Unconventional Prong Dentures - A Case Report
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ABSTRACT
This paper reports the management of an ill-fitting denture in a 48-year-old female patient with a prong denture fabricated using a simpler technique.

Keywords: Bulbous labial cortical plate; Labial undercut; Modified labial flanges

Introduction
Rehabilitating a complete denture patient is always a challenging situation and any unusual morphology accentuates the task. Some abnormal conditions that exist in the edentulous patient can be corrected surgically, prior to construction of dentures, to enable the patient, function more successfully following prosthetic restoration. However use of surgical aid is not always possible. The major obstacle for pre-prosthetic surgery is getting patients consent. Patient has to be made aware that the surgical procedure will be helpful for future denture wearing.1,2 This is not always possible as many patients are not comfortable with idea of surgery.1,2 The purpose of pre-prosthetic surgery is to restore or create conditions, which permit the construction of a prosthesis fulfilling the specified requirements. One such clinical condition, which may pose a problem in denture insertion and may even affect the denture esthetics is a bulbous labial cortical plates accompanying severe labial undercut. Excessively prominent ridge is more commonly seen in maxilla than in mandible. Removal of the minimum amount of bone necessary to eliminate the undercut, while at the same time avoiding the loss of bony cortical plate can be done for such conditions in order to improve the environment for denture construction.3 However alveoloplasty should be performed only when there is a definite indication for the procedure as this procedure affects the quantity of denture foundation and therefore denture stability.1 It may result in a narrowed crest in alveolar ridge area leading to a less desirable area for support and enhance the rate of resorption. To overcome this, critically assessed and practically modified design of a denture is a real conservative option. This case report presents rehabilitation of an edentulous patient where the labial flange of dentures were modified unconventionally to fulfill the requirements of function and generate the aesthetic in desired form.

Case Report
A 48-year-old female patient reported to the Department of Prosthodontics, Career Postgraduate Institute of Dental Sciences and Hospital, Lucknow with the complaint of unaesthetic look and difficulty in eating with her complete denture. The patient had a set of complete denture. The history revealed that den- tures were not fulfilling her esthetic demand and made her mouth to appear fuller (Figure 1 a,b). She was not able to close her lips and her speech was not clear. The patient had ovoid face, convex profile, normal muscle tone and normal lip length. Intra oral examination revealed, U shaped maxillary and mandibular arches with rounded crest, labially inclined pre maxilla, bulbous labial cortical plate and an accompanying severe labial undercut (Figure 2 a,b). After complete examination, alveoloplasty followed by fabrication of new set of dentures was considered initially but patient showed unwillingness for the surgical procedure hence it was ruled out. Now challenge accentuated many folds, as a new set of dentures to be fabricated in the present situation where severe labial undercut, bulbous labial cortical plate and unaesthetic look along with unclear speech, functional insufficiency also had to be conquered.

A conventionally designed complete denture would have resulted in same problem. So atypical path for achieving the goal was perused. Now a complete denture with unconventionally designed and intentionally modified labial flange was planned to fulfill the needs of patient. Maxillary and mandibular primary and final impressions were made and casts were poured. The master cast obtained was duly surveyed to identify the undercut areas and the path of insertion and removal of the maxillary and mandibular denture base were decided. Then design of record base with modified labial flange, were drawn on the master casts. To preserve the master cast a working cast was made and temporary record base was engineered according to the decided design.

In this design, the labial flange of denture base was removed completely, the two prongs were strategically created to anchor the canine eminence from the distal side and anterior edentulous ridge was just covered by denture base over the ridge crest area. The jaw relation was recorded and teeth selection was done. For mounting, a semi adjustable articulator was used. Now, the most critical step from patient point of view i.e. teeth arrangement was planned in two phases. First phase- an anterior teeth setting was done and try-in was accomplished. Due precaution were taken to satisfy the esthetic demand of the patient without hampering the functional aspect. For these teeth were modified in a highly professional manner and were reduced to the thickness of laminates. The cervical contouring and gingival carving was done to depict the naturality. Once the patient and her relative showed the satisfaction for anterior teeth setting, posterior try in was done (Figure 3 a,b,c). After completing the wax-up and sealing the record base, in this case a novel flashing technique was used. In anterior land area of the master cast, V- shaped sharp grooves were made. Then polyvinyl siloxane rubber base impression...
material in putty consistency was mixed following manufacturer's instruction and was adapted over the anterior section of the master cast from the sulcus to the cervical margin of the teeth (i.e., canine to canine). This was done in order to preserve the waxing and carving and design of the labial flange. The three grooves were made on the outer side of putty to orient it properly with the plaster during flasking (Figure 4 a,b,c). Rest of the laboratory procedure was carried out in a conventional way. After processing, finishing and polishing was done, the denture insertion was performed. Patient was highly satisfied with the appearance and function (Figure 5 a,b,c). Her speech was clear and her problem of fuller appearance of the upper lip was rectified. This was all possible because of modified labial flange where acrylic was removed and lip was in direct contact with ridge.

Discussion
Functional integrity along with esthetics is an ultimate demand with any prosthesis. But, all requirements are difficult to achieve in conditions where field of play is restricted by some abnormal morphology. In this situation, an eccentric thinking slightly different from routine conventional way may help in changing the whole scenario. As in this case report, an unconventional denture design with modified labial flange had proved its magnitude. Surveying of the cast helped in deciding the correct path of insertion and removal of the prosthesis, thus enhancing its life and prevented the tissue from undue trauma during placement and removal. Removal of acrylic and development of prongs to engage the canine eminence assisted in creating the esthetics along with the maintaining the denture retention and stability. Re-contouring the anterior teeth in the form of laminates also helped in diminishing the bulging appearance of upper lip. Modified flasking technique with polyvinyl siloxane putty preserved the design of labial flange and facilitated the easy removal of denture during deflaking, finishing and polishing. Goals of pre-prosthetic surgery is to create a situation for the prosthesis that would restore function, provide stability and retention, preserve associated structures and satisfy esthetics but many a times patient consent create hurdle for this. Subsequently a more acceptable and conservative option is required.

Conclusion
In conclusion rehabilitating an edentulous patient with bulbous labial cortical plate and severe labial undercut, a diverse thinking of modified labial flange design of maxillary and mandibular dentures had justified its importance by providing a satisfactory smile on the patients face.

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References

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