ORTHODONTIC
MINI IMPLANTS
Clinical procedure for positioning
LEONE ORTHODONTIC MINI IMPLANTS
Clinical procedure for positioning

PRE-SURGICAL DIAGNOSIS

Indications
Contraindications
Pre-surgical exams

LEONE ORTHODONTIC MINI IMPLANTS

SURGICAL PROCEDURE

1 - Mucosal incision:
   a) flapping procedure
   b) flapless procedure
2 - Osteotomy
3 - Mini implant insertion
4 - Connection of the mini implant to the orthodontic appliances
5 - Removal of the mini implant

WARNING
The procedure for the use of the LEONE Orthodontic Mini Implants that is described in the following pages, is intended for professionals and experts. In case of lack of basic notions, we suggest to attend specific courses in order to reach a high level of knowledge and practice in the use of the implant systems. The rules on the use of the products described below represent a group of standard instructions that can be adjusted to the single needs and to the particular situations that may occur according to the manual ability, to the experience and to the diagnosis made by the legally qualified medical operator. Moreover, the use of the product and of the procedure are outside of the control of the manufacturer. Therefore, the user is completely in charge of the responsibility for the correct and appropriate use of the instruments and of the products of the LEONE Orthodontic Mini Implants.
ORTHODONTIC MINI IMPLANTS - Clinical procedure for positioning

PRE-SURGICAL DIAGNOSIS

INDICATIONS
The mini implants are used to achieve orthodontic movements without anchorage loss. The mini implants are particularly indicated for extra-dental orthodontic anchorage.

CONTRAINDICATIONS

Absolute contraindications
The use of mini implants for orthodontic treatment is contraindicated in those patients who are not suitable for a generic surgical intervention. Orthodontic treatment with the use of mini implants, therefore, should not be carried out in patients with recent cardiac infarct or with cardiovascular and metabolic problems that are not compensated, or in immunodepressed and dismorphic patients. Patients affected by tumors of the jaws or patients under radiant therapy of the maxillofacial region presenting with insufficient bone volume and impossibility (or patient’s refusal) for surgical bone increment, have to be excluded as well.

Relative contraindications
The use of drugs, alcohol and tobacco, the presence of poor oral hygiene, candidosis and oral mucosal pathologies, periodontitis, insufficient space between the roots of the teeth, poor patient’s compliance and motivation, may represent contraindications to treatment with the mini implants.

PRE-SURGICAL EXAMS

Before starting the surgical intervention the patients have to be subjected to a series of exams.

Anamnesis
It is the first approach to the patient and it represents a fundamental tool to recognize both risk factors and contraindications. Moreover, anamnesis allows the evaluation of patient’s expectations and priorities and patient’s degree of compliance and motivation. Anamnesis can help in evaluating the need for extra exams in addition to the routine ones (when the presence of pathologies that were not reported by the patient is suspected).

Objective exam
It consist of:
• Inspection of the periodontal tissues, of the oral mucosa and of the teeth.
• Complete periodontal probing.
• Palpation of the soft tissues and of the implant sites and initial evaluation of bone morphology and mucosal thickness.

Instrumental exams
Through these exams, it is possible to determine the length and the diameter of the mini implant to be applied. Instrumental exams are necessary for the precise localization of the implant site in relation to the position of the roots of the adjacent teeth. The choice of the implant head (low or high) is based on the height of the transmucosal portion that can be evaluated not only by means of these exams but more precisely during the surgical intervention.

Radiographic exams
• PANORAMIC RADIOGRAPH: this radiograph alone enables usually to appraise bone height and the relationships between the implant site and the adjacent anatomical structures. Further, it is possible to identify concavities and ossification defects due to previous tooth extractions.
• INTRAORAL RADIOGRAPH: it is very helpful for the determination of the mesio-distal distance between the roots, and the apico-coronal availability of bone.
• LATERAL CEPHALOGRAM: it is useful when interventions on the mandibular symphysis are planned.
• COMPUTERIZED TOMOGRAPHY: it provides three-dimensional images, thus allowing for an accurate evaluation of bone morphology and bone density.

Laboratory exams
• When necessary, in cases where a pathology is suspected on the basis of anamnestic or clinical records.
ORTHODONTIC MINI IMPLANTS

ORTHODONTIC MINI IMPLANTS

Leone mini implants are designed for temporary insertion and can be loaded with tractions (springs, wires, elastics, chains), to get dental movements with the biomechanical advantage of the maximum anchorage and in critical anchorage situations due to the lack of teeth (periodontal involved or edentulous patients).

Traction devices are tied through the passing hole present on the head of the mini implant or anchored at the groove featured by some models. Following some possible applications are indicated:

- Inter-arch extrusion
- Intra-arch intrusion on anterior teeth
- Intra-arch intrusion on posterior teeth
- Surgical disinclusions (cuspids, etc.)
- Orthodontic anchorage for distalization
- Orthodontic anchorage (i.e. after distalization)

Leone mini implants are manufactured in surgical grade stainless steel and do not induce osseo integration. They can be easily removed after use by simply unscrewing them in the opposite direction.

Mini Implants are available:
- with low head (transmucosal height of 1.75 mm) and
- with high head (transmucosal height of 3 mm).

This version also includes the type with groove: with the prominent part similar to an orthodontic button to facilitate the application of chains, elastics or springs.

SURGICAL PROCEDURE

Warning: the mini implants, the drills and the instruments for the insertion of the mini implants have to be sterilized by autoclave before usage.

Warning: the body of the screwdriver for mini implants can be sterilized only by autoclave. The use of other sterilizing agents different than steam may damage the instrument.
1 - MUCOSAL INCISION: a) flapping procedure

1a.1 The flapping procedure is indicated when the patient presents with a solid mass of fluctuating soft tissue on the area where the osteotomy is supposed to be performed. In this case it is indicated to incise a small flap using known incision techniques.

1a.2 An adequately large full-thickness flap is prepared.

1a.3 The soft tissues are detached.

b) flapless procedure

1b.1 The flapless procedure is indicated when the patient presents with attached gingiva to the area where the osteotomy is supposed to be performed.

1b.2 To perform the operculum, whose diameter should be slightly wider than the mini implant head being used (2.2 mm approx. for all models), the Leone hand mucotome Cat. 080-1001-00, connected to the special hand screwdriver Cat. 080-1000-01, can be used. (See the connection procedure at 3.1).

Alternatively the circular mucosa punch for contra-angle Cat. 080-1001-01 can be used. Use with a low-speed handpiece.
1b.3 Lean the mucotome to the soft tissues.

1b.4 Drill clockwise up to the bony tissue.

1b.5 Remove the mucotome.

1b.6 Remove the gingiva dissection by using a small periosteal elevator.
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2 - OSTEOTOMY

2.1 A periodontal probe is used to measure the height of the gingival tissue that will surround the mini implant.

2.2 The length and the diameter of the mini implant are chosen on the basis of the indications derived from the exams about the anatomy of the implant site. The height of the transmucosal neck is selected on the basis of the measurements on the soft tissues. The osteotomy is performed by using the specific drill and the screwdriver mounted on a slow-speed handpiece.

2.3 When a 1.5 mm diameter mini implant is selected and if the x-ray shows a bone rarefaction in the implant site (bone type D3 and D4), use a 1.1 mm diameter drill. Otherwise (bone type D1 and D2) a 1.3 mm diameter drill can be used.

When a 2.0 mm diameter mini implant is selected and if the x-ray shows a bone rarefaction in the implant site (bone type D3 and D4), use a 1.5 mm diameter drill. Otherwise (bone type D1 and D2) a 1.7 mm diameter drill can be used.

On the drills there are reference lines that correspond to the following depths: 8 mm - 10 mm - 12 mm.

The drill has to be inserted in the alveolar bone up to the notch that corresponds to the length of the selected mini implant.

2.4 The drills have to be cleaned after usage as indicated in the enclosed directions.

2.5 The drills are replaced in the kit and they have to be sterilized before being used again.
3 - MINI IMPLANT INSERTION

3.1 Insert the tip inside the screwdriver by following these steps.

A - Grasp the screwdriver and pull the knurled sliding ring.

B - Insert the tip in the appropriate site down to the rest.

C - Release the sliding ring.

D - Rotate the inserted tip to find the full engagement. A click indicates that the engagement has been found. The sliding ring automatically goes back to the initial position with a firm grip on the tip.
After having found the engagement, the screwdriver is pressed down to promote the retention of the mini implant inside the tip.

Warning: the tip of the manual screwdriver has to be exactly perpendicular to the kit. This position guarantees the retention of the mini implant inside the screwdriver and allows the mini implant to be seized.

Verify the dimensions of the mini implant by using the purposely designed grooves on the kit container.

The mini implant is inserted in the implant site and it is screwed in a clockwise direction. The Leone mini implants are self-tapping. In order to screw the implant a pressure is exerted on the knob of the screwdriver with the palm of the hand and the instrument is rotated with the fingers.
3.6 Alternatively, by using the special adapter, the insertion of the mini implant may happen as follows:

- **fig. A** - by using a contra-angle with Leone adapter Cat. 080-1002-00

or, with Leone adapter Cat. 080-1003-00, by using the manual instruments for Leone Implant System, such as:

- **fig. B** - screwdrivers Cat. 156-1001-00/01
- **fig. C** - ratchet Cat. 156-1014-00
- **fig. D** - angled key Cat. 156-1005-00
3.7 The mini implant is screwed until its head comes into contact with the cortical bone of the alveolar ridge.

3.8a Should the flapping procedure be adopted, the soft tissues are sutured around the neck of the mini implant.

3.8b Should the flapless procedure be adopted, no suture is required after the insertion of the mini implant. Soft tissues perfectly adhere to the head of the mini implant thanks to the precision of the hole drilled with the mucotome.

4 - CONNECTION OF THE MINI IMPLANT TO THE ORTHODONTIC APPLIANCES

4.1 The mini implant can be loaded with chains, elastic wires or springs for the connection to the orthodontic appliance to induce the required tooth movements. The wire, the chain or the coil spring are connected to the mini implant by using the hole through the head or the groove of the mini implant. The mini implant can be loaded immediately after insertion or after healing of soft tissues.
5.1 At the end of treatment, and in any case no later than 6 months, the mini implants have to be removed. To remove mini implants, the same instruments already employed for the insertion can be used by turning them in an anti-clockwise direction. Thanks to the fact that the mini implants do not promote any process of osseointegration, this phase results to be extremely easy and not annoying for the patient.

5.2 The tip of the screwdriver is positioned over the head of the mini implant to find the hexagonal engagement.

5.3 After having found the engagement, a pressure is applied on the screwdriver to facilitate the retention of the mini implant inside the tip.

5.4 The screwdriver is turned in an anti-clockwise direction. In order to remove the mini implant, a pressure is exerted on the knob of the screwdriver with the palm of the hand and the instrument is rotated with the fingers.
ORTHODONTIC MINI IMPLANTS

PRODUCTS FOR THE POSITIONING OF ORTHODONTIC MINI IMPLANTS

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ORTHODONTIC MINI IMPLANTS EXTRA SHORT AND WITH GROOVE

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ORTHODONTIC MINI IMPLANTS KIT

The package contains: 24 mini implants as listed aside, 4 drills, 1 screwdriver.

080-1000-01
SCREWDRIVER FOR ORTHODONTIC MINI IMPLANTS

ORTHODONTIC MINI IMPLANTS EXTRA SHORT AND WITH GROOVE
ORTHODONTIC MINI IMPLANTS

080-1001-00
MUCOTOME FOR SCREWDRIVER

080-1002-00
HANDPIECE ADAPTER

080-1001-01
CIRCULAR MUCOSA PUNCH FOR CONTRA-ANGLE

2.2 mm in diameter.

080-1003-00
ADAPTER FOR SCREWDRIVER AND INSTRUMENTS