How to Overcome the Trouble Shooting Problems in Complete Denture: An Overview!

Dr. Yogesh Santoba Nagargoje1*, Dr. Pratik Jaisingbhabadur Pali2, Dr. Rughani Darsh Anit3, Dr Baban P. Kudwe4, Dr. Shreya Surendra Kumar Agrawal5, Dr. Rahul Pankaj Waghmare6

1PG student, Department of Prosthodontics Crown Bridges and Implantology, Rajasthan dental college and Hospital jaipur Rajathan
2PG Student, Dept. Prosthodontics crown Bridges and Implantology, Swargiya dasahsheb kalmegh dental college and hospital nagpur
3PG student, Department of Orthodontics and Dentofacial Orthopedics, Daswani Dental College and Research Center, Kota Rajasthan
4PG student, Dept. Prosthodontics crown Bridges and Implantology, Government dental college and hospital,nagpur Maharashtra
5PG student dept. Prosthodontics crown Bridges and Implantology, Daswani Dental College and Research Center, Kota Rajasthan
6PG student, Department of Prosthodontics Crown Bridges and Implantology, Saraswati dhanwantri dental college and Hospital Parbhani

Abstract

Complete dentures are artificial prosthesis for teeth and tissues. A successful functioning complete denture depends on powers of keen observation with anatomy and physiology of mouth, scientific preparation, and artistic hand skills in clinical and laboratory procedures. Complete denture treatment comprises of a triad that consists of the dentist, the patient and the dental laboratory technician. Various post insertion problems are noted from the patients. The problems may be transient and may be essentially disregarded by the patient or they may be serious enough to result in the patient being unable to bear the denture. These problems may be from the lack of knowledge in clinical steps or incorrect manufacturing, no any factor can be ignored in the process as it starts from impression making till final denture making, no any factor can be ignored in the process as it can lead to a failure of the denture causing post insertion problems [1]. There are multifactorial problems associated with denture placement [2]. Patients adapt to the new dentures gradually with time and habit. Initially few days following the insertion of complete denture is difficult for the patient to accept psychologically [3]. Minimizing the problems related with complete denture treatment comprises of a triad that consists of the dentist, the patient and the dental laboratory technician. Every patient is unique, different in his own way from every other patient and hence, there will be different problems with different results. These problems may be transient and may be essentially disregarded by the patient or they may be serious enough to result in the patient being unable to tolerate the dentures [4].

INTRODUCTION

The designing and fabrication of complete dentures starts from impression making till final denture making, no any factor can be ignored in the process as it can lead to a failure of the denture causing post insertion problems [1]. There are multifactorial problems associated with denture placement [2]. Patients adapt to the new dentures gradually with time and habit. Initially few days following the insertion of complete denture is difficult for the patient to accept psychologically [3]. Minimizing the problems related with complete denture treatment comprises of a triad that consists of the dentist, the patient and the dental laboratory technician. Every patient is unique, different in his own way from every other patient and hence, there will be different problems with different results. These problems may be transient and may be essentially disregarded by the patient or they may be serious enough to result in the patient being unable to tolerate the dentures [4].

Post insertion denture problems have been classified by various authors. Heartwell and Rahn[5] classified post insertion problems as incompatibility with the surrounding oral environment, problems with mastication, disharmony with functions like speech, respiration and deglutition, dissatisfaction with aesthetics and deterioration of soft tissues or bony support. Winkler [6] classified post insertion denture problems as tissue irritation and ulceration, defective speech, inability to eat, rough surface(s) to tongue contact and faulty aesthetics. Morstad and Petersen [7] classified problems as comfort, function, aesthetics and phonetics. It is classified according to Sharry as common complaints and uncommon complaints [8].

Mucosal Irritation

Mucosal irritations appear mainly due to two reasons a.) Compression beyond physiological limits and b.) movement of denture during function. This is
often seen at the frenii, muscular attachment regions, the hamular notch area, mandibular retromylohyoid area and buccal area [9, 10, 11]. Mucosal irritation may be due to faulty jaw relations or faulty arrangement of teeth, i.e., decreased or increased vertical dimension, instability caused by incorrect centric relation, premature contact in centric occlusion or by arrangement of posterior teeth buccal to the residual alveolar ridge. Mucosal irritation may also occur as a result of overextended borders and can be corrected by reduction of the borders. The use of a disclosing medium on the intaglio surface of the denture can be helpful to determine the area and extent of corrections to be done [3, 6, 10, 12].

Denture stomatitis is a common occurrence in denture wearers, resulting in an area of erythema beneath the denture. Its aetiology is multifactorial, and it may be associated with both local and systemic factors [11]. Its management includes antifungal therapy, correction of ill-fitting dentures and efficient plaque control with oral hygiene maintenance.

Lack of Retention and Stability
Retention and stability are the primary objectives of impression making in complete denture. Lack of knowledge and skills in making the impressions are primarily responsible for retention and stability [9]. Patients regularly complain about loose or ill-fitting dentures which may be due to lack of retention or stability. If the patient complains of looseness always, there may be a retention fault, whereas if the patient complains of looseness but the dentures resist a direct pull, then lack of stability may be suspected. Retention of prostheses can be improved by including use of denture adhesives, relining, rebasing and the use of endosseous dental implants [10, 11].

Dislodgement of Dentures on Taking Fluids
This problem may occur when the dentures are first worn by the patient. The patient should be informed that it is possible to experience loosening of dentures while taking fluids for initial few days. A patient may get used to it when the lips, cheeks and tongue learn to manipulate the dentures [12, 8].

Food Accumulation under the Dentures
Food accumulation under the mandibular dentures could be minimized by correct position of the tongue by the patient [13, 14]. Wright and co-authors suggested that the ideal resting position of the tongue is to keep the apex of the tongue in proximity to lingual surfaces of the mandibular anterior denture teeth, with the lateral surface touching the posterior teeth of the denture [15-17]. The less adept the patient is in stabilizing the prosthesis during function, greater the denture movement and greater the quantity of food particles that would collect beneath the dentures. Unilateral chewing causes greater denture movement, so bilateral chewing is recommended [4].

Masticatory Inefficiency
A period of 6-8 weeks is necessary to establish new memory patterns for the masticatory muscles [18-20]. Patients mostly assume that any difficulty caused during mastication is due to faulty dentures. They must be taught that chewing with their artificial teeth is a complicated mechanism where the whole masticatory system is involved. Hence patients should be advised to chew simultaneously on both sides to aid in the stability of the dentures [10, 13]. They should be instructed to start having light, non-sticky foods and gradually shift to more resistive food substances [3, 13].

Difficulties in Speech
Although the majority of patients adapt to new dentures within weeks, some patients report difficulties during speech. Tongue plays a major role in converting a sound into an intelligible phoneme. Phonetics may be evaluated by palatography [17]. This test consists of evaluating contact between the tongue and the palate through phonetics. The length, form and thickness of the lingual flange of the mandibular denture is also critical in speech [1, 8, 12] among these, customized rugae dentures showed better results than arbitrary rugae dentures. Improper position of the maxillary anterior teeth could also lead to difficulties in speech. Repositioning the anterior teeth could help to overcome the problem [13].

Unattractive Appearance
The dentures should never be processed until the patient has accepted the arrangement with the teeth positioned in wax during trying phase. A patient may complain that the lower teeth are not visible or may be dissatisfied with the degree of visibility of teeth. Of course, increased visibility can be achieved by incorporating large overbite, but this may present a problem in the stability of the dentures [8]. Another source of complaint is drooping of the lips or presence of folds and creases near the lips and mouth [8]. A further increase of the occlusal vertical dimension to get rid of facial wrinkles mainly due to ageing should be avoided as it may render the adaptation to the new dentures more difficult. Careful contouring of the labial flange and the inclination of the maxillary central incisors will preserve the contour of the philtrum and the tubercle of the upper lip by providing adequate support [8]. If the patient complains of lip fullness, the width of the peripheral roll and the labial flange can be modestly reduced from the facial aspect without compromising retention or esthetics [7, 12, 21]. Shade selection should be done following the SPA factor and patients aesthetic satisfaction.

Debonding of Teeth
Debonding of teeth may result from wax remaining between the surface of the artificial tooth and the denture base acrylic resin and forming an insulating layer during acrylic resin pressing [18]. Insufficient pressure during packing and excessive trimming of the
teeth while arrangement to accommodate heavy ridges could also be the reasons for debonding [8].

Whistling
When the patient wears the denture for the first time, the patient may complain of whistling while talking which could be because of increased palatal vault depth and compressed arch form. Lowering the palatal contour should help the condition [8, 12]. Failure to duplicate the rugae could also lead to this problem.

Fractured Denture
The cause of fracture should be determined first when a patient arrives with a complaint of fractured denture to know the condition under which fracture occurred. Fracture may be of two kinds – accidental and stress induced. Any signs of porosity or lack of adhesion of artificial teeth to denture base or presence of tori and undercuts can be a possible reason [1].

Incorporation of a metal mesh and higher strength polymers, notably impact-resistant materials, will reduce the tendency to fracture. Constructing dentures with metal palates for patients with heavy occlusions has the dual advantage of providing greater strength and better thermal stimulation of the underlying mucosa [18, 22].

Difficult Deglutition
Pain during swallowing is often caused by overextended peripheral extensions such as an overextended posterior palatal seal area or overextended retromylohyoid flange and compression on the superior constrictor. This may also be caused by an increased vertical dimension [7, 8, 12]. Reducing the overextension or the vertical dimension should solve the problem.

Drooling at the Corners of the Mouth
This problem may occur due to a decreased vertical dimension and an attempt should be made to correct the vertical dimension. Also if the vertical dimension is correct, then an attempt should be made to increase the thickness of the flange in the modiolus area [8].

Cheek Biting
Cheek biting commonly occurs due to a lack of horizontal overlap in the posterior teeth. Posterior teeth that occlude edge to edge will often catch the cheeks [8]. This problem usually can be corrected by reducing the buccal surface of the offending mandibular tooth to create additional horizontal overlap, thus providing an escape for the buccal mucosa [7, 10]. Also, a decrease in vertical dimension contributes to cheek biting since the cheeks tend to collapse into the occlusal area [7, 8].

Loss and Altered Taste Sensation:
This is a common complaint with elderly edentulous patients probably because their taste buds begin to atrophy at about the same time that dentures are first worn. The patient should be told that most of the taste buds are on the tongue and are not covered by the dentures [23,24]. Placement of a denture base that decreases the stimulation and temperature sensations to the palate may partially account for a loss of taste. ‘Common aetiology of altered taste is poor oral hygiene’[8]. Patients should clean the dentures daily by soaking and brushing with a nonabrasive denture cleanser [15]. Tongue brushing is important for increasing taste acuity in geriatric patients [15, 24].

Xerostomia
Many elderly patients take multiple medications and many of these drugs can cause xerostomia which negatively affects the patient’s ability to tolerate complete dentures [12, 17]. Such patients have difficulty masticating and swallowing, particularly dry foods. This could be overcome by instructing the patients to drink fluids while eating. Xerostomic patients should also be advised to drink plenty of water (a minimum of eight glasses) daily. A palatal reservoir filled with artificial saliva will enhance the quality of life of xerostomic denture wearing adults. Sialogogues, which are drugs that stimulate the flow of saliva without affecting its ptyalin content, can be prescribed to the patient if some glandular function still is present [25].

Nausea and Gagging
Seen in patients with an exaggerated gag reflex. It may also be caused by overextended posterior extent of the maxillary denture and the distolingual part of the mandibular denture. In such a case the denture should be reduced posteriorly to the posterior palatal seal area. It may also be caused by unstable and poorly retained dentures [8, 10, 12,13].

Tingling and Paresthesia
This problem may be seen in excess resorption leading to the mental foramen involvement near the crest of the mandibular residual ridge [10]. If no relief is provided, then tingling and mild paresthesia of the lower lip may occur. This area may be recorded and relieved to eliminate the problem [8]. A similar situation can occur in the maxillae from pressure on the incisive papilla due to compression on the nasopalatine nerve. The patient may complain of burning or numbness in the anterior part of the maxillae. Relief may be required in the maxillary denture base in this region [7, 10, 13].

CONCLUSION
There is a huge difference in the magnitude and number of the complaints from patient to patient, many of which may arise at a later stage. Some of these complaints can be minimized, a few can be eliminated
and some for which the dentist and the patient must contend with. Denture placement is not the last stage of complete denture fabrication process. Post insertion adjustments are important clinical phase following fabrication and insertion of a complete denture. Hence, a patient should always be recalled for follow-up to evaluate any complaints so that the remaining complaints can be eliminated and rectified.

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