

# Indications, contraindications, diagnosis and therapy

## Preface

Implant therapy aims to substitute missing teeth. It is a therapy with an high percentage of success , accepted by the scientific and professional international community.

However, it cannot be always considered as the ideal solution to substitute missing natural teeth, or to replace teeth with uncertain prognosis, since it has a number of immediate or delayed unsucces, surgical risks and economical costs. Therefore, implant therapy should be considered as one of the possible therapies. Criteria to choose between the different therapeutic alternatives should be based on clinical evaluation, and on the prognosis of the remaining teeth. .The comparison between the alternatives needs an evaluation of the expected benefits, the risks of performing and maintaining each alternative.

## Indications

Implants are used to substitute missing teeth, useful for function and/or esthetic. Indication to the treatment is decided by the dentist based to the needs of the patient correctly informed.

### Single edentoulism

Aims of the implant therapy are: preserve the integrity of the adjacent teeth to the edentolous space, to maintain proper tooth shapes in presence of diastema. Alternatives are: no treatment, removable prosthesis, foxed prosthesis on natural teeth, orthodontics.

### Multiple Edentoulism

Aims of the implant therapy are: avoid too long frameworks, avoid curved frameworks, maintain the integrity of the teeth adjacent to the edentolous space. Alternatives: no treatment, removable prosthethisis, fixed prosthess.

### Distal Edentulism

Aims of the implant therapy are: avoid removable prosthesis, avoid extension frameworks, avoid loss of vertical dimension and posterior support, Alternatives: no treatment, removable prosthethisis, fixed prosthesis with extensions.

### Full edentoulism

Aims of the implant therapy are: stability and retention of the removable prosthesis. functional or psicologica inability, iperreflexy, psiperexesty from compression. Alternatives: no treatment, removable prosthesis.

## Contraindications

### Contraidications related to the patient\*

Risk factors for the patient

- Systemic disease and drugs assumption that creates a general contraindication to surgery. In presence of systemic disease the family doctor should be contacted

Risk factors for the implant

- Smoking
- Diabetes mellitus
- Active chemotherapy
- Biphosphonate assumption, in the therapy of osteoporosis, Paget's disease,
- Paget's disease
- Immunodeficiency
- Parafunctions
- Growing not completed (except for multiple agenesis, as for ectordemic displasia)
- Not realistic aspectatives

#### **Local contraindications\***

- Maxilla diseases
- Mucosa diseases
- Not controlled periodontitis
- Poor mesio-distal or interradicola or intercoronal space.
- Recent radiotherapy
- Insufficient bone loss (augmentation not possible)
- Extremely high or low bone density
- Poor oral hygiene

\* Some contraindications are absolute (as heart stroke or not controlled periodontitis ) others are relatives (as smoking or poor bone density)

### **Evaluation of the candidate for Implant treatment**

A diagnosis procedure necessary to establish the correct therapeutic directions , identify contraindications and verify risk factors ,is articulated in these fases:

- medical history
- objective exam

- x-ray exams
- laboratory exams,when indicated
- study on the articulator, when indicated
- transgingival probing of the bony crest when indicated

### **Medical history**

Aims to individuate eventual contraindications, risk factors and analysis of the patients expectations and needs

### **Intraoral Objective exam**

- Inspection: assesses periodontal tissue aspects and is necessary to verify if there are mucosa damage, swelling, shape of the edentulous ridge, relations between edentulous ridge to be treated and the opposite arch, signs of parafunctional habit , altered occlusal plans
- Palpation : Helps to assess approximately edentulous ridge thickness ,presence of bone profile irregularity ,presence of swelling
- Probing : Is useful to assess oral hygiene and periodontal tissue conditions. the probe is helpful to measure edentulous zones length in a mesiodistal sense
- Present restoration control and search for cavities

### **X-ray exams**

Are used to identify bone damage, assess available bone, to study relationships with close structures, maintaining patients radiation exposure as low as possible.

- Ortopantomography: along with the objective exam, in many cases ,it gives sufficient information to assess feasibility of implant treatment and thereafter to plan it
- Intraoral Radiography: can be enough for very little extended edentulism
- Computerized Tomography (TC) : allows a tridimensional analysis of the implant site along with an approximate analysis of the bone quality.TC has biological and financial costs higher than other x-ray exams therefore it's indicated only when there is lack of information .

### **Laboratory Exams**

Pre-operative standard exams ( VED, glucose, azotemia, blood count, hemostasis profile, standard urine) are requested before extended surgery. other laboratory and instrumental exams can be indicated if there are other suspected specific pathologies,from the anamnesis or other objective exams, or by the patients doctor.

### **Study on articulator**

It's helpful in certain cases of extended edentulism associated with anomalies of the occlusal plane

and unfavorable relationships between arches

### **Transgingival probing of the bony crest**

It's a fast and easy method to determine the thickness and the form of the crests edentulous. it can be unnecessary to do a TC especially in cases of localized edentulism

### **Operation procedures to insert the implant**

Micromobility, contamination of the implant and bone necrosis due to overheating might lead to early implant failure. operative protocols aim to guarantee that the implant just inserted is stable, not contaminated and surrounded by vital tissue.

The surgery procedure consists in raising a full thickness flap, in the preparation of the osteotomy with instruments and techniques suitable to avoid bone overheating and to guarantee primary implant stability ,in inserting the implant and in flap repositioning by means of stable sutures, to assure primary healing.

Chemical or bacterial contamination of the implant might irreversibly modify its surface. .

While inserting the implant, the procedure must be done with the aim to prevent any contamination.

## **Minimum requirement of sterility**

### **Implant**

The implant must be sterile when used. Sterility, like the implants product characteristics ,today is guaranteed by European legislation, which impose a conformity certification (CE), which does not guarantee Clinical reliability of the implant system. This must be convalidated by medium and, best if, long term longitudinal clinical studies ,and published in journal with a reading committee and reviewed by international authorities . The dentist must check that implants that he/she is using answer to these features.

### **Professional and Assistants**

To perform the implant surgery with in a "clean" procedure it's necessary to have at least 3 operators .Professional and the surgical assistant work on the patient using barrier techniques (sterile gloves, sterile implant, mask, sterile tools, sterile irrigazione ,antibiotic coverage) while the second assistant is necessary to conjoin with the non-sterilized zone , for example opening the sterilized package so that materials won't contaminate and the other assistant doesn't touch the external part of the packaging.

All the people involved in these sophisticated surgical acts must have correct knowledge and continuous update.

### **Surgery layout**

The surgery layout must be isolated with sterilized barriers and disinfected by means of an antiseptic solution

### **Patient**

Every oral infection must be recognized and eliminated before the implant therapy. Specifically , not controlled periodontal disease must be excluded.

Intraoral and perioral antiseptics with antimicrobials reduces microbes quantity in the surgery layout.

Antibiotic prophylaxis with single administration 1 hour before the operation reduces post-operative infection

One Analgesic dose administered before the operation helps to control postoperative pain.