University J Dent Scie 2019; Vol. 5, Issue 3

University Journal of Dental Sciences

PROSTHODONTIC REHABILITATION OF COMPLETE DENTURE PATIENT WITH IMPLANT SUPPORTED OVERDENTURE USING LOCATOR ATTACHMENT- CASE REPORT

Case Report

[1]*Jaswinder Kaur,* [2]*Damanpreet Kaur*
Department of Prosthodontics, Baba Jaswant Singh Dental College, Hospital and Research Institute, Ludhiana, Punjab

ABSTRACT : Dentists in their day to day practice come across many edentulous patients with atrophic ridges .Complete removable maxillary and mandibular denture has been the classical treatment for replacement of teeth. But, it poses the drawbacks of compromised retention and stability. To overcome this, implant – supported overdentures are gaining popularity among the clinicians as a cost – effective treatment modality with good retention and stability in resorbed residual ridge cases. This article depicts step by step procedure for rehabilitation of an atrophic mandibular with dual retentive locator attachment which has added advantages over other attachment systems.

Keywords
Attachment, Implant- supported overdenture, Locator, Resorbed ridge, Retention,

Source of support: Nil
Conflict of interest: Nil

INTRODUCTION : Edentulism is a chronic condition for which the palliative therapy is a set of removable complete dentures. With the global increase in the life expectancy and the increase in theelderly population, the seekers for this treatment among the elderly edentulous population is also increased. The treatment options include complete dentures, implant- supported overdenture and implant – supported fixed prosthesis.[1] Until the introduction of osseointegrated implant-supported prostheses, complete dentures were the only available treatment for edentulous patients.[2] Edentulous patients with severely resorbed ridges experience reduced stability and retention , difficulty in speech and chewing, accelerated residual ridge resorption and overall psychological effect . Therefore, the conventional denture is no longer recommended as the first choice of treatment. Implant – supported fixed prosthesis feels like natural teeth with improved masticatory efficiency and sense of excellent satisfaction. It is very costly, time consuming ,require careful maintenance and cannot be used in patients with poor lip support as implant- supported fixed prosthesis does not have flange to provide lip support as it is provided in conventional denture and overdenture .Implant- supported overdenture provides excellent retention and stability. It is cost effective and time saving. It offers advantages such as reduced rate of bone resorption ,prosthesis movement, better esthetics, maintains vertical dimension , improve phonetics and overall psychological outlook of patient.[3]

CASE REPORT : A 52 yr old patient reported to Department of Prosthodontics, Baba Jaswant Singh Dental College, Ludhiana, with the chief complaint of loose lower denture. The patient was wearing denture since 5 months and was not satisfied with the fit of the denture. On intraoral examination, the mandibular ridge was found to be resorbed. Medical and dental history was recorded with no significant systemic disorder. Patient was given the option for implant supported overdenture to which the patient agreed. As the patient was satisfied with the esthetics and phonetics of existing denture, so, it was planned to convert the existing dentures into implant supported overdenture. An OPG was taken to assess the status of bone for selection of implants. Two implants were placed in the anterior region of mandible. After 3 months of implant surgery , second stage surgery was performed.

CLINICAL PROCEDURE : After 15 days of second stage surgery , gingival formers were replaced with locator abutments(Fig.1)

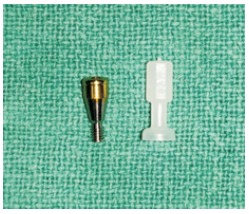

Fig.1: Locator abutment and Plastic carrier

The abutments were placed using plastic carrier and tightened with the help of abutment driver. (Fig.2)

Fig.2: Locator abutment placed

White block out spacer ring around each abutment was placed .Denture attachment housing with black male processing insert was placed on to each abutment and pressed firmly. (Fig.3)

Fig.3: Spacer ring and metal housing placed

Two marks were made on the denture with the help of marker to know the exact location of attachments on the tissue surface of denture. With the help of round bur ,acrylic was trimmed from the marked points as a preparation procedure for the pick up impression. The denture attachment housings were directly picked up with the help of autopolymerising resin . Any voids, present ,were filled with resin. Excess of resin was trimmed off. The black processing insert was removed with the help of removal tool. The selected insert i.e. blue was placed onto each denture attachment housing using the insertion tool.(Fig.4 &5).

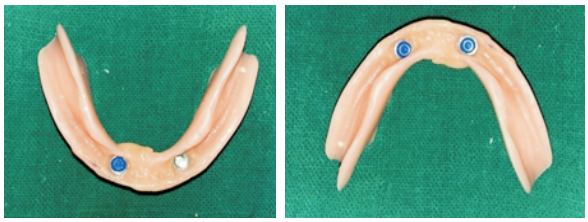

Fig.4 - 5: Removal of black Insert and replacement with blue Insert

Denture was checked for retention in patient's mouth. Patient was satisfied with the retention and stability.(Fig.6)

Fig.6: Post Treatment

DISCUSSION : The prosthetic management of resorbed maxillary and mandibular ridges always poses a challenge to thedentist in relation to retention and stability .To overcome this, implant supported overdenture is now being considered as one of the best options for edentulous patients with compromised ridges. It is indicated in patients who are on limited financial support or have anatomic limitations to implants or who have phonetic- esthetic problems due to loss of lip support. They offer advantages including improved stability and retention, esthetics , phonetics , chewing efficiency and occlusal harmony. As they are removable, their hygiene is also easy. It is also possible to incorporate the existing denture into the new prosthesis. Another advantage is the reduced number of implants and easier surgical procedures. This has encouraged the dentists to overcome the problems associated with edentulism[4]. In recent years, various attachments systems have been successfully used with removable implant overdentures. All available attachment systems are designed to prevent vertical movement of the denture, and can be used as an isolated attachment mounted directly to the implant or attached to a bar system. The choice of the attachment is dependent upon the retention required, jaw morphology, anatomy, mucosal ridge, oral function, and patient compliance for recall.[5]

Ball attachments and bar units for implant overdentures have evolved from the early 1960's. Ball attachments were considered the simplest type of attachments for clinical application with tooth-or implant-supported overdentures. But, it is also well documented that O-rings gradually loose retention, and must be replaced periodically.[6] On the other hand, increased technique sensitivity and costs but with favourable stability have been reported regarding the bar attachments. Other disadvantages of the bar system include mucosal hyperplasia, hygiene problems and the necessity of the retention clip's activation.[7]

The Locator attachment (Zest Anchors, Inc, homepage,

Escondido, CA, USA) which was introduced in 2001, is a new system, which does not use the splinting of implants. This attachment is self-aligning and has dual retention and in different colors with different retention values8. Locator attachments are available in different vertical heights, they are resilient, retentive and durable and have some built-in angulation compensation(Can accommodate inter implant angulations up to40).

In addition, repair and replacement are fast and easy.[9]

Locator attachments provide dual retention, one is mechanical and another is frictional. The nylon male head is slightly oversized than its female component which provides frictional fit. The outer margin of attachment engages the shallow undercut area on abutment to provide outer mechanical attachment. Locator attachments are used without an inner retention feature when they are aimed to correct implant angulation.[8]

Locator kit contains abutment with plastic carrier , spacer, metal housing with black processing insert, and set of different colored inserts (Fig.7) depending upon retention values.

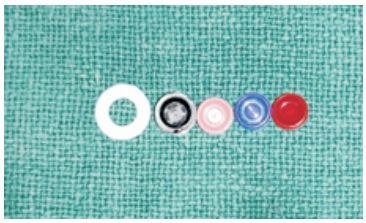

Fig. 7: Metal housing, spacer & Retentive inserts

Locator tool has three components. Abutment driver, which carries the abutment and places onto the implant. Removal tool, which has a sharp edge on the end to engage and remove the insert from the attachment housing .Insertion tool is used to seat the locator insert.

Various studies have done to compare different attachment systems for implant supported over denture. It has been proved that Locator attachment has slightly better chewing efficiency than Magfit(magnet) attachments.[10]

Usage of locator system is recommended as the problems associated with these prostheses are usually simple to resolve. [11]

When compared the retentive forces among ball, magnetic and locator attachments,the highest retentive force was found in the Locator attachments followed by the ball and magnetic attachments.[12]

Color coding of the locator attachment inserts in terms of retention increases in the following order .

Yellow →Red →Blue →Orange →Pink→Green

←Light →Strong

A laboratory study which evaluated the influence of inter implant divergence on the retention characteristics of locator attachments. The results showed that there was no change or decrease in retention of locators with increase in inter-implant angulations up to 20°. [13]

Cakere revaluated complications like replacement of attachment components , overdenture fracture, implant failure, activation of attachment components , hygiene problems , mucosal enlargements , attachment fracture and peri- implantitis and concluded that locator attachments provided best results without any failures and complications followed by bar and ball attachments.[5]

CONCLUSION : This article describes a rehabilitation of severely resorbed ridge with overdenture locator attachment. This is simple and cost effective treatment as compared to fixed implant prosthesis. It has been observed that the locator attachments have superior properties as compared to the other attachments like ball and bar attachments. The patient satisfaction is better because of improved function and masticatory efficiency.

ACKNOWLEDGEMENT : We are indebted to the powerful inspiration, moral support and divine blessings rendered to us by HIS HOLINESS Baba Jaswant Singh Ji, the founder chairman of Baba Jaswant Singh Dental College, Hospital and Research Institute, Ludhiana.

REFERENCES

1. Petersen PE, Kandelman D, Arpin S, Ogawa H. Global oral health of older people – Call for public health action. Community Dent Health 2010;27 4 Suppl 2:257-67.
2. Gunnar E Carlsson. J AdvProsthodont. 2014;6:245-52
3. Bhandara Vishaka ,Dange Shankar, Khalikar Arun, Khalikar Smita. Int. Journal of oral implantology and clinical research. 2015:6(3):76-81
4. Budtz- jorogensen E. Restoration of the partially edentulous mouth; A comparison of overdentures , removable partial dentures, fixed partial dentures and implant treatment. J Dent. 1996 ; 24: 237-44
5. Cakarer S, Can T, Yaltirik M, Keskin C. Complications associated with the ball, bar and Locator attachments for implant-supportedoverdentures. Med Oral Patol Oral Cir Bu cal 2011;16:953-9

6. Alsabeeha NH, Payne AG, Swain MV. Attachment systemsfor mandibular two-implant overdentures: A review of in vitroinvestigations on retention and wear features. Int J Prosthodont2009; 22:429-40.
7. Gotfredsen K, Holm B. Implant-supported mandibularoverdentures retained with ball or bar attachments: Arandomized prospective 5-year study. Int J Prosthodont 2000;13(2):125-30.
8. Trakas T, Michalakis K, Kang K, Hirayama H. Attachmentsystems for implant retained overdentures: A literature review. Implant Dent 2006;15(1):24-34.
9. ChikunovI , Doan P, Vahidi F. Implant – retained partial overdenture with resilient atachments. J Prosthodont. 2008;17;141-8
10. Cheng T, Sun G, Huo J, He X, Wang Y, Ren YF. Patient satisfaction and masticatory efficiency of single implant-retained mandibular overdentures using the stud and magnetic attachments. J Dent 2012;40:1018-23.
11. Vere J, Hall D, Patel R, Wragg P. Prosthodontic maintenance requirements of implant-retained overdentures using the locator attachment system. Int J Prosthodont 2012;25:392-4.
12. Yang T-C, Maeda Y, Gonda T, Kotecha S. Attachment systems for implant overdenture: influence of implant inclination on retentive and lateral forces. Clin. Oral Impl. Res. 22, 2011; 1315–1319.
13. Stephens GJ, di Vitale N, O'Sullivan E, McDonald A. The influence of interimplant divergence on the retention characteristics of locator attachments, a laboratory study.JProsthodont 2014;23:467-75.

CORRESPONDING AUTHOR:

Dr. Jaswinder Kaur

Reader,

Department of Prosthodontics

Baba Jaswant Singh Dental College,

Hospital and Research Institute, Ludhiana, Punjab

E mail : dr.jaswinder.kaur@gmail.com