

TADs Supported Tongue Crib: A New Minimalistic Design

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ABSTRACT

Introduction: Tongue thrust is stated as the forward movement of tongue tip between the teeth to meet the lower lip during deglutition and during speech, so that the tongue lies interdental. TAD's supported tongue crib involves minimal compliance, they are simple and relatively less expensive. The palatal area allows a convenient access and lowers the risk of damaging surrounding anatomical structures.

Procedure: Conventional tongue crib (0.023" SS Wire) soldered to 'U' shaped framework (0.036" SS Wire) with two loops at its end for engaging the miniscrews. Framework is adapted so as to place the miniscrews in the paramedian area around the first premolars.

Materials and equipment: Stainless steel wire (0.023", 0.036"), Silver solder, flux, universal plier, Spot welder, Hydrosolder unit and miniscrews.

Clinical application: The TAD's supported tongue crib can be used for various reasons like in patients with tongue-thrust in adjunct to the following; in mixed dentition phase with a number of mobile/erupting teeth; non-compliant patients who fail to comply full time wear of removable appliances. It can also be efficiently put to use in patients with agenesis and in cases where long-term use is necessary.

Conclusion: The TAD's supported tongue crib can be used as a successful modality with fixed as well as removable appliances and can be useful during or after course of orthodontic treatment. It is easy to fabricate in the office requiring less time.

INTRODUCTION

Abnormal posture and function of tongue has been long debated as a cause of malocclusion. Tongue thrust is stated as the forward movement of tongue tip between the teeth to meet the lower lip during deglutition and during speech, so that the tongue lies interdental.¹

TAD's supported tongue crib involves minimal compliance, they are simple and relatively less expensive.² The most appropriate site for placement of mini-screws is located in the paramedian area 3 mm lateral to the suture in the first premolar region (**Figures 1 and 2**).^{3,4} The concept that the median area of the palate contains high-quality cortical bone has been supported by literature.⁵ The palatal area allows a convenient access and lowers the risk of damaging surrounding anatomical

structures.⁶⁻⁸ Thinner mucosa and thicker cortical bone in this area also confirms adequate stability to the appliance.^{9,10}

MATERIALS

1. Stainless steel wire (0.023 ", 0.036 ").
2. Silver solder (G&H Orthodontics).
3. Flux (Dentaurum, RMO, USA).
4. Two mini-screws [FavAnchor™ SAS, India (1.8 × 9 mm)]

EQUIPMENTS

1. Universal Plier (Acharya Manipal, India).
2. Spot Welder (Weldon, Jaypee Agencies, India).
3. Hydrosolder Unit (Hyderon, Jaypee Agencies, India).
4. L'il One Driver [FavAnchor™ SAS, India]

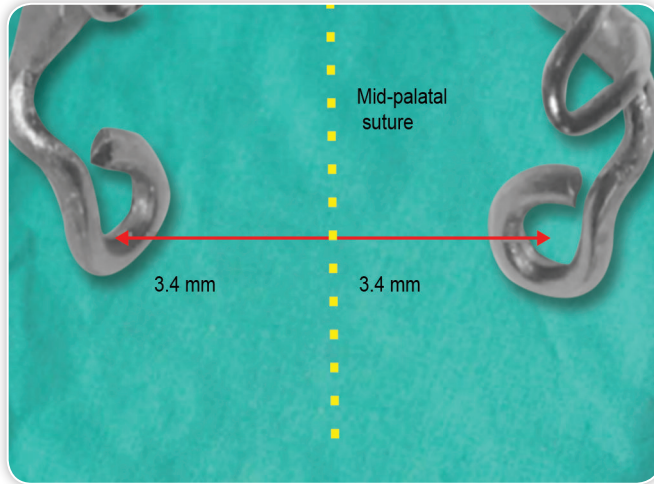


Figure 1 Ends of the framework lying in the paramedian area



Figure 3 0.023" Tongue crib



Figure 2 Increased mesiodistal span to resist muscular forces better



Figure 4 0.036" framework

PROCEDURE

Conventional tongue crib spurs are constructed using 0.023" Stainless steel wire (**Figure 3**). The 0.036" stainless steel wire is used to fabricate a 'U' shaped framework with two loops at its end for engaging the miniscrews (**Figure 4**). Tongue crib is tack-welded (**Figure 5**) to the wire framework and soldered (**Figure 6**). Further the assembly is finished and polished (**Figure 7**) with the help of necessary stones and burs. Framework is checked for its adaptation on the study model so as to place the screws in the paramedian area around the 1st premolars (**Figures 8 to 10**). The assembly is placed intraorally (**Figure 11**) and two miniscrews (**Figure 12**) are placed with a palatal driver (**Figure 13**).



Figure 5 Spot-welding

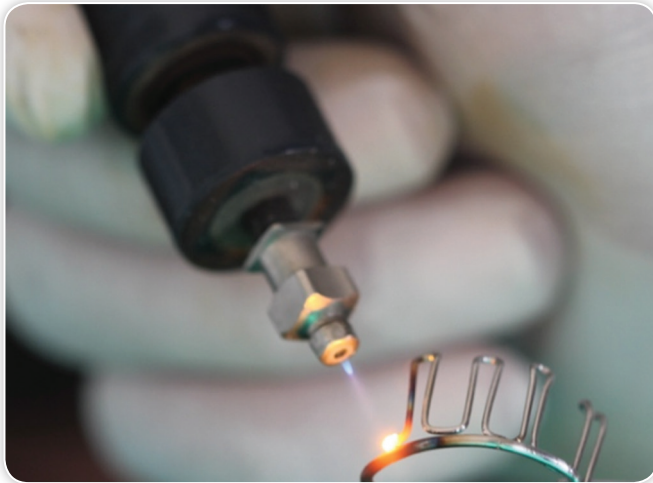


Figure 6 Soldering



Figure 9 Facial view of tongue crib



Figure 7 Finishing and polishing



Figure 10 Placement of tongue crib on patient's study model



Figure 8 Occlusal view of tongue crib



Figure 11 Placement of tongue crib intraorally



Figure 12 1.8 mm × 9 mm Miniscrews (FavAnchor™ SAS)



Figure 13 L'ilOne™ Driver (FavAnchor™ SAS)

CLINICAL APPLICATION

- Non-compliant patients who fail to wear removable habit breaking appliances.
- Since it is independent of molar support, it can be conveniently used in cases with bonded molar attachments.
- It is also advisable in patients who need to wear habit breaking appliance after debonding of fixed appliance.
- It can also be efficiently put to use in patients where long-term use is necessary.
- Major sagittal molar movements are planned.
- Patients with a number of missing teeth.

ADVANTAGES

- Prefabricated and adapted to patient's study model as and when required.
- Hygienic design as there is no acrylic pad.
- Less chances of interference during retraction.
- Compact framework, better patient acceptance.
- Easy fabrication.
- Minimal laboratory assistance required.
- Less time consuming.

CONCLUSION

The TAD's supported tongue crib can be used as a successful modality with fixed as well as removable appliances and can be useful during or after course of orthodontic treatment. It has been used by us in several of our patients and we have found the results to be comparable. Mini-implant failure observed was negligible in our study because of the dense palatal bone and optimal position of placement of the mini-screws. It is easy to fabricate in the office requiring less time.

TAD's supported design is independent of the patient compliance. At the same time, it has no/ minimal food lodgement, more hygienic and has a better patient acceptance rate due to less soft-tissue scarring, infection, inflammation and irritation to the palatal mucosa than the conventional design¹¹ due to acrylic free palatal component.

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