REFERENCES

1. Garritty C, El Emam K. Who's using PDAs? Estimates of PDA use by health care providers: a systematic review of surveys. *J Med Internet Res* 2006;8:e7
2. Mc Laughlin P, Neill SO, Fanning N, et al. Emergency CT brain: preliminary interpretation with a tablet device: image quality and diagnostic performance of the Apple iPad. *Emerg Radiol* 2012;19: 127–133
3. Johnson PT, Zimmerman SL, Heath D, et al. The iPad as a mobile device for CT display and interpretation: diagnostic accuracy for identification of pulmonary embolism. *Emerg Radiol* 2012;19:323–327
4. Volonté F, Robert JH, Ratib O, et al. A lung segmentectomy performed with 3D reconstruction images available on the operating table with an iPad. *Interact Cardiovasc Thorac Surg* 2011;12:1066–1068
5. McNulty JP, Ryan JT, Evanoff MG, et al. Flexible image evaluation: iPad versus secondary-class monitors for review of MR spinal emergency cases, a comparative study. *Acad Radiol* 2012;19:1023–1028
6. Choudhri AF, Carr TM 3rd, Ho CP, et al. Handheld device review of abdominal CT for the evaluation of acute appendicitis. *J Digit Imaging* 2012;25:492–496
7. Shintaku WH, Scarbecz M, Venturin JS. Evaluation of interproximal caries using the iPad 2 and a liquid crystal display monitor. *Oral Surg Oral Med Oral Pathol Oral Radiol* 2012;113:e40–e44
8. John S, Poh AC, Lim TC, et al. The iPad tablet computer for mobile on-call radiology diagnosis? Auditing discrepancy in CT and MRI reporting. *J Digit Imaging* 2012;25:628–634
9. Székely A, Talanow R, Bágyi P. Smartphones, tablets and mobile applications for radiology. *Eur J Radiol* 2013;82:829–836
10. Apple.com (homepage on the Internet). Available at: http://www.apple.com/. Accessed February 15, 2014.

Comparison of Different Administration of Ketamine and Intravenous Tramadol Hydrochloride for Postoperative Pain Relief and Sedation After Pediatric Tonsillectomy

Alper Yenigun, MD, Tayfun Et, MD,† Sirin Aytac, MD,† Betul Olcay, MD†*

Objectives: Tonsillectomy is the oldest and most frequently performed surgical procedure practiced by ear, nose, and throat physicians. In this study, our aim was to compare the analgesic effects of peritonsillar, rectal, as well as intravenous infiltration of ketamine and intravenous tramadol hydrochloride infiltration for postoperative pain relief and sedation after tonsillectomy in children.

Materials and Methods: This randomized controlled study evaluated the effects of peritonsillar, intravenous, and rectal infiltration of ketamine in children undergoing adenotonsillectomy. One hundred twenty children who were categorized under American Society of Anesthesiologists classes I to II were randomized to 4 groups of 30 members each. Group 1 received intravenous (IV) ketamine (0.5 mg/kg), group 2 received rectal ketamine (0.5 mg/kg), group 3 received local peritonsillar ketamine (2 mg/kg), and the control group received IV tramadol hydrochloride infiltration (2 mg/kg). Children's Hospital of Eastern Ontario Pain Scale scores and Wilson sedation scale were recorded at minutes 1, 15, 30, 60 as well as hours 2, 12, and 24 postoperatively. The patients were interviewed on the day after the surgery to assess the postoperative pain and sedation.

Results: All the routes of infiltration of ketamine were as effective as those of tramadol hydrochloride ($P > 0.05$). A statistically significant difference was observed between IV infiltrations and all groups during the assessments at hours 6 and 24. The analgesic efficacy of IV ketamine was found especially higher at hours 6 and 24 ($P_6 = 0.045$, $P_{24} = 0.011$).

Conclusions: Perioperative, low-dose IV, rectal, or peritonsillar ketamine infiltration provides efficient pain relief without any adverse effects in children who would undergo adenotonsillectomy.

Key Words: Tonsillectomy, pain, sedation, ketamine, tramadol hydrochloride

From the *Otorhinolaryngology Clinic; and †Anesthesiology and Reanimation Clinic, Karaman State Hospital, Karaman, Turkey.

Received May 15, 2014.
Accepted for publication July 23, 2014.

Address correspondence and reprint requests to Alper Yenigun, MD, Otorhinolaryngology Clinic, Karaman State Hospital, Universite mah. 1984 sok. No:1 Karaman,Turkey; E-mail: alperyenigun@gmail.com

The authors report no conflicts of interest.

ISSN: 1049-2275
DOI: 10.1097/SCS.0000000000001250

Adenoidectomy and/or tonsillectomy are among the oldest and most frequently performed operations in the ear, nose, and throat practice.[1] The postoperative pain after a tonsillectomy operation is of great significance. The tonsillectomy operation causes complications in pediatric patients such as postoperative throat ache, swallowing difficulty, spasm, bleeding, and agitation, thereby affecting the discharge times of patients. Several studies have been performed on the prevention of postoperative pain, and these studies involved the administration of different drugs such as opioids, nonopioids, nonsteroidal anti-inflammatory drugs, steroids, and ketamine as well as intravenous (IV), subcutaneous, intramuscular, rectal, and peritonsillar infiltration.[2–5]

Ketamine is an IV anesthetic agent in the phencyclidine group. Because of its effect as an *N*-methyl-D-aspartate receptor antagonist, it ensures central sensitization and opioid resistance. It binds to the μ receptor in the spinal cord and brain, and it shows an analgesic effect. Ketamine can be administered IV, intramuscularly, epidurally, rectally, and intranasally. When administered at a subanesthetic dose, ketamine ensures postoperative analgesia.[6,7]

Our study compared the effects of different routes of administration of ketamine and IV tramadol hydrochloride infiltration on postoperative analgesia and sedation in pediatric patients who underwent tonsillectomy.

PATIENTS AND METHODS

One hundred twenty patients with an age range of 5 to 15 years and who had tonsillectomy/adenotonsillectomy were included in the study after the approval by the local ethics committee, and written informed consents by their parents were received. The study was conducted on patients who presented to the ear, nose, and throat outpatient clinic.

Those who were categorized under American Society of Anesthesiologists classes higher than class II; those outside the age range of 5 to 15 years; those who had hypertension, psychiatric

TABLE 1. Modified CHEOPS

Score	0	1	2
Cry	No crying	Crying, moaning	Scream
Facial	Smiling	Neutral	Grimace
Verbal	Positive statement	Negative statement	Experiencing pain, another complaint
Torso	Neutral	Variable, taut, upright	Stretched
Legs	Neutral	Kicking	Stretched, continuous move

TABLE 2. Wilson Sedation Scale

Score	Degree of Sedation
1	Fully awake, orientated
2	Lethargic
3	Opens eyes with verbal stimulus
4	Opens eyes with moderate pain
5	Does not respond to moderate pain

TABLE 3. Comparison Among the Groups on the Basis of Age, Weight, Operation Duration, and Anesthesia Duration

	Age, y	Weight	Operation Duration, min	Anesthesia Duration, min
Peritonsillar ketamine	7.40 (3.20)	24.87 (7.01)	32.13 (3.96)	40.33 (3.84)
Rectal ketamine	7.23 (1.92)	23.09 (4.02)	31.27 (6.05)	39.13 (4.96)
IV ketamine	7.67 (2.59)	26.62 (6.71)	31.67 (5.15)	41.18 (3.96)
IV tramadol hydrochloride (control)	6.25 (1.96)	21.17 (4.37)	28.42 (7.13)	38.13 (3.62)
P	0.219	0.011	0.872	0.674

All values are expressed as mean (SD).

One-way ANOVA-Tukey HSD test ($P < 0.05$ compared with the groups).

disorders, chronic pain syndrome, peptic ulcer, as well as emergency cases; those who had hepatic or renal dysfunction as well as musculoskeletal disorder; and those who were known to be allergic to study drugs and had problems in ensuring vascular access were excluded from the study. The patients were divided into 4 groups to check for postoperative analgesia: peritonsillar, rectal, IV ketamine, and IV tramadol hydrochloride. The weights and operation durations of the scanned patients were recorded.

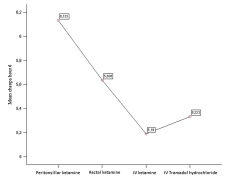

FIGURE 1. The analgesic efficacy of the groups at hours 6.

The anesthesia was maintained with 1% isoflurane, 50% oxygen, and 50% nitric oxide. The IV group received 0.5-mg/kg ketamine during induction; the rectal group, 2-mg/kg ketamine; the tonsillar group, 2-mg/kg ketamine; and the tramadol hydrochloride group, 2-mg/kg tramadol hydrochloride by way of infiltration. Pain levels were evaluated by The Children's Hospital of Eastern Ontario Pain Scale (CHEOPS) established by McGrath et al[8] (Table 1). In this postoperative pain evaluation, behavior scoring (score of crying, facial impression, verbal complaints, position and movement of the body, response when the wound was touched, and whether the child pointed to the wound) was assessed by an experienced observer.[8] The sedative condition was evaluated using the Wilson sedation scale (Table 2).[9] The postoperative values for the CHEOPS at minutes 15, 30, and 60 as well as hours 2, 6, 12, and 24 and for the Wilson sedation scale at minutes 15, 30, and 60 as well as hours 2, 6, 12, and 24 were obtained from the patient files. Postoperative pain and sedation measurements were recorded objectively by a blinded observer.

RESULTS

This study included 120 pediatric patients (52 females [43.3%], 68 males [56.6%]) who were treated in our clinic during June to December 2013. The patients were divided into 4 groups: group 1 (peritonsillar ketamine), group 2 (rectal ketamine), group 3 (IV ketamine), and control group (IV tramadol hydrochloride).

Group 1 consisted of 30 patients with a mean (SD) age of 7.40 (3.20) years. Group 2 consisted of 30 patients with a mean (SD) age of 7.23 (1.92) years. Group 3 included 30 patients with a mean (SD) age of 7.67 (2.59) years. The control group included 30 patients with a mean (SD) age of 6.25 (1.96) years. The Tukey honestly significant difference test results comparing the mean age, weight, operation duration, and anesthesia duration of all groups did not reveal any statistically significant difference ($P > 0.05$) (Table 3).

The groups were found similar in terms of the parameters for recovery after the anesthesia and being discharged from the recovery unit. The groups were found to be similar with respect to the

TABLE 4. Modified CHEOPS Results of the Groups

	Minute 15	Minute 30	Minute 60	Hour 2	Hour 6	Hour 12	Hour 24
Peritonsillar ketamine	7.87 (2.20) ($P = 0.396$)	7.47 (1.92) ($P = 0.467$)	7.13 (1.92) ($P = 0.267$)	6.27 (1.48) ($P = 0.678$)	6.13 (1.59) ($P = 0.428$)	6.07 (1.43) ($P = 0.362$)	5.93 (1.48) ($P = 0.426$)
Rectal ketamine	7.36 (2.12) ($P = 0.285$)	7.09 (1.77) ($P = 0.437$)	6.32 (1.04) ($P = 0.181$)	5.86 (0.88) ($P = 0.492$)	5.64 (0.72) ($P = 0.198$)	5.41 (0.79) ($P = 0.248$)	5.32 (0.78) ($P = 0.248$)
IV ketamine	7.10 (1.44) ($P = 0.105$)	7.76 (1.99) ($P = 0.492$)	6.71 (2.21) ($P = 0.342$)	5.67 (1.19) ($P = 0.433$)	5.19 (1.03) ($P = 0.045$*)	5.19 (0.98) ($P = 0.061$)	4.86 (0.91) ($P = 0.011$*)
IV tramadol hydrochloride (control)	8.50 (2.22) ($P = 0.486$)	8.08 (2.51) ($P = 0.515$)	6.00 (1.31) ($P = 0.415$)	5.83 (0.81) ($P = 0.447$)	5.33 (0.86) ($P = 0.092$)	5.25 (0.94) ($P = 0.181$)	5.08 (0.88) ($P = 0.061$)

*indicates $P < 0.05$.

All values are expressed as mean (SD).

One-way ANOVA-Tukey HSD test ($P < 0.05$ compared with the groups).

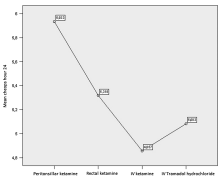

FIGURE 2. The analgesic efficacy of the groups at hours 24.

operation and anesthesia durations, duration between the anesthetic gas discontinuation time and extubation time, duration between the extubation and admission to the recovery room, and durations for being discharged from the recovery room. Postoperative complications were not developed in all groups.

No other significant differences were identified among the groups with respect to the systolic arterial pressure, diastolic arterial pressure, mean arterial pressure, heart rate, peripheral oxygen saturation, and respiratory count.

On the basis of a comparison among the groups based on the CHEOPS, no statistically significant differences were identified among the values measured at minutes 15, 30, and 60 as well as hours 2 and 12 ($P > 0.05$). All the routes of infiltration of ketamine were as effective as those of tramadol hydrochloride. A statistically significant difference was observed between IV infiltrations and all groups during the assessments at hours 6 and 24. The analgesic efficacy of IV ketamine was found especially higher at hours 6 and 24 ($P_6 = 0.045$, $P_{24} = 0.011$) (Table 4) (Figs. 1, 2). No significant differences were seen among the groups with respect to the Wilson sedation scales ($P > 0.05$) (Table 5).

STATISTICAL ANALYSIS

Statistical analysis was carried out using the Statistical Package for the Social Sciences version 13.0 software for Windows (SPSS Inc, Chicago, IL). All quantitative variables were estimated using measures of central location (ie, mean and median) and measures of dispersion (ie, standard deviation). The data were specified as mean (SD). To compare the data, the 1-way analysis of variance (ANOVA) Tukey HSD test was used. $P < 0.05$ was considered statistically significant.

DISCUSSION

Postoperative analgesia has a very important role in tonsillectomy operation: insufficient analgesia causes complications such as postoperative throat ache, swallowing difficulty, aspiration, delayed discharge, and spasm, whereas the morphine and opioids administered for effective analgesia result in complications including postoperative respiratory depression and desaturation.[10] Rosen et al[11] found in their study that the rate of postoperative obstructive sleep apnea was approximately 30% and that it required reintubation and reventilation. This rate is increased, especially after midazolam is injected for premedication and morphine is administered for postoperative analgesia.[12] The potential effect of ketamine is not as high as that of morphine; however, it causes less addiction as well as respiratory depression and does not pose a serious toxicity risk. However, it causes increase in nausea, vomiting, dizziness, sweating, anaphylactic reaction, and intracranial pressure.[6,7] Tramadol has an agonist effect as an opioid; it also has a higher effect on μ receptor and a lower effect on κ and σ receptors. It prevents the reuptake of serotonin and norepinephrine, thereby creating an analgesic effect.[2,13–15]

In our study, no differences were seen among all ketamine groups and tramadol hydrochloride group in terms of postoperative recovery on the basis of the Wilson sedation scoring and no obstructive sleep apnea has been observed. The fact that obstructive sleep apnea is not observed with ketamine administrations results in ketamine being seen as an alternative approach for postoperative analgesia.

Paracetamol is preferred for analgesic purposes, yet it does not provide enough analgesia when used alone. Nonsteroidal antiinflammatory drugs may provide effective analgesia; however, it may increase the risk for hemorrhage and the patient may be reoperated on to control the hemorrhage.[16,17]

As an *N*-methyl-D-aspartate receptor antagonist, ketamine reduces the need for postanesthetic analgesia at subanesthetic dose.[18] Aspinall and Mayor et al[19] conducted a study with 0.5-mg IV ketamine where they found that it reduced postoperative pain and did not increase the frequency of adverse effects.

Dal et al[4] found in their study that peritonsillar ketamine infiltrated for postoperative analgesia had a more significant effect as compared with the control group that received IV ketamine. Honarmand et al[20] identified in their study that peritonsillar ketamine ensured effective postoperative analgesia without causing any adverse effects.

Our study found no statistical differences among the peritonsillar, rectal, and IV infiltrations of ketamine and IV administration of tramadol hydrochloride; however, a significant difference was present at hours 6 and 24 between the peritonsillar ketamine and IV ketamine administrations. The analgesic efficacy of IV ketamine was found especially higher at hours 6 and 24 ($P < 0.005$) (Figs. 1, 2). No differences were found between the rectal and IV ketamine groups; however, IV infiltration may be preferred to the other routes on account of the ease of administration.

CONCLUSIONS

In our study, different ketamine administrations were compared with tramadol hydrochloride and they created the same analgesic effect. Ketamine and tramadol hydrochloride were found to be equally effective in terms of sedation scoring, and no complications

TABLE 5. Wilson Sedation Scale Results of the Groups

	Minute 15	Minute 30	Minute 60	Hour 2	Hour 6	Hour 12	Hour 24
Peritonsillar ketamine	2.13 (1.06) ($P = 0.622$)	1.93 (0.96) ($P = 0.712$)	1.27 (0.70) ($P = 0.801$)	1.00 (0.00) ($P = 0.906$)	1.00 (0.00) ($P > 0.05$)	1.00 (0.00) ($P > 0.05$)	1.00 (0.00) ($P > 0.05$)
Rectal ketamine	2.14 (0.99) ($P = 0.596$)	1.59 (0.85) ($P = 0.584$)	1.14 (0.46) ($P = 0.793$)	1.05 (0.21) ($P > 0.05$)	1.00 (0.00) ($P > 0.05$)	1.00 (0.00) ($P > 0.05$)	1.00 (0.00) ($P > 0.05$)
IV ketamine	1.90 (0.83) ($P = 0.396$)	1.76 (0.83) ($P = 0.692$)	1.38 (0.74) ($P = 0.812$)	1.00 (0.00) ($P = 0.906$)	1.00 (0.00) ($P > 0.05$)	1.00 (0.00) ($P = 0.061$)	1.00 (0.00) ($P > 0.05$)
IV tramadol hydrochloride (control)	2.17 (0.70) ($P = 0.688$)	1.67 (0.63) ($P = 0.595$)	1.17 (0.38) ($P = 0.795$)	1.00 (0.00) ($P = 0.906$)	1.00 (0.00) ($P > 0.05$)	1.00 (0.00) ($P > 0.05$)	1.00 (0.00) ($P > 0.05$)

All values are expressed as mean (SD).

One-way ANOVA-Tukey HSD test ($P < 0.05$ compared with the groups).

developed. It is seen as an advantage that ketamine can be administered in different routes at analgesic dosage and has a low incidence of adverse effects. Ketamine is considered as an alternative for administration to postoperative analgesic drugs such as the opioids, nonopioids, and nonsteroidal anti-inflammatory drugs.

REFERENCES

1. McNeill RA. A history of tonsillectomy: two millenia of trauma, haemorrhage and controversy. *Ulster Med J* 1960;29:59–63
2. Ugur MB, Yilmaz M, Altunkaya H, et al. Effect of intramuscular and peritonsillar injection of tramadol before tonsillectomy: a double blind randomized, placebo-controlled clinical trial. *Int J Pediatr Otorhinolaryngol* 2008;72:241–248
3. Engelhardt T, Steel E, Johnston G, et al. Tramadol for pain relief in children undergoing tonsillectomy; a comparison with morphine. *Paediatr Anaesth* 2003;13:249–252
4. Dal D, Celebi N, Elvan EG, et al. The efficacy of intravenous or peritonsillar infiltration of ketamine for postoperative in children following adenotonsillectomy. *Paediatr Anaesth* 2007;17:263–269
5. Umuroglu T, Eti Z, Ciftci H, et al. Analgesia for adenotonsillectomy in children: a comparison of morphine, ketamine, and tramadol. *Paediatr Anaesth* 2004;14:568–573
6. Aydin ON, Ugur B, Ozgun S, et al. Pain prevention with intraoperative ketamine in outpatient children undergoing tonsillectomy or tonsillectomy and adenotomy. *J Clin Anesth* 2007;71:735–739
7. Murray WB, Yankelowitz SM, le Roux M, et al. Prevention of post-tonsillectomy pain with analgesic doses of ketamine. *S Afr Med J* 1987;72:839–842
8. McGrath PJ, Johnson G, Goodman JT, et al. CHEOPS: a behavioral scale for rating postoperative pain in children. In: Fields HL, Dubner R, Cervero F, eds. *Advances in Pain Research and Therapy.* Vol. 9. New York: Raven Press, 1985:395–402
9. Kakinohana M, Sugahara K. Level of consciousness affects the excitability of spinal motor neurones during propofol sedation in humans. *Br J Anaesth* 2006;742–746
10. Warwick JP, Mason DG. Obstructive sleep apnoea syndrome in children. *Anaesthesia* 1998;53:571–579
11. Rosen GM, Muckle RP, Mahowald MW, et al. Postoperative respiratory compromise in children with obstructive sleep apnea syndrome: can it be anticipated? *Pediatrics* 1994;93:784–788
12. Negus BH, Street NE. Midazolam-opioid combination and postoperative upper airway obstruction in children. *Anaesth Intensive Care* 1995;2:232–233
13. Atef A, Fawaz AA. Peritonsillar infiltration with tramadol improves pediatric tonsillectomy pain. *Eur Arch Otorhinolaryngol* 2008;265:571–574
14. Akbay BK, Yildizbas S, Guclu E, et al. Analgesic efficacy of topical tramadol in the control of postoperative pain in children after tonsillectomy. *J Anesth* 2010;24:705–708
15. Akkaya T, Bedirli N, Ceylan T, et al. Comparison of intravenous and peritonsillar infiltration of tramadol for postoperative pain relief in children following adenotonsillectomy. *Eur J Anaesthesiol* 2009;26: 333–337
16. Romsing J, Ostergaard D, Drozdziewicz D, et al. Diclofenac or acetaminophen for analgesia in paediatric tonsillectomy outpatients. *Acta Anaesthesiol Scand* 2000;44:291–295
17. Mather SJ, Peutrell JM. Postoperative morphine requirements, nausea and vomiting following anaesthesia for tonsillectomy. Comparison of intravenous morphine and non-opioid analgesic techniques. *Paediatr Anaesth* 1995;5:185–188
18. Schnabel A, Zahn PK, Pogatzki-Zahn EM. Use of ketamine in children—what are the next steps? *Anaesth* 2011;21:1080
19. Aspinall RL, Mayor A. A prospective randomized controlled study of the efficacy of ketamine for postoperative pain relief in children after tonsillectomy. *Paediatr Anaesth* 2001;11:333–336
20. Honarmand A, Safavi MR, Jamshidi M. The preventative analgesic effect of preincisional peritonsillar infiltration of two low doses ketamin for postoperative pain relief in children following adenotonsillectomy. A randomized, double-blind, placebo-controlled study. *Paediatr Anaesth* 2008;18:508–514

Modified Fixation of Acrylic Cranioplasty in the Setting of Titanium Allergy

Jeremy C. Sinkin, MD, Sara Loftin, MS,† Stephen B. Baker, MD, DDS**

Abstract: Cranioplasty can be performed using a number of materials ranging from autologous tissue to metallic or acrylic alloplastic implants. In this report, we present a unique case of revision cranioplasty in a patient with titanium allergy using a prefabricated, custom-made polymethylmethacrylate implant and a modified fixation technique without plates or screws.

Key Words: Revision cranioplasty, polymethylmethacrylate, methylmethacrylate, fixation, titanium allergy

Cranioplasty can be performed for calvarial defects resulting from numerous etiologies. The goal of cranioplasty in all cases is to preserve the rigid and protective integrity of the calvarium and restore aesthetic contour of the scalp while minimizing morbidity and potential complications. Many options for calvarial reconstruction exist, ranging from the use of autologous bone, to metallic or acrylic implants, to allograft. Although autologous bone graft remains the criterion standard for cranioplasty, alloplastic materials have been shown to be safe and effective.[1,2]

One potential complication arising from the use of alloplastic material in cranioplasty is hypersensitivity. Hypersensitivity to titanium or nickel precludes their use as implantable material, either as a cranioplasty mesh, or as plate and screw fixation of autologous bone or an alloplastic plate.

In this report, we present a unique case of revision cranioplasty in an individual with titanium allergy, using a prefabricated, custom-made polymethylmethacrylate (PMMA) implant secured only with fresh resin methylmethacrylate (MMA).

CLINICAL REPORT

A 65-year-old Asian-American woman with a surgical history of right occipital craniotomy and cranioplasty for acoustic neuroma presented with suspected symptoms of delayed hypersensitivity reaction to the titanium mesh used to repair her calvarial defect years prior. The patient complained of chronic suboccipital headaches, swelling of her scalp, and a diffuse rash, which led her to seek treatment. The hypersensitivity to titanium was confirmed on patch testing

From the *Department of Plastic Surgery, Medstar Georgetown University Hospital, and †School of Medicine, Georgetown University, Washington, DC.
Received May 21, 2014.
Accepted for publication July 31, 2014.
Address correspondence and reprint requests to Stephen B. Baker, MD, DDS, Department of Plastic Surgery, Medstar Georgetown University Hospital, First Floor, PHC Bldg, 3800 Reservoir Rd, NW Washington, DC 20007; E-mail: sbb6@gunet.georgetown.edu
The authors report no conflicts of interest.

ISSN: 1049-2275
DOI: 10.1097/SCS.0000000000001253