

CASE REPORT

**SECTIONAL COMPLETE DENTURES
WITH DOWEL PINS FOR PROSTHETIC
MANAGEMENT OF A MICROSTOMIA PATIENT**

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ABSTRACT

This report describes a technique for fabrication of a sectional complete denture for a patient with microstomia. The primary impressions were made by a trayless technique. Secondary impressions were made using a sectional special tray, and the final mandibular denture was fabricated by incorporating dowel pins which was easily inserted by the patient, ease in maintenance and low cost. This report describes a prosthetic treatment for a patient with microstomia.

Key Words: Dowel pins, microstomia, sectional complete dentures.

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INTRODUCTION

Microstomia is defined as an abnormally small oral orifice¹. It is a sequelae of one of the following conditions like scleroderma, postoperative head and neck injury, oral submucous fibrosis, trismus, surgical treatment of oro-facial cancers, cleft lips, burns and plummer-vinson syndrome²⁻⁵. Impression making is difficult in cases of microstomia since it is difficult to insert the impression trays and hence modifications have been done in the special tray and complete dentures. Modifications include insertion of pins⁶, use of locking tool⁷, swing lock assembly⁸, use of magnets⁹, pin attachments¹⁰, sectional and collapsible dentures¹¹. These techniques are highly technique-sensitive, expensive, involve a elaborate laboratory procedures and results in a bulkier prostheses. In this case report, management of a completely edentulous patient with microstomia using sectional complete dentures with dowel pins has been discussed.

CASE REPORT

A 58 year old completely edentulous patient reported to the Department of Prosthodontics, Saveetha dental college, Chennai, India for replacement of missing teeth. On examination, his mouth opening was restricted to about 23mm (Fig:1) and on palpation fibrotic bands were felt in the bilateral buccal mucosa due to pan chewing habit. Due to patient request for non invasive treatment and financial concerns, sectional complete dentures with dowel pins were planned.

The primary impression was taken with modelling plastic impression compound (Y-Dent; MDM Corporation, New Delhi, India) with finger pressure using trayless technique¹², and the cast is poured with kalstone (Kalabhai; Mumbai, India). A custom impression tray was fabricated using autopolymerising acrylic resin and it was sectioned in the midline. The dowel pin was incorporated on the right half and the fitting sleeve for the dowel pin was incorporated in the left section using autopolymerising acrylic resin.(Fig:3) Both components were aligned such that they could be mechanically interlocked passively. The sectioned portion was then separately border moulded using

low fusing compound(DPI Pinnacle Tracing Sticks; The Bombay Burmah Trading Corporation, Mumbai, India), assembled and final impression made with medium viscosity elastomeric impression material (Aquasil Ultra Monophase; Dentsply, Konstanz, Germany).

The Master cast was poured and the biterims were also fabricated with dowel pins and jaw relations recorded. Following the wax tryin, the lower incisor teeth were removed and the dentures were processed with heat cure acrylic resin. The denture was sectioned in the midline and a dowel pin was incorporated in the left half and the sleeve in the right half with autopolymerising acrylic resin such that it can be mechanically interlocked. Anterior waxup done, denture processed and inserted.(Fig:4&5)

DISCUSSION

Microstomia in complete denture patients has been managed with modifications of the impression tray and final denture. Modifications include use of locking tool⁷, swing lock assembly⁸, use of magnets⁹, pin attachments¹⁰, sectional and collapsible dentures¹¹ and nitinol springs¹². The proposed modifications have some limitations like more laboratory procedures and bulky prosthesis interfering with tongue movements.

In this case report, patient with microstomia was treated with dowel pin modification as a mechanism for sectioning the special tray and complete denture. The dowel pins were passively incorporated into the denture which could be easily handled by the patient. In comparison the techniques like hinge assembly⁸ and locking mechanism⁷, dexterities required to handle the dentures. The advantage of incorporating dowel pins is that it is readily available with a simple mechanism for laboratory fabrication which can be easily maintained by patient. In case of fracture or wear of the sleeves it is viable to replace the components. This technique of sectioning complete denture can be advocated for patients with poor dexterity or advanced age of senility.

Fig 1: Pre Operative Photographs with limited mouth opening of 23mm



Fig 2: Intra oral view



Fig 3: sectioned special tray with dowel pins and secondary impression



Fig 4: Sectioned mandibular complete dentures with dowel pins



Fig 5: post insertion smile

To summarise, a patient with microstomia was treated with sectional complete dentures with dowel pin attachments. The advantages of this technique include ease of fabrication, ease in maintenance and low cost. During function, minimal movement of the sectional denture was observed. This technique of incorporating dowel pins for sectional denture bases can be used for patients with microstomia. However, long terms studies are yet to be done to evaluate the performance of dowel pins in complete dentures.

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