:

- I) loss of vertical dimension of occlusion
- ii) occlusal plane discrepancy
- iii) anterior spatial repositioning of the mandible
- iv) poor adaptation of the prostheses
- v) mucosal hyperplasia
- vi) periodontal changes.

III. Classification

According to Tolstunov ³ can be classified into the following

Class i.

Maxilla: completely edentulous alveolar ridge.

Mandible:

Modification 1 (m1): partially edentulous ridge with preserved anterior teeth only. Modification 2 (m2): stable “fixed” full dentition (natural teeth or implant-supported crowns/bridges).

Modification 3 (m3): partially edentulous ridge with preserved teeth in anterior and one posterior region.

Class ii.

Maxilla: partially edentulous alveolar ridge. Teeth present in both posterior regions. So, the edentulous and atrophic area is present in the anterior region.

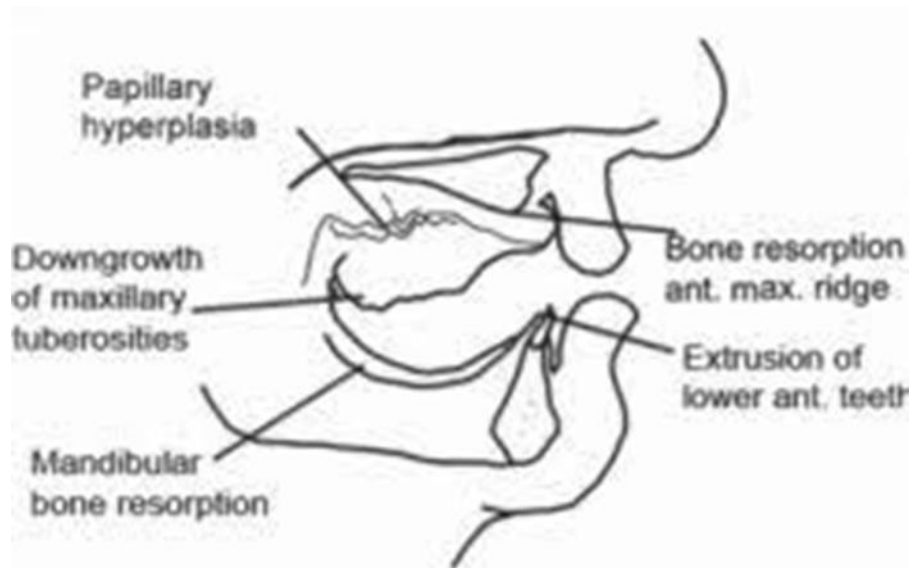
Mandible: modification m1, m2, and m3, same as class i.

Class iii.

Maxilla: partially edentulous alveolar ridge. Teeth present in one posterior region only. So, the edentulous and atrophic areas are present in the anterior region and one posterior region. Mandible: modifications m1, m2, m3a, and m3b, like in classes i and ii.

IV. Sequelae Of Combination Syndrome

Kelly's theory suggests that negative pressure within the maxillary denture pulls the tuberosities down, as the anterior ridge is driven upward by the anterior occlusion. The functional load will then direct stress to the mandibular distal extension and cause bony resorption of the posterior mandibular ridge. The upward tipping movement of the anterior portion of the maxillary denture and the simultaneous downward movement of the posterior portion, will decrease antagonistic forces on the mandibular anterior teeth and lead to their supraeruption. Eventually an occlusal plane discrepancy will occur in denture bases, to permit these changes and inflammatory papillary hyperplasia often develops in the palate and the patient may have a loss of vertical dimension of occlusion. In addition, the chronic stress and movement of the denture will often result in an ill-fitting prosthesis and contribute to the formation of palatal papillary hyperplasia⁷.



V. Histopathological changes

Histopathology of hyperplastic anterior ridge tissue and fibrous tissue over tuberosities are indistinguishable with mature, dense fibrous connective tissue consisting of bundles of collagen fibers, few cellular elements, and a very few inflammatory cells.¹ This is also similar to the histopathology of mature epulis fissuratum. Similarity of histopathology of all three conditions (hyperplastic tissue, fibrous tissue, epulis fissuratum) may be attributed to similar tissue response to prolonged trauma from denture base.¹³

VI. Treatment Modalities

- In order to minimise excessive stress on the teeth and give the removable partial denture with stiffness, stability, and positive occlusal support, **saunders et al.** (1979) recommended splinting the remaining mandibular anterior teeth. It ought to encompass the entire area of the basal seat below the bases of the distal extensions. The occlusal plane needs to be positioned in a centric and proper vertical relationship. The only use for anterior teeth should be aesthetic and functional. The occlusion of posterior teeth should be balanced⁸.

- **Stephen m. Schmitt**, in 1985, designated a treatment approach that endeavored to minimize the vicious changes by using the treatment objectives of saunders et al. Make the prosthesis in 2 stages.

Complete mandibular removable partial denture first.

Acrylic resin teeth for maxillary anterior and cast gold occlusal surfaces for posterior teeth in the denture.

- Mandibular overdenture produced superior prognosis in patients who already had combination syndrome with periodontally or structurally compromised condition of mandibular teeth.⁹
- Mandibular implant-supported overdenture compromises substantial enhancement in retention, stability, function, and comfort for nine the patient and also provide more stable and durable occlusion.⁹
- **Wennerberg et al.** In 2001 reported outstanding long term results with the mandibular implant-supported fixed prosthesis, opposing ten complete maxillary dentures.⁹
- **Yair langer et al.** In 1995 designated an approach in which a maxillary impression is made in a uniquely designed tray using a combination of elastomeric impression material and impression plaster without distorting the anterior residual ridge. The mandibular removable partial denture is reinforced anteriorly by a cingulum rests on the canines through a lingual plate as the major connector. This plate delays the supra-eruption of the mandibular teeth, avoiding unwanted pressure on the anterior part of the maxillary denture.

VII. Conclusion

The remaining mandibular front teeth's condition and dental history are utilised to determine the likelihood of developing combo syndrome. Patients who have used their mandibular anterior teeth exclusively for extended periods of time, those who stress the maxillary ridge, and parafunctional habits are more likely to exhibit changes related to the condition. There is little doubt that edentulous tissues in wearers of full upper and partial lower dentures will experience degenerative alterations. In order to maintain the integrity of the patients' oral tissues and provide them with prosthesis that function without aggravating combo condition, the dentist must carefully plan these patients' treatments. For the benefit of the patient as well as the dentist, a comprehensive diagnosis, treatment planning, and implementation will yield excellent results.¹⁶

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