



MANAGEMENT OF PAPILLON-LEFEVRE SYNDROME WITH A CUSTOMISED TREATMENT PLAN TO RECEIVE COMPLETE DENTURES- A CASE REPORT WITH A TWO YEAR FOLLOW UP

Dental Science

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INTRODUCTION:

Papillon-Lefevre syndrome (PLS) was first described in 1924 by French physicians Papillon and Lefevre, which is characterised by a combination of hyperkeratosis of palms and soles and premature loss of both the primary and secondary dentitions due to progressive periodontal disease^[1,2]. Other features like intracranial calcifications, retardation of somatic development may also be seen. Treatment for the patients with this syndrome may include conventional periodontal therapy for controlling the microorganism *A. actinomycetocomitans* in order to preserve the natural teeth but it fails in these patients further leading to bone resorption so, it is generally advised to protect the remaining alveolar bone by extraction of remaining natural teeth.^[3,4]

As the remaining alveolar bone will not be able to adequately provide support and stability for the dentures, inclusion of other procedures for enhancing the above mentioned factors for complete denture success is considered. The following case report includes the combination of an alternative impression procedure and jaw relation record and occlusal morphology of artificial teeth to enhance the support and stability of the complete dentures.

CASE REPORT:

A male patient of 35 yrs old (Fig 1) reported to the department of prosthodontics with the chief complaint of ill-fitting upper and lower dentures (Fig 2) and inefficiency in chewing and desires to replace the same. He was diagnosed earlier as a patient with Papillon-Lefevre syndrome (PLS) with the presenting classical clinical features.

On extra-oral examination facial outline form was square and profile was straight, TMJ was non-tender, no deviation or clicking was present, lip examination revealed lip length to be 23 mm and class-I lip mobility and other clinical features like hyperkeratosis of both hands (Fig 3) and legs were observed. Intra oral examination revealed presence of denture induced epulis in the right lower buccal mucosa and the arch form was square shaped and residual ridge morphology was Atwoods order 5 in upper arch and order 6 in lower arch. Interarch space was adequate and cross bite relation was recorded.

TREATMENT OBJECTIVES:

1. Preservation of health of remaining soft and hard tissues.
2. To enhance the chewing efficiency by customizing the posterior teeth for a crossbite relationship
3. To enhance support and stability of lower denture by using a special impression for lower arch followed by neutral zone concept.

PROCEDURE:

1. As the first objective denotes preservation of soft tissue is essential. As the patient had epulis in the right buccal mucosa patient was advised to remove his old dentures for a minimum period of three weeks followed by massaging of oral tissues in the particular region. After reduction in the size of the soft tissue lesion upper and lower primary impressions were made using impression compound.
2. After acquiring the primary casts custom tray were made and checked for tray extensions and upper secondary impression was made in a conventional manner and lower impression was made using a technique for flat mandibular ridge as described by Tench

in 1934^[5]

3. Following secondary impressions master casts were poured and temporary denture base incorporated with orthodontic wires for retention of impression compound were made and neutral zone recorded for the lower arch
4. After confirming the stability of lower compound rim following neutral zone record. The vertical dimension was assessed using Silverman's speaking method and correct vertical dimension was acquired.
5. The upper posteriors were modified by removing the palatal cusps leaving the buccal cusps in contact with the central fossa of opposing lower posteriors as to ensure that the teeth were in the neutral zone region. (Fig 4)
6. Jaw relation record revealed a cross bite relationship in posterior region. According to the principles of complete denture teeth arrangement were done in a crossbite relationship. (Fig 5)
7. After initial wax try-in the dentures were duplicated using irreversible hydrocolloid (Fig 6) and casts were poured in dental stone. The casts were trimmed for adapting soft splint sheet of 1.5mm thickness and that was followed by hard splint that was made on top of the soft splint using autopolymerising resin of adequate thickness as to reinforce the previously made soft splint. (Fig 7 & 8)
8. The splint as a whole is removed from the casts and indirect composite resin was packed into the splint recess that acts as a mold for customized teeth.
9. After segmental packing of composite resin the reinforced splint is kept inside a visible light cure chamber for curing the composite then after the teeth were fabricated in a single block.
10. Following fabrication of the customized teeth the posteriors were removed from the wax trial denture and composite teeth were replaced into former positional relationship in the articulator. (Fig 9)
11. Then the dentures were processed in the conventional manner. After dewaxing, primer was applied on to the composite teeth for enhancing bonding with the acrylic resin
12. The processed dentures were finished, polished and inserted (Fig 10)

DISCUSSION:

The main objective of treating a completely edentulous patient is to restore the following functions like (1) Esthetics, (2) Speech, (3) Mastication, (4) Preservation of remaining tissues.^[6] In some patients, even well-constructed complete dentures fail to provide reasonable retention and stability. The decision on whether a fixed or removable prosthesis should be chosen is based on information gathered during the patient assessment appointment. This includes taking a thorough history and examination. The patient's main complaint and his/her expectations should be ascertained. Relevant medical and dental histories need to be sought. Patients with poor general health are not good candidates for fixed restorations. Patients should exhibit a good standard of oral hygiene for maintenance of any prosthesis. In this patient's old dentures were under extended which lead to the denture induced epulis. The patient was unwilling for surgery and desired to have a removable prosthesis. Patient was very particular that he needed a stable denture with enhanced function. Other treatment plans like implant restorations were ruled out due to less bone height and width in both maxillae and mandible. In order to treat patient's specific

complaints the treatment plan was decided as to fabricate a conventional denture with customized teeth to enhance the function and stability, although fabrication of conventional dentures were the proposed treatment plan the disadvantages of conventional dentures include reduction in residual ridge as a result of resorption of bone, lack of soft tissue stimulation, altered speech due to coverage of palate, altered taste etc. Even though the conventional dentures has the mentioned disadvantages the remaining soft and hard tissue structures can be preserved by correct selection of prosthetic teeth. As quoted by sheldon winkler in mid 1920's the experiment with posterior tooth forms that were designed for functional purpose rather than reproducing natural forms. Thus new generation of materials helps us to customize the stock teeth for specific patient demands to restore or enhance the function and stability of dentures.

This patient was satisfied with the dentures and has managed to function well with them. It is hoped that further research into this area of customising teeth will improve the efficiency of chewing and stability of the dentures

SUMMARY:

This is a case report of a patient who has been successfully wearing customized teeth dentures with a follow up of 2 years.

Fig 1: Pre-op



Fig 2: Patient's old dentures



Fig 3: Hyperkeratosis of hands



Fig 4: Modified upper posterior teeth in control cast



Fig 5: Teeth set up done



Fig 6: Impressions of modified teeth setup wax dentures using irreversible hydrocolloid impression material



Fig 7: Vacuum formed soft splint sheet for fabrication of acrylic teeth

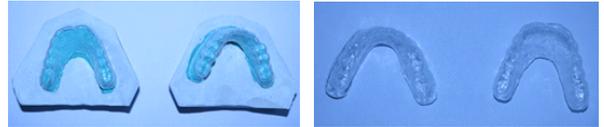


Fig 8: Autopolymerising clear acrylic resin reinforcement to reduce flexing of soft splint sheet



Fig 9: Block composite posterior teeth set up shown in control cast



Fig 10: Extra oral and intra oral view of prosthesis



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