Versatile Overdenture Locator Attachment – A Case Report

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ABSTRACT:
From long back it has been a major challenge in the prosthetic management of the edentulous patient. Conventional complete denture wearers experience a number of problem on daily basis such as instability of the mandibular dentures, inability to masticate food. Overdenture increases retention, support, improve masticatory efficiency, preserve alveolar bone thus improve the quality of life and oral health. Conventional overdenture attachments such as O-rings, stud, ball and bar etc require more space being less retentive. Overcome these deficiencies the locator attachment facilitates the ease of insertion and removal, dual retention, low vertical profile thus an implant retained locator with two implants in the inter-mentonian region alongwith the locator attachments are a viable treatment option.

Keywords: Attachment, Locator, Overdenture.

INTRODUCTION
Edentulism is a poor health outcome and compromise quality of life. The traditional treatment plan for the edentulous patient is the conventional complete denture.¹ Any mandibular complete denture relies on the successful influences of prosthesis retention and stability to achieve a satisfactory treatment outcome.²,³ Implant-retained overdentures are widely applied for the rehabilitation of edentulous jaws as it increases retention, stability, enhance masticatory function and reduce alveolar bone resorption by regulating neuromuscular adaptation.⁴ An implant retained overdenture is an alternative form of treatment to the fixed-implant prosthesis & offers patient an economic alternative.⁵ It has been successfully used to rehabilitate edentulous patients for over 30 years.⁶ The McGill University (Canada) consensus statement on overdentures, issued in 2002, recommended “mandibular 2-implant over-dentures” as the first choice standard of care for the edentulous patients.⁷ Overdentures may be retained by bars, balls, magnets, Locator attachment or Ceka attachments.⁸ Compared to other attachments, Locator attachments add versatility to its design.

CASE REPORT
A 74 year old female patient reported to the department of prosthodontics with the chief complaint of difficulty in chewing and she also complains of loosening of her lower denture, so she wanted fixed set of teeth. Medical history was non-contributory. The dental history revealed loss of teeth since 15 years due to caries and gum problems Patient is denture wearer since 13 years. On clinical examination-Lower ridge was severely resorbed. Upper ridge being favourable. Other clinical abnormalities were not seen. Evaluation of complete blood count & serum calcium was done. And for radiographic
evaluation was done-Dentascan & OPG. Evaluation of bone width for implant positions was done by ridge mapping. A perio probe was used to determine the proper gingival depth at each implant location. A radiographic template with gutta percha points was fabricated to assist implant positioning. Patient was asked to wear the new denture for 2 weeks prior to implant placement so required necessary correction was made accordingly. After assessing the pre surgical profile implant surgery was planned after obtaining the appropriate consent. The patient was scheduled for surgery with appropriate prior antibiotic therapy. A midcrestal incision is made, ending distally to the canine position (as dictated by surgical guide), with 1 small vertical releasing incisions. A full-thickness flap is raised with buccal and lingual reflection. Osteotomy sites are completed and the implants are placed, again, using the guide pins. Two implants were screwed (35 Ncm) in intermentonion region. Placement of the superior aspect of the healing abutment approximately just 2 mm above the final flap position, this allows for better healing and maturation of the soft tissue. The implant shoulder should not be covered by the gingiva. We had selected the height of the locator abutment by determining the height of the gingiva. The top margin of the abutment was 1.0 mm above the mucosa locator abutments are placed at same horizontal level as the insertion of the prosthesis is easier for the patient if the locator abutments are kept at the same horizontal level.

The patient was recalled after 3 months for the definitive implant restoration. The soft tissue around the provisional restoration was healthy without any inflammation or recession. Bone assessment in radiograph at this stage revealed nothing untoward. The provisional restoration was retrieved and a closed tray technique was used after connecting the impression post to record the final impression for fabrication of metal ceramic restoration. The provisional restoration was relined with resin after placing rubber dam isolation around implants so that it contacts only cover screw and temporary cementation was done with non eugenol luting cement.

After 6 months patient was recalled for definitive metal ceramic crown and the same was luted with glass ionomer luting cement and necessary instructions were given. After 1 year follow-up, the peri implant soft tissue was healthy with no signs of gingival inflammation and no bone loss around implants was observed radiographically.
Figure 4: Radiographic template fabricated with gutta-percha points for positioning of drill

Figure 5: A full thickness flap reflected

Figure 6: Surgical guide

Figure 7: Appropriate positioning pilot drill for the osteotomy sites preparation in the canine region

Figure 8: A guide pin is inserted into the osteotomy site to ensure that the second implant is as parallel as possible to the first

Figure 9: Completion of osteotomy.

Figure 10: Gingival former

Figure 11: Interrupted sutures placed.
Figure 12: After 17 week gingival formers were replaced with locator abutments

Figure 13: Locator block out spacer rings

Figure 14: Denture caps with attached black processing malesonlocator abutments

Figure 15: Wax placed on locator cap for marking relief area

Figure 16: Marking transferred on the dentures and thus area were relieved

Figure 17: Denture caps were fixed into the relieved area with self polymerizing acrylic resin

Figure 18: once the acrylic got cured the black processing ring were removed with male removal tool

Figure 19: Post operative after 3 months
DISCUSSION
Mandibular denture often presents problem to the patient as well as dental practitioner. Mandibular complete overdenture treatment has been available for decades, however its use was limited when the treatment depends on retained teeth or root stumps as overdenture abutments. Complete edentulous patients may be presented with option for implant supported prosthetic reconstruction that include:
- full arch implant supported fixed prosthesis,
- Implant supported overdentures.
Surgical treatment is well established for implant placement in the parasymphyseal region of the edentulous mandible. Overdenture with pivoting locator attachment allow a resilient connection for the overdenture without any retention loss.

CONCLUSION
Completely edentulous patient often seek tooth replacement for comfort, esthetics and function. Dental practitioners often find difficulty in achieving retention and stability in resorbed ridges. Implant supported overdentures with minimally two implants have been recommended as treatment option. Practitioner are always looking for the simplified treatment that provide cost effective alternatives to more complex treatment procedures. Therefore, the two implant retained overdenture should be considered as the first treatment option for edentulous patients

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