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Case Report

Never Toothless: Immediate Denture Rehabilitation - A Case Report

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Abstract

An edentulous mouth is rarely a neutral event for a patient and for many it arrives with a considerable emotional cost, particularly when the alternative is a visible period without teeth. Immediate dentures are inserted the same day when the teeth are extracted so the patient leaves the operatory with a functioning, reasonably esthetic set of teeth rather than an edentulous mouth. However, depends largely on how well the working cast is modified before fabrication, since the denture has to be built for a ridge shape that does not yet exist and will only be reached after the tissues heal and remodel. A 71-year-old female with a periodontally hopeless dentition who received maxillary immediate dentures fabricated using Jerbi's method of cast modification. The sequence followed preliminary and final impressions, jaw relation records, cast modification, extraction, and same-day insertion along with the post-insertion review. At follow-up the patient was functioning comfortably and was pleased with the appearance of the prosthesis, supporting Jerbi's technique as a dependable option for immediate denture therapy.

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KEYWORDS: immediate denture; Jerbi technique; cast modification; edentulous; complete denture.

INTRODUCTION

Losing the last of one's natural teeth is rarely just a dental event. For older patients especially, it can carry a real psychological weight made worse if there are a gap of weeks or months between extraction and a finished denture during which the patient has no teeth at all. Immediate dentures were developed to remove that gap. The prosthesis is inserted at the same appointment as the extraction so facial support and appearance are preserved, speech and chewing return sooner, and the denture itself acts as a kind of biological closure over the fresh extraction sockets while they begin to heal.

What makes immediate denture fabrication technically demanding is timing. The master cast has to be recorded and the denture processed before a single tooth has been removed, yet the finished prosthesis must sit over a ridge that will only take its true shape once the sockets have healed. Cast modification is the step that bridges this gap and several methods have been proposed for it. Most influentially by Standard ^[1] and by Jerbi,^[2] who differ mainly in how much post-extraction remodelling they assume will occur and consequently, how aggressively the stone cast is reduced. Jerbi's approach is comparatively conservative. It is built around the anatomic and positional changes actually observed

in gingival tissue at the moment of extraction and it proceeds through a shallow root-position recess followed by a graded, rounded reduction of the facial and lingual cast surfaces rather than a single deep cut. ^[2,3]

This report describes the clinical and laboratory procedure of a maxillary immediate complete denture fabricated for a 71-year-old woman using Jerbi's cast modification technique together with her adaptation at follow-up.

Case Report

A 71-year-old female presented to the Department of Prosthodontics, Srinivas Institute of Dental Sciences, Mukka, Mangalore, unhappy with the mobility and appearance of her remaining teeth and unwilling to go through a period without any teeth at all during treatment. On examination she had generalized, severe periodontal bone loss, grade II–III mobility across the remaining maxillary teeth and no realistic prognosis for retaining any of it. Extraorally there was mild loss of lower facial height and reduced lip support consistent with long-standing periodontal breakdown. The soft tissues were otherwise healthy, and IOPA and OPG radiographs confirmed severe generalized horizontal bone loss with no retained fragments or pathology likely to complicate healing.



Fig. 1: Pre-operative frontal and lateral views showing reduced lower facial height and lip support associated with the periodontally compromised dentition.

Given her age, her esthetic concerns and her clear preference to avoid any period of edentulism, we planned extraction of the remaining maxillary teeth followed by same-day insertion of maxillary immediate dentures and a conventional distal extension mandibular removable partial denture with the

working casts modified according to Jerbi's technique. After explaining the treatment plan to the patient including the likely need for a soft reline during early healing and a replacement or rebased denture once the ridges had stabilized and her informed consent was obtained.

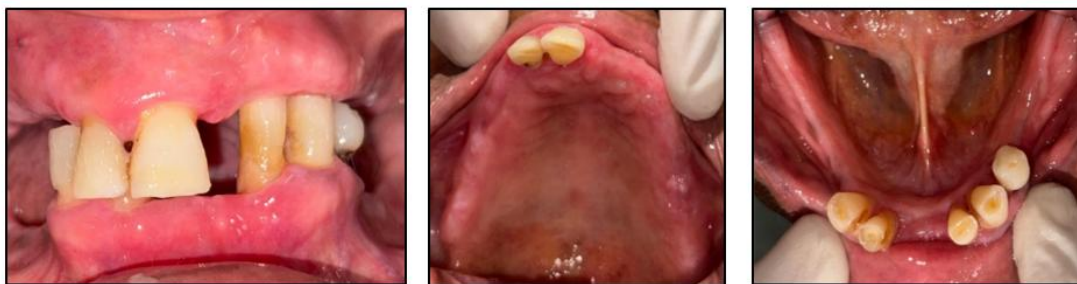


Fig. 2: (a) pre-operative intraoral view with reduced vertical dimension (b) Maxillary pre-operative view, (c) Mandibular pre-operative view.

Preliminary records and diagnosis

Preliminary impressions of both arches were recorded in irreversible hydrocolloid and poured in dental stone to obtain diagnostic casts and were mounted according to the patient's existing occlusion, which allowed us to evaluate her pre-extraction vertical dimension and arch relationship before anything was removed.

Final impressions and master casts

Custom trays were made on the preliminary casts with appropriate relief and spacing, and final impressions were recorded with a border-molded tray using zinc oxide eugenol impression. Master casts were then poured in dental stone.

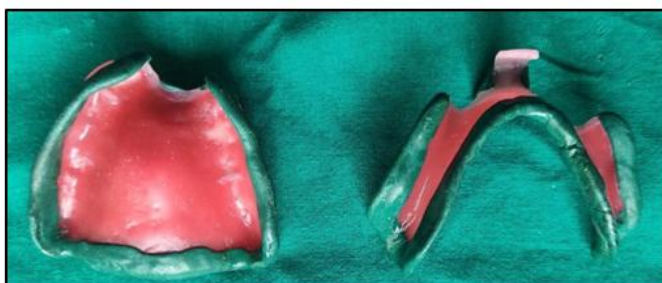


Fig. 3: Border moulding



Fig. 4: Secondary impression

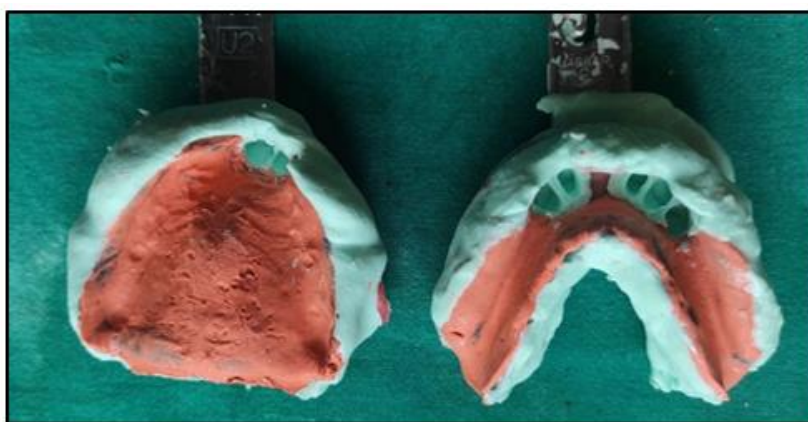


Fig. 5: Dual impression



Fig. 6: Master cast

Jaw relation records and trial denture evaluation

Maxillomandibular records were taken on record bases and occlusal rims, using the patient's pre-extraction vertical dimension and her existing teeth as a reference for tooth position, midline and lip support. The casts were mounted on

the articulator, denture teeth were chosen to match the shade and mould of her natural dentition and the teeth were set up first and checked intraorally for occlusion, aesthetics, and phonetics which was likewise verified in her mouth

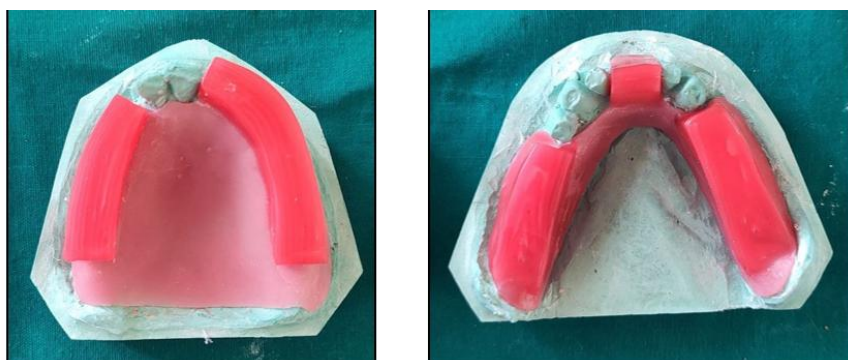


Fig 7: Fabrication on occlusal rims



Fig 8: Jaw relation



Fig 9: Try-in

Cast modification using Jerbi's technique

Once the trial denture was approved, the master cast was duplicated and the working cast was surgically modified over the remaining teeth following Jerbi's sequence: ^[2,3]

- The crown of each tooth on the cast was cut away with a laboratory handpiece exposing the cast down to the root region.
- A shallow recess, roughly 1 mm deep was cut where the root had been corresponding to the socket that would remain after extraction.
- A vertical cut was carried from the facial edge of this socket up to the line separating the cervical and middle thirds of the facial cast surface.
- A second cut ran from the facio-lingual center of the socket to the midpoint of that vertical cut.

- The floor of the socket was extended lingually to complete the reduction on that side.
- Finally, the stone was gently rounded over on both the facial and lingual aspects, smoothing away sharp lines to leave a ridge contour approximating the expected post-extraction anatomy. A distinctly less aggressive facial reduction than that described by Standard. ^[1,3]

This graded, conservative reduction reflects Jerbi's underlying assumption that facial resorption after extraction is more modest than earlier techniques presumed and it is meant to lower the risk of the denture base binding against, or bearing too heavily on the healing tissue at insertion.



Fig 10: (a, b, c) Marking and reduction of cast according to Jerbi's technique

Denture processing

After the cast was modified, the trial denture was reprocessed in heat-cure acrylic resin in the usual manner over the newly contoured cast, so that the denture base was adapted to the

anticipated ridge form. Once deflasked, finished and polished, the dentures were checked for fit on the modified cast ahead of the surgical appointment.



Fig 11: Acrylization of the denture Extraction and immediate insertion

The remaining maxillary teeth were extracted atraumatically under local anaesthesia with minimal alveoloplasty performed only where undercuts or bony irregularities would otherwise have prevented the denture from seating. After haemostasis was achieved, the maxillary complete denture was inserted immediately. Occlusion was checked and adjusted intraorally, and pressure-indicating paste was used to relieve any spots of excessive denture base contact.



Fig 12: (a) Extraction of tooth 11, 12, (b) Extraction socket, (c) Suture placement, (d) Placement of the immediate denture
Post-insertion care and follow-up

The patient was asked to leave the denture in place for the first 24 hours so it could act as a protective dressing and limit postoperative swelling and bleeding, and was given the usual post-extraction and denture hygiene instructions. Patient was reviewed at 24 hours, at one week, and at further intervals over the following weeks to check for the healing, adjust any sore spots and monitor ridge changes. Patient was also told to expect a temporary soft reline as early healing progressed and once the ridges had settled generally after 3 months a fabrication of a definitive maxillary complete denture.



Fig 13: Post-operative view after placement of immediate denture



Fig 14: Definitive prosthesis fabricated after 3 months

DISCUSSION

The main appeal of an immediate denture is that it lets the patient move directly from a compromised but natural dentition to a functioning, reasonably aesthetic prosthesis without ever being without teeth, sidestepping much of the social and psychological difficulty that visible tooth loss can bring.^[3,4] A well-fabricated and well-adjusted immediate denture also does real clinical work. It sits over the extraction sites as a protective template, helps control postoperative bleeding and swelling and may make bone resorption somewhat more even than it would be with delayed denture placement.

The outcome of this treatment rests heavily on how accurately the cast is modified, because the denture is finished before the sockets it will sit over actually exist in their healed form. Jerbi's technique used in this case reduces the facial and lingual cast contours in a comparatively conservative, graded way, guided by a shallow recess at the root position, in contrast to the deeper facial reduction described by Standard.^[1-3] This measured reduction is generally thought to lower the risk of the denture base impinging on healing tissue in the early postoperative period. Though it can mean closer monitoring and more frequent chairside adjustment later, since it anticipates somewhat less initial tissue change than the more aggressive alternatives.

Immediate denture therapy is not without its drawbacks. It asks a good deal of both the clinician and the laboratory technically, demands close coordination between the surgical and prosthodontic phases of care, sometimes prolonged postoperative follow-up including relining or replacement as the ridge remodels.^[3,4] In this case, careful pre-extraction planning, accurate jaw relation records, and Jerbi's conservative cast modification allowed the patient to go through treatment without an edentulous interval, with a comfortable esthetically acceptable result at follow-up.

CONCLUSION

For patients with a hopeless dentition who do not want to go edentulous during treatment, immediate denture therapy remains a genuinely useful option offering both functional and psychological benefit. Its success, though depends on careful diagnosis, precise pre-extraction records and thoughtful cast modification. In this patient, Jerbi's technique gave a predictable, conservative way of anticipating the post-extraction ridge form and the outcome was a well-adapted immediate denture and a satisfied patient supports its continued place in everyday prosthodontic practice.

Conflict of Interest: None declared.

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