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Clinical Case

Removal partial denture with implants using DESSLocs®

Dr. Wendy Clark presents a removal restorative case on implants placing overdenture DESSLocs®

Compared to other tooth replacement options, there is limited evidence to support the treatment of removable partial dentures with implants. With that in mind, the current evidence indicates that these likely have a good success rate for both implants and prostheses.[1,2]

In spite of the lack of evidence for long term success, the addition of dental implants has been shown to improve the patient quality of life,[3] and the force distribution.[4]

This is particularly true for Kennedy Class 1 and 2.[5]

Dr. Wendy A. Clark DDS,MS,FACP

North Carolina (USA)

1. Kuroshima S, Ohta Y, Uto Y, Al-Omari FA, Sasaki M, Sawase T. Implant-assisted removable partial dentures: Part I. a scoping review of clinical applications. J Prosthodont Res. 2024 Jan 16;68(1):20-39.
2. Lemos CAA, Nunes RG, Santiago-Júnior JF, Marcela de Luna Gomes J, Oliveira Limirio JPJ, Rosa CDDRD, Verri FR, Pellizzer EP. Are implant-supported removable partial dentures a suitable treatment for partially edentulous patients? A systematic review and meta-analysis. J Prosthet Dent. 2023 Apr;129(4):538-546. doi: 10.1016/j.prosdent.2021.06.017. Epub 2021 Jul 28. PMID: 34330529.
3. Bandiaky ON, Lokossou DL, Soueidan A, Le Bars P, Gueye M, Mbodj EB, Le Guéhennec L. Implant-supported removable partial dentures compared to conventional dentures: A systematic review and meta-analysis of quality of life, patient satisfaction, and biomechanical complications. Clin Exp Dent Res. 2022 Feb;8(1):294-312.
4. Mousa MA, Abdullah JY, Jamayet NB, El-Anwar MI, Ganji KK, Alam MK, Husein A. Biomechanics in Removable Partial Dentures: A Literature Review of FEA-Based Studies. Biomed Res Int. 2021 Aug 26;2021:5699962. doi: 10.1155/2021/5699962. PMID: 34485518; PMCID: PMC8416386.
5. Putra Wigianto AY, Goto T, Iwawaki Y, Ishida Y, Watanabe M, Ichikawa T. Treatment outcomes of implant-assisted removable partial denture with distal extension based on the Kennedy classification and attachment type: a systematic review. Int J Implant Dent. 2021 Nov 13;7(1):111. doi: 10.1186/s40729-021-00394-z. PMID: 34773513; PMCID: PMC8590637.

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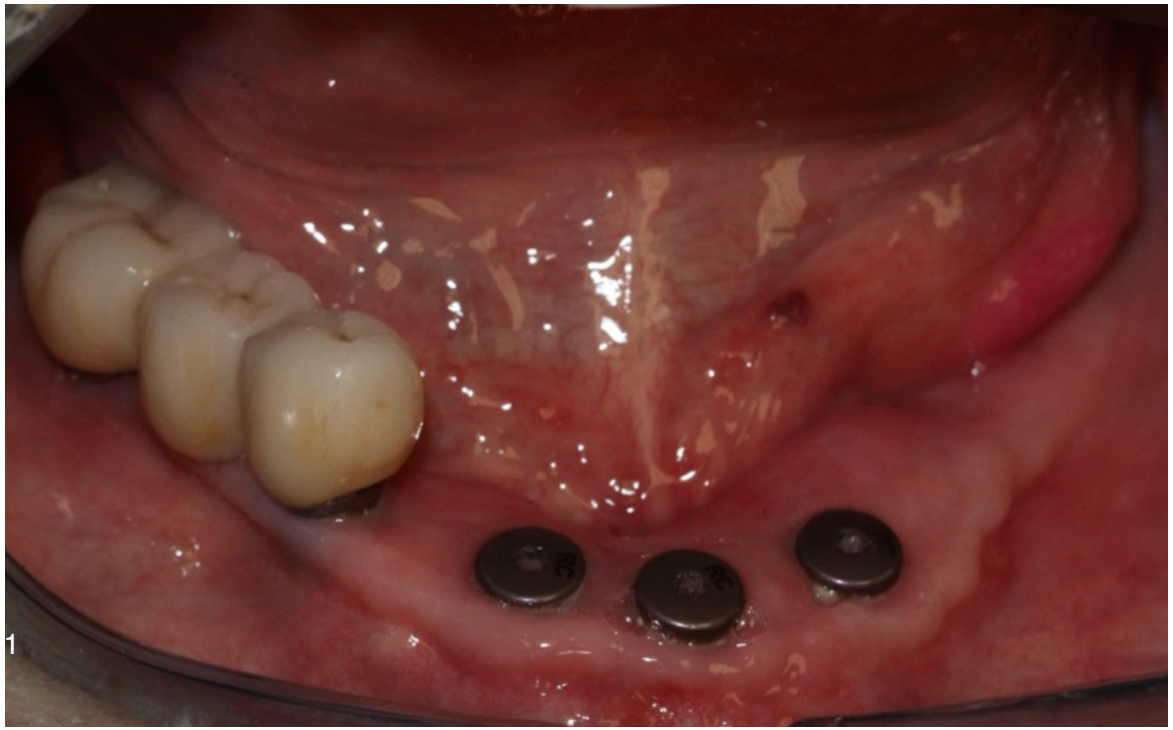
CASE PRESENTATION

A 78-year-old female presented with a history of failed mandibular dentition due to caries. Her medical history was significant for xerostomia and arthritis. She presented to our practice with 3 mandibular implants placed, with healing abutments seated by the referring periodontist.

She had an opposing complete denture, and an implant supported FPD #28-30 (figure 1). After discussion of treatment options, the patient was hesitant to remove her implant supported FPD.



Costs, risks and benefits of treatment options were reviewed, and we elected to proceed with a removable implant supported partial denture.

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Figure 2

Figure 3

The healing abutments were removed, and it was noted that plaque was building up, in spite of her good home care(Figure 2).

These were replaced with DESSLoc®coated abutments with Pericoat® (ZrN) to help decrease plaque retention on the final abutments. (Figure 3).

DESSLoc®

TECHNICAL INFORMATION

- Titanium Grade V ELI 23
- PerioCoat®
- CE: Class IIb
- FDA: Class II

FEATURES

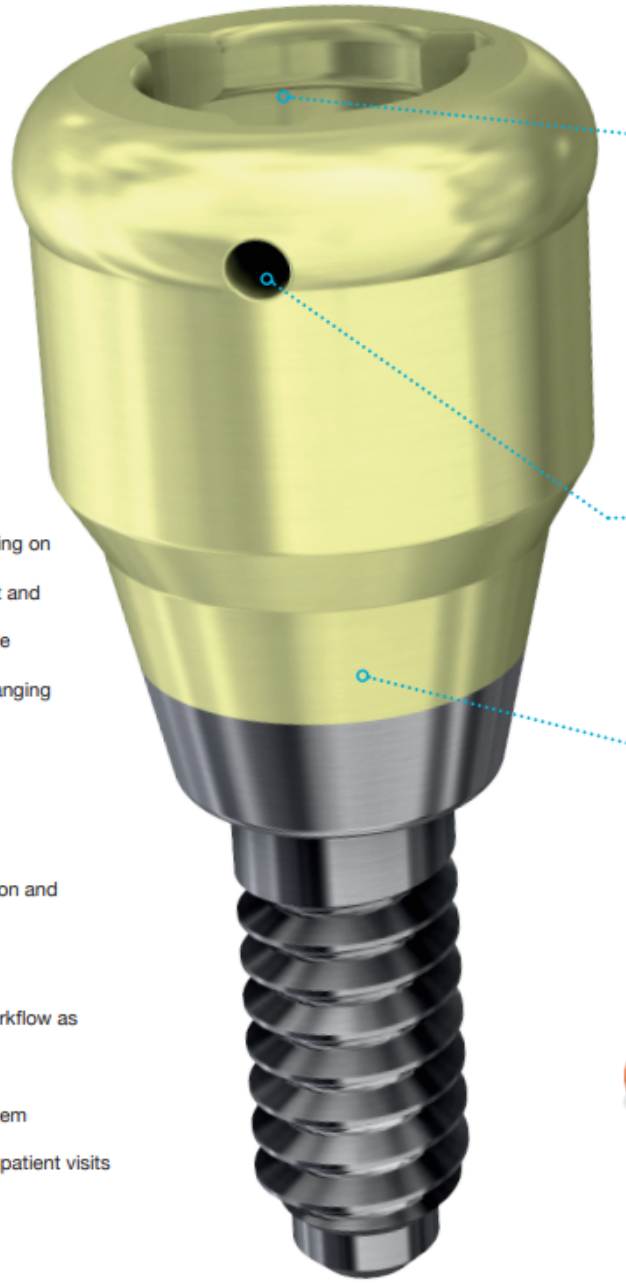
- Pure Switch® concept
- Multiple gingival heights options: 1-6mm depending on the system
- Placement carrier included to facilitate placement and handling*
- DESSLoc® tool available: more control and torque transmission
- DESSLoc® insertion & removal tool: facilitates changing of retention inserts
- Two insert retention kits: from 20° to 40° of max divergence

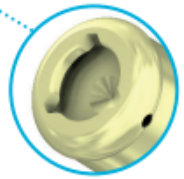
CLINICAL BENEFITS

- Abutment for removable overdenture prosthetics
- PerioCoat® for better strenght, less plaque retention and gingival inflammation

BUSINESS BENEFITS

- Pure Switch®: no special tools required, same workflow as the OEM product
- No need to invest in a carrier, it is included in the package
- 100% compatible with the OEM overdenture system resulting in a lower investment
- PerioCoat®: reduced risk of gingival disease, less patient visits





100% compatible
With the most popular overdenture system

Ease of removal
A small hole located at the top of the DESSLoc® will limit the vacuum effect when removing the prosthesis. This will improve patient sensation on removal, without losing retention nor masticating power.

periocoat®

- Less inflamation.
- Less plaque adhesion.
- Higher corrosion resistance.
- Easier to clean.
- 6x harder than Titanium Oxide.

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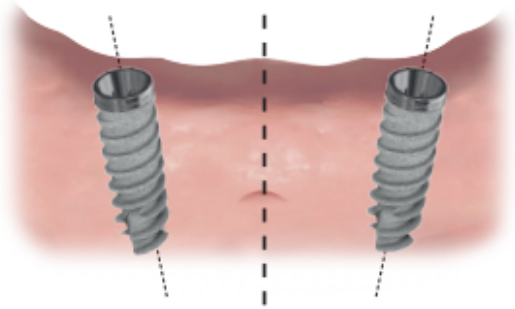
DESSLoc®

UP TO 40° ANGLE

Pivoting Technology:

DESSLoc® provides excellent retention, facilitating proper insertion of the prosthesis, especially in compromised situations, providing greater resistance and tolerance to masticatory forces. Even with up to 40° of divergence between implants and the additional rotational move between the denture cap and the male insert, positioning and alignment is easier than ever.

DESSLoc® pivoting technology allows the patient to place the denture without the need for perfectlyaligned implants giving the patient additional flexibility when seating the denture.



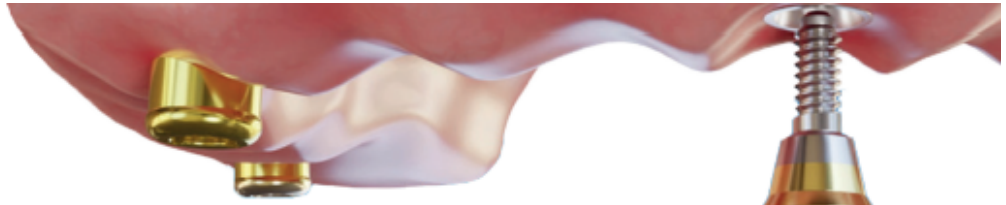
40° Divergence

Choose the retention level:

There are two processing kits available, these include different inserts allowing you to choose the best option for each patient.

* divergence up to 20°

* divergence up to 40°



Transporter

All DESSLoc® abutments include a transporter to ease the insertion, adjust and place the final abutment before torquing into position with the corresponding tool.

DESSLoc® Tool

Designed to hold the abutment safely, the DESSLoc® tool will give more control and better torque transmission.

Replacement & Maintenance:

The DESSLoc® retention elements range has been developed to provide the correct amount of strength and control for each individual patient. Each kit contains 4 units of the same insert.

up to 20°	1.5lbs / 680g	up to 40°	1.0 lbs / 450g
	3.0 lbs / 1360g		2.0 lbs / 910g
	5.0lbs / 2270g		4.0 lbs / 1810g

100% compatible with the most popular overdenture system

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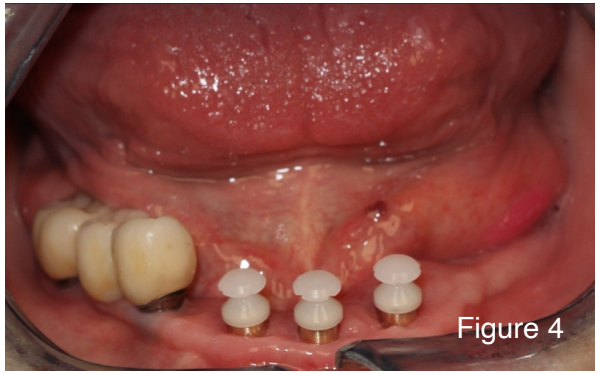
Figure 4

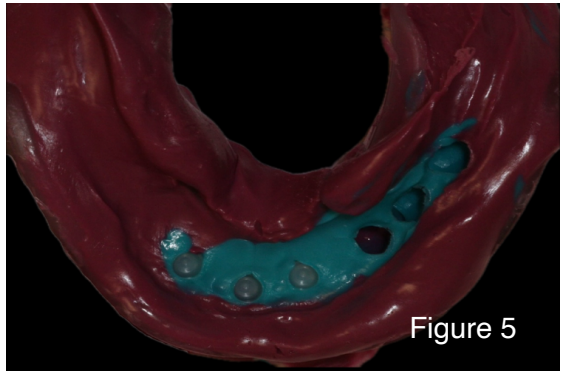
Figure 5

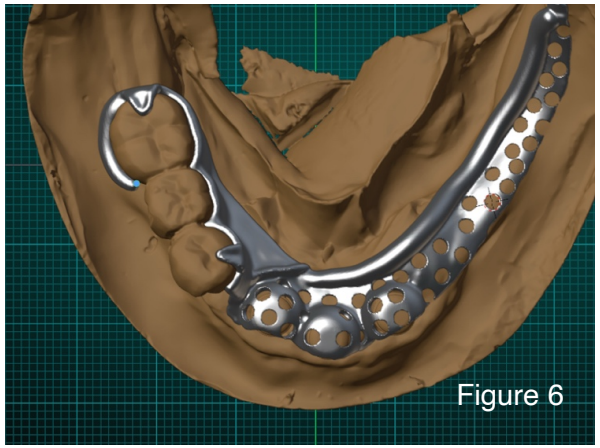
Figure 6

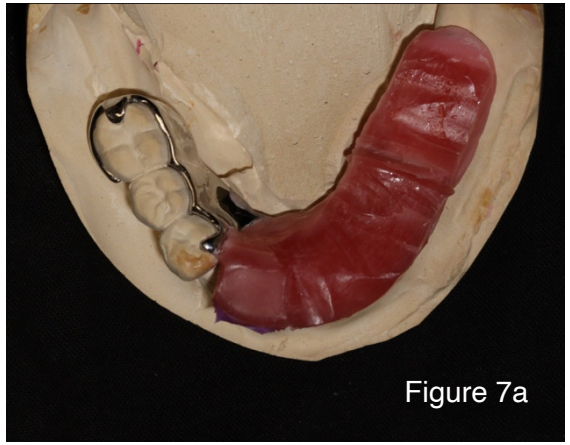
Figure 7a

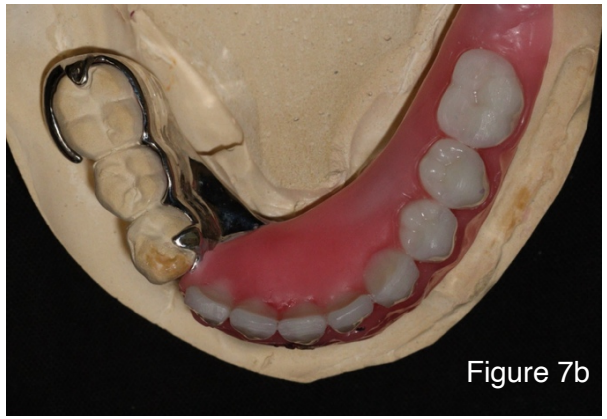
Figure 7b

After torquing the abutments, DESS® closed tray impression copings were placed (Figure 4), and a polyvinyl siloxane final impression was made (figure 5).

The master cast was poured in type 4 gypsum die stone and scanned with a benchtop scanner. A framework was designed on blender and additively manufactured in Cobalt Chromium (Bego laboratories) (Figure 6).

At the framework try-in appointment, the vertical dimension and centric relation was recorded with a wax rim, which was confirmed by a wax trial denture. (Figure 7a and 7b).

Many treatment options were available, including complete overdenture (replacing existing FPD with DESSLocs®) or restoring the new implants with fixed restorations in addition to a more conventional removable partial denture design.

Considering costs and the patient's limited hand strength, this option was considered the best for her at the time of treatment.

The prognosis for the lower arch restorative is good. In the future, the prosthesis could be converted to a removable complete implant overdenture, or a full arch fixed implant prosthesis (if more implants are placed).

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