

# Zygomatic Implants

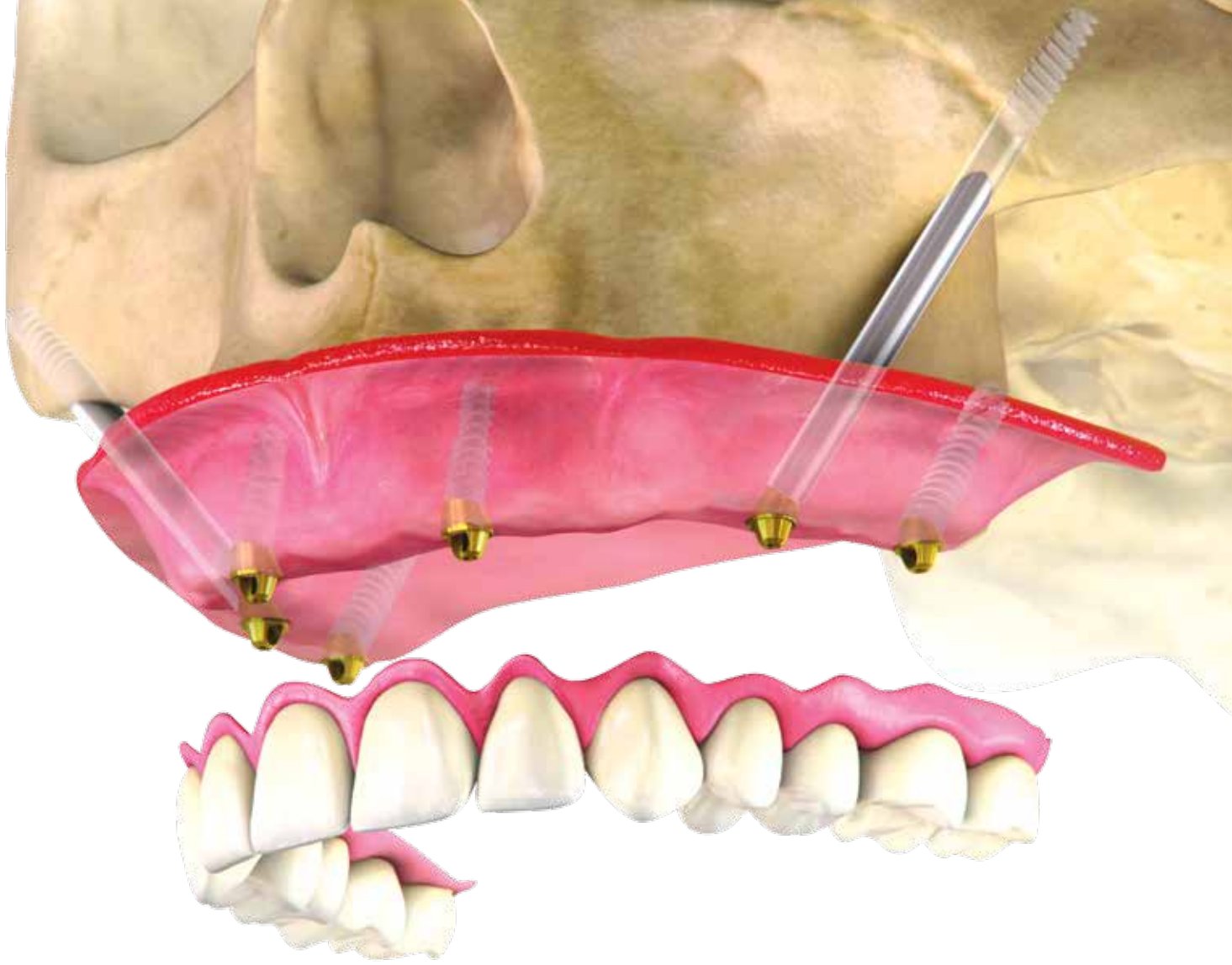
for the Extra Maxillary Approach



**NORIS** Medical  
ENGINEERED FOR HEALTH

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## Zygomatic Implant - Indications for Use

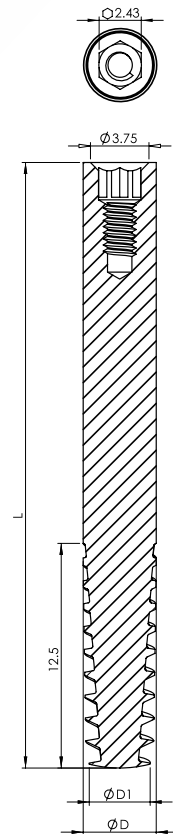
The Zygomatic implant placement is a highly predictable procedure with a high success rate in restoration of atrophic jaws, without the need for complex bone augmentation procedures.

## Zygomatic Implant - Extramaxillary Approach

- Noris Medical Zygomatic implant is placed following the extramaxillary protocol; this is a modification of the traditional Branemark technique.
- In the Extramaxillary approach a bypass of the maxillary sinus is being made in a manner that prevents damage to the sinus membrane.
- The Zygomatic implant is anchored in the zygomatic bone; the resulting torque is very high.
- The implant prosthetic platform is being shifted buccally to a more appropriate position of the restoration.
- The design of Noris Medical Zygomatic implant is an unthreaded body ending with an aggressive thread at the apical part of the implant.
- A special drill design allows the clinician to create a clean tunnel preparation with minimal risk of membrane damage.
- A 45° angle Multi-Unit abutment will provide the angle correction needed.

# Zygomatic Implant

$\varnothing D$ (mm)	$\varnothing D1$ (mm)	L (mm)	Item
4.2	3.5	35	NM-F4435
		37.5	NM-F4437
		40	NM-F4440
		42.5	NM-F4442
		45	NM-F4445
		47.5	NM-F4447
		50	NM-F4450
		52.5	NM-F4452
		55	NM-F4455
		57.5	NM-F4457



**Cover Screw** Included with all implants









NM-S5023






- Especially designed for the extramaxillary approach
- Available in lengths from 35mm to 57.5mm with 2.5mm increments
- 2.43mm internal hex. connection
- Smooth body to reduce periopathogens adherence
- Deep threads for excellent stability in the zygomatic bone
- RBM treated surface at the threaded part, increases the BIC

## Zygomatic Step Drills

Ø D (mm)	L (mm)	Drill No.		Item
2.0	75	1		NM-D7020
	95			NM-D7120
2.8	75	2		NM-D7028
	95			NM-D7128
3.2	75	3		NM-D7032
	95			NM-D7132

## Zygomatic Burs for groove preparation

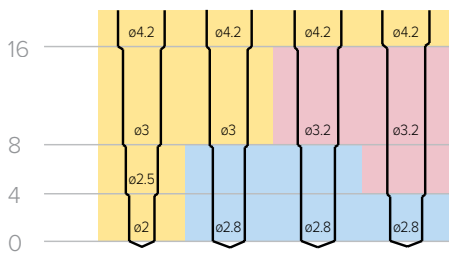
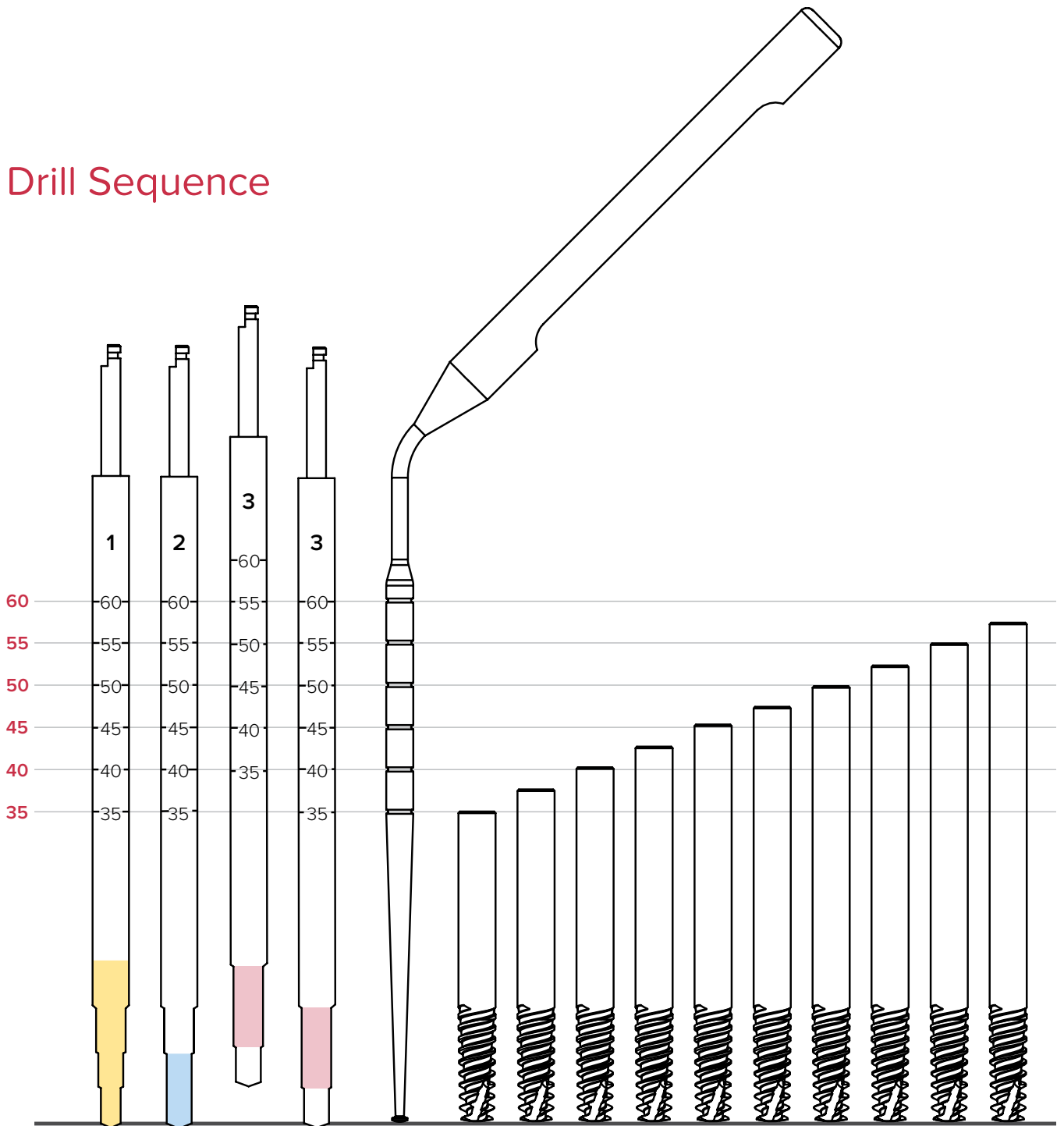
Ø D (mm)	L (mm)			Item
4.2	30	Fine Grit		NM-D7201
		Medium Grit		NM-D7202
		Coarse Grit		NM-D7203

## Zygomatic Surgical Kit

NM-X2118






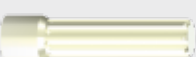
# Drill Sequence










**Bone Type**      **D4**      **D3**      **D2**      **D1**

# Multi-Unit Components



Straight	L (mm)
 NM-A7101	1
 NM-A7102	2
 NM-A7103	3
 NM-X7100	Included with all multi-unit bases

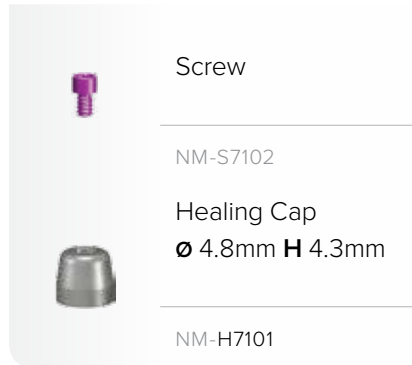
*Recommendation: Tighten the base at a torque of 25 Ncm.*

Angulated 17°	Angulated 30°	Angulated 45°	L (mm)
 NM-A7112	-	-	2
 NM-A7113	 NM-A7133	-	3
-	 NM-A7134	 NM-A7144	4
 NM-S7101	 NM-X7101	Included with all multi-unit bases	

*Recommendation: Tighten the screw at a torque of 20 Ncm.*



## Healing Cap



Screw

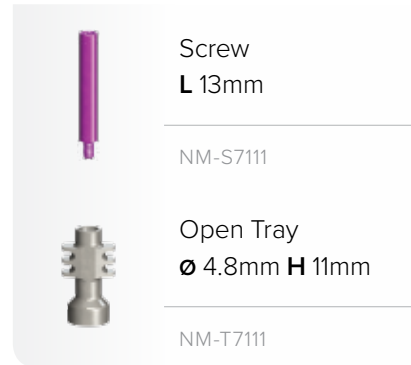
NM-S7102

Healing Cap

Ø 4.8mm H 4.3mm

NM-H7101

## Transfers & Analog



Screw

L 13mm

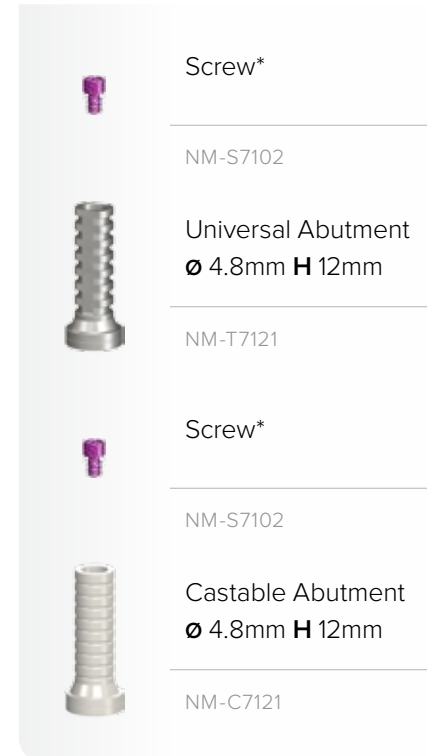
NM-S7111

Open Tray

Ø 4.8mm H 11mm

NM-T7111

## Abutments



Screw\*

NM-S7102

Universal Abutment

Ø 4.8mm H 12mm

NM-T7121

Screw\*

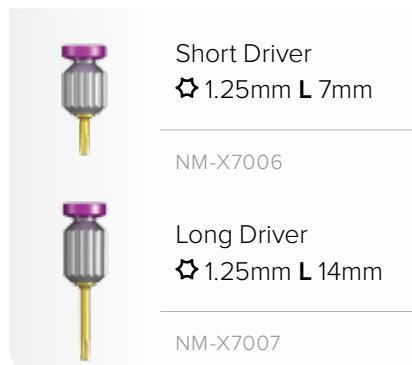
NM-S7102

Castable Abutment

Ø 4.8mm H 12mm

NM-C7121

## Star Hex. Drivers



Short Driver

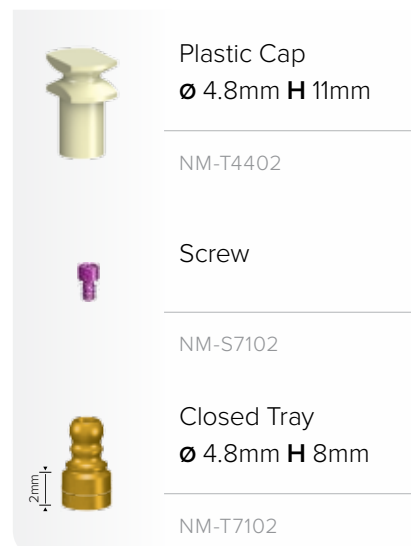
☆ 1.25mm L 7mm

NM-X7006

Long Driver

☆ 1.25mm L 14mm

NM-X7007



Plastic Cap

Ø 4.8mm H 11mm

NM-T4402

Screw

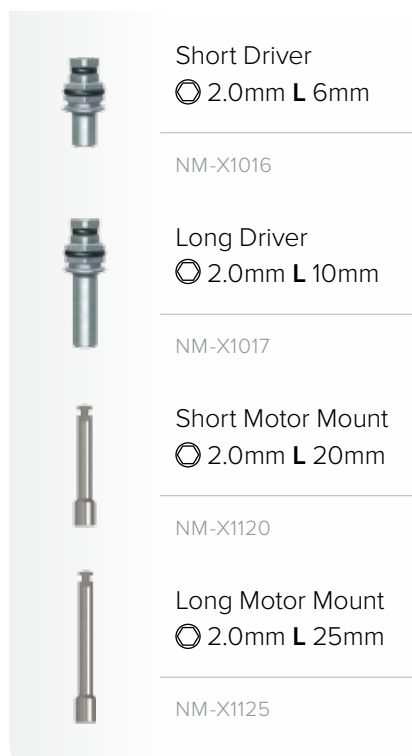
NM-S7102

Closed Tray

Ø 4.8mm H 8mm

NM-T7102

## Straight Multi-Unit Drivers



Short Driver

⊙ 2.0mm L 6mm

NM-X1016

Long Driver

⊙ 2.0mm L 10mm

NM-X1017

Short Motor Mount

⊙ 2.0mm L 20mm

NM-X1120

Long Motor Mount

⊙ 2.0mm L 25mm

NM-X1125



Analog

Ø 4.8mm

NM-T7151

\* Recommendation: Tighten the screw at a torque of 15 Ncm.

## Passive Fit Castable Abutment Kit



Screw\*

NM-S7102



Universal Abutment  
Ø 4.8mm H 12mm

NM-T7121



Castable Sleeve  
Ø 4.8mm H 10.5mm

NM-C7120



Castable Sleeve Positioner  
Ø 4.8mm H 10mm

NM-T7122

The Passive Fit Castable Abutment Kit consists of three parts aimed for the fabrications of accurate metal reinforced prostheses. The Castable Sleeve Positioner is used for locating the Castable Sleeve on the plaster model, ensuring passive fit of the fabricated metal cast when cemented to the Titanium Abutments.

*\* Recommendation: Tighten the screw at a torque of 15 Ncm.*



# Prosthetic Rehabilitation of Atrophic Maxilla Using 4 Zygomatic Implants

Prosthetic rehabilitation of the upper jaw, after major bone resorption, is very challenging from both surgical and prosthetic points of view. The absence of teeth leads to cessation of the stimulation of the alveolar bone. The stimulation is caused by the physiological load which is transferred to the alveolar bone and prevents resorption.

Shortly after the teeth extraction the process of alveolar bone resorption starts. The ongoing resorption is progressively continuing over the years until reaching atrophy. Installation of dental implants at this stage, using conventional techniques, is very difficult due to extensive bone resorption and the accompanied pneumatization of the maxillary sinuses.

The conventional treatment options for these patients are mostly augmentation procedures, which are meant to increase the volume of the load bearing bone.

The bone for the augmentation is taken from different sources, such as: the iliac crest, or intraoral origin, like the mandibular ramus, the intermental region etc. Augmentation procedures are very complicated and require a long recovery period.

An additional treatment option for atrophic maxilla is the placement of Zygomatic implants.

The Zygomatic bone was found to be suitable for installation of dental implants. In 1998 Branemark presented the Zygomatic implant as an optional solution for the treatment of oncologic patients. This solution was expanded later on to Atrophic Maxilla. Long implants were found to be a good alternative for complicated augmentations procedures. Even though they are not easy to install, they present promising outcomes (1, 2, 3).

Noris Medical Zygomatic Implant was especially designed for implantation in the Extramaxillary approach. The Extramaxillary approach enables the positioning of the prosthetic connection on the Alveolar Ridge, unlike the other methods in which the prosthetic unit is more palatinally positioned (4). This location is more correct and easier for the rehabilitation process.

In the Extramaxillary approach, the implant's stability is being achieved only by the Zygomatic bone. For this reason the implant is designed with a spiral and deep retentive thread shape at its apex, while the rest of the implant is smooth. The diameter of all the Zygomatic Implants is 4.2mm and their lengths vary between 35mm and 57.5mm.

## Case Description

68 years old female patient

### Medical history:

- Controlled high blood pressure;
- Balanced Type II diabetes;
- Bilateral mastectomy in 2008;

Clinical and radiological findings:

Combination Syndrome;

Pneumatization of the Maxillary Sinuses;

Severe resorption of the upper alveolar ridge;

Perimplantitis and mucositis around implant in position of tooth 31.

## Treatment Plan

After radiological and CT assessments it was decided to install two Tubero Pterygoid Palatine Implants, 4 Zygomatic implants at the Extramaxillary approach and one implant in the incisive canal.

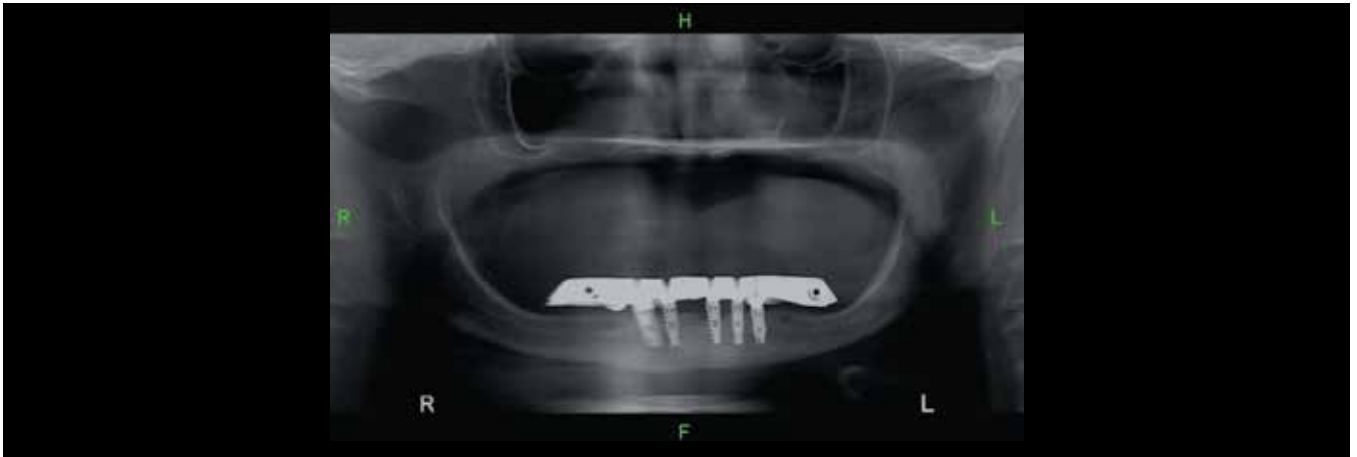
The surgical procedure was done in the Split Mouth technique, in order to reduce the exposure time of the bone.

After the installation of the implants, augmentation was done, using Calcium Sulfate + HA.

Correction of angulation was achieved by using Multi-Units in angulation of 17, 30, 45 degrees as found necessary.

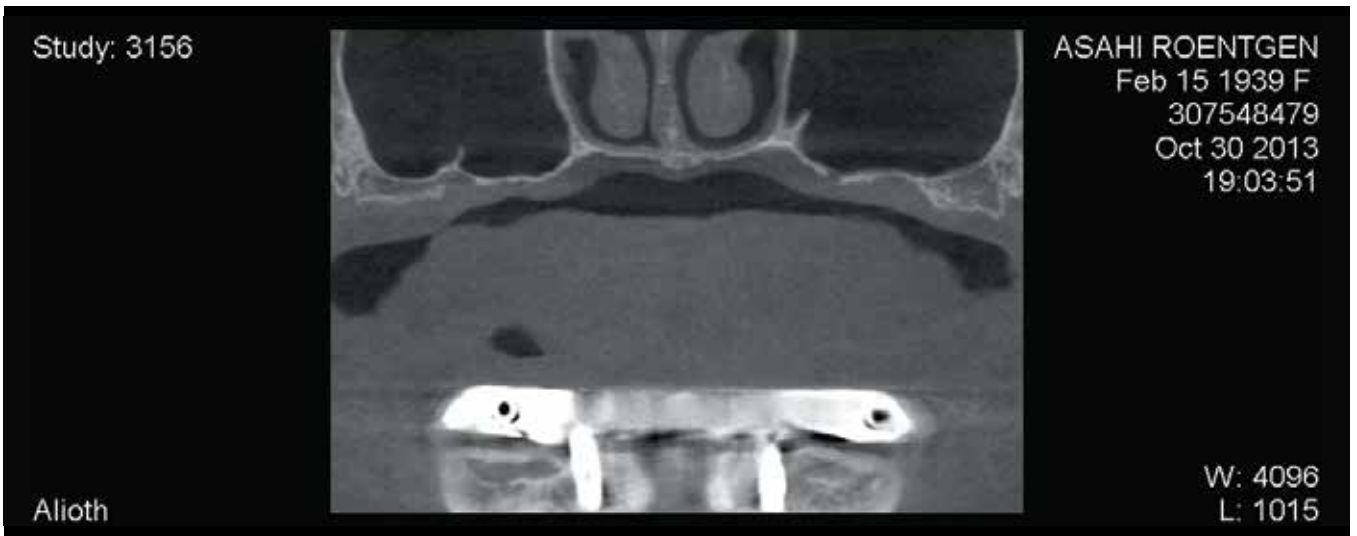
In the lower jaw, the removable prosthesis was changed to fixed prosthesis, on Multi-Unit bases, as well. Rehabilitation was performed on the day of the surgical procedure.

A few hours after the operation, the patient received two provisional acrylic bridges reinforced by induction welded Titanium (grade 5) bar.



1

Panoramic and CT illustrate the Pneumatization of the Maxillary Sinuses and the Severe resorption of the upper Alveolar Ridge (Figs 1, 2).



2



3

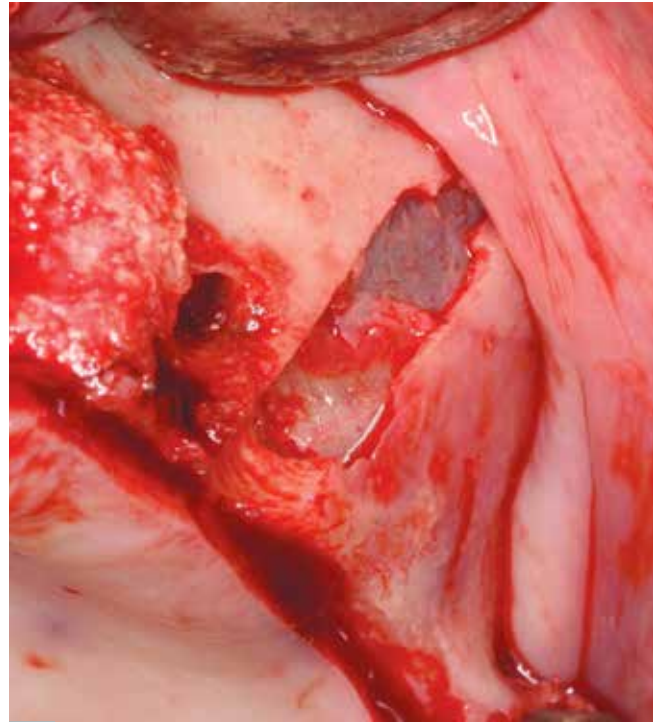
Combination Syndrome.

## Upper Jaw



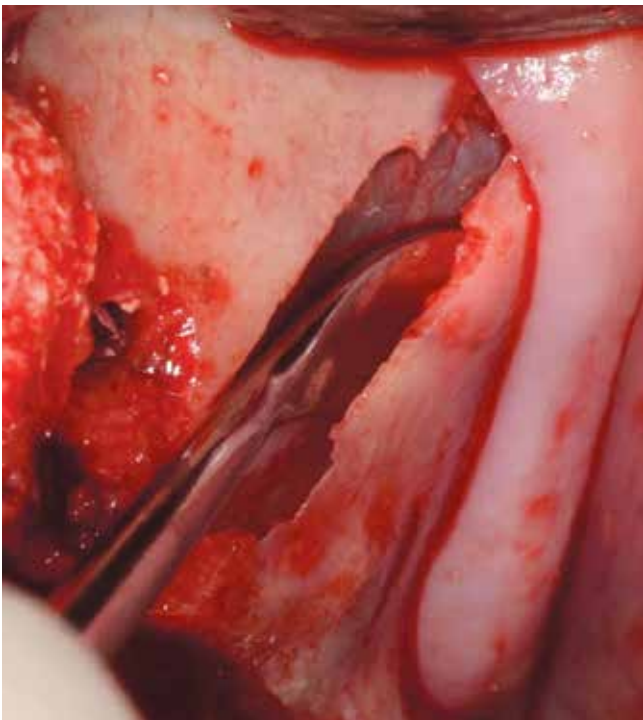
4

Groove preparation for leading the Zygomatic Implant drill.

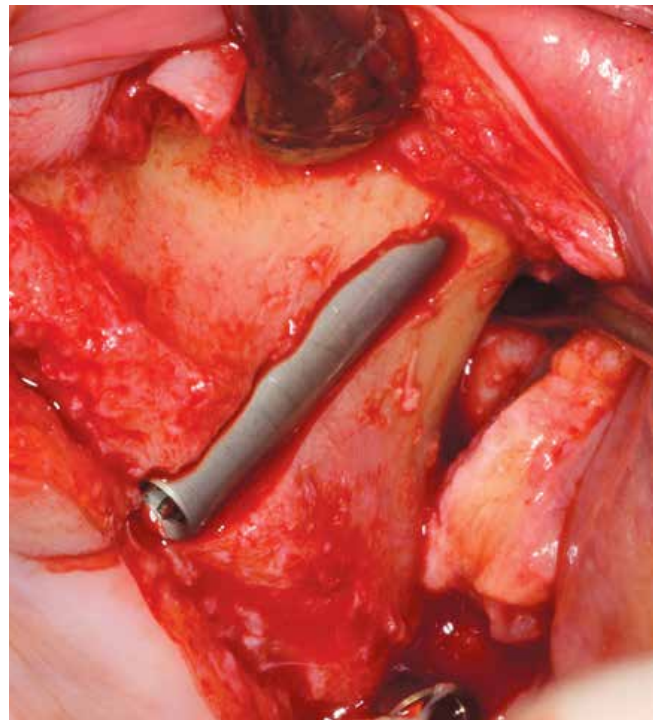


5

The integrity of the Schneiderian Membrane can be observed (Figs 5, 6).



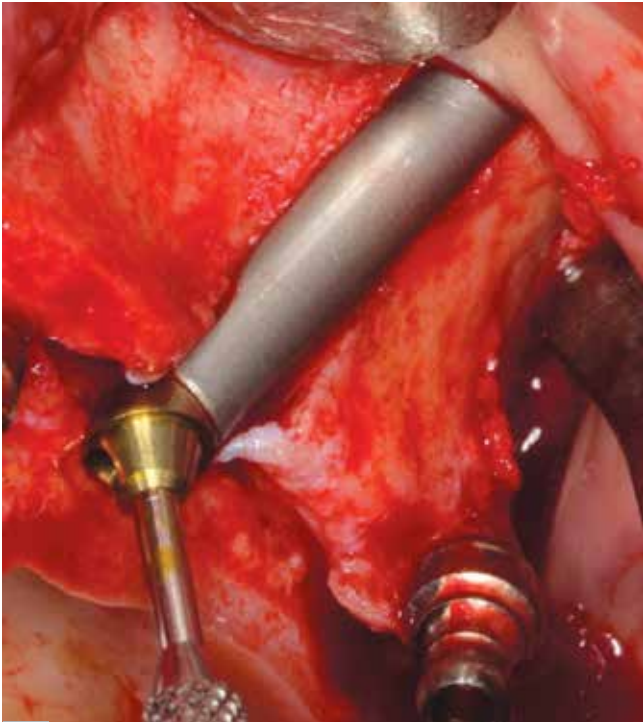
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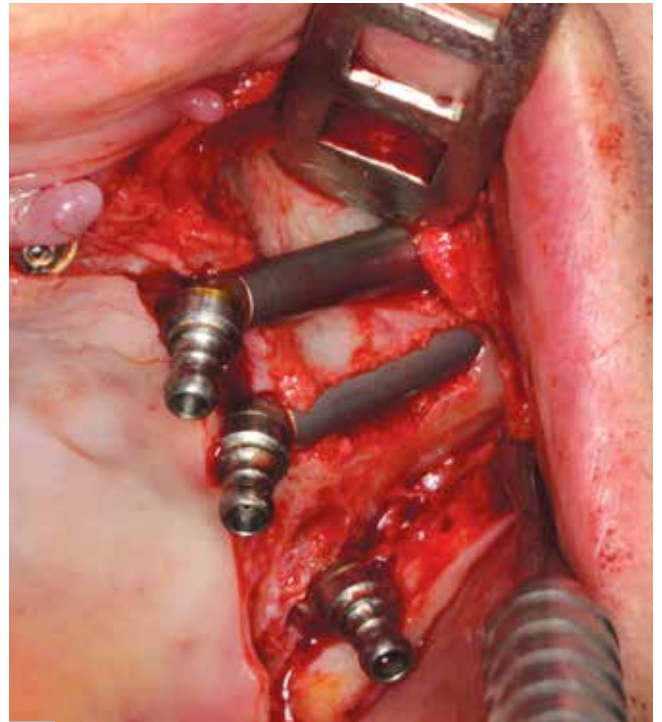
Zygomatic Implant in situ.





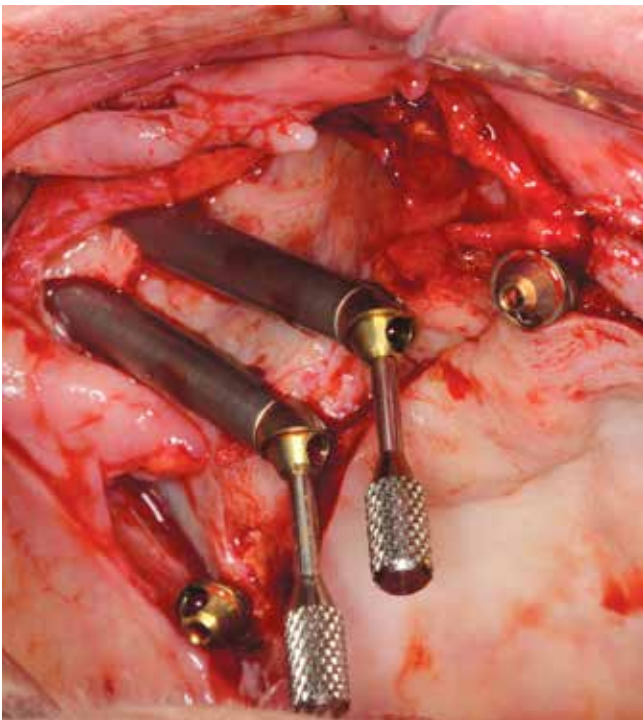
8

Correcting the Angulation using a 45° Multi-Unit Abutment.

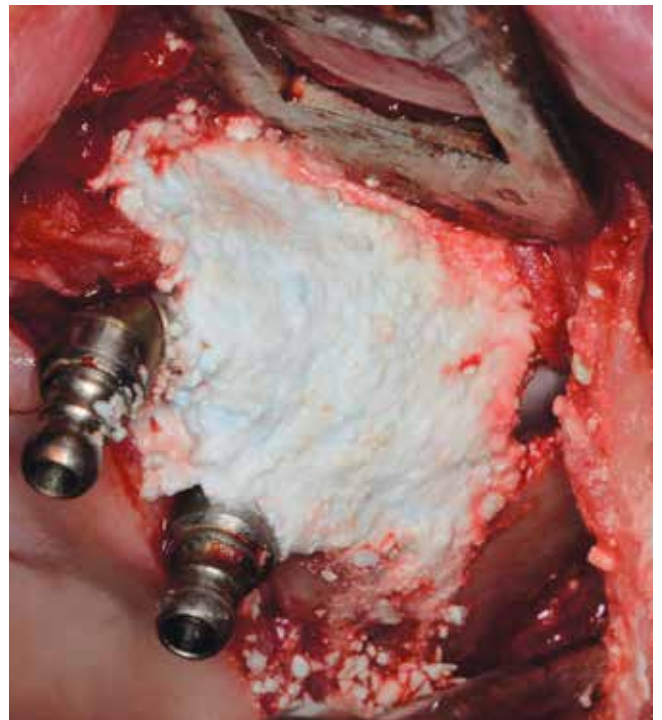


9

The surgical procedure was done by Split Mouth technique in order to reduce the exposure time of the bone during the installation of the Zygomatic Implants. Two Implants were placed on each side (Figs 9, 10).

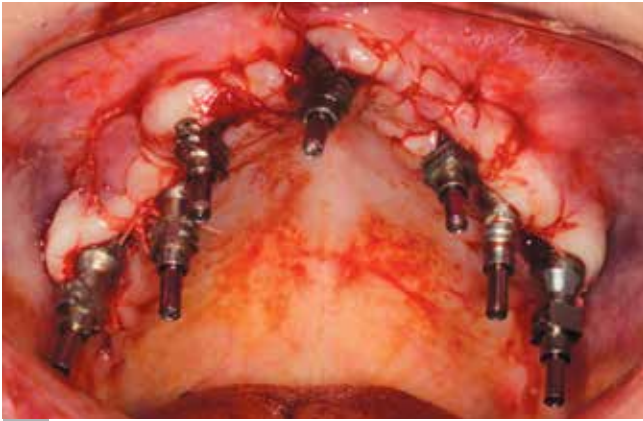


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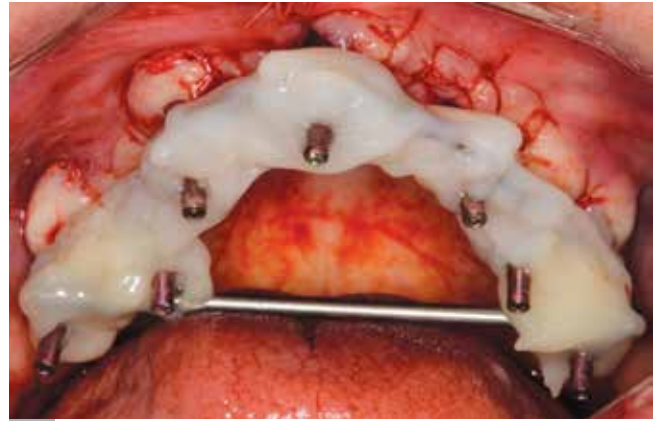


11

After the installation of the implants, augmentation was done using Calcium Sulfate + HA.



12



13

Transfers were mounted and fixed on the Multi-Units in order to take an impression using the Open Tray technique but the impression was taken without using a tray (Figs 12, 13, 14).



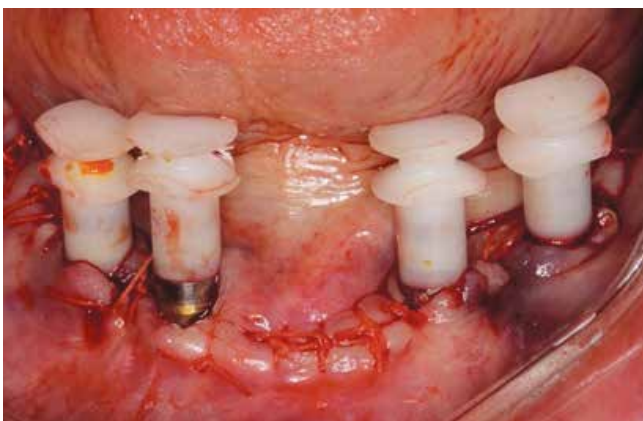
14



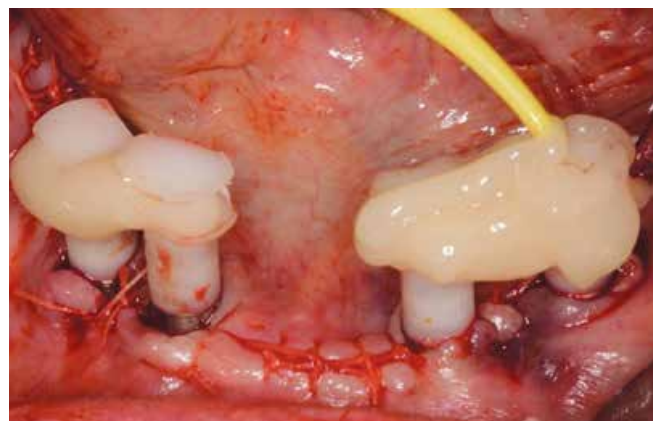
15

Upper jaw provisional Acrylic Bridge reinforced by induction welded Titanium (grade 5) bar.

**Impressions of the lower jaw, using Snap-On Transfers**

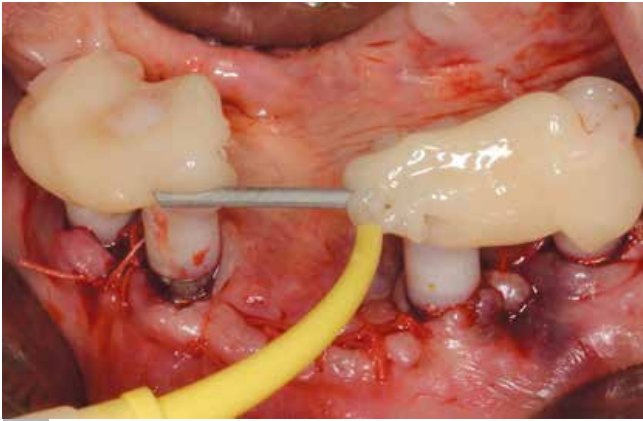


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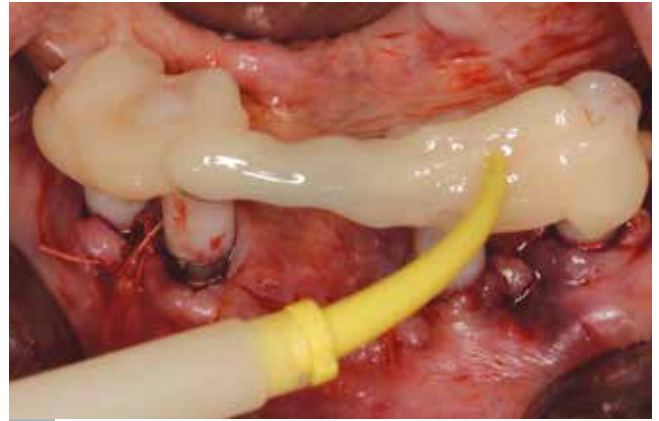


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21



22

Lower jaw provisional acrylic bridge reinforced by induction welded Titanium (grade 5) bar.



23

In the upper jaw Two Tubero Pterygoid Palatine Implants, four Zygomatic implants at the Extramaxillary approach and one implant in the incisive canal were installed.

## References:

1. Boyes-Varley JG, Howes DG, Davidge-Pitts KD, Brånemark I, McAlpine JA. A protocol for maxillary reconstruction following oncology resection using zygomatic implants. *Int J Prosthodont*. 2007 Sep-Oct;20:521-31.
2. D'Agostino A, Procacci P, Ferrari F, Trevisiol L, Nocini PF. Zygoma implant-supported prosthetic rehabilitation of a patient after subtotal bilateral maxillectomy. *J Craniofac Surg*. 2013 Mar;24(2):e159-62.
3. Maló P, Nobre Mde A, Lopes I. A new approach to rehabilitate the severely atrophic maxilla using extramaxillary anchored implants in immediate function: a pilot study. *J Prosthet Dent*. 2008 Nov;100(5):354-66.
4. Aparicio C, Ouazzani W, Hatano N. The use of zygomatic implants for prosthetic rehabilitation of the severely resorbed maxilla. *Periodontol 2000*. 2008;47:162-71.



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