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CASE REPORT

PROSTHODONTIC MANAGEMENT OF MICROSTOMIA WITH SPLIT DENTURE- A CASE REPORT

Nitin Deora., Shweta Bindra andSwati Aggarwal

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ABSTRACT

Restricted mouth opening is a major hindrance for a prosthodontist, as it limits the skill of the dentist for an accurate impression making, thereby interfering with the making of the final prosthesis. There are several factors which lead to restricted mouth opening or as said MICROSTOMIA, such as oral sub mucous fibrosis, carcinomas, TMD, accidental, genetic, iatrogenic etc. A number of treatment modalities have been proposed for treating these patients, which varies depending upon the amount of mouth opening.

INTRODUCTION

The word Microstomia means Micro- small, and Stoma - mouth, so it is small mouth opening or reduced mouth opening. There are various conditions which lead to microstomia such as electrical and thermal burns, trauma, ingestion of caustic substances, reconstructive lip surgeries, carcinomas, oral submucous fibrosis, systemic and/or inherited disorders, etc.[1] Patient with microstomia presents grave difficulties in impression making, which complicates denture fabrication in these cases.

We need to take special consideration for these patients. Person suffering from microstomia do experience various problems such as speech, facial expression, dental hygiene, nutritional needs and social interaction. It is a tough challenge for the dental practitioner to treat such kind of patient. It requires complex skills and knowledge in order to deliver a successful prosthesis tothese patient.[1]

There are several ways to treat microstomia i.e. surgical correction can be done, depending on patient convenience, appliances can be given to treat microstomia or else we need to do modification of standard impression techniques as the big size trays cannot enter patient mouth. We can use sectional impression trays, use of orthodontic expansion screws, two guide pins, parallel pins, key and keyway mechanism with pins, clasps, small size trays, impression can also be made directly with putty material if there is no space to enter the tray.[2] The choice of impression procedure depends upon the amount of mouth opening of the individual patient.[3, 4]

Case report

A 40 year old female patient reported with the history of drinking acid while working in a factory. Patient presented with reduced mouth opening(fig 1).

1. Mouth opening was measured and recorded to be 25mm(fig 2a and 2b).
2. Preliminary impression of maxillary and mandibular edentulous arches were made with putty without the use of tray as the tray could not be inserted due to fibrosis of the oral mucosa.(fig 3a and 3b)
3. Impressions were poured withdental stoneand primary casts were retrieved (4a and 4b).
4. Maxillary and mandibular custom tray were fabricated using self-cure acrylic resin tray material and stabilized with snap fastener (press buttons)(fig 5a and 5b).
5. Maxillary and mandibular custom tray were then sectioned in the midline into two halves(fig 6a and 6b).
6. Border molding and final impression were made separately with each half of the tray.
7. After the final impression was made, the tray was assembled extra-orally using snap fastener and a master cast was prepared in a usual manner(7a and 7b).
8. On final casts, record bases were fabricated. Maxillary and mandibular record bases were sectioned in midline.
9. On sectional record bases, the occlusal rims were made(8a and 8b).
10. Jaw relation was recorded.
11. Teeth arrangement was performed and satisfactory esthetics and function were achieved(9a and 9b).
12. Finally the maxillary denture was fabricated in two sections. (10a and 10b)

*Corresponding author:**Nitin Deora***

13. The two sections of the maxillary denture were assembledusing snap fasteners.
14. Patient was able to insert the mandibular denture by rotating it 90 degree so there was no need of splitting the denture.
15. Home care instructions (oral hygiene instruction, insertion, and removal of prosthesis) were imparted to the patient, routine follow up appointments were made.

Fig 140 year old female patient

Fig 2a Limited Mouth Opening

Fig 2b Mouth opening recorded was 25mm

Fig 3a Preliminary impression (Maxillary)(Mandibular)

Fig 3b Preliminary impression

Fig 4a Primary Cast (Maxillary)

Fig 4b Primary Cast (Maxillary)

Fig 5a Maxillary custom traystabilized with snap fastener

Fig 5b Mandibular custom traystabilized with snap fastener

Fig 6a Maxillary custom tray sectioned in two halves

Fig: 6b Mandibular custom tray sectioned in two halves

Fig 7a Final impression (Maxillary)

Fig 7b Final impression (Mandibular)

Figure 8a

Figure 8b Sectional record bases with occlusal rims

Fig 9a

Fig 9b Try in

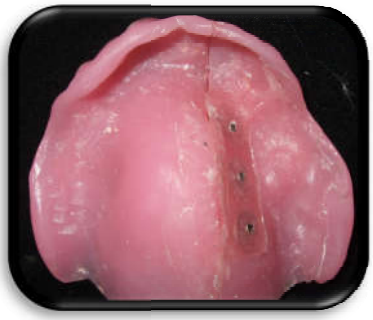

Figure 10a

Figure 10b Maxillary split denture

DISCUSSION

Normal mouth opening is required for the normal function of speech, nutritional needs, dental hygiene, facial expression and social interaction. Limited mouth opening occurs as a result of certain medical conditions like mumps, scleroderma etc. A maximal oral opening that is smaller than the size of final prosthesis can make prosthetic treatment difficuilt[5]. Patients with small oral opening pose a problem of inserting and removing the complete denture[6]. So there is a need of fabricating complete dentures that are different from the conventional ones[5].

In dental literature, there are limited articles describing the method of making impressions for sectional dentures[7]. Mccord*et al*[8]*(1989)*fabricated the complete sectional denture in which both the halves were joined by stainless steel posts. Mandibular denture was fabricated by Wahl*eet al*[9]using a swing lock mechanism. Suzuky*et al*[10]used telescopic system to fabricate sectional denture to treat a patient with microstomia. Mandibular sectional dentures were fabricated using dovetail mechanism[11]and magnets[12]. Yenisy*et al*[13](2005) gave a new technique to fabricate mandibular sectional collapsed denture using midline lingual hinge. Collapsed maxillary hinged and mandibular sectional and hinged complete denture with removable partial denture was made by Sharma*et al*[14](2011). Snap fit, keyways and pins have been used for the locking mechanism of sectional impression trays[7]. Ease of insertion and removal, cost effectiveness and provision of maximal coverage for support, retention, and stability can be regarded as the advantages of this kind of a sectional denture. But as in this case, the patient was able to insert the mandibular denture by rotating it 90 degrees and the maxillary denture was fabricated in sections[7]. The maxillary denture was fabricated using snap fastener. Snap fasteners are easily available and are easy to use and maintain. Sectional denture with snap fastener is easy to use for a patient as there is a simple mechanism for locking them and patients are aware of its use. This technique can be done in any dental office or laboratory without using any complicated machinery or parts for sectioning and attaching sectional dentures[15]. This technique is an innovative, practical and economical solution for patients with microstomia[7].

CONCLUSION

It is difficult to achieve all the aspects of prosthodontic treatment in a patient with microstomia. Patients with mouth opening less than the normal (35-40 mm) hinders conventional prosthetic treatment of edentulous patients. However, with careful treatment planning, the use of either sectional impression techniques and/or sectional dentures, many of the apparent clinical difficulties can be overcome. Here, the sectional impression procedures and the prosthesis design is described which aid in fabrication of prosthesis for a patient with the limited mouth opening which aids for a better function, health, esthetics, and overall well-being of the patient. However, to determine the long-term success of this technique, periodic recall, maintenance are needed.

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