

2019

# TDA MEETING

May 2-4  
San Antonio, TX

CELEBRATING  
LIFE &  
PRACTICE

## Dr Gary Schwarz Course Schedule at the TDA Meeting:

Thursday, May 2, 2019 • 8:30-11:30 AM

Oral Surgery—Lecture

**Minimally Invasive Extraction of Erupted Teeth**

Thursday, May 2, 2019 • 1:30-4:30 PM

Implants/Restorative—Lecture

**Minimally Invasive Non Guided Implant Placement**

Friday, May 3, 2019 • 8:30-11:30 AM

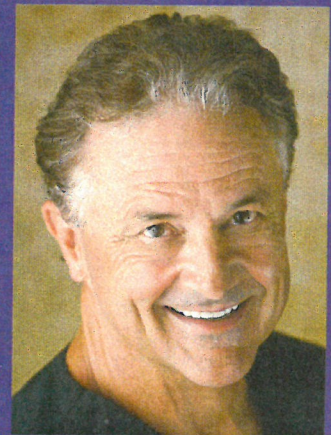
Oral Surgery/Implant Restorative—Workshop

**Workshop: Minimally Invasive Extraction of Erupted Teeth and Implant Placement**

Friday, May 3, 2019 • 1:30-4:30 PM

Oral Surgery—Lecture

**Minimally Invasive Extraction of Impacted 3rd Molars**



Gary Schwarz, DDS

**Gary Schwarz, DDS, MSD**, graduated with high honors from Baylor College of Dentistry in 1978 and then completed his oral and maxillofacial training there in 1983. He has since focused on private practice throughout the Rio Grande Valley, and over the last 10 years enjoyed speaking for Nobel Biocare, Millennium Dental Laser Technology, TDA, and Seattle Study Club. Gary is cofounder, board Member and past president of Dentists Who Care and presently serves on the board of the Rio Grande Valley Dental Society as well as the Valley Chapter of the Academy of General Dentistry. He is also a director of the South Texas Study Club and recently founded the Dawson Academy—La Perla Ranch Cohort.



## ABSTRACT

Foundational principles of surgery that are learned and drilled in early in one's education are very hard to break. Like doctrine in religion, they are adhered to with fervor. As it pertains to exodontia, long ago it was determined by giants of the dental profession that it was important to gain adequate visualization of a fractured off root embedded in bone, or an impacted third molar, to improve the operator's ability to remove it.

The problem with the approach is that it also adds trauma to the patient, leading to major increases in pain, swelling, and trismus. Advances in instrumentation and techniques over the past 12 years however have eliminated the need to reflect any flap or remove any bone on erupted teeth, and to a huge reduction in flap size and bone removal for impacted third molars for the experienced and trained surgeon. The impact on patient well-being is tremendous.

## INTRODUCTION

An axiom that we all grew up with in dental school, whether trained in the 70s and 80s like the author (Dr Gary Schwarz), or for those presently in school, is the mantra, "You can't do it well if you can't see it well." In this case, the "it" is referring to either a fractured off root of an erupted tooth with no way to grasp it with a forcep, or an impacted tooth. Although techniques for extracting teeth have evolved over the last 100 years, little in the way of creative innovation has occurred until recently. The widely respected guidelines of the past developed by such noted clinicians as Mead<sup>1</sup>, Kruger<sup>2</sup>, and Thoma<sup>3</sup> are still followed today not only by most clinicians, but most training programs as well.<sup>4,8</sup>

The solution to these cases that has become ingrained within the profession is to reflect a large flap and then remove large amounts of the all-important labial plate, gaining better visual and surgical access for the use of conventional elevators and forceps. These traditional extraction methods have a history of not only producing significant postoperative pain and swelling, but also damaging the hard and soft tissues surrounding the tooth.<sup>5</sup>

Over the last decade, however, there has been an increased interest in atraumatic extractions of erupted teeth in order to maintain bone for implant insertion. Development of new instrumentation has been key to the profession's desire to be successful in consistent exodontia of erupted teeth without flaps or bone removal.<sup>6</sup>

## DISCUSSION

The first breakthrough was the development of the periotome by the Karl Schumacher Co in 1999, a thin sharp instrument designed to penetrate the periodontal ligament (PDL) by finger pressure to eventually help luxate the root and then allow the flapless extraction with their newly designed forceps, the apical retention forceps. The periotome's limitation however was its inability to work in cases where the bone was dense and the PDL thin, such as ankylosis cases in particular. The proximator was then developed by the company in 2004. It is a heavier and thicker version of the periotome with a thick rounded top, designed to be pushed by the palm, generating more power than is possible with the finger tip use of the periotome.<sup>7</sup>

Although these tools were a large leap forward, they still would not work well for this author in the dense bone cases, and the amount of time it took trying to do so was extensive, along with placing tremendous pressure on the operator's fingers and hands. A dramatic innovation initiated by this investigator then took place over 12 years ago, when he substituted a mallet as the driving power for the proximator instead of his fingers or hands. The results were astounding and practice changing. The operator places his thumb and forefinger of his non-dominant hand around the alveolus to feel for any misdirection of the proximator blade tip or fractures of the bone, then with his dominant hand places the proximator held firmly against the 2 primary target areas in sequential order, the mesiobuccal root corner, and the



## TDA Meeting Preview, continued

distobuccal root corner. A trained assistant begins the malleting lightly, as the operator moves the tome back and forth from corner to corner. As the instrument moves deeper and deeper due to the expansion of the PDL and alveolus, the intensity of the blows is increased. Once firmly down the PDL, if the root has not already popped out of the socket, the proximator is turned in a clockwise or counterclockwise direction, causing an upward rotational force on the root as one edge of the blade is wedged against the bone, and the other against the root, like unscrewing a screw out of a plank. Most of the time a forcep is not even needed, and the total time required is usually just a few minutes per tooth. Using these simple steps, 99% of the roots of erupted teeth can be removed. In those few cases where it is not possible, a 703 burr in an electric hand piece is used to split the root, followed by the same process. Once again, this is done without a flap or any bone removal. In the same manner, all multirooted posterior teeth are sectioned within the socket before the mallet and proximator are used. A disadvantage of the mallet technique is that it is unpleasant for the patient if not sedated, so conscious sedation is recommended.

The only disadvantage of the Schumacher proximator is its thickness. This makes it ideal for posterior teeth as it is almost impossible to break, but less than ideal in the anterior where the tissue and bone is thinner. Salvin introduced its PDL-Evator in 2009. It is thinner than the proximator

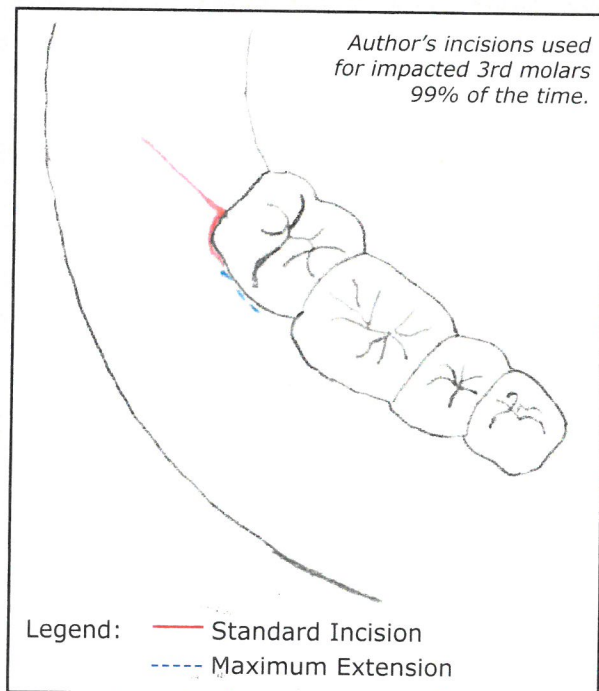
and more prone to fracture in the posterior, but it is ideal in the anterior, making the use of both instruments indispensable on this author's surgical tray. Usage choice depends on tooth location and tissue and bone variables. The goal for any erupted tooth is to never reflect a flap or cut away any labial plate. For the last 12 years since perfecting these methods, he has achieved this goal.

Dr Schwarz was shocked to learn when reviewing the literature for this article that there are not many studies or case reports regarding the usage of the proximator in exodontia, and no reports he could find of using it with a mallet.<sup>5</sup> A recent publication by Hong et al in 2018 on a minimally invasive flapless technique for removing erupted teeth with no bone removal, showed that 85.4% (276 of 323 teeth) were able to be successfully removed using the vertical extraction techniques they employed.<sup>29</sup> It is the opinion of this author from his experience that the addition of the mallet to the proximator can push the success rate up to 100% depending on the experience of the operator.

As opposed to erupted teeth, scarcity of literature is not the case concerning removal of impacted third molars, as there

are literally thousands, but he was just as shocked to see that there were no articles that show the use of an incision as small as his, or the removal of such small amounts of bone when removing impacted third molars.

The change for Dr Schwarz toward flapless surgery without bone removal for erupted teeth did not begin until after the advent of the proximator and then the use of the mallet with it in the mid 2000s, but the move toward developing minimally invasive methods to remove impacted third molars began for him just a few years after he began his career in OMS in 1983. Troubled by the massive difference in pain, swelling, and trismus among his patients between erupted third molars and impacted third molars, he began evolving his own methods to reduce the surgical impact on his patients.



Author's standard incision for most impacted 3rd molars.



## FLAP DESIGN FOR IMPACTED 3RD MOLARS

This began with the incision design, eventually evolving to an extremely conservative envelope flap. The literature describes 2 main flap types: the envelope and the triangular.<sup>9</sup> Triangular incisions have vertical releases that extend into the alveolar mucosa of the vestibule, whereas the envelope stays within the gingival sulcus other than the short hockey stick that extends distobuccally from the distobuccal corner of the second molar. Studies comparing the effects of the 2 main flap types on pain, swelling, and trismus are conflicting in terms of conclusions.<sup>10-16</sup> Considering how large and aggressive most of the incisions are, and considering how much bone is removed, especially the routine buccal trough, it is not surprising to see such variability in their conclusions.<sup>17</sup> Still, the bulk of the literature shows fewer problems with the envelope flap, despite that even the most conservative one shown extends all the way forward to the mesial of the first molar. The author's flap barely extends around the distobuccal corner of the second molar. Only with the Pell and Gregory Class III C deep impactions does it extend farther forward, and even then, only to the mesial of the buccal groove of the second molar, sparing the papilla.

## BONE REMOVAL AND TOOTH SECTIONING

His next step was to reduce bone removal as much as possible. The most important contributor to post-operative morbidity is

the trauma from bone cutting.<sup>18</sup> Unlike flap design and suture techniques, there are not a lot of studies on this topic, but those that have been done show a vast difference in pain, swelling, trismus, and bleeding, as one would logically expect.<sup>19,20</sup> In order to remove an impacted tooth that is locked into bone by its 3-dimensional shape, space must be created. There are only 2 ways to create this space: cutting bone away or sectioning and removing parts of the tooth. Dr Schwarz perfected ways to do that on all but the Pell and Gregory Class III C teeth by eliminating the buccal trough and improving his skill at sectioning accurately and then creating space by strategic tooth removal in pieces. He is able to do this by seeing only the distal half of the occlusal surface and the buccal groove. This orients the tooth 3-dimensionally in space so that safe, accurate sectioning can be done despite seeing only 10% or less of the crown. The result is a massive reduction in bone removal and trauma to the patient.

## SUTURE TECHNIQUE

Numerous papers studying the effect of suture-less techniques compared to placing sutures, not only found far less pain and swelling with the suture-less method, but also noted how the anatomy of the lower third molar site causes the tissue to naturally come together. Dr Schwarz definitely found this to be the case every time the flap is not lengthened past the buccal groove of the second molar, and in roughly 50% of those in which it does, so long as it does not continue to the papilla between the first and second molar.

When he does have to suture, only a single 4-0 chromic suture is placed distal to the second molar in a place prepared for it if needed when the incision is made to begin with. He takes care to be sure that he includes a small piece of attached gingiva for the flap side from the distobuccal corner of the second molar which is then carefully sutured back to its place against attached tissue on the other side. This prevents pulling alveolar mucosa in from the cheek leading to eating problems and food trapping in the area as well as future periodontal issues for the second molars. The literature has concluded not only that sutureless is better than sutured, but also that single suture is better than multiple, and that partial closure is better than complete, relative to pain, swelling, and trismus.<sup>19-23</sup>

## SURGICAL TIME

Multiple studies have shown that the longer the procedure time, the greater the morbidity for the patient.<sup>9,24-27</sup> Operative time for lower third molar surgery has ranged in the literature from 7.5 to 105 minutes.<sup>24</sup> The total time required for this author to remove all 4 third molars discounting the Pell and Gregory Class III C cases is less than 7 minutes.

## CLINICAL CASE

An 86-year-old otherwise healthy female was referred to our office for removal of tooth #4 and socket grafting, followed with implant placement 4 months later. Exam showed this endodontically treated tooth to be fractured off at the gingival level. The PA film sent by the dentist showed narrow, barely visible PDL and dense bone.



# CLINICAL CASE FIGURES

The photos show the proximator in use with the mallet on each corner of the tooth as described in the discussion, and the tooth removal followed by socket grafting. The final photo is at post op 1 week later showing the amazing healing. The patient had no pain and took no medications.

## CONCLUSION

Peter D. Waite in his outstanding paper detailing his less invasive approach to third molar removal, had these profound things to say concerning the topic.

"It is important for all surgeons, and especially training programs, to assess surgical outcomes and test logic. Anecdotal reasons for what we do should be tested and either justified or rejected. Evidence based medicine is the academic charge."<sup>28</sup>

Improved instrumentation and methods have been shown in this paper to dramatically reduce the amount of trauma delivered to the patients in the pursuit of tooth removal, while dramatically reducing operating time in the office, and pain and suffering for the patient thereafter.

## Editors Comment

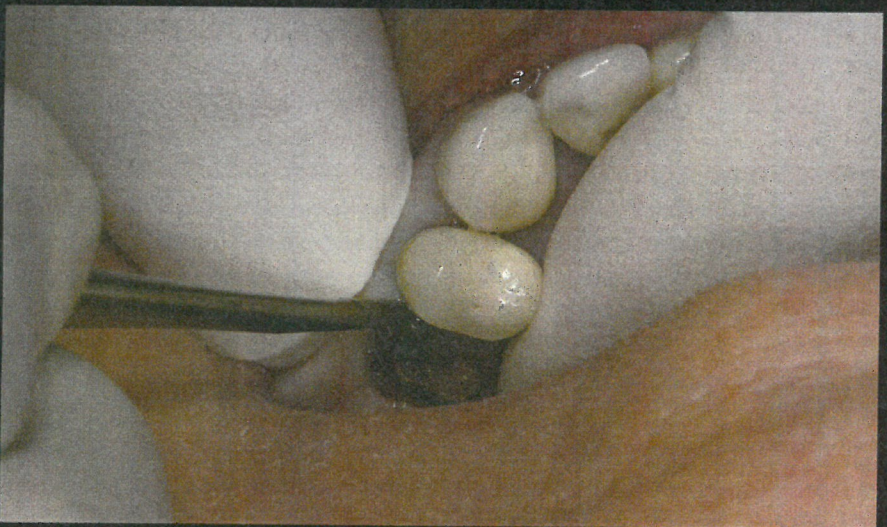
*Due to the length of the paper, many of the photos could not be used. However, Dr Schwarz will be teaching 3 half-day lecture courses covering these 2 topics as well as on implants, and 1 half-day hands-on concerning exodontia and implant placement at the TDA Meeting in May 2019.*

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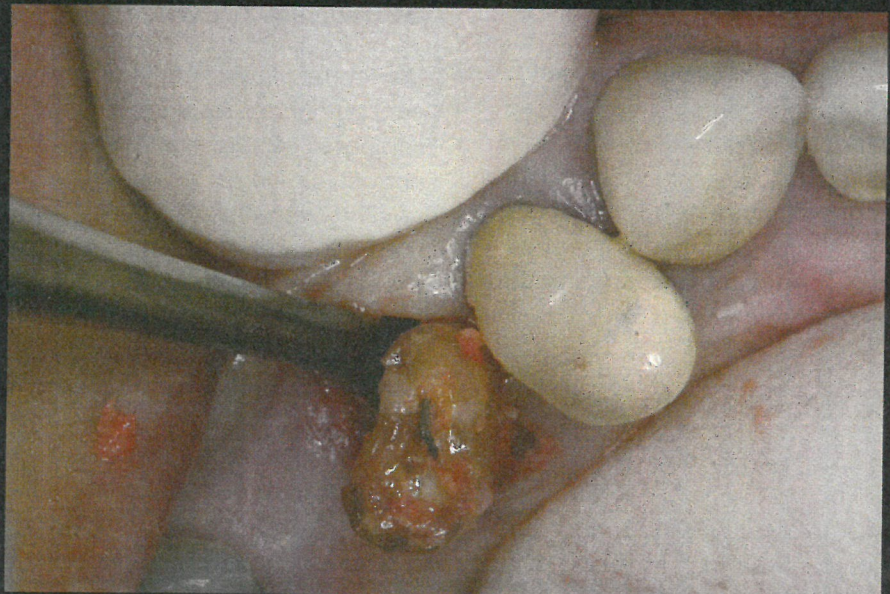
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*Proximator and mallet in beginning position at disto buccal corner.*

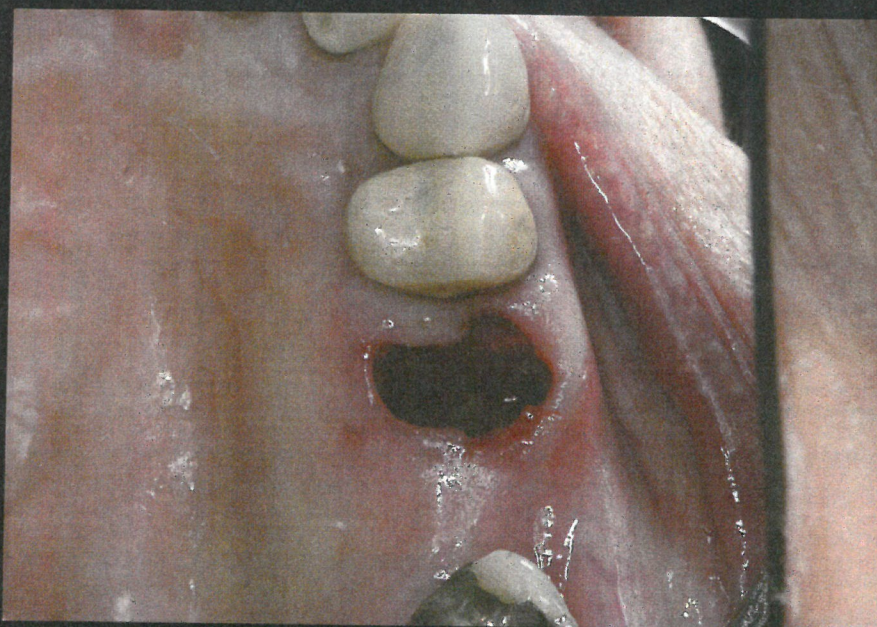


*Proximator moved to mesiobuccal corner and proper hand and finger position shown with thumb and forefinger.*

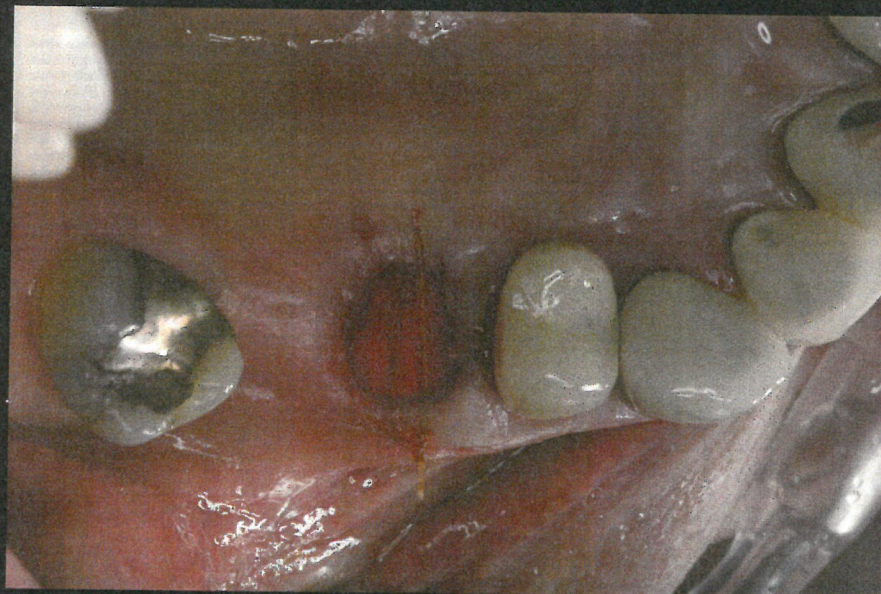


*Root being removed.*





*Soft tissue appearance immediately following extraction.*



*Appearance of tissue after socket graft.*



*Healing at 1 week post op.*

system for tooth removal and immediate implant restoration. *Implant Dent* 16(2):139-142.

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