International Journal Dental and Medical Sciences Research
Volume 7, Issue 1, Jan - Feb 2025 pp 128-132 www.ijdmsrjournal.com ISSN: 2582-6018

Multidisciplinary guidelines for diagnosis and conservative treatment of impacted maxillary canines

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Date of Submission: 20-01-2025 Date of Acceptance: 30-01-2025

SUMMARY
This article reports on the use of micro screws that are currently being implemented to solve various bad dental occlusion problems. For many years orthodontists have tried to solve the different problems that arise in the traditional way using dental tissues as anchorage, however, the use of micro screws has helped considerably to solve under a more effective and safe way. And faster than various orthodontic problems using bone tissue as anchorage

I. INTRODUCTION

Micro screws are devices designed by titanium grade V material to be placed in the bones of the craniofacial complex, their main purpose is to provide bone anchorage to solve multiple problems that occur in orthodontic treatments, such as inclinations, extrusions intrusions, retentions, dental distalizations and anchorage losses with a success rate of 92% of the cases

I.MICRO SCREWS ARE INDICATED IN CASES SUCH AS:
• Patients with insufficient teeth for the application of conventional anchorage.
• Cases where the forces in the reactive unit generate adverse effects.
• Patients who need asymmetric dental movements in the three planes of space.
• In some cases as an alternative to orthognathic surgery.
• In cases of dental and skeletal open bite.
• In cases of posterior and anterior dental cross bite.
• In cases of deep bite.
• In cases of dental intrusions.
• In cases of dental extrusions.
• In cases of closure of spaces.
• In case of impacted teeth.

II.Micro screws are not indicated in cases such as:
• Patients with psychological disorders.
• Patients with medical malignancies or diabetes.
• Patients with poor oral hygiene: because there is a higher risk of infection and inflammation, lack of mechanical retention due to thin cortices.
• Uncontrolled periodontal disease.
• Patients with allergies to certain metals.

The first attempt to implant a stable appliance for orthodontic anchorage was made by Gainsforth and Higley in 1945, inserting a vitalium screw into the ramus of a dog to distalize amaxillary canine. Sherman studied bone reaction to orthodontic forces on vitreous carbon dental implants in dogs.

Anchorage in orthodontics has been defined as the degree and nature of resistance to displacement offered by an anatomical structure when used forthe purpose of tooth movement.

In a simple anchor the tilting resistance of the anchor teeth is necessary to move another tooth or teeth. The number, shape, size and length of each root must be considered.

Many studies have been carried out in dogs using bone integrated titanium implants and the results demonstrated stability of these implants as orthodontic anchorages.

Conventional implants have been of great help as anchors in orthodontic treatments, especially in cases with a large number of missing teeth.

III. Micro screws are classified into:
Impacted Micro Screws:

They are made of titanium and are 7 mm long and .7 in diameter and are used in periodontal surgeries. They can be loaded immediately in dental movements with forces of 200gr in short periods. They are placed with a mechanical impact. They do not require preparation of the bone trabecula.

Threaded Micro Screws:
They are classified according to:
- Its size.
- Type of material or type of threading.

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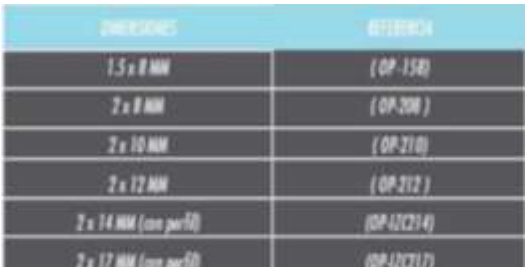
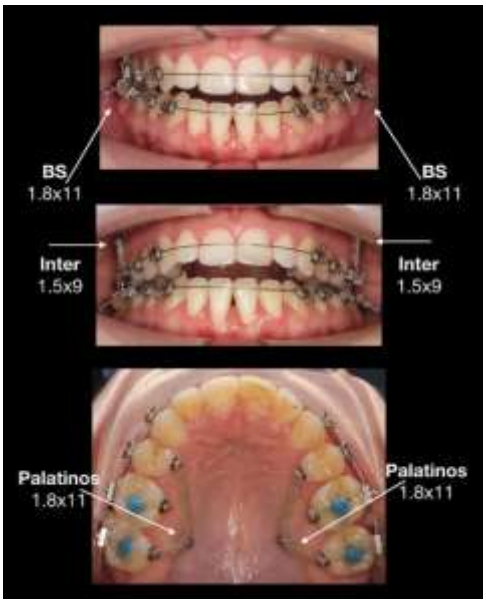
Size:
- Micro implants when their diameter is greater than 1.5 mm or mini screws.
- Mini implants when their diameter is less than 1.5 mm.

Material:
The micro screws are made of titanium and biodegradable stainless steel.

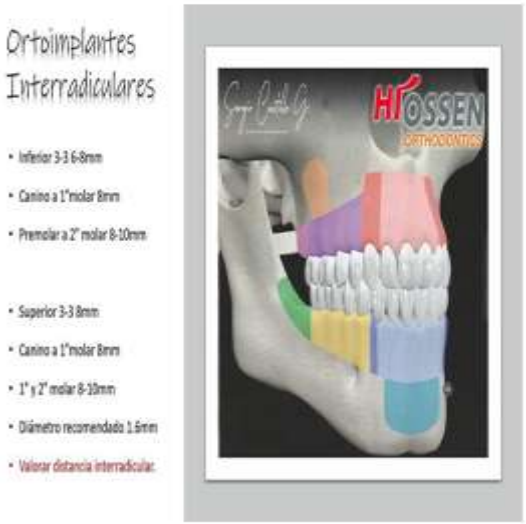
Conventional dental microscrews are placed in edentulous areas after the healing period and can be used as orthodontic anchorage for retraction of anterior teeth, mesial movements of posterior teeth, extrusion of impacted teeth, lingual movements of impacted canines, anterior and posterior crossbites, as well as dental and skeletal open bites.
Osseointegratedmicroscrews can also be used for osteogenic distraction, midfacial suture expansion, and maxillofacial protraction.

IV.DIFERENT TYPE OF MICRO SCREWS





PLACEMENT ZONES:



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Placement Protocol:

• Topical anesthesia:

Topical anesthesia is recommended before infiltration to reduce the pain of the puncture.

• Infiltrative anesthesia:

A small amount of local anesthesia is sufficient for the surgical procedure of inserting the micro implant. It is not necessary to achieve deep anesthesia of the teeth, only the soft tissue needs to be anesthetized.

• Aseptic preparation

Common disinfectant agent can be used to prepare extraoral and intraoral cleaning to keep the surgical area aseptic.

• Drilling

Before drilling, we recommend that beginners mark the implant site with brass wire or other guide rods. An experienced operator can drill directly into the bone without using a guide bar.

CLINICAL CASE #1

In this clinical case, it is observed that the use of two integrated micro bone screws measuring 2 x 12 mm with a slotted head and button placement on the occlusal third face of the first molar was carried out in the private practice for the placement and fixation of an elastic chain that It goes from palatal to vestibular to achieve the intrusion of said molar and subsequently be able to restore the lower segment for the placement of a dental implant.

CLINICAL CASE #2

In this patient, the placement of a 1.5 x 10mm interradicular micro screw is observed in the retromolar area for the placement of an elastic chain and achieve mesialization of the posterior segment for space closure.

II. CONCLUSION

In conclusion, micro screws have currently helped within the dental practice to correct in a more effective, fast and safe way the various orthodontic problems that previously had a certain degree of difficulty, so they guarantee short and long term the success of treatments. This is because in certain cases the use of a greater controlled force is required, which is why it is possible to create a movement in the adjacent dental organs where the force is applied.

Thanks to the micro screws, it is possible to acquire a support point with greater strength and stability to achieve the desired movements without altering other dental pieces.

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