

Medical case

Multi-unit Abutments: Lower full arch on DESS[®] Multi-units I Part I

Doctor Steven A. Brisman present a MUA case and preliminary considerations on Multi-units Abutments





Introduction



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CASE PRESENTATION

A 65-year-old patient presents to the dental clinic with chief concerns of loose lower teeth. Upon examination, the patient has a terminal or hopeless lower dentition opposed by a previously restored maxillary implant rehabilitation. Following radiographic analysis, including a CBCT, it was determined that the patient is a good candidate for an All-on-X restoration.



Initial situation





Preliminary considerations on Multi-unit Abutment

Tissue level implants possess a fixed transmucosal piece that cannot be altered or modified once the implant is placed.

Bone level implants, as first described by Branemark, offer far greater flexibility. They are generally placed coincident with the osseous crest. Therefore, the restoration requires a transmucosal element which begins at the bone level and transcends the soft tissue.

These transmucosal prosthetic components vary in length and width dependent on the depth of the implant and the hygienic and esthetic demands of the prosthesis.

This creates two different protocols or options for the restorative dentist:

1. Implant Level Restoration: A titanium base and restoration is placed down to and touches the implant.

2. Abutment Level Restoration: An abutment of varied dimensions is placed creating a tissue level restoration.





The two-abutment system, calls for prefabricated transmucosal abutments.

Historically this "standard abutment" was replaced by the "EsthetiCone" abutment followed by the "MirusCone" abutment which evolved today to the Multi-unit Abutment.



The Multi-unit Abutment prosthetic solution is now shared by numerous implant systems around the world.

But why? Why is this now so widely used?

Why has this protocol gained so much popularity, versus the implant level restoration?

- The main advantage is it places the restoration supragingival. It has been proven, placing a titanium abutment, without removing it, leads to hard and soft tissue stability.
- Secondly, with the use of <u>Multi-unit Abutments</u>, the prosthesis is screw retained. Therefore, the restoration is healthy for the patient, retrievable and easier to execute for the clinician.
- Thirdly, with the use of multiunit abutments, multiple implant restorations with varied implant manufacturers and connection types, can be more easily executed.



Learn more about DESS[®] Multi-units in our specialized catalog





The indications for the use of <u>Multi-unit Abutments</u> is most prevalent in the full arch or All on X cases, multiple implant placements and in cases that exhibit significant loss of hard and soft volumes of tissue.

This application is very applicable where the <u>implant to restoration</u> transition is not visible on the patient. These multiple units can be placed on numerous implant systems, at the time of surgery or restoration, and are prefabricated titanium.

<u>Multi-unit Abutments</u> come in a straight or angulated orientations, which makes them frequently used in a variety of surgical presentations and large span restorations.



In particular, in the Mandible where the implants are placed anterior to the mental foramen and in Maxilla with sinus limitations with including zygomatic implants.

The specific titanium base is then affixed to the restoration creating a 2 abutment system.

DESS

Back to the practical case

This protocol calls for simultaneous extraction, implant placement, and immediate full arch provisionalization.

- Implant planning software was used where the STL is merged with the DICOM file. With collaboration between the surgeon and restorative dentist, a virtual set up was created and a surgical guide was fabricated.
- During surgery, several teeth were left, temporarily. It is important to note, that these teeth did not occupy implant positions. An elastomeric impression was made once the implants were placed. Following the impression, the remaining teeth were removed.

This protocol typically calls for same-day provisional conversion.

But why? Why not perform a "Day + Provisionalization"? Bring the patient back to the dental clinic in the next day or two.









The restorative dentist may or may not be present at the time of surgery. The protocol calls for an elastomeric or analog impression to be taken once the multiple units are in place. In this case, four teeth were left temporarily for the purpose of mounting and intermaxillary record taking.

Should this not be available, mounting can be done via an immediate complete denture, that has been fabricated in advance, strictly for mounting purposes.

Following the impressions, the remaining four teeth removed, and the patient is dismissed. Temporary nylon caps were placed for the following day or 2 to maintain the tissue during initial healing.

The impression and by registrations are then sent to the dental laboratory, the analogs screwed to the transfers and created the plaster model.



Advantages of doing a provisional restoration 1-2 days after the surgery

- Shorter surgical visit.
- Less or no anesthesia at time of provisional insertion.
- Controlled environment, minimizing saliva, blood, moisture and contaminants.
- More design time, better polish and finish.
- Use of final Titanium Bases vs temporary cylinders.
- A Milled provisional restoration: Fabricating the provisional in PMMA versus acrylic.
 - This has been shown in a comparison study less plaque retentive, more durable, less complications.



The multiple units are inserted at the time of surgery. Based on the surgical planning software, along with visualization at the time of implant placement, it was determined that we will going to use all straight <u>Multi-unit Abutments</u>.

How is that possible? How do we get the screw access holes in ideal position?

ANGLEBase[®] abutment for angulated screw channels to the <u>Multi-unit Abutment</u>, with **DESS**[®]!





This is designed with <u>DESS® ANGLEBase</u>® <u>screw channels</u> to the <u>Multi-unit</u> level. This allows for the modification and manipulation of the access holes to be placed in an ideal position up to 25 degrees.



Using straight Multi-unit Abutments has many advantages:

- Easier to place.
- Promotes better soft tissue healing to the implant level as there is no high and low side to an angulated <u>Multi-unit Abutment</u>.
- Allows higher torque of the prosthesis.
- And the angulation is 360 degrees using DESS[®] componentry. ANGLEBase[®] abutments have preset values based on the internal or external geometry of the implant. And have only set positions that can be used.





Once the stone cast is fabricated, the design begins







TECHNICAL INFORMATION

- Titanium Grade V ELI 23
- DLC coated screws ¹
- Three versions: straight (non-engaging), 17° and 30° angulations (engaging)
- CE: Class IIb
- FDA: Class II

FEATURES

- Pure Switch[®] concept
- Same cone design for all DESS Multi-Unit, same shape as Nobel[®]
- Multiple gingival heights options: 1-5mm depending on the system
- Screw included same screw design as OEM
- Placement carriers included for straight and angled versions*
- Fully shaped connection geometry
- Higher material strength and fully threaded areas
- Higher screwing torque up to 35Ncm²

CLINICAL BENEFITS

- Ideal for ALL-on-X: standardised prosthetic platform for screw-retained prosthetics
- Available prosthetic assortment for Multi-Unit
- The higher torque avoids screw loosening

DESS[®] Multi-Unit





ANGLEBase[®] Ti-bases are attached using the master cast. This Ti-Base cementation is very specific and detailed. It is important to note, these must and should be used. The restoration, provisional or final, is <u>not</u> placed directly to the Multi Units. The Ti-bases provide a prefabricated and highly intimate fit of the prosthesis to the <u>Multi-unit Abutment</u>.





The patient is brought back within the next day or two to place and screw the provisional full arch that we see in the images.

The nylon healing caps are removed, the provisional prosthesis is inserted, occlusion is verified, oral hygiene instruction is given, and finally the patient is dismissed.

Since this prosthesis is milled and prefabricated, it can be worn beyond the healing time, if desired.

Part II of the case with the definitive restoration completed.





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