Winter - Spring 2022

SCOA PROCEEDINGS

JOURNAL OF THE SOUTHERN CALIFORNIA OROFACIAL ACADEMY

PRESIDENT'S MESSAGE
Bach Le DDS MD

Springtime is upon us! I hope all of you and your families are doing well. I look forward to this time of year as the spring weather brings a sense of freshness and renewed possibilities around us. We have all been through a lot in the past two years, so I am excited to embark on a new road to recovery and get back to normal. You have received our information for the upcoming SCOA 20th Annual Spring Scientific Meeting. This will be our second live meeting after restrictions by the pandemic. This is an excellent program with a focus on management of complications. I encourage all members to bring a colleague to this meeting. I look forward to seeing old members, new members, and our dedicated sponsors.

We look forward to welcoming four excellent presenters to this spring meeting. Homa Zadeh DDS PhD is a Diplomate of the American Board of Periodontology. Zadeh will lead a workshop in *Peri-Implant Plastic Surgery with VISTA* (Vestibular Incision Subperiosteal Tunnel Access), a technique suitable for peri-implant soft tissue regeneration. He will then present *Phenotype Modification Therapy: Optimizing Peri-Implant Stability and Esthetics.*

Ed Bedrossian DDS is a Professor in the Department of Oral and Maxillofacial Surgery at the Arthur A Dugoni/UOP School of Dentistry. He authored the textbook *Implant Treatment Planning for the Edentulous Patient,* foreword by Professor Per-Ingvar Brånemark. Dr Bedrossian lectured with Professor Brånemark on the rehabilitation of patients with maxillofacial defects and collaborated with him in attaining FDA approval for the use of endosseous implants in maxillofacial defects. Dr Bedrossian will present *DIGILOG™ The Role of Digital Workflows in the Contemporary Implant Practice – It is Not an All or None Concept.* He will also present *Prevention and Treatment of Potential Complications in Full Arch Immediate Loading.*

Brian Farrell DDS MD is Assistant Clinical Professor at Louisiana State University in Resident Training and Director of the Fellowship Program. He will present *Staying on the Surgical Path to Limit Challenges and Complications in Orthognathic Surgery* followed by *Moving the Mandible Without a Sagittal Split: Atypical Mandibular Osteotomies.*

Mark Leffler DDS Esq is a Board Certified Oral and Maxillofacial Surgeon and attorney who represented dental specialists in malpractice litigation. He will present *Common Malpractice Risks of Implant and Third Molar Surgery: The Standards, the Litigation Process and the Results* followed by *The Pitfalls of Informed Consent and Informing You About Your Malpractice Policy.*

We appreciate your continued participation at SCOA meetings over the years and I am always proud to see our United States Navy active-duty doctors from Naval Base San Diego. We have invited the Navy to come again on April 27.

I'll see you in Pasadena!!

SCOA 20th Annual Spring Scientific Meeting

Wednesday April 27 Live at the Hilton Pasadena

Presenters

Ed Bedrossian DDS
Brian Farrell DDS MD
Marc Leffler DDS Esq
Homa Zadeh DDS PhD

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Sponsor Ads in This Issue

In Memoriam
Warren Brooks DDS
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Welcome
New SCOA Board Members
Keith Hoffmann DDS PhD
Frank Pavel DMD
Keith Radack DDS

SCOA 20TH ANNUAL SPRING SCIENTIFIC MEETING
WEDNESDAY APRIL 27, 2022
LIVE AT THE HILTON PASADENA




Ed Bedrossian DDS
Brian Farrell DDS MD
Marc Leffler DDS Esq
Homa Zadeh DDS PhD

See Program on Page 4 ►►►►

SCOA 20th Annual Spring Scientific Meeting Live at the Hilton Pasadena
Wednesday April 27, 2022

Workshop 7 AM to 9 AM • Program 9 AM to 5:15 PM

7:00 to 9:00	Sign In	Continental Breakfast in International Ballroom
7:00 to 9:00	Workshop	**Homa Zadeh DDS PhD** Peri-Implant Plastic Surgery with VISTA
9:00 to 10:00	Session I	**Homa Zadeh DDS PhD** Phenotype Modification Therapy: Optimizing Peri-Implant Stability and Esthetics
10:00 to 10:30	Break	Rep Introductions at Beginning of Break
10:30 to 11:30	Session II	**Edmond Bedrossian DDS** DIGILOG™ The Role of Digital Workflows in the Contemporary Implant Practice
11:30 to 11:45	Break	
11:45 to 12:45	Session III	**Edmond Bedrossian DDS** Prevention and Treatment of Potential Complications in Full Arch Immediate Loading
12:45 to 1:45	Lunch	Buffet lunch will use classroom seats.
1:15 to 1:45	Optional	Sponsor Presentation TBA in California Ballroom
1:45 to 2:30	Session IV	**Brian Farrell DDS MD** Staying on the Surgical Path to Limit Challenges and Complications in Orthognathic Surgery
2:30 to 3:15	Session V	**Brian Farrell DDS MD** Moving the Mandible Without a Sagittal Split: Atypical Mandibular Osteotomies
3:15 to 3:45	Break	
3:45 to 4:30	Session VI	**Marc Leffler DDS Esq** Common Malpractice Risks of Implant and Third Molar Surgery: The Standards, the Litigation Process and the Results
4:30 to 5:15	Session VII	**Marc Leffler DDS Esq** The Pitfalls of Informed Consent and Informing You about Your Malpractice Policy
5:15 to 6:15	Reception	Hosted Bar and Hors d'oeuvres in International Ballroom

Conclusion: How Can Crisis Resource Management Work in My Practice?
Roberta Ashley CRNA EdD CHSE

For those who have been following this series, thanks! Now, to conclusions!

Oral surgeons are not pilots, their staff are not flight attendants, and an oral surgery office is not an airplane in flight. How, then, can we hope to translate what works well on an airplane to what some say *might* work in an oral surgeon's practice? What are the commonalities? Allow me to list a few.

The first tenet to translate is the fact that humans are fallible. This ought to be a no-brainer, but with what we know about the Dunning-Krueger Effect and other similar entities, the reality of human fallibility becomes apparent, especially to relative novices who don't know they don't know. Your author tells her residents that, once one graduates one knows basically just enough to not kill anyone. True competency does not begin until 1-3 years post-graduation, and expertise is not achieved until ten years or 10,000 hours of *deliberate, focused practice* in a specific domain! It is now accepted that aviation is subject to human fallibility: however, surgery has been much slower to accept human factors in surgery. After all, how many of you have encountered at least one oral surgeon, or any medical professional for the matter, who honestly believes they are such confident experts that they have no fallibility? CRM in aviation began because too many pilots simply would not accept the fact that they were fallible; and even when faced with the glaring objective data of accident data, CRM was resisted by many as "charm school." Even flight attendants were skeptical that CRM would go anywhere, as so many pilots were so "set in their ways." The journey to get from where we were in aviation in the 1970s and 1980s to where we are now was a long one. For oral surgery practices, it may be as long, as well. Toxic hierarchy in medicine is still very much a thing, unfortunately. Can the oral surgeon in charge learn from all those who also inhabit his/her castle? The answer to that question is a subtle one!! Here is an explanation:

In order to be successful, the head-on assault of the surgeon-as-king/queen needs to end. What needs to happen is the much more subtle and ultimately far more effective challenge of the king/queen confronting and then interpreting their unique view of the sun, moon, and stars, and sharing it with the crew. Shifting to a team-based model allows the team to advocate for and reconceptualize authority, decision making, and expert judgment; and thus pave the way for a dramatic reworking of the command structure which would detoxify rigid hierarchies while yet maintaining their most effective qualities. Clear as mud? Let me rephrase. Rather than challenging the issues of authority, i.e., *who* makes the decisions and where the buck stops, the focus is shifted to *how* decisions are made, *how* authorities are exercised, and *how* resources are utilized. The captain/surgeon still has the final authority. The difference now is, *how* he/she learns to exercise that authority and *how* he/she interacts not only with technologies but with their team members in more subordinate positions and roles. Make sense now?

But wait just a minute Dr Ashley, you will say. I'm the surgeon. I'm the team leader. At the end of the day, I'm the one who has to make the final call, I'm the one who's signature is on the chart and I'm the one who's going to get served if this case goes to court. This is going to weaken and erode my authority!

Well, no, not really. In the days since CRM was instituted in aviation, when crisis events did occur, a strange thing happened. Rather than weakening or eroding the captain's authority, shifting to a more decentralized, team-based model where other team members were empowered and allowed to speak up/give input, the captain 's authority was actually strengthened! Other crew members had knowledge, experience and expertise which now could be shared. The captain was still the captain, but now the whole team had the captain's back! Kind of nice, isn't it?

The second tenet to be translated is the "instrumentalizing" the concept of communication. We tend to think of team communication as a goal-oriented instrumental process which might include some mutual learning as a side benefit. Well, it is, but let's reframe it a little. Rather than wasting time, interrupting workflow, exposing weaknesses, expressing vulnerabilities, or blaming/finger pointing, think about the benefits of good and open communication in your office. Yes, it can be aggravating when

you're in the middle of a procedure and your front office person is calling you because a patient's child is tearing up your waiting room. But your front office person needs to know that it's ok to call if something isn't right; and the author personally knows of such a case where a mother of twins was undergoing an oral surgery procedure, the patient's twins were "destroying" the office waiting room and as a result the assistant discharged the patient home before she was sufficiently recovered. The patient suffered re-narcotization after discharge and ended up having to be transported to the ED when the husband couldn't awaken her. The surgeon had no idea this had happened as the assistant who discharged the patient was told naloxone had been given but didn't understand the implications and discharged the patient because she met discharge criteria. Your staff needs to not be hesitant to communicate; please don't think it's great if your staff think of you as a terrorist or a hard ass. Staff hesitant to "disturb" you for whatever reason are **not** staff who have your back!

The third tenet: training needs to start at the top and include *everyone*. The surgeon is not always the bad guy here, but they do need to be able to set a positive example. If your office is not working harmoniously, if you seem to be spending all your time breaking up catfights, so to speak, if there are problems with office dynamics, don't hesitate to call in help. Firing people, or the whole office in some instances, rarely solves the problem. If you have high turnover in your office, are having to hire a new office manager every year, or are having major issues with strife, you need to do something about it. Teams in name only are not teams, and your patients will suffer because of it. Remember it is patients who pay the price in these circumstances. And team building needs to include *everyone*. Including you. Nobody gets a pass. Nobody. If things are that bad, disciplines can be trained separately before being blended; but at some point, everyone needs to be blended together. What kinds of team building should you do? Well, your author has found that nothing flattens a hierarchy faster than an escape room simulation scenario. You can put the chair of oral surgery in the simulation lab, along with the residency director and three second year residents, and after the first five minutes boy oh boy that hierarchy is so flat it's like it never existed. Trust me, time and money spent on team training is never time or money badly spent.

The fourth tenet is being able to admit error and ask for help. This doesn't seem to be as difficult for newer, younger practitioners, as now so much more is known about team dynamics in healthcare, in addition to changes in malpractice law plus a shift to a more patient-focused as opposed to provider-focused patient care model. However, holdouts still do exist. It can be tough, especially as a solo practitioner or small practice, to discount the effects of personal problems, fatigue and stress can have on professional performance, especially if your practice is a busy one. The medical culture expects us to work 80-hour weeks with little regard for this effect on performance. A study comparing airline pilots to surgeons kind of upheld this. The pilots were amenable to more junior members having input into decision making whereas the surgeons very definitely were not. The absolute worst were attending surgeons in teaching hospitals. This may well reflect traditional attitudes of blaming the individual when any type of problem occurred, as opposed to the system in which the error occurred. Heinrich (1931) observed this upon observing "the occurrence of any job injury invariably results from a complete series of factors, the last one being the accident itself." In other words, fix the system, don't point fingers at individuals. The old joke about the surgeon's ABC of Assess Blame Criticize really needs to die in a fire. Seriously, depersonalize errors. Identify the processes whereby individuals can or do make errors, and streamline them. Errors are consequences, not causes; and are nearly always based in systemic factors. It may be satisfying to blame an individual, but targeting the institution or the environment is a lot more productive. Think of the Swiss Cheese model. It isn't just one slice of cheese. It's their orientation which can cause the holes to line up and an error to slide right through. All of us are prone to errors as we are all human and fallible. A surgical procedure is like a finely crafted ballet. All of it is so proceduralized that everyone in the performance knows and can anticipate what is going to happen; and they know their roles so well and work so well together in a team setting that the show will continue to go on with minimal impact even in the face of the unexpected.

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Management of Impacted Maxillary Canines
David Cummings DDS

Impaction of maxillary and mandibular canines is a frequently encountered clinical problem treated by oral and maxillofacial surgeons. Several clinical questions arise during the clinical planning of these surgeries. What are some common techniques to locate the impacted tooth? Which surgical approach offers the best outcome for an impacted canine that is labially or palatally positioned? Should the surgery be performed as an open or closed exposure? What are the indications for placing a bracket and chain? Which surgical approach will provide the best periodontal outcome once the orthodontic treatment is completed? These are the questions we must ask ourselves every time we are referred to a patient with an impacted canine.

Maxillary canines are the second most common impaction, the first being third molars. The incidence of maxillary canine impaction is most quoted between 1-2.5% but has also been reported as high 13% (1,2). These occur bilaterally in 8.0-10% of the time, with a 2:1 ratio that the impaction will be on the palatal side of the alveolar process. There is also 2:1 female predilection. (3)

What are common etiologies of impacted maxillary canines? The most common are tooth size/arch length discrepancy, prolonged retention or early loss of the primary canine, abnormal position of the tooth bud, the presence of an alveolar cleft, ankylosis, pathology, and dilacerated roots. (3) When congenitally missing a lateral incisor is present there is a 2.4% increase for ectopic eruption of the adjacent canine based on the "guidance theory". (4) The guidance-based theory is that the lateral root surface serves as a guide along which the canine will follow and erupt into the correct position. (3) Systemic diseases such as endocrine deficiencies, febrile diseases and possibly radiation have been also cited in the literature as potential causes of impacted canines. (5) Approximately 85% of palatally impacted maxillary canines have sufficient space for eruption into the dental arch, but only 17% of the facially impacted maxillary canines have sufficient space for eruption; therefore arch length deficiency is thought to be the primary etiologic factor for labial impacted canines. (3)

What are common techniques to determine the position of the impacted canine? Start with a thorough physical examination of the patient, specifically looking for any bulges in the labial vestibule or on the palatal side of the impacted canine. (Photos 1,2) This can provide a good clue of where the tooth is but this is not 100% accurate. The average age of these patients is 14.4 years. (6) At 10 years of age 29% of canines are not palpable, 5% were not palpable at age 11 and 3% thereafter. (7) Imaging is needed to confirm the exact location of the impacted tooth.

Prior to the use of the Cone Beam CT scan, periapical and panoramic radiographs were commonly used with application of the "SLOB" rule to determine the position of the impacted canine. A periapical radiograph is taken perpendicular to the tooth in question and then a second radiograph is taken with the tubehead slightly mesial or distal. The rule simply states that the object image will move in the same direction as the tubehead is moved if it is located on the lingual (**S**ame **L**ingual). Conversely, the object being imaged will move opposite the tubehead if it is located on the buccal (**O**pposite **B**uccal). Today the use of CBCT allows for a more precise three-dimensional compared to the limited two-dimensional view offered by plain film. This allows the surgeon to determine whether the tooth is facial or lingual. It is reported that 41-90 % of impacted canines are located on the palate with an incidence of root resorption of 18.5%. (8) (Photos 3,4,5,6) Mild resorption is easily missed with periapical radiographs so CBCT should be considered to rule this out. In addition, enlargements of the tooth follicles and pathology will also be easier to Visualize with CBCT compared to plain films.

Patients are commonly referred for surgical consultation after interceptive orthodontics has been attempted, but has not erupted in the arch. The most common interceptive treatments include maxillary expansion, extraction of the deciduous canine, or headgear utilization. (6) In order to avoid surgery for their children, most parents often take a wait-and-see approach to see if the tooth will erupt spontaneously. Because of this, orthodontic treatment is often close to completion and the patient and

family are usually motivated to proceed with the surgical procedure to facilitate completion of their orthodontic treatment and get the orthodontics appliances removed.

Once the position of the impacted canine is determined, a decision must be made on the surgical approach for exposure: open versus closed technique. There are multiple studies that have shown no significant difference in periodontal outcomes between an open or closed technique for palatally impacted canines. It has been observed that there is increased pain with the open approach but there is shorter treatment time for bringing the tooth into the arch. (9,10,11) Personally, I prefer the open technique for palatally positioned impacted cuspids (photo 7,8) because of the ease of re-entry access should the bracket falls off prematurely. It has been observed that exposed teeth erupt spontaneously and this phenomenon is attributed to a force within the periodontal tissues that directs the exposed crown towards the area where the tissue has been excised. (12) Should the backet come off in an open technique, the surgeon can opt to not place another bracket with a chain and wait to see if the tooth erupts spontaneously. Placing a periodontal dressing over the open exposure will help maintain an open path for eruption whether a bracket is placed on the tooth or you are performing an open exposure without placing a bracket. (Photo 9) Kokich has published several articles on the autonomous eruption of palatally impacted canines. There are several advantages of an autonomous eruption. First, there is decreased time spent in orthodontic appliances. Second, the author believes that with spontaneous eruption, the roots, and not the crown, will be moving through the bone. This will allow bone to be deposited behind the canine as it moves labially into the arch. Lastly, he notes that when the crown erupts autonomously, the tooth tends to erupt in the palate and not close to the teeth resulting in less root resorption. (13) The disadvantages to an open exposure without bracketing the palatally impacted canines are potential bone defects since it will not deposit bone behind its path. Secondly, he states when an open exposure is performed with early traction there is a potential for root resorption on the lingual of the adjacent lateral incisor. Thirdly, he feels with early traction there is a potential that the canine might not respond to the initially orthodontic force. (13)

What is the best approach for a labially impacted canine? Quirymen concluded there was no negative impact on the periodontal status of either the erupted tooth or the adjacent tooth when using a closed technique. (14) They evaluated the probing depths, gingival recession, bleeding tendency, buccal gingival width and bone loss. In this study he describes his closed technique by using a split thickness flap to where he exposes the crown of the tooth and then etches and bonds a bracket on the labial of the canine. He then apically repositions the flap with the keratinized tissue around the cervical portion of the impacted canine leaving the labial surface with the bracket and chain exposed. (Photo 10) He does state that his findings are in contrast to Becker who noted a statistically significant difference in bone support of the exposed tooth versus the contralateral exposed tooth. (15) Quirymen's article also references that when full exposure of the impacted canine during the surgical intervention resulted in significantly more loss of the attachment at the completion of orthodontic treatment and that his techniques were less invasive and that explains why in his study there were no significant differences. In 2016, Parenti performed a systematic review of the surgical approaches for labially impacted canines. He found excisional uncovering was reported to have a detrimental effect on the periodontium and that apically repositioned flap technique had periodontal outcomes comparable with untreated teeth. (16) Parenti also states there is no study comparing a closed technique with an apically positioned flap for labial positioned impacted canines. Personally, for labially impacted teeth I will use a full thickness flap with bilateral vertical releasing incision to expose the tooth. After etching and bonding the bracket, I will try and reapproximate the vertical releasing incisions back to their original position. (Photos 11,12,13,14).

Complications that can and do arise from surgical exposure of impacted canines include displacement or loss of vitality of the adjacent teeth, arch length discrepancy, dental midline shift, formation of cysts, ankylosis, periodontal defects, infections, pain, internal or external resorption of the canine or adjacent teeth and or a combination of all of these. (6) The average treatment time is 8.1 months but some may be shorter and some maybe longer. (6) To be able to predict the more challenging cases allows you as the practitioner to communicate to the family as to how long it will take for the tooth to come into the arch. How do we know which cases will be the most challenging? Baccetti described the position of impacted canines based on the alpha angle, vertical distance and the mesial sector. (Photo

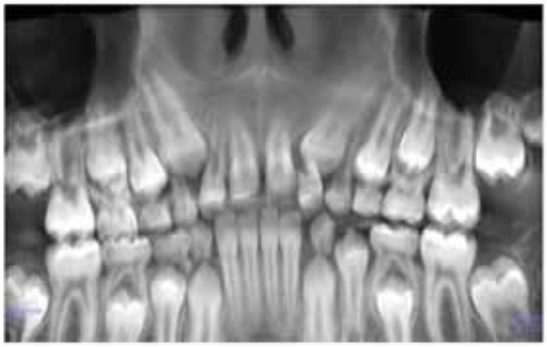
15) The alpha angle is the angle between the long axis of the impacted canine and a vertical line drawn at the midline of the maxillary incisors. The higher the alpha angle the more horizontal the impacted canine is. The vertical distance is the distance from the tip of the impacted canine straight down and perpendicular to the occlusal plane. the bigger the vertical distance the higher the impacted canine is in the palate. Lastly, he described the mesial sector. This refers to where the tip of the impacted canine is in relation in a horizontal plane (i.e. mesial-distal position). The higher the number the further mesial the tip of the impacted cuspid is positioned in the arch. A mesial sector number of 5 means that the tip of the canine is at between teeth 8 and 9. Based on this classification Grisar found that the higher the alpha angle, the higher the vertical position and the more mesial section the impacted canine is positioned, then the longer the treatment time and more risks for complications. (6)

It's prudent for us to let our patients know that if the tooth has not come into the arch or made significant progress that it's best to come back in and reevaluate the situation. I usually tell the family if the tooth is not in the arch in 9- 12 months then it's time to come back in and have the area re-evaluated.

Based on these articles present here, in general an open technique is recommended for palatally positioned impacted canines and closed technique is recommended for most labially impacted canines but more studies are definitely needed.

Photos 1,2, 3, 4






Photos 5, 6


Photos 7, 8


Photos 9, 10


Photos 11, 12


Photos 13,14


Photo 15

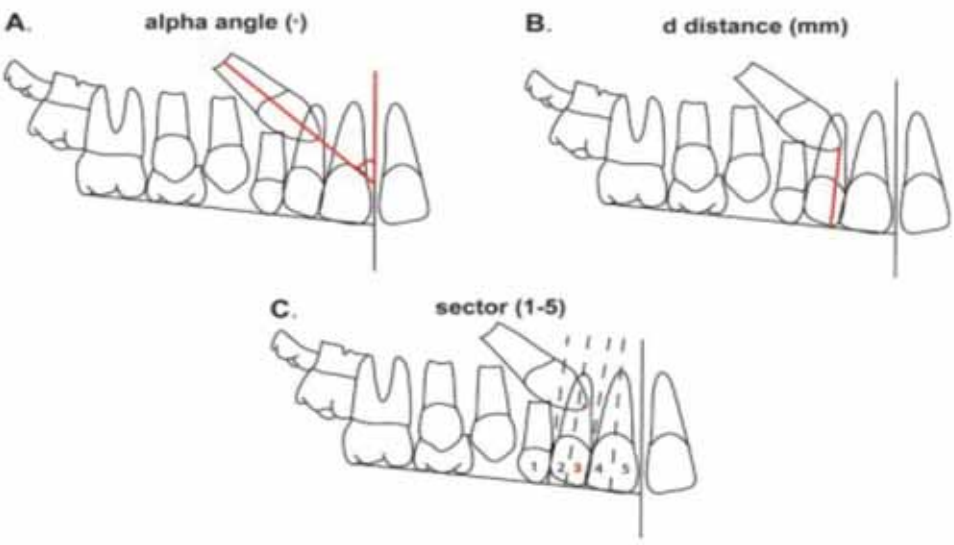


Figure 1 Measurements on panoramic radiographs: (A) alpha angle; (B) *d* distance; (C) sector of displacement (5 areas).

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Risk Associated with Cosmetic Procedures

Managing patient expectations and providing clear, accurate information about care and treatment is an essential risk management strategy for practices. Failure to do so might increase the risk of patient complaints, requests for refunds, and even litigation. The need to manage patient expectations is particularly important when patients seek elective cosmetic treatment.

Oral and Maxillofacial Surgeons (OMS) who provide cosmetic services need to be confident that their patients have a realistic understanding about the results of treatment. Most providers of cosmetic services are aware that litigation may still occur — even when the clinical outcome was satisfactory — because the patient anticipated a different result.

Patient Misperceptions

Several factors contribute to patient misperceptions about cosmetic procedures. First, the desire to maximize one's appearance is a highly emotional issue, and some patients expect that a cosmetic treatment or procedure will make them radiantly beautiful rather than simply address a particular cosmetic challenge.

Second, many cosmetic procedures aren't covered by insurance, so patients must make significant financial investments to obtain these procedures or treatments. As a result, some patients find it difficult to accept the possibility that the results may be less than stellar.

Third, some patients are not merely seeking to improve their appearances; they are really trying to overhaul their identities. When such patients discover that — regardless of the clinical results — they must still deal with the same personal issues, their disappointment may be both illogical and unrelenting.

Finally, the OMS and staff need to be sensitive to the possibility that patients may recall promises and optimistic predictions rather than discussions about risks and limitations. Therefore, the importance of informed consent in the cosmetic environment cannot be overstated.

Promises are Risky

OMS must be especially careful that their advertising and marketing strategies don't promise more than they can deliver. When in the market for "self-improvement," some prospective patients hear only what they want to hear. For this reason, marketing strategies often are designed to promise emotional rather than physical results.

Examples of slogans that perpetuate emotional promises include:

- "Lose years by improving your smile!"
- "A whole new smile — a whole new outlook on life!"
- "Get the appearance you deserve!"
- "Straight teeth — new confidence!"

None of these slogans offer a physical result; rather, they promise an idealized "happy ever after." This type of advertising may draw in potential clients, but it also may attract some people whose vision of change is impossible for even the most talented practitioner to help them achieve.

Continued on Page 16

Advertising and Marketing Liability

OMS should carefully assess all prospective ads, signs, and brochures designed to sell their services. When reviewing these materials, OMS and staff alike should ask the following questions:

- Will this advertisement attract patients who have realistic expectations?
- Will this advertisement require that we achieve an impossibly high standard of care?
- Does the language use superlatives, make promises that are unrealistic, or urge patients to judge the results by emotional rather than clinical standards? Does the language promise or imply absolute satisfaction?
- Do advertisements make critical statements about competitive approaches to the services being offered? Do these comments inadvertently hold the practitioner to a higher standard by comparison?

While advertising motivates a potential client to take action — for example, to buy a particular product or service — marketing strategies generally are designed to trigger initial interest and help individuals identify wants or needs. Marketing materials also may provide reassurance to a client that he/she has made a wise decision, thereby preventing the post decision guilt known as "buyers' remorse."

Those who provide cosmetic services should be careful to distinguish between marketing materials and educational materials. Educational materials should offer patients objective, clear information about the risks and benefits of proposed treatments.

Educational materials are an important component of informed consent. They help patients negotiate the sometimes-difficult process of formulating their questions, and they give OMS the opportunity to clarify and respond to patients' concerns. Liability exposure increases when educational materials are written in terms that maximize the projected outcome of a cosmetic treatment and gloss over its risks.

Further, employees of a cosmetic-focused practice — in their eagerness to contribute to the success of the practice — might inadvertently mislead patients by referring to the OMS' skills or past outcomes with glowing terms that could lead patients to expect the same perfect results, regardless of their individual circumstances.

Practice administration should clarify for all members of the team why particular marketing approaches are acceptable and why other tactics are unacceptable.

Conclusion

Those who market themselves as providers of cosmetic services should be cognizant of the border between a promise of dedicated effort on the patient's behalf and a promise that the patient will achieve a nebulous vision of perfection. Advertising and marketing materials should be reviewed for accuracy and for any unintended commitments or promises that might obligate the OMS to comply with a higher, and perhaps unachievable, standard of care.

Patient education materials should be devoid of marketing hyperbole. Their purpose is to help the patient understand the risks and benefits of a procedure, the treatment plan, and its aftermath, including the patient's obligation to engage in certain home care procedures and follow-up appointments.

Patients will benefit from their OMS' clear vision of what cosmetic procedures might be able to achieve — as well as candid evaluations of what they might not be able to deliver.

MedPro Risk Management Group

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Use of Sublingual Sufentanil (SST) for Sedation in Morbidly Obese Patients Undergoing Dental/Oral Surgery

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Introduction: Traditionally, IV sedation for oral surgery procedures in the office is provided using a mix of benzodiazepines, opioids such as fentanyl, and small doses of propofol and ketamine. IV sedation in the dental office is extremely safe. However, there is always an inherent risk of life-threatening respiratory depression and other adverse events when IV sedatives are used due to their rapid rise in plasma concentration that is often above the minimum analgesic threshold. In particular, the administration of IV opioids such as fentanyl typically produces a rapid rise in the plasma concentration that can cause respiratory depression, especially after repeat "stacking" of doses.

Life-threatening respiratory depression with IV sedation is even more problematic in the morbidly obese. The average BMI continues to increase every year in the United States with over 50% of adults ages 20 and older being overweight (BMI >25) and 34.9% being obese (BMI >30) compared to 33% and 13% respectively, worldwide.[1] Obesity and obstructive sleep apnea (OSA) are known risk factors for complications with anesthesia including difficult airway management, hypoxic events, hemodynamic instability, and overall increased morbidity and mortality rates. [1-4] Thus, with the ever-increasing obesity epidemic and rising demand for dental procedures, there is a pressing need for effective but safe analgesics in the office setting for dental procedures.

Sublingual sufentanil (SST) is a synthetic analogue of fentanyl that also acts as a mu-opioid receptor antagonist. Due to its higher affinity to the mu-receptors, sufentanil is 100 times more potent than fentanyl and 1000 times more potent than morphine. When given IV, sufentanil's peak effects occur in 5 minutes and yet rapid re-distribution and metabolism allow for relatively rapid emergence. [5-6,8-9] However, intravenous sufentanil is not a widely used analgesic because of its high potency and potential for respiratory depression. The 30 mcg dose of SST is absorbed rapidly in the sublingual pocket, but its maximum plasma concentration is dramatically blunted resulting in a gentler, more sustained level of analgesia that lasts approximately 3 hours.

Even though it is more potent, sufentanil has a better safety profile compared to fentanyl. Its therapeutic index is much larger than fentanyl and morphine, making it a more stable and predictable drug to use. In its sublingual formulation, sufentanil provides a smoother, more gradual rise in the plasma concentration that still stays well below the threshold for respiratory depression (approximately 250 pg/ml) but above the analgesic threshold (approximately 25 pg/ml). This makes it even less likely than intravenous sufentanil to result in the respiratory suppression and other post-operative complications.

In this paper, we describe four cases in which SST was used safely and effectively to provide analgesia and sedation in morbidly obese patients undergoing oral surgery procedures in the office setting.

Case 1

A 36-year-old male with history of anxiety and morbid obesity (BMI 46.6) presented to an oral surgeon for wisdom teeth extraction. The patient reported a score of 9/10 anxiety with regards to the procedure. On the day of surgery, the patient's vitals prior to premedication were as follows: Height: 69", weight: 143kg and SpO2 98%. The first dose of SST was administered at 10:54 am and the patient was instructed to allow the tablet to dissolve entirely under the tongue without speaking or swallowing the tablet. Because of the patient's anxiety level and stable vital signs, the patient was administered the second SST at 11:01

am with the same instructions. He was started on supplemental oxygen with nasal cannula at 2 LPM. After the tablet had dissolved entirely at 11:05 am, his was SpO2 99%. The patient received intravenous midazolam in divided doses of 1 to 2 mg for anxiolysis. He ended up receiving a total of 7.5 mg of midazolam. At 11:09 am, the patient reported feeling more relaxed with a SpO2 at 99%. The patient was then given 30 mg of propofol at 11:09 am for sedation to start the surgery. Surgery start time was 11:10 am with the patient's vitals remaining stable with a SpO2 of 99% throughout the procedure. No other medications were administered during or after the procedure. The surgical end time was at 11:32 AM. During the procedure, the patient was responsive, cooperative, required no airway support and appeared comfortable. Upon emergence, the patient reported feeling well without confusion, drowsiness, or pain immediately after the procedure. The patient was discharged in good condition with stable vital signs at 11:45. The oral surgeon rated the quality of the sedation as "excellent." Three days after the procedure, the patient reported being extremely satisfied with his sedation experience.

Case 2

A 36-year-old male with history of thyroid cancer and morbid obesity (BMI 41.6) presented to an oral surgeon for dental extractions and implants. He had a Mallanpati Class 3 airway and a heavy facial beard, and requested moderate to deep sedation for his procedure. The patient's height was 73", weight 143 kg, and his SpO2 on room air was 98%. He was given one dose of SST at 10:21 am. Incremental doses of intravenous midazolam was also administered for a total of 5 mg by 10:30 am. The patient was given supplemental oxygen via nasal cannula at 2 LPM. The patient's SpO2 was stable throughout the procedure, with the nadir being only 96%. For anxiolysis, the patient was given an additional 2 mg of midazolam at 11:00 am and then another 2 mg of midazolam at 11:15 am. Throughout the procedure, the patient was responsive, cooperative and required no airway support. The procedure concluded at 11:45 am and the patient was discharged home at 12: 00 pm. Both the patient and the oral surgeon reported being "extremely satisfied" with the quality of the sedation experience.

Case 3

The patient was a 19-year-old male with autism and morbid obesity (BMI 58.7; height 75"; weight 470 lbs). The oral surgeon requested the assistance of an anesthesiologist to manage the patient's sedation for 3rd molar extractions. The patient would not initially cooperate with IV placement, but was able to tolerate the administration of two tablets of SST at 7:50 am. By 8:00 am, the patient appeared more relaxed and cooperated with IV placement. Incremental doses of intravenous midazolam were then administered, for a total dose of 5 mg. The patient was given supplemental oxygen via nasal cannula at 2 LPM, and was responsive and cooperative throughout the short procedure. He required no airway assistance nor support. The 15-minute procedure proceeded smoothly without incident, and the patient was discharge in good condition 10 minutes after the conclusion of the procedure. The oral surgeon rated the quality of the sedation as "excellent."

Case 4

Patient was a 59-year-old male who presented to his oral surgeon for full mouth extractions and implants. His PMH was significant for coronary artery disease, previous myocardial infarction 13 years earlier with placement of stents, morbid obesity, diabetes mellitus type 2, obstructive sleep apnea, tobacco use, gout, and severe dental anxiety. His height was 67" and weight 315 lbs (BMI 49.3).

On the day of the procedure, the patient was given one dose of SST at 8:50 am. He was also given 2 mg of intravenous midazolam. Supplemental oxygen was provided via nasal cannula at 2 LPM. During the approximately 3.5 hour procedure, the patient was given an additional 5 mg of intravenous midazolam in incremental doses for anxiolysis and amnesia. The patient complained of discomfort at 9:50 am, and another dose of SST was given at that time with good effect. During the entire procedure, the patient was responsive and cooperative. He was able to maintain his own respirations and required no airway

support. His lowest SpO2 during the procedure was 91%, which immediately improved with verbal stimulation. At the end of the procedure, the patient's SpO2 was 96%. He was also given another dose of SST at this time, to help provide analgesia during the conversion and fitting of his implants. He was monitored for another 30 minutes, with stable vital signs and oxygen saturations. He was then discharged from the care of the anesthesiologist. (This is in concurrence with the manufacturer's recommendation to monitor all patients for at least 30 minutes after the last dose of SST has been administered. If the vital signs are stable, they can then be safely discharged.)

Afterwards, both the oral surgeon and patient rated the quality of the sedation as "excellent."

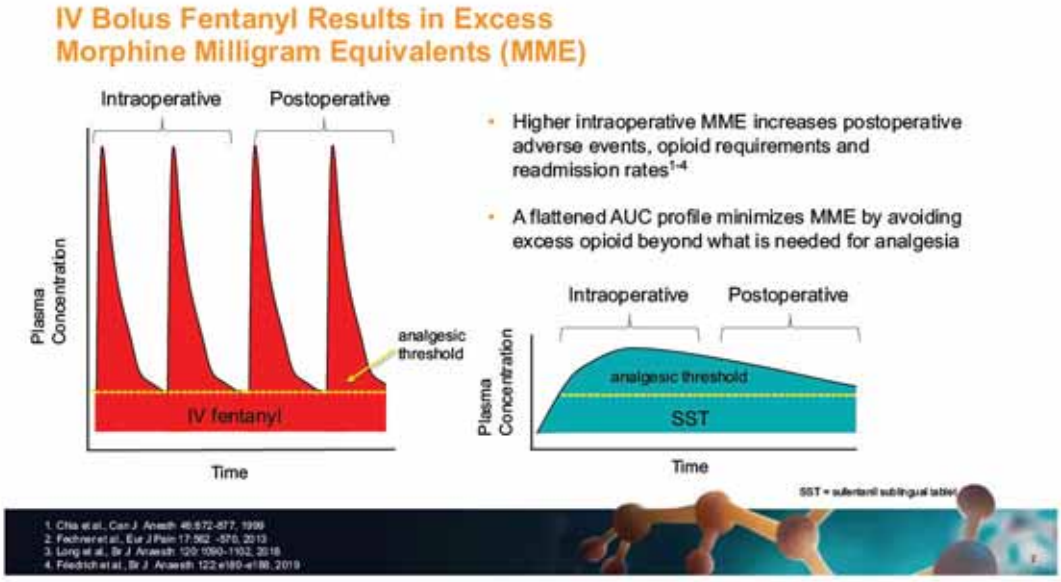
Discussion:

These case reports highlight the safety profile of sublingual sufentanil as an analgesic medication for sedation, particularly in obese adult patients who underwent oral surgery procedures in an office setting.

Obesity is a known risk factor for complications with anesthesia, as many obese patients will also have obstructive sleep apnea, restrictive lung disease, and poor pulmonary reserve. A major concern in this patient population is the use of narcotics for pain control. While opioids continue to be the mainstay adjuvant for analgesia intra- and post-operatively, there is an increased risk of respiratory depression and side effects resulting in atelectasis, pneumonia, and other respiratory complications in patients with increased BMIs. [1,5-6]

Intravenous opioids such as fentanyl result in rapid rise and decline in its plasma concentration, resulting in a labile analgesic pattern that may not fit into the timeline of longer oral surgery procedures. Moreover, intravenous opioids can cloud consciousness, and result in patient agitation and inability to cooperate with the surgeon, especially when IV opioids are combined with other sedatives. These problems can become even more difficult in the morbidly obese patient with a difficult airway.

In contrast, SST results in a more gradual but sustained rise in the plasma concentration level that stays above the analgesic threshold for as long as 3 hours, but also stays well below the threshold of causing life-threatening respiratory depression. (See diagram below taken from the AcelRx website).



In these case reports, we used SST to not only premedicate the patient, but to also help with intra-operative analgesia and post-operative pain

Due to its safer profile, and longer analgesic effects, SST appears to be a safe analgesic for oral surgery procedures in the office setting. This is especially true in the case of obese patients who have a higher risk of complications, mortality, and morbidity when going under sedation due to reasons previously discussed. [1, 5-9] These case report highlights the potential effectiveness of SST for anesthesia and post-operative pain control. In particular, the patient in Case 1 was able to emerge from anesthesia within 4 minutes after the end of surgery. He was coherent and cooperative almost immediately upon waking up and was able to report his comfort levels to the anesthesia team. Patient reported minimal discomfort up to 72 hours after the procedure and was pleasantly surprised at the "smoothness" of his anesthesia experience.

It is important to note that SST is an opioid, and like all other opioids, it can be misused, abused, and has the potential for addiction and life-threatening respiratory depression. Most common side effects include nausea, vomiting, and sedation. The typical dose for the average person, regardless of age or weight, is one sublingual tablet. However, in two of our patients we gave an off-label dose of two sublingual tablets because of either their high level of anxiety or their high BMI.

Of course, the case reports in this paper are anecdotal, not blinded nor randomized, and vulnerable to bias. Randomized, blinded clinical studies will be needed to further determine the efficacy and safety of SST in oral surgery. Nevertheless, SST has potential to be an effective, safe analgesic in oral surgery, especially for morbidly obese patients.

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