India has a large geriatric population of 77 million comprising 7.7% of its total population. More than fifty percent of the population uneducated never sees a dentist in their lifetime. These people who are dentally underprivileged will ignore any warning signs until its too late. A significant number of these patients have dentures with diminished or poor function for a variety of reasons. Contributing physiologic factors include atrophy through bony resorption, thinning of the overlying gingiva and mucosa, decreased or altered salivary flow and quality, soft- and hard-tissue lesions, neuromuscular challenges among others.

Of these, the most common detrimental oral change is atrophy of the alveolar ridge, causing altered bony and soft-tissue architecture. Result of which includes fabrication of dentures with decrease in denture base support and compromised retention.

This report shows the method of rehabilitating these patients with fabrication of complete dentures with permanent soft liners on tissue surface combined with multiple suction chambers, which enhance retention.

HISTORY

The concept of incorporating suction is a century old technique. Numerous studies have been done in this field and incredibly three early US patents, two in 1885 and one in 1907, were granted for complete denture designs based on such a concept.

Dr. Arthur C Jermyn, originally from Rochester, New York, resurrected the idea of suction cup-retained dentures with research that began in 1952. In his research and clinical studies, Dr. Jermyn noted that the unique alteration in the denture intaglio increased the surface area covered by the suction cups, distributing even pressure and greatly enhancing denture retention. Since the soft tissue tended to conform to the shape of the cups, histologic studies were conducted that verified the long-term safety of this device.

This concept redesigned the entire suction cup denture fabrication process by focusing on materials science, adhesion dynamics, and highly accurate processing methods.

INDICATION

The chief indication is the desire for retention in a patient with severely resorbed mandibular, as they are unable to master the use of unstable and poorly retentive dentures.

In these cases multisuction chamber dentures can provide satisfaction and comfort to the patients.

CASE REPORT

A 61-year-old female patient reported to the Department of Prosthodontics, Institute of Dental Sciences, Bareilly (U.P), India for replacement of her ill-fitting complete dentures. Past medical history was non-relevant. Past dental history revealed extraction of her remaining teeth pertaining to periodontal problems 10 years ago. Since then patient is denture wearer but was unhappy with the retention and esthetics of her existing dentures.

Intraoral examination revealed completely edentulous maxillary and severely resorbed mandibular residual ridges. Various modalities of the prosthetic rehabilitation were discussed with the patient and the patient expressed the desire for more economical solution. Hence considering the facts a heat polymerised acrylic maxillary and mandibular dentures were planned with incorporation of multisuction chambers in the mandibular denture. The expectation of this prosthesis was explained to the patient.

PROCEDURE

1. The traditional sequence of denture construction was followed till the definitive impressions were made and the master casts were constructed and indexed in the land area.
2. Maxillary and mandibular occlusal rims were fabricated and jaw relation procedures were carried out in conventional manner and casts were mounted on a mean value articulator.
3. Prosthetic teeth arrangement was done with the pre
4. Maxillary and mandibular trial dentures were waxed up and try in procedures were carried out.
5. Now, these try in dentures were flaked and proceeded till the wax elimination stage.
6. Following this fabrication of the maxillary denture was proceeded in the conventional manner.
7. Mandibular try in denture was proceeded as per manufacturer’s instructions so as to provide a soft liner denture base.
8. Maxillary and Mandibular dentures were deflasked and finishing was done.
9. Now, the Mandibular denture was altered in such a way so as to incorporate multisuction chambers. This was done using a small size inverted cone bur and drilling uniform diameter circular chambers on the tissue surface of the denture. These chambers were drilled in such a way that they are uniformly distributed all along the tissue surface.
10. Finally the finished and polished dentures were inserted in the patient's mouth and checked for the retention, stability and occlusion.
11. Patient was instructed for home care and prosthesis maintenance.

DISCUSSION
A simple technique (for the dentist) is described here for increasing the retention and stability of the dentures. The multisuction chambers were used to enhance the retention, stability and comfort of the complete denture, especially in patients with significant atrophy of the residual alveolar ridges. The large number of suction chambers creates a vacuum between the mucosa and the denture base and thus providing additional retention of the denture. The tissues assume the negative form of these chambers but they do not cause any pathology and return to their original form once the dentures are discontinued for some time. This technique solves many of the physiologic and psychological problems associated with long-term denture wearer patients but this is no panacea for all denture problems. In other techniques which are mentioned in the literature of creating multi suction cups is technique sensitive. This multisuction chamber denture offers a viable alternative to enhance denture retention when patient is unwilling for other treatment modalities.

CONCLUSION
This article describes a technique of incorporating multi-suction chambers in the tissue surface of the mandibular denture to enhance the retention & stability. These suction chambers grip the oral tissue, providing an increased surface area for enhanced retention and a suction force for increased resistance. It requires a small inverted cone bur to drill the suction chambers.

The follow-up was done for every 3 months till one year and no tissue changes and complaints were reported from the patient.

REFERENCES
LIST OF PHOTOGRAPHS

Fig. 1 Intraoral view of Maxilla
Fig. 2 Resorbed mandibular ridge

Fig. 3 Multisuction chambers
Fig. 4 Denture in occlusion