

## **Case Report**

### **A Simplified Dual Tray Impression Technique For Anterior Maxillary Flabby Ridge – A Clinical Report**

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**Abstract:** There are various impression techniques employed for recording a flabby tissue. One of the techniques is the dual tray impression technique. Forces exerted during the act of impression taking can result in distortion of the mobile tissue. Thus design of the custom tray should be such that, the flabby tissues are recorded without being distorted. This clinical report explains a simpler technique for recording an anterior flabby ridge of the maxillary arch with a dual tray design.

**Keywords:** Impression, Flabby ridge, Dual tray.

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#### **INTRODUCTION**

'Flabby' ridge is a superficial area of mobile soft tissue affecting the maxillary or mandibular alveolar ridges. It can develop when hyperplastic soft tissue replaces the alveolar bone and is a common finding, particularly in the upper anterior region of long term denture wearers. Masticatory forces can displace this mobile denture-bearing tissue, leading to altered denture positioning and loss of peripheral seal. Forces exerted during the act of impression taking can result in distortion of the mobile tissue. The resulting stability of the denture can be poor and both function and appearance can be heavily compromised [1].

Typically these 'flabby ridges' are composed of mucosal hyperplasia and loosely arranged fibrous connective tissue as well as more dense collagenised connective tissue. In the soft tissue, varying amounts of metaplastic cartilage and/or bone have been reported[2].

There are various impression techniques employed for recording a flabby tissue. One of the techniques is the dual tray impression technique. In 1964, Osborne described an impression technique involving two overlying impression trays used for recording maxillary arches with displaceable anterior ridges[3]. A neat modification of this approach was described by Devlin in 1985[4], in which a locating rod

is positioned in the centre of the palatal tray, but proclined to allow the second special tray impression to be guided in an oblique upward and backward direction to envelope the palatal tray.

This clinical report explains a simpler technique for recording an anterior flabby ridge of the maxillary arch with a dual tray design.

#### **CASE REPORT**

A 72 year old male, visited the Department of Prosthodontics, Vokkaligara Sangha Dental College and Hospital, Bangalore with loose upper dentures. He has a history of wearing a complete denture prosthesis since 10 years with the upper denture being relined one year back. The patient is medically compromised with a history of Schizophrenia for 50 years and Parkinson's disease since 2 years and is under medication (Risperdal 4mg, and levodopa 100mg respectively). On general examination the patient has a typical parkinsonian gait or a festinating gait, with slow sluggish movements, rigid limbs, non intentional tremors of hands and feet with poor neuromuscular control.

The existing mandibular denture was normal, but the maxillary denture showed inadequate retention and stability. The occlusal plane was worn out and overjet given in the existing denture was not adequate.

The patient has non intentional tremors of the tongue and mandible while opening. The maxillary ridge was smooth well formed U shaped, with flabby tissue in the anterior region (Fig-1). The mandibular ridge was atrophic in the anterior region showing Atwood's Order V (low well rounded). Excessive mucoserous salivation was also noted.

As the maxillary anterior region was flabby, preliminary impression was made with irreversible hydrocolloid impression material (Tropicalgin) while impression compound was used for the mandibular ridge.

The final impression procedure for the mandibular ridge was carried out in a conventional way by using Low fusing green stick compound for border molding and zinc oxide eugenol impression paste for definitive impression (Fig-2).

The impression procedure for the maxillary flabby ridge was carried out using a dual tray technique modified from that of Osborne's and Devlin's technique.

1. The tray was constructed using autopolymerising acrylic resin.
2. Tray 1 was fabricated with a single spacer leaving out the flabby ridge region. (Fig-3)
3. Tray 1 was fabricated with three rectangular projections (Fig-4) as shown in the diagram, which helps in guiding the second tray into position, and the design helps in a friction grip between the two trays preventing the loosening of the second tray.
4. Tray 2 is fabricated by adapting a double thickness spacer (Fig 5) on the exposed area over which aluminium foil is adapted extending till the area where the second tray ends. This is followed by fabrication of the second tray with autopolymerising acrylic resin. (Fig 6 & 7)
5. Border molding using low fusing green stick compound was carried out for tray 1 followed by tray 2 which was placed over tray 1. (Fig 8 and Fig 9)
6. Definitive impression for both tray 1 & 2 was made with Addition Silicone (President) – Light body. Tray 1 was loaded with light body and the impression was made (Fig 10). This was followed by removal of excess material flown outside the tray in areas where the rectangular guide stops are present which might prevent the proper seating of tray 2. Then tray 1 was placed in the patient's mouth, while tray 2 was loaded with light body and seated into position with those guide stops as guide for placement of the tray.
7. The impression was removed as a single piece (Fig 11) as the stops also played a role in

holding the two trays together because of the friction grip.



Fig 1 – Flabby ridge in the maxillary anterior region



Fig 2- Mandibular definitive impression



Fig 3 –Tray 1



**Fig 4-Tray 1 with three rectangular projections**



**Fig 7- Tray 2 detached from tray 1**



**Fig 5 –Double thickness spacer in relation to the flabby ridge**



**Fig 6 – Tray 2 fabricated over tray 1**



**Fig 8- Border molding of trays 1 and 2.**



**Fig 9-Trays 1 and 2 approximated in place.**

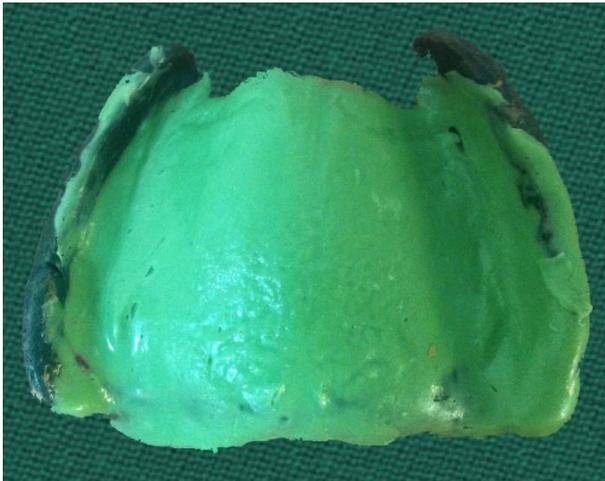


Fig 10 – Tray 1 with light body impression

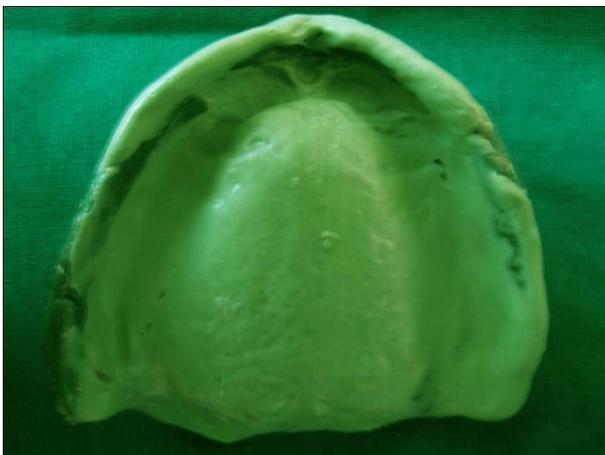


Fig 11 – Final impression



12.a



12.b.



12.c

Fig 12 (a, b, c) – Completed prosthesis

#### DISCUSSION

There appears to be a consensus in the literature that surgical removal of the fibrous areas often results in a greater prosthodontic challenge. Implant retained prostheses may offer a solution to the problems of stability and retention in fibrous ridge cases. However, they are not without their disadvantages which include the need for a surgery, treatment time, cost, etc. A conventional prosthodontic solution may avoid these problems associated with surgery[1]. As a result of accompanying medical conditions or medical treatments such as elderly patients may be unsuited for surgical procedures such as removal of flabby ridges, bone grafting, or placement of dental implants[5]. Achieving adequate retention, stability and support is the main goal in dentures constructed for cases with flabby tissues.

A presenting complaint of a complete denture that has been made for a flabby ridge, without proper care being taken to avoid compressing the flabby tissues, is that the denture 'is loose'. A common approach to solving a 'loose' complete denture is to apply some chairside relining material[6]. It will be appreciated that this approach is inappropriate and will not solve the problem — the complete denture will act as a custom tray, and with the viscous chairside relining material will

further displace the flabby tissue. The tissues will once again tend to recoil and the denture will still be 'loose'.

The technique described here is a modified method from the Osborne's and Devlin's method using a dual tray. This technique does not involve any extra clinical steps, and can be completed within the time taken for a regular impression procedure. This impression technique is relatively simple and quick. It can be performed using materials which are a prerequisite in a regular dental set up. Polyvinylsiloxanes are dimensionally stable and do not need to be poured immediately. Also the details recorded using a light body consistency of polyvinylsiloxanes are good[6].

However there are various techniques in recording the flabby tissues. This simplified dual tray technique can also be put into practice with efficiency as we obtained good retention, stability and support of the completed dentures (Fig 12 a,b,c).

#### CONCLUSION

Rehabilitation of completely edentulous state with flabby tissues with adequate retention, stability and support is challenging. Emphasis has moved away from surgical removal of the fibrous tissue. Implant retained prostheses may not be most suitable treatment option for many patients who are medically compromised as seen in this clinical report. When considering conventional prosthodontics, various techniques are there which are explained in the literature to record flabby tissues. This Dual tray technique is one such

technique which is modified from the Osborne's and Devlin's technique. This involves the use of two trays placed one over the other through rectangular guiding stops created on the tray 1 with the same autopolymerising resin which is used to fabricate the tray. Polyvinyl siloxane material of light body consistency is used for both the trays and the impression is made. This technique is simple, easy to practice and quick.

#### REFERENCES

1. Crawford RWI, Walmsley AD; A review of prosthodontic management of fibrous ridges. *British dental journal*, 2005; 199(11):715-719.
2. Magnusson BC, Engström H, Kahnberg KE; Metaplastic formation of bone and chondroid in flabby ridges. *British Journal of Oral and Maxillofacial Surgery*, 1986; 24(4):300-305.
3. Osborne J; Two impression methods for mobile fibrous ridges. *Br Dent J*, 1964; 117: 392-394.
4. Devlin H; A method for recording an impression for a patient with a fibrous maxillary alveolar ridge. *QuintInt*, 1985; 6: 395-397.
5. Lynch CD, Allen PF; Management of the flabby ridge: using contemporary materials to solve an old problem. *British Dental Journal*, 2006; 200(5):258-261.
6. Basker R M, Davenport J C; *Prosthetic treatment of the edentulous patient*. 4<sup>th</sup> edn. Oxford: Blackwell, 2002.