TAD Clinical Reference Guide

Keys for Successful TAD Placement & Efficient Biomechanics

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Special thanks to:
Prof. Dr. Axel Bumann
Dr. Joseph Petrey

VERSION 2
Includes more case pictures & indications!
intro to authors

Sebastian Baumgaertel, DMD, MSD, FRCD(C) received his Orthodontic education at Case Western Reserve University where he now holds the position of Assistant Clinical Professor and is the Director of the Subspecialty Clinic for Skeletal Anchorage.

In addition, Dr. Baumgaertel maintains an active private practice in the Cleveland area. He is a Diplomate of the American Board of Orthodontics, a Fellow of the Royal College of Dentists of Canada, and a certified orthodontic specialist in Germany.

Dr. Sebastian Baumgaertel

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Dr. Petrey received his masters in public health, D.M.D., and orthodontic training at the University of Kentucky and maintains multiple active practices in Someret, KY and across southern Kentucky.

Dr. Joseph Petrey

overview of anchorage

Different Anchorage Concepts

Anchorage is generally defined as resistance to undesired tooth movement. TADs can be used to prevent this side effect of orthodontic force application in two different ways:

- Direct anchorage - Applying force directly from the TAD to the teeth that require movement (target teeth)
- Indirect anchorage - Using the TAD indirectly to stabilize a tooth or group of teeth where tooth movement should not take place, thus creating an implanto-dental anchorage (IDA) unit

Direct anchorage is generally perceived as being “easier” to use. This simplicity however comes with a substantial trade off: when a force is applied from the TAD directly to the target teeth, pulling mechanics typically result. As the target teeth are moved towards the TAD, the type of tooth movement dictates where the implant needs to be placed. Molar movement therefore requires placement of the TAD mesially to the target teeth, distal movement requires placement distal to the target teeth, etc. (Fig. 1). This may require placement of a TAD in a less favorable position within a patient’s jaw and thus could increase failure rates.

In contrast, indirect anchorage is very similar to our traditional orthodontic thought process: the area with high anchorage requirements will be stabilized by a TAD, thus preventing anchorage loss. In this scenario target teeth are moved against the IDA unit with the advantage that implant site selection can occur almost independently of the desired tooth movement (Fig 2). Thereby, insertion can take place at the anatomically most favorable site and thus possibly reduce failure rates.

Clinically the greatest difference however may lie in the “hidden” force vectors that are associated with the direct approach, which may come as a surprise to the untrained practitioner. The indirect approach allows for the use of traditional orthodontic mechanics with the difference that the teeth in the IDA unit are “locked in” and will not move as a result of orthodontic force application.

Coupling the TAD to the teeth

The head of the mini-implant is the coupling site through which the implant is connected to the dentition. Clearly, it can influence the resulting biomechanics substantially. For example, the head can be a limiting factor when it comes to the selection of the anchorage approach and thus may indirectly influence where the TAD will be inserted (see above). From a clinical viewpoint, a TAD head with maximum biomechanical versatility appears to be the most favorable design as it gives the clinicians multiple options for orthodontic force application. Mini-implant heads today can be grouped into two major groups with several subgroups each.

The first category consists of the so-called “anchor-head” designs. These allow only the attachment of elastic modules or ligature wires. The second category are the so-called “bracket-head” designs which are equipped with either a single slot or a cross slot. In addition to the attachment of elastic modules or ligatures, these also allow the ligation of rectangular wires. Building rectangular steel wires into the anchorage set-up can greatly increase the stability of the IDA unit.

Two options exist for attaching the wire to the bracket head implant: ligature ligation and ligature-free ligation using composite. Ligature ligation requires either an eyelet or tie wings which can result in a higher profile TAD head and thus may indirectly influence where the TAD will be inserted (see above). From a clinical viewpoint, a TAD head with maximum biomechanical versatility appears to be the most favorable design as it gives the clinicians multiple options for orthodontic force application. Mini-implant heads today can be grouped into two major groups with several subgroups each.

Implant site selection

In theory, a TAD can be inserted anywhere there is bone, but only three general sites have stood the test of time for routine TAD insertion: the buccal alveolus of the maxilla and mandible, the lingual alveolus of the maxilla, and the palate. It is strongly recommended that clinicians focus on these sites when planning a TAD placement to ensure maximum success.

In other words, the goal should be to insert TADs in anatomically favorable areas of the jaws to achieve maximum clinical success rates. After that the proper anchorage approach (direct/indirect) is easily chosen, based on the placement site and the intended tooth movement. This freedom of choice only exists however with a bracket head TAD.

Sebastian Baumgaertel, D.M.D., M.S.D., FRCD(C)
STEP 1 – DISCUSS TAD PLACEMENT STEPS WITH PATIENT

- Inform and show patient exactly where the TAD(s) will be placed.
- Discuss the placement procedure and explain the risks, benefits, and alternatives of the insertion and the use of TADs during treatment.
- Answer any questions or concerns that the patient may have - leave ample consideration time (min. 24 hr).
- Patient or Parent should sign an Informed Consent (TADs are included in the form available from the AAO)

STEP 2 – SET UP TRAY

- Clean and disinfect all clinical contact surfaces, including treatment tray or cart.
- Clean hands thoroughly and don surgical gloves.
- Keep all containers, instruments, and supplies free from contamination until patient is ready for the procedure. Do not remove sterile TAD(s) from container(s).

STEP 3 – PREPARE INSERTION SITE

- Don surgical gloves, gown, face mask, and protective eye wear.
- Have patient rinse for 30 seconds with 0.12% chlorhexidine gluconate (optional).
- Dry gingival tissue.
- Using a sterile cotton swab, apply topical anesthetic per pharmacy instructions.
- Have patient rinse for 30 seconds with 0.12% chlorhexidine gluconate (optional).

STEP 4 – CB Perforation (optional)

- Pre-drilling is not required when placing a self-drilling TAD, but it can be beneficial in some cases (especially in the mandible). Center drilling the bone can help the threads to engage easier and reduce slippage. In areas of increased cortical bone thickness, pre-drilling is advisable to reduce excessive bone compression.

STEP 5 – Initial Insertion

- Initial insertion takes place with the acrylic applicator in which the tomas® pin is delivered. This ensures that the sterile state of the TAD is not compromised.

STEP 6 – Final Insertion

- Final insertion can be completed with other instruments in the tomas® system, such as the screwdriver, the wheel & applicator, or the torque ratchet & applicator, depending on your preference.

TYPICAL TRAY SETUP
- Cotton rolls
- Cotton forceps
- Mirror
- tomas® pins
- tomas® auxiliaries
- tomas® tray w/contents
- 2” x 2” Gauze
- 0.12% Chlorhexidine gluconate (optional)

ANESTHESIA

Any form of anesthesia that provides predictable numbness of the soft tissues can be used:
- Topical anesthesia with a potent formulation (for example TAC Alternate 20% which includes Lidocaine 20%, Tetracaine 4%, Phenylephrine 2% and can be ordered from a compounding laboratory)
- Infiltration anesthesia with a traditional syringe or a needle-free injection system

Dentaurum makes no representation regarding the type or dosage of anesthetic to use when placing tomas® miniscrews.

To view TAD placement videos, visit www.tomasforum.com
overview of **starter kit**

- **tomas®-screwdriver**
  - REF 302-004-10

- **tomas®-starter kit**
  - REF 302-150-20
  - Includes all items shown

- **tomas®-torque ratchet**
  - REF 302-004-40

- **tomas®-pin (6mm)**
  - REF 302-106-00

- **tomas®-pin (8mm)**
  - REF 302-108-00

- **tomas®-pin (10mm)**
  - REF 302-110-00

- **tomas®-tray**
  - REF 302-155-00

- **tomas®-round bur**
  - REF 302-003-00

- **tomas®-tissue punch**
  - REF 302-001-00

- **tomas®-applicator**
  - REF 302-004-20

- **tomas®-power arms**
  - Square or round available
  - REF 302-106-00 / REF 302-108-00

- **tomas®-wheel**
  - REF 302-106-00

- **tomas®-SD drill bit**
  - REF 302-103-00

- **tomas®-tissue punch**
  - REF 302-001-00

- **tomas®-mechanical driver**
  - REF 302-004-50

- **tomas®-applicator**
  - REF 302-004-20

- **tomas®-pin (6mm)**
  - REF 302-106-00

- **tomas®-pin (8mm)**
  - REF 302-108-00

- **tomas®-pin (10mm)**
  - REF 302-110-00

overview of **auxiliaries**

- **tomas®-auxiliary kit**
  - Includes all items shown and more
  - REF 400-600-00 (18 Slot)
  - REF 400-601-00 (22 Slot)

- **tomas®-coil springs**
  - Light, Medium, or Heavy tension
  - Custom-designed NiTi spring with a larger eyelet to fit the tomas®-pin.
  - 10 pieces, REF 302-012-00 / 302-10/20

- **tomas®-double tubes**
  - Std. Edgewise DB buccal tube
  - Direct bond tube with auxiliary slot for doctors who normally use single tubes.
  - Available for the 18 and 22 technique.
  - 10 pcs, REF 724-018-51 / REF 724-019-51

- **tomas®-Nikodem® springs**
  - 7mm, 11mm, or 14mm lengths
  - Superelastic NiTi spring designed by Dr. Nikodem.
  - Custom-designed to easily fit over the tomas®-pin head.
  - 10 pieces, REF 302-016-(07/11/14)

- **tomas®-cross tube**
  - Cross tube for connecting the tomas®-pin to the archwire. Ideal for indirect anchorage.
  - Available for the 18 and 22 technique.
  - 10 pieces each, REF 302-014-18 / REF 302-014-22

- **tomas®-uprighting spring**
  - Provides 3D tooth control for simultaneous intrusion or extrusion while uprighting molars.
  - 10 pieces, REF 302-009-00

- **tomas®-power arms**
  - Square or round available
  - Custom-designed NiTi spring with a larger eyelet to fit the tomas®-pin.
  - 10 pieces, REF 302-012-(00/10/20)

- **tomas®-monkey hook**
  - Additional option for securing elastic components to the head of the tomas®-pin.
  - 10 pieces, REF 302-009-10

- **tomas®-T-wire**
  - 21 x 25 SS T-wire used for anchoring segments of teeth to a palatal TAD.
  - 1 piece, REF 302-024-00

- **tomas®-crimp hook 3L / 3R**
  - Crimpable tube with 4 steps for attaching springs and elastics at various vector points.
  - Compatible with 18 or 22 slot.
  - 10 pieces each, left side: REF 400-600-03 / right side: REF 400-600-07

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  - Compatible with 18 or 22 slot.
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**Indication**
- To close bilateral bicuspid extraction spaces by retracting the anterior canine-to-canine segment en-masse

**Benefits of Using TADS**
- Space closure without mesialization (loss of anchorage) of the posterior molar/bicuspid segment
- Reduced treatment time vs. traditional space closure with canine retraction followed by anterior retraction

**Steps for TAD Implementation**

**Preparation**
- Complete leveling and alignment
- Adequate root parallelism
- Continuous stainless steel arch wire

**TAD Placement**
- Buccal, between 1st molar and 2nd bicuspid

**Loading**
- Crimp tomas® Power Arms mesial or distal to canines and adjust length to obtain a force application near parallel to the arch wire
- Attach tomas® Closed Coil Springs to tomas® pin head and Power Arms

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**Dr. Baumgaertel’s Clinical Pearls:**
- Initial position of the Power Arms can be distal to the canines to avoid soft tissue irritation.
- As spaces close the Power Arm position can be moved mesial to the canines.

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**Dr. Baumgaertel’s Clinical Pearls:**
- With palatal placement of the TAD, one always stays clear of the roots.
- When placing the TAD make sure to account for the retraction of the incisors (leave enough distance).
**Indication**
- To close a posterior unilateral space by protraction of molars.

**Benefits of Using TADS**
- Space closure without retraction (loss of anchorage) of the incisors and impact on overjet.
- Avoids shift of midline due to anchorage loss.

**Steps for TAD Implementation**

**Preparation**
- Complete leveling and alignment.
- Adequate root parallelism.
- Continuous stainless steel arch wire.

**TAD Placement**
- Palatal placement at level of 1st or 2nd bicuspid (paramedian).

**Loading**
- Adapt tomas® T-Wire to lingual contour of incisors.
- Secure T-Wire in tomas® head and bond to lingual surface of incisors using lingual retainer composite.
- On the buccal, install full arch tomas® Power Chain for protraction.

**Dr. Baumgaertel's Clinical Pearls:**
- If the bite is excessively deep, you can use occlusal bite elevators to generate the required clearance.
- A strongly interdigitated occlusion can hinder tooth movement. If little progress is evident, unlock occlusion with occlusal bite elevators.
- This biomechanical solution is extremely helpful with agenesis of maxillary lateral incisors.

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**Indication**
- To close a posterior unilateral space by protraction of molars.

**Benefits of Using TADS**
- Space closure without retraction (loss of anchorage) of the incisors and impact on overjet.
- Avoids shift of midline due to anchorage loss.
- Allows for unilateral space closure with segmental mechanics (if desired).
- Force may be applied directly through the Center of Resistance, reducing friction and alleviating tipping moment on the tooth.

**Steps for TAD Implementation**

**Preparation**
- Complete leveling and alignment.
- Adequate root parallelism.
- Continuous stainless steel arch wire.

**TAD Placement**
- If 1st molar is missing: between 1st and 2nd bicuspid.
- If 2nd bicuspid is missing: between canine and 1st bicuspid.

**Loading**
- Create protraction power arm with heavy gauge SS wire (as shown) and insert in auxiliary tube.
- Install tomas® Closed Coil Spring on TAD and protraction power arm.

**Dr. Petrey's Clinical Pearls:**
- Indirect molar protraction can also be achieved segmentally, so a full arch bonding may not be necessary.
- When not using a double buccal tube, protraction may be achieved by attaching the tomas® closed coil spring directly to the molar hook; however, this may cause an excessive vertical force component, tipping of the molar, increased friction and clinical treatment time.
Dr. Baumgaertel’s Clinical Pearls:
- Indirect molar protraction can also be done segmentally, so a full arch bonding is not necessary if the only treatment objective is the unilateral space closure.
- Bonding lingual buttons on the 1st bicuspid and the molar and attaching a Power Chain can reduce the rotational moment and reduce friction.

Indication
- To close a posterior unilateral space by protraction of molars

Benefits of Using TADS
- Space closure without retraction (loss of anchorage) of the incisors and impact on overjet
- Avoids shift of midline due to anchorage loss

Steps for TAD Implementation
Preparation
- Complete leveling and alignment
- Adequate root parallelism
- Continuous stainless steel arch wire
TAD Placement
- If 1st molar is missing: between 1st and 2nd bicuspid
- If 2nd bicuspid is missing: distal to 1st bicuspid
Loading
- Crimp tomas® Square Power Arm onto arch wire, flush to the distal edge of the 1st bicuspid bracket.
(Alternatively, you can also bond a SS wire directly to the tooth as shown above)
- Then bond other end of wire to tomas® head
- Use either tomas® Closed Coil Springs or tomas® Power Chain for the protraction

Step 1
- Required Auxiliaries:
  - tomas® Closed Coil Spring
  - tomas® Square Power Arm
  - tomas® Power Chain (alternatively)

Step 2

Dr. Baumgaertel’s Clinical Pearls:
- If anterior retraction is planned after the distalization, the TAD position should be further distal (2nd bicuspid level).
- In cases with a deep bite or strong cusp embrasure, it can be beneficial to unlock the occlusion with occlusal bite elevators.
- The larger the tooth segment that should be distalized, the more difficult it becomes. Here it may make sense to subdivide the segment, for example distalizing 1st and 2nd molars first, then distalizing bicuspids and canines.

Indication
- To distalize maxillary molars to correct molar relationship and create space

Benefits of Using TADS
- Distalization of maxillary molars without the common side effects of traditional distalizing solutions such as tipping molars and flaring of incisors

Steps for TAD Implementation
Preparation
- Complete leveling and alignment
- Adequate root parallelism
- Continuous stainless steel arch wire
TAD Placement
- Palatal placement at 1st / 2nd bicuspid level (paramedian)
Loading
- Attach tomas® T-Wire to lingual contour of incisors
- Secure T-Wire in tomas® head and bond to lingual surface of incisors using lingual retainer composite
- Place tomas® Open Coil Springs on arch wire immediately mesial of the group of teeth that requires distalization (for example between maxillary lateral incisors and canines, as shown above)

Step 1
- Required Auxiliaries:
  - tomas® T-Wire
  - tomas® Open Coil Spring

Step 2
**CASE 7**

**molar distalization / indirect (mandible)**

**Indication**
- To distalize maxillary molars to correct molar relationship and create space.

**Benefits of Using TADS**
- Distalization of mandibular molars without flaring of mandibular incisors.

**Steps for TAD Implementation**

**Preparation**
- Leveling and alignment (partial or complete)
- Adequate root parallelism
- Stainless steel arch wire (continuous or segmental)

**TAD Placement**
- Buccal, between 1st and 2nd bicuspid

**Loading**
- Crimp *tomas*® Square Power Arm to arch wire and position flush against mesial of 2nd premolar bracket
- Bond other end of *tomas*® Square Power Arm into TAD
- Place *tomas*® Open Coil Springs on arch wire between 2nd premolar and 1st molar

**Required Auxiliaries**
- *tomas*® Square Power Arm
- *tomas*® Open Coil Spring

**Photo courtesy of Dr. Dwight Frey**

**Dr. Baumgaertel’s Clinical Pearls:**
- If anterior retraction is planned, the TAD will interfere with tooth movement. It will need to be removed and re-positioned.
- Another option is to overcorrect distalization and thus account for anchorage loss during the retraction phase without TAD.
- This set-up can be used segmentally (treating one single quadrant) or on a continuous arch wire.

**CASE 8**

**impacted canine**

**Indication**
- To assist in the eruption of Impacted Maxillary Canines.

**Benefits of Using TADS**
- NiTi accessory wires may be utilized for forced eruption without the risk of intrusion of adjacent teeth.
- Canine exposures may be completed earlier in treatment, as a need for a heavy base wire is alleviated by the absolute anchorage of adjacent teeth.

**Steps for TAD Implementation**

**Preparation**
- Create adequate space for erupting Canine utilizing traditional mechanics.
- Complete leveling and alignment for adequate root parallelism of adjacent teeth
- If space and adjacent teeth root position are not an issue, then Canine may be erupted segmentally without the need for full arch treatment.

**TAD Placement**
- Palatal placement at 90˚ to cortical plate
- Care should be taken to avoid the impacted tooth & its eruption path.

**Loading**
- Adapt *tomas*® T-Wire to lingual contour of the adjacent lateral incisor and premolar
- The *tomas*® T-Wire may be contoured to adapt to the curvature of the patient’s palate
- Secure T-Wire in *tomas*® head and bond to lingual surface of incisor & premolar using lingual retainer composite

**Required Auxiliaries**
- *tomas*® T-Wire
- *tomas*® Power Chain (alternatively)

**Dr. Petrey’s Clinical Pearls:**
- Canine eruption can also be done segmentally, where a full arch bonding may not be necessary in early stages while the Canine is erupting, reducing the total time in full appliances.
- Any preferred methods for eruption may be employed, using NiTi wires as shown above, or using powerchain or powerthread, as long as the adjacent teeth are secured to the implant.
- This same technique is not restricted to impacted Canines, and may be utilized with other impacted teeth.

**Photos courtesy of Dr. Joseph S. Petrey**
Dr. Bumann’s Clinical Pearls:
- If uprighting through distal tipping of the crown is desired, the set-up does not need to be modified.
- If uprighting through mesial tipping of the root is desired, the arch length must be fixed. This can be achieved by ligating a stainless steel ligature wire from the TAD to the molar hook, or by annealing and cinching the end of the NiTi-segment.

CASE 9

**molar uprighting**

**Indication**
- To upright a mesially-inclined molar due to ectopic eruption of the molar or premature tooth loss of an adjacent tooth.

**Benefits of Using TADS**
- Upright molar without any undesired reciprocal movements (i.e., extrusion and/or mesialization) of the adjacent teeth.
- Molar uprighting can occur without bonding of the entire dental arch.

**Steps for TAD implementation**

**Preparation**
- None required.

**TAD Placement**
- If 2nd molar is to be uprighted: between 1st and 2nd bicuspid.
- If 1st molar is to be uprighted: between canine and 1st bicuspid.

**Loading**
- See opposite page for loading instructions.

**Option 1 - Uprighting with Extrusion**
- Place TAD approximately 10 mm from occlusal plane.
- Insert uprighting spring into slot of TAD & buccal tube.
- Extend NITI wire out to achieve more uprighting force.
- Secure uprighting spring into TAD with LC composite.
- Place a crimp in center of crimping tube with heavy wire cutter.
- Cut off excess SS wire to the mesial of the TAD.

**Option 2 - Uprighting with no vertical effect**
- Place TAD approximately 10 mm from occlusal plane.
- Insert a 30° intrusion bend into SS wire on distal side of TAD.
- Insert uprighting spring into slot of TAD & buccal tube.
- Extend NITI wire out to achieve more uprighting force.
- Secure uprighting spring into TAD with LC composite.
- Place a crimp in center of crimping tube with heavy wire cutter.
- To avoid rotation forces, place a 90° bend in SS wire at mesial side of TAD & bond wire to tooth with lingual retainer composite.

**Option 3 - Uprighting with Intrusion**
- Place TAD approximately 10 mm from occlusal plane.
- Insert a 45° intrusion bend into SS wire on distal side of TAD.
- Insert uprighting spring into slot of TAD & buccal tube.
- Extend NITI wire out to achieve more uprighting force.
- Secure uprighting spring into TAD with LC composite.
- Place a crimp in center of crimping tube with heavy wire cutter.
- To avoid rotation forces, place a 90° bend in SS wire at mesial side of TAD & bond wire to tooth with lingual retainer composite.

**Required Auxiliaries**

- tomas® Uprighting Spring
- Steel Ligature Wire (optional)
To prevent buccal flaring of the molars as a side effect, install a transpalatal arch. It should have sufficient clearance to the palate to not interfere with the intrusion.

**Indication**
- To intrude a single over-erupted maxillary molar

**Benefits of Using TADS**
- Intrusion of a single over-erupted molar to allow for restoration of an extraction space in the opposing arch

**Steps for TAD Implementation**

**Preparation**
- None required

**TAD Placement**
- Buccal, between 1st and 2nd molar
- Palatal, between 2nd bicuspid and 1st molars

**Loading**
- Suspend *tomas®* Nikodem® Spring between both TADs and pass it over the occlusal of the over-erupted molar
- Place a small amount of composite on occlusal tooth surface to keep the *tomas®* Nikodem® Spring in place (Optional)

**Required Auxiliaries**

- *tomas®* Nikodem® Spring

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**Indication**
- To close an open bite in cases with vertical maxillary excess through posterior intrusion

**Benefits of Using TADS**
- Compliance-free intrusion of posterior segments

**Steps for TAD Implementation**

**Preparation**
- Complete leveling and alignment
- Adequate root parallelism
- Continuous stainless steel arch wire

**TAD Placement**
- Bilaterally between 2nd bicuspid and 1st molar or between 1st and 2nd molars

**Loading**
- Suspend *tomas®* Power Chain from *tomas®* head, pass it around arch wire and attach other end back to *tomas®* head.
- This can be done alternatively with the *tomas®* Nikodem® Spring

**Required Auxiliaries**

- *tomas®* Power Chain
- *tomas®* Nikodem® Spring (alternatively)
**Dr. Baumgaertel’s Clinical Pearls:**
- This is the only intrusion approach that can truly prevent incisor flaring.
- Cinch utility arch back to prevent incisor flaring.

**CASE 12** incisor intrusion / indirect

**Indication**  
To correct a deep bite by intruding incisors

**Benefits of Using TADS**  
- Intrusion of incisors without the potentially detrimental effect of reciprocal molar extrusion

**Steps for TAD Implementation**

**Preparation**
- Adequate root parallelism

**TAD Placement**
- Bilaterally, buccal, between 2nd bicuspid and 1st molar

**Loading**
- Attach wire segment to tomas® head and insert it into auxiliary molar tube
- If no auxiliary tube is present, bond wire segment directly to buccal molar surface
- Insert utility arch into main molar tube and load incisors
- Alternatively, the utility arch may be bonded directly into the tomas® head, however this may apply rotation forces to the TAD

**Required Auxiliaries**
- Utility Arch
- 017 x 025 stainless steel wire segments

**CASE 13** incisor intrusion / direct

**Indication**  
To correct a deep bite by intruding incisors

**Benefits of Using TADS**  
- Intrusion of incisors without the potentially detrimental effect of reciprocal molar extrusion

**Steps for TAD Implementation**

**Preparation**
- Complete leveling and alignment
- Adequate root parallelism
- Continuous stainless steel arch wire

**TAD Placement**
- Bilaterally, buccal, between lateral and central incisor

**Loading**
- Suspend tomas® Power Chain from tomas® head, pass it around arch wire and attach other end back to tomas® head
- This can be done alternatively with the tomas® Nikodem® Spring or with a wire (as shown above)

**Required Auxiliaries**
- tomas® Power Chain
- tomas® Nikodem® Spring (alternatively)
Indication
To temporarily restore missing teeth in adolescents post orthodontic treatment prior to skeletal maturation and permanent restorations.

Benefits of Using TADS
- As permanent restorative implants may not be placed until completion of growth, placement of TADs with pontics allow for:
  • Esthetic temporary restoration prior to complete bone development and maturation
  • No need for Maryland Bridges bonded to teeth, or removable flipper retainers with pontic teeth on them that cannot be worn while eating, and break easily.

Steps for TAD Implementation

Preparation
- Complete all active tooth movement in the location of the missing tooth. Preparation should be identical to the set-up for traditional endosseus permanent restorative implants.

TAD Placement
- TADs should be placed on the center of the ridge palatal enough to ensure full bone contact and seated to the soft tissue collar. No less than the 10 mm tomas® pin should be used.

Loading
- See instructions on opposite page

Loading instructions for pontics
- Ensure there is no mobility with the TAD.
- If primary stability is achieved, test fit the premade pontic directly on the TAD.
- Once test fit is complete, fill the pontic with resin or acrylic material and place on the TAD. (It may be necessary to add additional resin material to the palatal side of the restoration for stability, below the line of occlusion.)
- Remove excess flash material and finish restoration in place.
- Bond a fixed lingual retainer to adjacent teeth but do not bond to the pontics.

Dr. Petrey’s Clinical Pearls:
- Be sure to place the implant in the thick bone of the ridge, but palatal enough so the implant does not show through the front of the restoration.
- Place a bonded lingual retainer on adjacent teeth to the temporary restorations and lay it against the pontics. This allows for support of the temporary restorations without fixing the adjacent teeth to the TADs, restricting their eruption.

All photos above courtesy of Dr. Joseph S. Petrey
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TAD User Forum
November 6-7, 2009 · Henderson, Nevada
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College of Dental Medicine

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