KLS martin GROUP

IPS® Preprosthetic Restorative Guide

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Every one is unique

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Conventional dental implants are traditionally used for treatment when the patient presents with adequate bone stock.

However, when adequate bone stock may not be present due to various reasons, an alternative treatment to traditional endosseous integrated dental implants is required.

We introduce KLS Martin's IPS® Preprosthetic implant system. The system is comprised of a well-fixated individualized implant with either an integrated multi-unit abutment (MUA) or removable option, allowing for the delivery of a provisional and final prosthesis.

Thorough clinical and radiographic observation should be performed by the attending surgeon prior to design of the IPS® Preprosthetic implant and surgery. Patients qualifying for IPS® Preprosthetic may exhibit inadequate prosthesis retention related to failed restorations from previous surgery [1]. If the patient does not present the need for a resection, radiographic evidence will display arch atrophy of the mandible or maxilla.

IPS® Preprosthetic has been designed with multi-directional endosseous anchorage around the underlying bone, allowing application of the device when the quantity and quality of the existing bone stock and soft tissue do not match the requirements for conventional dental implants [2].

IPS® Preprosthetic Bundle

IPS® Preprosthetic: The First 510(k)-Cleared, Patient-Specific Subperiosteal Implant

KLS Martin is proud to introduce IPS® Preprosthetic—the first patient-specific subperiosteal implant to receive 510(k) clearance. Designed for complex cases involving edentulism, pathology, or trauma, IPS® Preprosthetic provides a customized solution where conventional implant options may fall short.

Recognizing the need for greater clinical flexibility, KLS Martin developed an implant-level version of IPS® Preprosthetic. This design enables:

- Precise collar height selection within the multi-unit abutment
- Easy removal and replacement of components as needed
- Improved adaptability across a variety of clinical scenarios

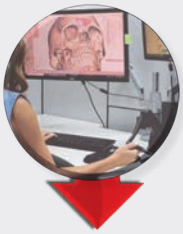
To deliver a truly comprehensive solution from surgery through definitive prosthetic restoration, KLS Martin has partnered with leading providers:

- **DESS Dental Solutions:** Supplies a full range of prosthodontic components for both provisional and final fixed/removable restorations.
- **Oral Arts Dental Laboratories:** Fabricates the temporary and permanent prostheses specifically designed for IPS® Preprosthetic cases.

With these partnerships, KLS Martin offers a streamlined, end-to-end workflow—enhancing predictability, efficiency, and outcomes in even the most challenging restorative cases.

01 Data Submission

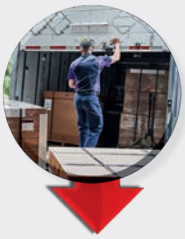
02 Planning Session



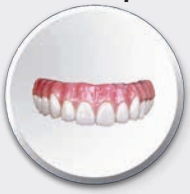
03 Surgery and delivery of the temporary prosthesis shipped with the case

04 Complimentary photogrammetry scan taken

05 Delivery of the final prosthesis



06 Implementation of the final prosthesis



IPS® Gate Process

IPS® Gate is KLS Martin's proprietary case management system, integrating data upload, case planning, and communication into one cloud-based platform. IPS® Gate's intuitive design enables unmatched case tracking capability for the entirety of your cases, with easy access to completed cases and seamless case approval functionality.

SCAN ME

To Download
the IPS® Gate App

SCAN ME

To Submit Data

1	2	3	4	5	6	7
Patient consult	**Submit Data**	**Data Check**	**Scheduling Planning**	**IPS® Planning**	**Approval**	**Delivery**
I. Order CT scan(s) and dental model(s), as applicable. **II.** Complete the planning form to improve the efficiency of planning (optional).	**I.** Submit data in IPS® Gate. **II.** If not already enrolled, please navigate to https://ips.klsmartin.com/ to complete the registration steps.	**I.** IPS® team will e-mail or send messages via IPS® Gate and request one of the following: add info, new data, schedule planning, or no further action needed until approval.	**I.** Following data validation, a link will be provided for webinar scheduling. **II.** Please allow 24 hours for meeting requests.	**I.** Planning sessions take place on the MS Teams platform.	**I.** A detailed case report, including products and procedures, will be sent for surgeon approval.	**I.** At the completion of manufacturing, the product and report will be shipped to the sales consultant for hand delivery or to a location of your preference.

IPS® Data Protocol

Case Type	Requirements
Graft Recon, Distraction, Trauma, Transformation, Cranioplasty, Cranial Vault Remodeling	CMF CT Scan
Orthognathic	CMF CT Scan, Dental Models (Or Intraoral Scan, IO)
Preprosthetic	CMF CT Scan, Dental Models/IO scan or Dual Scan Protocol (if edentulous)

- If TI occlusal guides are requested, dental models are required.
- If data does not meet the following requirements (out of protocol), proceeding will require surgeon approval for use and may affect the accuracy of products.

CT Scan Requirements

Medical grade, helical CT scan recommended, however, CBCTs are acceptable. Orient gantry perpendicular to occlusal plane and symmetrically with midline (see above). Do not reformat or compress data. Submit original, uncompressed DICOM data. Use the smallest slice thickness/increment and pixel size possible.

		IPS® Implants/Guides	IPS® Splints only	IPS® Models or Planning only
Quantitative	Slice thick./incr.	≤ 1.25 mm (for graft ≤ 2.0)	Anatomy: ≤ 2 mm Dental Models: ≤ 1.25	≤ 2.5 mm
	Gantry tilt	0°	0°	0°
Qualitative	Movement acceptable?	None in ROI	CMF CT: not in dentition Dental Models: no	Yes
	Steps acceptable?	None in ROI	none in dentition	Yes
	Scanned Region	ROI	CMF CT: Condyle to dentition* Dental Models: full dental arch	ROI

*Centric relation of the condyles should be confirmed at the time of the scan to avoid digital correction.
***Scan date:** For neonates and infants: 1 month
For children, adolescents, and adults: 4 months

Dental Model Requirements

General Requirements

- Include full dental and arch and palate, if palatal products are required.
- No movement, distortion, or stitching errors.
- For segmental cases, include pre-operative dental model.

Intraoral Scans

STL format preferred. 3Shape and iTero transmissions may also be used.

3shape communicate

iTero®

Please scan for more information on intraoral scan submissions

Stone Models

Physical format preferred but CT or intraoral scans are also acceptable. Use minimal alginate and ensure no distortion. When submitting final occlusion, registration mousse is suggested or alignment marks at a minimum.

Prosthodontic Components

Distributed by KLS Martin

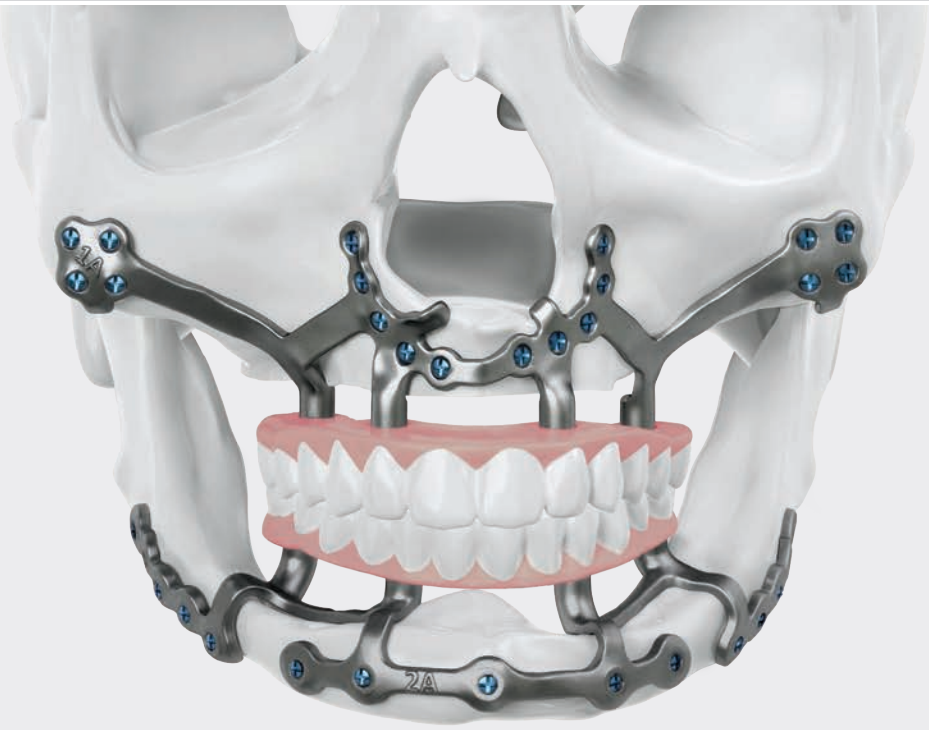
DS-MUA-001
1 mm MUA

DS-MUA-002
2 mm MUA

DS-MUA-003
3mm MUA

DS-MUA-004
4 mm MUA

DS-MUA-005
5 mm MUA



DS-TW-001
Torque wrench

DS-D-H127
Hex driver

DS-SCREW
Preprosthetic screw

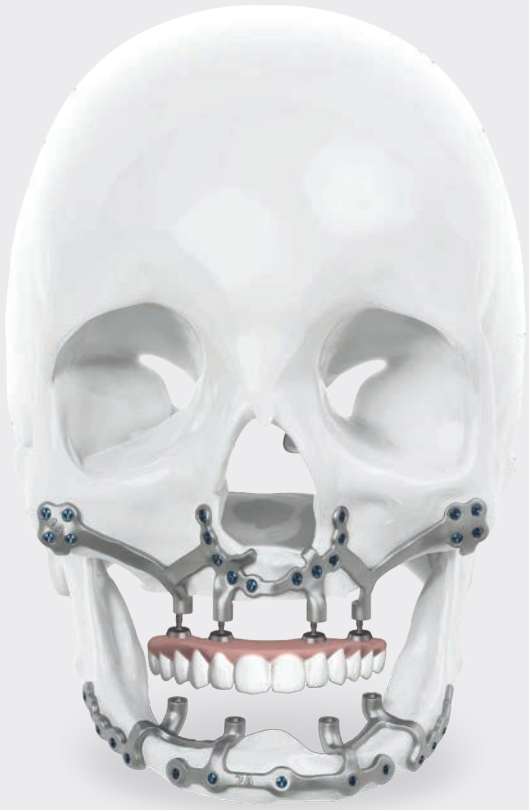
DS-D-001
MUA driver

DS-D-LOC
Locator driver

DS-ADA-002
Torque wrench
latch adapter

DS-ADA-001
Torque wrench
square adapter

Provisional Restoration



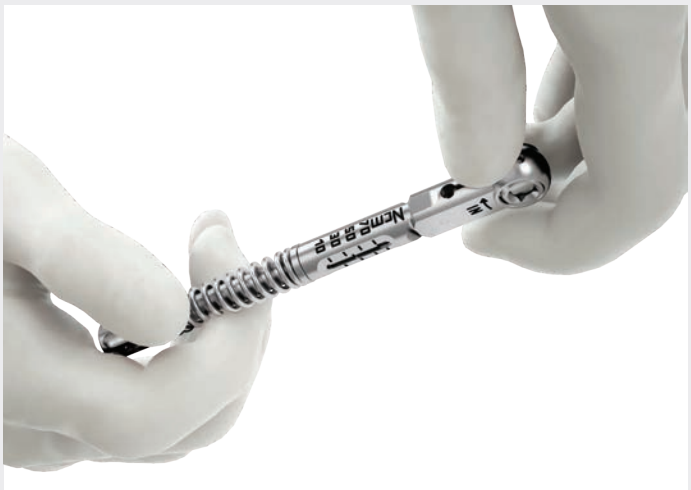
Following confirmation of the pre-operative plan, KLS will provide the abutments, prosthodontic screws and milled temporary prosthesis required for the provisional restoration.

- The prosthesis will be milled for a direct-to-platform restoration utilizing a DESS M1.4 screw.
- The DESS M1.4 screw is provided by KLS Martin.
- Design protocols are also available for a temporary prosthesis to adapt to a Ti base or temporary coping, however, these accessories will not be provided by KLS Martin.

Applying MUAs

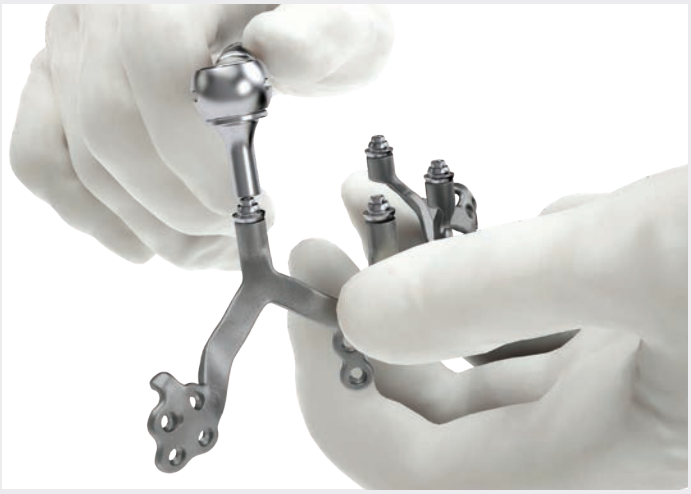
Assembly

Prior to surgery, assemble the torque wrench with the square adapter and multi-unit abutment driver.



Set torque value

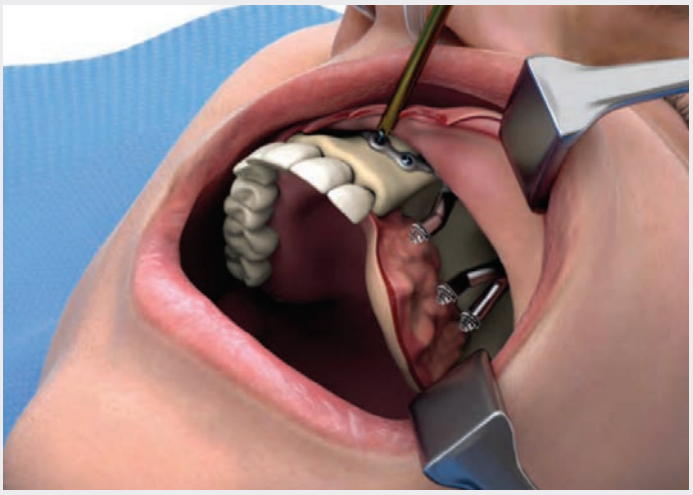
Set the torque value to 35 N cm and confirm the wrench is set to the “in” position.



Assemble abutments to the IPS® Preprosthetic frame

Prior to delivery of the IPS® Preprosthetic implant frame, torque the appropriate abutments onto the IPS® Preprosthetic implant frame.

Delivery of the temporary prosthesis



Delivery of the IPS® Preprosthetic implant

Once the abutments are secure to the implant frame, the implant can be implanted and prepared to deliver the provisional.

Assembly

Remove the square adapter and MUA driver from the torque wrench and replace with the latch adapter and .050 hex latch driver and set the torque value to 15 N cm.

Delivery of the temporary prosthesis

With the assembled torque wrench and latch driver, load the M1.4 DESS screws to the driver and deliver through the screw channels into the multi-unit abutment on the IPS® Preprosthetic frame.

It can be helpful to initially fixate the screw by hand with the latch adapter and driver and then assemble the torque wrench and torque the screws to 15 N cm.

Final prosthesis

MicronMapper Loaner Program
Photogrammetry Scanning for IPS® Preprosthetic Final Restoration

To support practices without access to photogrammetry technology, KLS Martin offers the MicronMapper Loaner Program—a streamlined solution for capturing precise digital data required to fabricate the final IPS® Preprosthetic prosthesis.

Program Overview:

1. **Three months post-surgery,** a KLS Martin representative will contact the restoring physician listed on the original order form to initiate final restoration coordination.

2. Upon confirmation, a **MicronMapper photogrammetry unit** will be shipped to the restoring physician. The kit includes scan bodies, instructions for use, and a prepaid return shipping label.

3. The restoring physician will perform the photogrammetry scan following the **manufacturer's guidelines**, ensuring accurate capture of final abutment positions.

4. Once scanning is complete, data can be submitted through **IPS® Gate**, and the unit must be returned to KLS Martin utilizing the provided shipping label located in the initial packaging.

This program ensures consistent data quality and supports efficient digital workflows for IPS® Preprosthetic cases. Please note that loaner availability is limited, and units must be returned within three business days of delivery.

For questions or to request a unit, contact us at 800.625.1557 ext. 8574.

Final Restoration -

Data Protocol for Final Prosthesis

All data can be submitted through IPS® Gate

Please make sure the abutments have been changed to the desired height for the final prosthesis prior to data collection, if applicable.

For intraoral scans, please turn off any “AI” or “Appliance” setting prior to scanning the patient.

1. Intraoral (I/O) Scan with bite registration (closed to desired vertical dimension of occlusion).

A. If the patient does **not** have a temporary prosthesis at the time of data collection, the following must be completed:

I. A diagnostic wax-up to establish the bite, or bite block.

2. I/O Scan of the region of interest with with Ti bases secured to the MUAs.

A. White portion of the scan body can be removed.

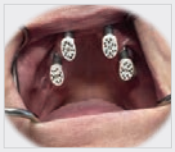
B. Include as much soft tissue as possible.

I. If the I/O scanner experiences trouble picking up the tissue, dry the tissue. The person scanning may need to go pillar to pillar, pause to dry, and resume.

3. I/O Scan of the opposing dentition.

4. I/O Scan of the temporary prosthesis with the Stage 2 scan bodies.

5. Photogrammetry scan with scan bodies in place.

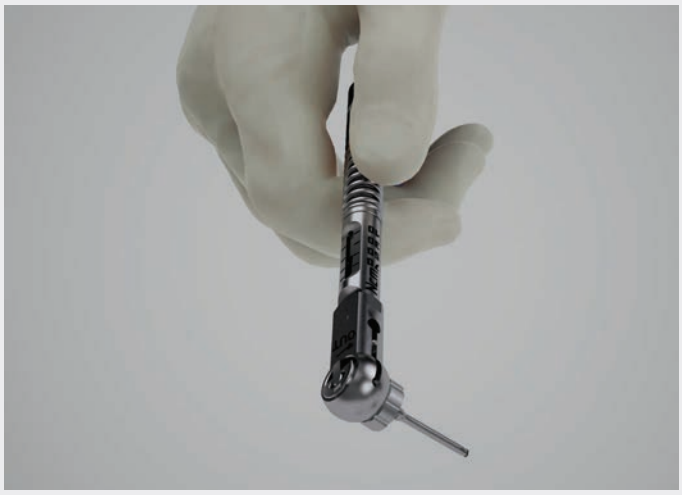


A. All photogrammetry systems are acceptable.

6. Images of the patient smiling are recommended.

When submitting data to IPS® Gate, please ensure that all design preferences for the final restoration are clearly documented and included.

Delivery of fixed prosthesis



Fixed prosthesis

If a fixed prosthesis is preferred, the selected shade will be milled for a direct-to-platform approach utilizing a DESS M1.4 screw.

Assembly

Once the prosthesis is received, assemble the torque wrench, latch adapter and latch driver and set the torque value to 15 N cm. Please confirm the wrench is in the “out position.”

Removal of temporary prosthesis

Remove the provisional prosthesis.

Delivery of final prosthesis

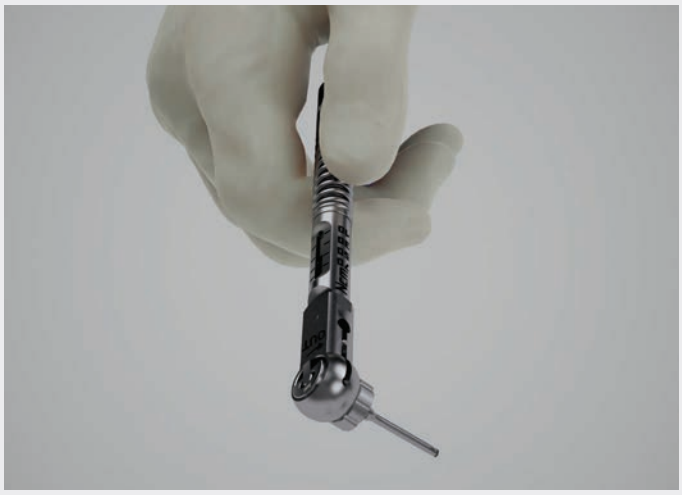
Flip the assembled torque wrench to the “in position.”

Apply the prosthesis to the abutments and fixate using the assembled torque wrench and DESS M1.4 screws.

Delivery of temporary prosthesis

It can be helpful to initially fixate the screw by hand with the latch adapter and driver and then assemble the torque wrench and torque the screws to 15 N cm.

Delivery of removable prosthesis



Removable prosthesis

If a removable prosthesis is desired, a bar-retained PMMA overdenture will be produced by Oral Arts Dental Laboratories and provided by KLS Martin.

Assembly

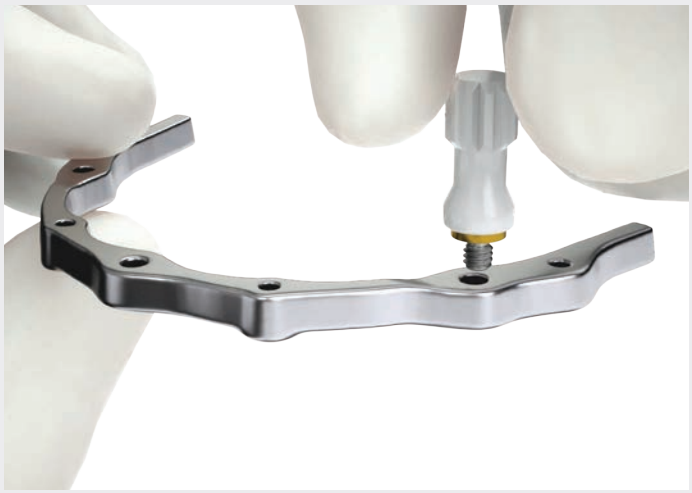
Once the prosthesis is received, assemble the torque wrench, latch adapter and latch driver and set the torque value to 15 N cm. Please confirm the wrench is in the “out” position.

Removal of temporary prosthesis

Remove the provisional prosthesis.

Assembly of locator driver

Prior to delivery of the titanium bar, assemble the torque wrench with the square adapter and locator driver and set the torque value to 35 N cm. Please confirm the torque wrench is in the “in” position.

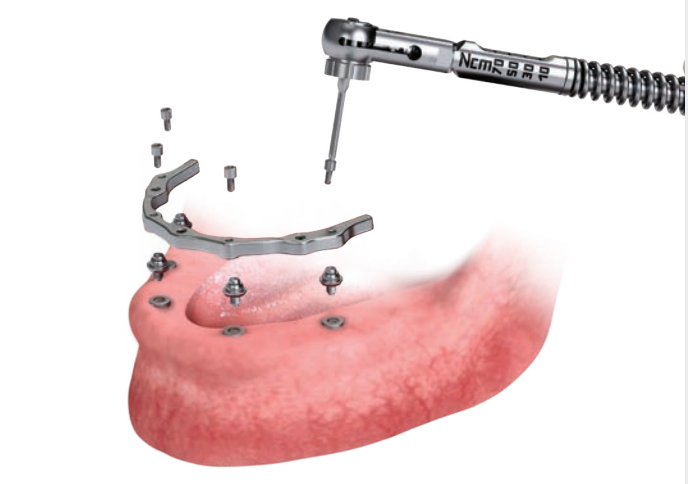


Fixating locators

Initially fixate the locators to the bar with the white positioning sleeve attached. Afterward, torque the locators to the titanium bar using the assembled torque wrench.

Assembly

Assemble the torque wrench with latch adapter and .050 hex latch driver and set the torque value to 15 N cm. Confirm the driver is in the “in” position.



Delivery of titanium bar

Place the bar onto the multi-unit abutments and apply the M1.4 prosthodontic screws to fixate the bar to the IPS® Preprosthetic frame.

Delivery of removable prosthesis

Place the removable PMMA appliance on top of the locators and confirm fit.

Postoperative Care

The absence of teeth leads to problems related to esthetics, chewing, and speech which results in a decrease in OHRQoL (Oral Health-Related Quality of Life). Therefore, immediate dental rehabilitation with a temporary prosthesis after implant placement is of utmost importance to maintain the well-being of patients [7]. The IPS® Preprosthetic implant is fixated with multi-directional locking screws anchored in the medial and lateral midfacial buttresses [1]. This fixation protocol allows for rigid fixation without biomechanical limitations at the time of implantation [4]. Therefore, once clinical stability has been confirmed, the IPS® Preprosthetic implant may be loaded immediately postoperatively. This benefit distinguishes the IPS® Preprosthetic implant from soft tissue anchored subperiosteal implants used in the past or similar techniques [8,9].

Following implantation of an IPS® Preprosthetic device, all patients should be included in a postoperative follow-up program to assess possible clinical complications as well as implant or prosthodontic failure. At each visit, patients should be examined by an oral maxillofacial surgeon or prosthodontic specialist. Biocompatibility (how patients tolerated both implant material and surgery) should be assessed in combination with a variety of clinical follow-up parameters, including i) soft tissue (soft tissue coverage, soft tissue quality, and exposure of parts of the implant); ii) hard tissue (mandibular/maxillary fracture, osteolysis or bone loss), iii) implant and screws (screw loosening, screw or implant fracture, and clinical stability of the IPS® Preprosthetic implant); iv) prosthodontics (temporary prosthesis in function and observe for signs of fracture); and v) other (signs of infection/fistula, pain or discomfort and diet (soft, normal, liquid)) [5].

Manufacturer‘s recommendations regarding shelf life of the temporary prosthesis should be followed. After 3-4 months of successful post-operative rehabilitation, adequate healing has taken place and patients are ready for permanent prosthesis application [5].

Clinical articles and human histology have demonstrated that when primary implant stability is achieved, immediate loading of an implant or prosthesis is just as successful, if not more than delayed loading and often leads to greater patient satisfaction [6].

The primary surgical consideration with immediately loading a jaw restoration, primarily an edentulous arch, should be achieving a balanced occlusion. When occlusal forces are balanced, the load is spread evenly amongst the implants, reducing the risk of fracture. Balanced occlusion implies bilateral simultaneous anterior and posterior contact in centric and eccentric positions [6,10].

Additionally, one should not over-compress the soft tissue when applying a prosthesis that will be immediately loaded. During the initial phase of healing, swelling of the soft tissue can be expected. This generally results in minor recession of the tissue and can be corrected when applying the permanent prosthesis with use of soft tissue grafts, if necessary. Care should be taken to avoid complications during the initial healing stage. Careful maintenance, follow-up, and hygiene as recommended by the attending physician are necessary for long-term success of the restoration [6].

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