

## TWISTED LIGATURE WIRE MINI-SCREW PLACEMENT GUIDE

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### Abstract

Temporary anchorage devices are becoming an integral component of fixed orthodontic armamentarium, but unlike prosthodontic implants, their placement and insertion into narrow interradicular spaces for orthodontic purposes remain a tricky and challenging part to most clinicians. Success of implants, to a large extent depends on selecting and placing them in an ideal bone space. Locating the exact spot is critical and error of even a millimeter may injure the adjacent root. An innovative and clinically useful method has been described here for safe and easy insertion of mini-implants.

**Keywords:** Orthodontic, Mini-implants, Microimplant jig.

### Introduction

Mini-implant has become the most useable anchorage system because of its ease of use. Proper placement of the mini-implant depends on the clinician's skill. Temporary anchorage devices need to be placed in ideal bone spaces, midway between adjacent roots, with a minimum of 0.5 mm of bone space on either side.<sup>1, 2</sup> Radiographs, scans and anatomical guidelines like interdental papilla help us in deciding the spot for placing the implant.<sup>3,4</sup> When it comes to chair side procedure, the accuracy of transferring the proposed implant spot as decided by radiographs and scans, on to the alveolus becomes a matter of visual assessment and judgment.

Here, we describe an implant placement jig that provides an easy way to accurately locate the 'exact implant spot'. This wire frame work can be fabricated with ease, within few minutes of chair side time and can be checked for its position immediately with an intraoral periapical radiograph.

### Fabrication of the Jig

The 3d jig is fabricated using 0.012 ligature wire on the patient cast. In the fabrication first the wire is twisted around the probe to make the circle for the implant insertion. Then the twisted wire is extended till appropriate length is achieved (Figure 1). The wire is extended to the occlusal surface and goes to the palatal surface. Next a small horizontal offshoot of the ligature wire is twisted at right angles on either side of the vertical segment of the wire. The horizontal offshoots given alternately on either side of the vertical segment of the wire after a certain distance helps to divide the implant insertion region into quadrants for ease of placement and to check the distance from the adjacent tooth root. The jig is placed to the patient cast to check for minor correction (Figure 2)

The ligature wire jig is secured using wax in the patient mouth (Figure 3). Next a routine radiograph taken prior to implant placement is obtained (Figure 4). After implant placement into the desired quadrant another regular intraoral periapical radiograph (RVG) is taken to determine the accuracy of the implant insertion (Figure 5).

Intraoral photographs before and after mini-implant placement (Figure 6)

### Advantages

1. Implant position can be adjusted three dimensionally i.e, vertically, horizontally, as well angulations.
2. Simple and easy to fabricate.
3. Less chair time needed.
4. Autoclavable and hence can be reused.
5. Cost effective.
6. Sufficiently rigid as 0.012 " ligature wire is used

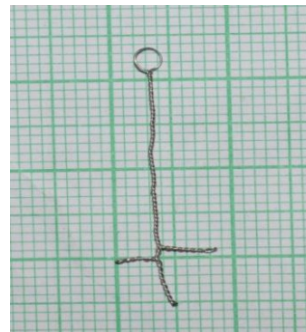


Figure 1: 0.012" twisted ligature wire jig of appropriate length



Figure 2: 0.012" twisted ligature wire jig on Patient cast



Figure 3: 0.012" twisted ligature wire jig secured Patient mouth using wax



Figure 4: RVG taken prior to implant placement



Figure 5: RVG taken after implant placement



Figure 6: Intraoral photographs before and after mini- implant placement

## References

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