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Where was NYSDA when E-Prescribing was Passed?

Turns out NYSDA did all it could to help its members survive the e-prescribing mandate.

On a recent call to a colleague concerning a patient’s treatment, the topic of mandatory e-prescribing came up. While the dentist was prepared for the e-prescribing mandate, she questioned why NYSDA hadn’t tried to get an exception for dentists who do not prescribe opioids but do prescribe other, non-controlled drugs. Why do these dentists need to e-prescribe, she asked. Being an orthodontist, I could relate to her question, as I haven’t prescribed opioids in decades. In fact, I can’t remember the last time I prescribed any drugs for my patients. If I prescribe anything, it is usually a fluoridated mouthrinse, or a super-fluoridated toothpaste. Once in a great while, I may prescribe an antibiotic for an oral infection from an imbedded wire.

I tried to explain to her that NYSDA did everything it could to get an exemption for dentists from the electronic prescribing mandate. Unfortunately, with medicine moving into the technological age, not having such a weapon in our arsenal, would make dentists look like Luddites trying to stop the Industrial Revolution. It just couldn’t be done. She wasn’t buying my arguments.

I know it seems like a simple thing to do. If you don’t prescribe controlled substances, you should be exempt from needing to submit prescriptions electronically, as was done when amalgam separators were made mandatory. Certain specialties were exempted from needing to install separators on their water lines because they neither used amalgam nor removed amalgam from teeth. Unfortunately, there was no such exemption for e-prescribing.

Electronic prescribing was part of the I-Stop legislation passed in 2012. Gov. Andrew Cuomo signed this legislation in an effort to get opioid abuse under control in New York State. At the time the bill was passed, the electronic prescribing deadline was established as March 27, 2015. Because medical and dental practices were slow to adopt electronic prescribing, NYSDA, working with other health care entities, was successful in delaying the deadline for one year, to March 27, 2016. That date will have come and gone by the time you read this. It is hoped that everyone now has an electronic prescribing program in place in his or her office.

NYSDA did try to get dentistry exempted from the e-prescribing provision of the I-Stop legislation, arguing that the profession was not a major player in the opioid abuse problem in New York State. Unfortunately, facts did not bear this out. It seems dentistry is a major player; one legislator went so far as to label dentistry the poster child for opioid abuse. Even the pharmacy community backed up his contention, with statistics on over prescribing by dentists—not a good position to be in when asking for an exemption.

Gov. Cuomo wanted the rest of the country to know that New York State is the leader in trying to get a handle on opioid abuse. It is the only state in the country with mandatory e-prescribing. The governor also wants to position New York as a center for advanced health technology development, including creating SHIN-NY (Statewide Health Information Network of New York).
Information Network for New York), an interoperable health information exchange network.

My editorial in the January 2015 Journal spoke to electronic prescribing. In that editorial, I related my wife’s difficulties in getting prescriptions filled because of delays in mailing her prescriptions to the pharmacy. E-prescribing would eliminate that delay and enable my wife to get her medications in a timely manner. For anyone suffering from chronic pain, a delay in medication can be devastating; the pain saps your energy and your mental willpower. Seeing its effects firsthand has made me much more aware of how disabling chronic pain is.

E-prescribing will also hold down mistakes in prescribing. Since the pharmacist will no longer have to decipher handwriting, the correct prescription can be dispensed. This will protect patients from unnecessary mistakes and improve their treatment and health.

NYSDA was instrumental in securing an e-prescribing software solution for its members through Henry Schein. Members can obtain the software at a discounted rate. If you don’t prescribe controlled substances, prescribe infrequently and don’t want to pay a monthly fee to do so, you can obtain a free solution elsewhere.

NYSDA has been on top of the e-prescribing situation since passage of the I-Stop legislation in 2012. It has been the subject of several articles published in The Journal aimed at helping members get positioned to comply with the law. Most of the January 2015 issue was devoted to e-prescribing.

So, for my colleague who thought NYSDA should have done more, I hope this helps you realize NYSDA did what it could, as it always does. There was no stopping the I-Stop train and, since e-prescribing was an integral part of that legislation, no derailing the mandate. We were successful in delaying its implementation for one year. And we were able to secure reasonably priced e-prescribing software.

The I-Stop legislation is succeeding in reducing prescription opioid abuse and doctor shopping. And NYSDA continues to work on behalf of its members—another reason why the Association is so important to all of us. We should be thankful for those who work on our behalf to the betterment of our practice lives.

Kevin J. Hanley, D.D.S.
A Survey of Oral Cancer Screening Insurance Coverage in New York City


ABSTRACT
Clinical studies show that fewer than 25% of people who visit a dentist regularly are screened for oral cancer, and that the majority of oral cancers present at an advanced stage, when cure rates are already abysmal. This study explores the current status of oral cancer screening coverage among a variety of insurance providers in New York City. The study focuses on determining the coverage and frequency of the cluster of salient CDT (dental) codes surrounding oral cancer screenings.

Oral and pharyngeal cancer is the eighth most common cancer for U.S males, estimated to result in approximately 8,390 deaths in 2014 alone. Even when lifesaving, treatment often involves surgery and can be debilitating, resulting in disfigurement, difficulty with speaking and eating, and a reduced quality of life. The disease stage at diagnosis is highly correlated with the survival and treatment morbidity of oral cancer. While the five-year survival rate for cancers diagnosed at a more advanced stage is only 36%, this improves to 83% for early stage localized cancers. However, the majority of oral cancers (about 70% by some estimates) are past this localized stage when diagnosed, resulting in an overall five-year survival rate of only 63%.

Health insurance status has been shown to be strongly associated with the stage of cancer at time of diagnosis. Uninsured patients were found to be 1.37-times more likely than patients with private health insurance to have advanced oropharyngeal cancer at diagnosis, and had twice the odds of presenting with the greatest degree of node involvement. Another study examining the impact of dental insurance status found similar results, with a positive association between dental insurance status and regularity of dental visits, and nine-times higher odds of being diagnosed at a higher stage of cancer for patients who reported infrequent or fewer dental visits compared to those who reported regular dental visits.

Having health insurance may be important because of increased opportunities for clinical detection of oral cancer during regular dental visits and improved health care access to seek attention for early signs and symptoms. However, fewer than 10% of patients who visited a dentist report receiving an oral cancer screening. It is possible that the low rates of oral cancer screenings and risk assessments reflect the lack of insurance coverage for these procedures. In a recent qualitative study, general dentists in Puerto Rico reported delaying biopsy referrals for suspected cancer lesions because of perceived financial disincentives to themselves under the government-issued health insurance, underscoring the importance of insurance coverage as a financial incentive for both dentists and patients to perform and request an opportunistic oral cancer screening.

Previous studies have shown that increased insurance coverage of preventive services is associated with an increase in the utilization of these services. Little is known about the current state of insurance coverage of oral cancer-related screenings and procedures. This report seeks to survey the coverage of oral cancer-related screening procedures in a convenience sample of in-
surance plans. We hypothesize that the coverage of oral cancer screening-related procedures is disappointingly low. Because of the importance of risk reduction and early detection, we include procedures, such as adjunct diagnostic procedures, oral cancer risk assessments and preventive counseling for tobacco.

**Materials and Methods**

We looked through all the dental procedure codes (CDT codes) in the CDT 2014 published by the American Dental Association,9 a reference manual that sets the national terminology for dental services on claims submitted to third-party payers. We initially identified 29 CDT codes relevant to the prevention of and screening for oral cancer. But to reduce respondent burden during the phone interviews, we further narrowed it down to six codes of interest, ranging from tobacco cessation counseling to adjunctive techniques (Table 1). These codes primarily deal with procedures that might be considered and/or conducted in clinical scenarios before a histopathologic biopsy, the gold standard for diagnosis of oral cancer, is warranted. Collection of saliva and the analysis that follows are emerging as highly effective tools in screening for predisposition to or presence of oral cancer.19-20 Genetic testing to determine susceptibility if performed more often could also alert patients who are at high risk.

As more than 90% of oral cancers are squamous cell carcinomas, with the known etiological factors of tobacco and alcohol usage,10 tobacco counseling to encourage patients to quit smoking is of utmost importance in preventing oral cancer. Brush biopsies are among the most effective ways to screen suspicious sites for oral cancer.18 For each procedure, information on coverage (Yes/No), percentage of procedure cost reimbursed and frequency of coverage (once every X number of months) was obtained.

Details on policy coverage are not publicly available, and insurance companies will only release information over the phone regarding specific code coverage to dental providers inquiring about coverage for a specific patient. Therefore, the data for this study were collected through phone calls made to insurance company representatives while inquiring about the coverage of select patients.

We visited a private dental office in Midtown Manhattan (zip code 10017) to carry out the data collection. We decided to collect data on the following providers of PPO (preferred provider organization) dental insurance plans: Delta, Guardian, Metlife, Aetna and Cigna. These companies are the biggest providers of PPO dental insurance to employers nationwide. We selected a sample of between two and five patients for each insurance company. We chose to call about multiple patients under the same insurance company, because insurance companies tend to offer slightly different plans depending upon the patient’s employer.

A researcher then placed phone calls to insurance companies to inquire about coverage of the codes of interest. The researcher never came in contact with identifying patient information in an effort to maintain the office’s patient confidentiality. The office staff was able to provide de-identified insurance identification numbers to the researcher to call and inquire about. We also inquired if the coverage would be the same for an in-network or out-of-network office for that plan. We had a response rate of 100% and successfully collected data on a total of 20 insurance plans (N=20).

**Results**

Our findings were consistent with our initial hypothesis. Coverage for our selected codes was overall very poor, with the exception of the brush biopsy, which was covered in 10 out of 20 of the companies called. Direct immunofluorescence, tobacco counseling and saliva analysis were not covered by any of the insurance providers (Table 2).

---

**TABLE 1**

Selected CDT Codes Relevant to Oral Cancer Prevention and Screening

<table>
<thead>
<tr>
<th>CDT Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D0417</td>
<td>Collection and preparation of saliva sample for laboratory diagnostic testing</td>
</tr>
<tr>
<td>D0418</td>
<td>Analysis of saliva sample</td>
</tr>
<tr>
<td>D0421</td>
<td>Genetic test for susceptibility to oral diseases</td>
</tr>
<tr>
<td>D0482</td>
<td>Direct immunofluorescence</td>
</tr>
<tr>
<td>D1320</td>
<td>Tobacco counseling for control and prevention of oral disease</td>
</tr>
<tr>
<td>D7288</td>
<td>Brush biopsy – transepithelial sample collection</td>
</tr>
</tbody>
</table>

**TABLE 2**

Proportion of Insurance plans (N=20) Surveyed that Cover Selected Codes

<table>
<thead>
<tr>
<th>CDT Code</th>
<th>% Coverage (% providers covered / Total providers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D0417</td>
<td>28% (5/20)</td>
</tr>
<tr>
<td>D0418</td>
<td>6% (1/20)</td>
</tr>
<tr>
<td>D0421</td>
<td>27% (5/20)</td>
</tr>
<tr>
<td>D0482</td>
<td>0% (0/20)</td>
</tr>
<tr>
<td>D1320</td>
<td>0% (0/20)</td>
</tr>
<tr>
<td>D7288</td>
<td>60% (12/20)</td>
</tr>
</tbody>
</table>
Certain providers offered better coverage for screenings than others. Provider A not only covered the most procedures (three out of five), it also offered the highest degree of coverage (80% to 100%). Coverage was mostly consistent across the different employer-sponsored plans under the same insurance provider (Table 3).

Company A’s coverage for brush biopsy and saliva collection was only once every 24 months (or two years) and once every 60 months (or five years), respectively. This was comparable to the frequency of coverage for the plans from companies D and E, which covered brush biopsy too. Companies B and C, surprisingly, offered unlimited frequency of coverage for saliva analysis and brush biopsy in the plans that had coverage. Companies B and C hardly offered any coverage at all, and had nothing to offer for even the biopsy. It is also important to note that all the results were the same for dentists participating in a provider’s PPO plan or for dentists who are considered out-of-network, and the results were not exceptionally poor because the study clinic was out-of-network.

**Discussion**
These results paint a clear picture of the current status of insurance coverage for oral cancer screening and prevention. Even among a variety of insurance plans, coverage for the most basic type of oral cancer prevention, such as tobacco counseling, is nonexistent. The data indicates that what is covered and what is not may be arbitrary, or at least not fully understandable or transparent, as in the example of Company A, which unlike most other companies, covers collection and preparation of saliva while ignoring the analysis of the saliva sample.

**TABLE 3**
Coverage and Extent of Coverage for Selected CDT Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Company A</th>
<th>Company B</th>
<th>Company C</th>
<th>Company D</th>
<th>Company E</th>
</tr>
</thead>
<tbody>
<tr>
<td>D0417</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>80%</td>
<td>80%</td>
</tr>
<tr>
<td>Collection and prep of saliva</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D0418</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>80%</td>
</tr>
<tr>
<td>Saliva analysis</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D0421</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>80%</td>
<td>80%</td>
</tr>
<tr>
<td>Genetic testing</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D0482</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Direct immunofluorescence</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D1320</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tobacco counseling</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D7288</td>
<td>100%</td>
<td>80%</td>
<td>80%</td>
<td>80%</td>
<td>80%</td>
</tr>
<tr>
<td>Brush biopsy</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* Each column represents different employer insurance company provides insurance to.

(-) = No coverage

**TABLE 4**
Frequency of Coverage of Selected Procedures

<table>
<thead>
<tr>
<th>Code</th>
<th>Company A (1/x months)</th>
<th>Company B</th>
<th>Company C</th>
<th>Company D</th>
<th>Company E</th>
</tr>
</thead>
<tbody>
<tr>
<td>D0417</td>
<td>1/60 1/60 1/60 1/60 1/60</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Collection and prep of saliva</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D0418</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>UNL</td>
</tr>
<tr>
<td>Saliva analysis</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D0421</td>
<td>once once once once once</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Genetic testing</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D0482</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Direct immunofluorescence</td>
<td>-</td>
<td>-</td>
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<td>-</td>
<td>-</td>
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<tr>
<td>D1320</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tobacco counseling</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D7288</td>
<td>1/24 1/24 1/24 1/24 1/24</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Brush biopsy</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

+ UNL = Unlimited
Although more research is needed regarding the clinical efficacy of some of the procedures listed,\textsuperscript{11} it has been proposed by others that the use of adjunct diagnostics nevertheless helps improve awareness of oral cancer by both dentist and patients and may improve the diagnostic ability of the dentist.\textsuperscript{11,12} Histopathological biopsy remains the gold standard. But in patients with fear of biopsies and in whom the area of suspicion is minute, such adjunctive techniques may be useful before further, potentially uncomfortable investigation.

Perhaps more worrying is that the results show that despite tobacco control being a preventive procedure unequivocally supported by the WHO\textsuperscript{13} and National Institute of Health\textsuperscript{10} in the prevention of oral cancer, and a Cochrane systematic review showing good efficacy of such interventions in the dental setting,\textsuperscript{14} tobacco cessation counseling is not covered by any of the plans surveyed. In addition, increasing “the proportion of adults who received information from a dentist or dental hygienist focusing on reducing tobacco use or smoking cessation in the past year” is also a developmental Oral Health Objective (OH-14.1) of Healthy People 2020,\textsuperscript{15} and yet, the U.S.-based insurance plans that we surveyed do not reimburse such services.

A recent U.S. study found that while informants from large dental insurance companies felt that tobacco cessation was important and an “expected and necessary component of the dentists’ professional responsibility,” few reported providing reimbursement for tobacco cessation services, with some stating that such services are reimbursed as part of the periodic comprehensive oral examination.\textsuperscript{16} We disagree with this sentiment, as while risk assessment for oral cancer or tobacco usage may be justified as being part of a comprehensive oral examination and detailed medical history taking, tobacco counseling, if to be effective, requires multiple visits and additional clinical time and effort on the part of the dentist.

Some limitations of our study include a small sample size, a non-random targeted sampling strategy, a limited selection of CDT codes and the lack of inclusion of possible CPT (medical) codes that oral cancer screening and prevention procedures may be claimed under. We have chosen not to determine coverage for screening-related CPT codes under medical insurance because dentists do not routinely file for reimbursements this way. Most generalist offices claim solely from insurance companies using CDT codes and are not trained to deal with medical insurances. Despite our small sample, the consistency of lack of coverage in the plans surveyed is a strong indicator of the state of the coverage in general.
In conclusion, oral cancer screening and preventive procedures are not adequately covered by dental insurance plans. Reimbursement of these procedures may encourage dentists to use these procedures more routinely and frequently, possibly detecting lesions at an early stage, or even preventing oral cancer through tobacco cessation. At the very minimum, coverage of tobacco cessation advice should be mandatory. It is up to the dental profession and patients to advocate for its importance and inclusion.

Queries about this article can be sent to Dr. Zavras at zavras@bu.edu.

REFERENCES

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Treatment of Parotid Sialocele after Sustaining a Facial Injury

Case Report and Literature Review


ABSTRACT
We are presenting the case of a patient who developed a parotid sialocele after sustaining a facial injury. The patient was treated by creating a controlled intraoral fistula that drained saliva into the oral cavity and led to resolution of the sialocele. Articles were reviewed for discussion of current treatment methods in managing parotid sialocele and fistula. The articles reported successful management of parotid sialocele and fistula using both nonsurgical and surgical methods. Treatment depends upon the location of the injury (ductal injury vs. parenchymal injury) and the time of treatment (delayed vs. immediate).

Parotid gland and ductal injuries can occur from trauma, iatrogenic injury or viral/bacterial infection of the parotid gland. Injury to the parotid gland or duct that is left untreated may lead to the formation of a sialocele or salivary fistula and can be difficult to treat. A sialocele is an extravasation of saliva into the surrounding tissue from an injured parotid parenchyma or duct; the resulting swelling is usually soft and fluctuant. Unless secondarily infected, the patient usually has no pain, fever, chills or erythema of the overlying skin. A parotid fistula occurs when the extravasated saliva perforates through the skin. To prevent the occurrence of a sialocele or parotid fistula, an early clinical exam with a high index of suspicion for parotid injury is important when injuries occur at the parotid region.

The Stensen’s duct is approximately 5 cm to 7 cm in length and 5 mm in diameter. It arises from the anterior aspect of the gland, passing superficial to the masseter muscle before coursing medially through the buccinator muscle and exiting through a papilla in the buccal mucosa adjacent to the maxillary second molar. The duct follows a path that can be approximated by a line extending from the tragus of the ear to the vertical midpoint of the upper lip. Van Sickles has classified parotid injuries into three regions: Site A injuries are posterior to the masseter muscle or intraglandular; Site B includes the part of the duct that overlies the masseter muscle; Site C injuries occur anterior to the masseter muscle.

Examination of facial soft tissue injury should include location, size, shape, type (e.g., puncture, laceration, avulsion, crush) and mode of injury (gunshot wound, animal bite, sharp object). Injury to the parotid region requires evaluation of the facial nerve, nearby vessel (e.g., transverse facial artery), the parotid duct and gland parenchyma.

Evaluation for facial nerve injury should be performed prior to administering local anesthesia. In 75% of cases, the buccal branch of the facial nerve can be found 5 mm to 10 mm below the parotid duct. When injury to the facial nerve is suspected, it is important to note whether the injury lies distal or proximal to a vertical line drawn from the lateral canthus. If the injury lies distal to this vertical line, due to peripheral anastomoses, repair of the facial nerve is not necessary. Proximal facial nerve injury that lies posterior to this line should be repaired using microsurgical technique.

When injury to the parotid gland or duct is suspected, the examiner can attempt to milk the gland and check for saliva flow.
from the Stensen’s duct. If no saliva flow is visualized, the duct can be cannulated using a pediatric angiocath and normal saline injected to check for extravasation of the injected fluid from the injured site. Some authors have suggested using methylene blue. One should be cautious, however, since it can discolor the surrounding tissue and make subsequent surgery more challenging.

If damage to the parotid system was overlooked in the initial encounter, the patient may return with a sialocele, which typically develops 8 to 14 days post injury. In such a situation, aspiration of the sialocele can be performed and the aspirate sent to check for amylase content. Parotid secretions have a high amylase content, which is usually around 10,000 units/L.

Various radiographic methods have been suggested to help evaluate for parotid injury, including sialography, ultrasonography, CT scan and MRI. Sialography can show that there is an injury to the parotid gland parenchyma or duct when extravasation of the contrast agent into the surrounding tissue is seen. If performed, a water-soluble contrast agent should be used, so as not to irritate the gland or the surrounding tissue. It can also be used in the postoperative setting after repair of the duct.

In the presence of a sialocele, CT scan will show a unilocular or multilocular cystic lesion with an internal density that is lower than the surrounding tissue. A CT scan will also be useful in diagnosing possible facial fractures in a trauma patient.

**Case Report**

A 20-year-old male was assaulted the night prior with a beer bottle and sustained a right cheek laceration measuring 5 cm. The laceration was sutured at an outside hospital. The patient presented to our emergency room the following day complaining that his right cheek had become swollen since the repair. Hematoma was suspected, and several of the skin sutures were removed. An attempt to express blood from the wound site produced minimal bloody drainage. The patient was observed for several hours in the emergency department to rule out an expanding hematoma. He was subsequently discharged home.

The patient returned to the emergency department that evening reporting that he was now having trismus, dyspnea and dysphagia. During clinical exam, the patient blew his nose, causing approximately 10 cc of blood to be expelled from the laceration site between the sutures in a projectile fashion. A lack of hemostasis with subsequent expanding hematoma was suspected; the patient was emergently taken to the operating room. The wound was explored, and two bleeding vessels were identified and ligated.
A Penrose drain was placed, and the laceration site was sutured primarily in a layered fashion.

On postoperative day one, a clear fluid discharge was noted from the suture line. Suspecting injury to the parotid gland parenchyma, a pressure dressing was applied. No progressive expansion of the right cheek wound was noted. On postoperative day two, the penrose drain was removed, and the patient was discharged home with a pressure dressing.

The patient followed up at our outpatient clinic on postoperative day three complaining of increasing right cheek swelling. Moderate fluctuant swelling of the right cheek was noted, but it was not accompanied by signs of infection, such as erythema or drainage from the laceration site. A parotid sialocele was suspected, and needle aspiration was performed under local anesthesia. Twenty-five cc’s of clear serous fluid was aspirated. Immediate decompression of the right cheek swelling was noted. Treatment options were discussed with the patient, including surgical exploration/repair and conservative treatment using pressure dressing and antisialagogue. The patient opted for conservative treatment, with the understanding that without resolution, he might need a surgical intervention.

A pressure dressing was applied, and the patient was prescribed glycopyrrolate 1 mg every eight hours as an antisialagogue prior to meals. He was followed at our outpatient clinic on an every-other-day basis; needle aspiration of the sialocele was repeated on postoperative day five. The right cheek skin sutures were removed on postoperative day seven. The patient returned to the emergency room that night complaining that the right cheek wound had opened up after he sustained a punch to his face (Figure 1). The right Stensen’s duct was cannulated with a 24-gauge angiocath and normal saline was injected (Figure 2). Extravasation of the normal saline from his right cheek wound site confirmed injury to the right parotid duct. The proximal duct was not visualized during our examination of the wound bed.

Because the wound was explored and repaired twice previously, and extravasated saliva had been sitting in the surrounding tissue bed, the wound was friable and the surrounding tissue fibrosed. Therefore, the wound was not further explored to identify the proximal stump of the parotid duct, as to not cause facial nerve damage. A controlled intraoral fistula was instead made to allow the saliva to drain into the oral cavity.

After administration of local anesthesia, a 1 cm mucosal incision was made below the right Stensen’s duct and occlusal table to allow dependent drainage and also to prevent the patient from biting on the drain that was subsequently placed. A blunt dissection was carried out using a curved hemostat to the region of the parotid injury (Figure 3).

A 10 French JP drain was introduced from the right facial wound intraorally and secured to the buccal mucosa using nylon sutures, thus, allowing the extravasating saliva to drain into the
oral cavity (Figures 4, 5). The right cheek laceration was closed primarily with sutures in layered fashion (Figure 6).

In the following weeks, the drain was dislodged several times and had to be replaced each time with a smaller JP drain at our outpatient clinic. After creation of the intraoral fistula, the cheek swelling did not recur. The drain was removed 11 weeks later, and saliva flow from the fistula was observed.

The patient followed up at our clinic three and a half years after creation of the controlled intraoral fistula. He reported no recurrence of his right cheek swelling. Clinical exam showed that the intraoral fistula had since closed, and no saliva flow was noted from either his right Stensen’s duct or the fistula tract (Figure 7), indicating that his right parotid gland had atrophied.

**Discussion**

Injuries to the parotid gland or duct can be treated in an early or delayed fashion and can be managed surgically or nonsurgically. Most authors advocate early exploration and surgical repair. However, in patients where the parotid injury is initially unrecognized, or extensive multisystem trauma requiring stabilization and hemostasis takes priority, treatment of the parotid injury may be delayed. When repair of the injured parotid duct is delayed, the resulting dense scar tissue from the extravasated saliva into the surrounding tissue may increase the risk of neurovascular injury during dissection and make primary repair nearly impossible.4,6

With various treatment options available, Gordin et al. have recommended a treatment algorithm based on the location of injury.6 Glandular (Site A) injury will require closure of the wound in layers, including the parotid capsule; conservative treatment in this location usually yields better outcomes than in ductal injuries. Parotid duct injuries occurring in sites B and C should be treated with anastomosis of the severed duct or recreation of the mucosal stoma. However, if the duct is severed at the proximal end as it exits the parotid gland, identification of the proximal duct or its anastomosis may be difficult. In such a case, ligation of the duct or creation of a controlled intraoral fistula may be an option.

**Surgical Treatment Options**

When the injury involves the Stensen’s duct, most authors recommend surgical repair. Injury to the duct most often occurs as it crosses the masseter muscle and lies superficial to it (Site B). Surgical repair of the duct should be undertaken using magnification and microsurgical technique. The proximal and distal ends of the severed duct should be identified. If the duct is not easily identifiable, the papilla can be cannulated to see where the cannula exits from the distal end. Once the distal end has been identified, the proximal end can be found by either approximating the wound or by milking the parotid gland and checking for saliva flow. A silastic stent should be used to bridge the proximal and distal

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Figure 4. Placement of JP drain from site of parotid injury into oral cavity.

Figure 5. JP drain secured by suturing to surrounding buccal mucosa.

Figure 6. Closure of right cheek wound.
end. This allows the repair of the duct without inadvertently suturing the lumen closed. 8-0 or 9-0 nylon sutures can be used for anastamosis of the duct.4 Some authors have recommended leaving in the silastic stent for two to three weeks postoperatively to prevent stenosis or occlusion of the duct from postoperative edema.4,6 Sparkman and Stevenson, however, have reported repairing the Stensen’s duct without leaving an intraductal stent.7

If the Stensen’s duct has been severed proximally as it exits the gland, identification of the proximal stump or repair of the duct may be difficult. In such a situation, the clinician has the option of either ligating the duct, to induce atrophy of the parotid gland, or creating a controlled intraoral fistula, thereby creating a pseudo-duct that will allow the saliva to drain into the mouth. Ligating the duct will initially cause significant pain and swelling as saliva accumulates within the gland and stretches the capsule. Swelling usually subsides within one to two weeks as the gland atrophies. Pressure dressings and antisialogogues can help further promote glandular atrophy and decrease postoperative swelling.

When using this method, there is a concern for developing a chronic infection of the remaining glandular substance.5 Creating a controlled intraoral fistula, as described in this case report, will require placement of a drain for four weeks, which will act as a conduit for saliva to drain during the epithelialization process.8 The drain can be secured in place by either suturing the drain to the buccal mucosa or securing it to an adjacent tooth using a surgical wire. There is always concern that the tube will dislodge during mastication or facial animation. The advantage of creating

Figure 7. Closure of the fistulous tract at 3.5-year follow-up. Note no salivary flow exists from Stenson’s duct.
a controlled intraoral fistula is the reduced risk for facial nerve injury, as minimal dissection is needed, especially when treating the parotid injury in a delayed fashion. In addition, the proximal stump of the parotid gland does not need to be identified, which can be difficult to access and identify.

Tympanic neurectomy is a procedure performed to decrease salivary flow by interrupting parasympathetic fibers of the tympanic branch of the glosopharyngeal nerve (Jacobson’s nerve). The tympanic nerve provides secretory parasympathetic innervation to the parotid gland via the otic ganglion and arises from the salivatory nucleus in the medulla. This procedure can be performed under local or general anesthesia. A tympanotomy incision is made, and the Jacobson’s nerve is sectioned at the hypotympanum. Tympanic neurectomy has been used successfully in treating patients who develop salivary fistulas after sustaining traumatic injuries to the parotid gland system. Failure of the procedure can occur from reinnervation or merely partial resection of the nerve fibers.

Superficial or total parotidectomy has been suggested as a treatment for parotid sialocele or fistula secondary to parotid injury. This, however, is a more radical approach and should be reserved for patients whose conditions are refractory to other treatment modalities.

Nonsurgical Treatment Options

In the presence of a sialocele, needle aspiration would allow for the decompression of the swelling, and the aspirate can be sent for laboratory evaluation for amylase concentration. The procedure may need to be repeated as the swelling recurs. A pressure dressing should be applied, and antisialogogues can be prescribed. The most commonly prescribed antisialogogues are anticholinergic drugs, such as atropine, glycopyrrolate, propantheline and scopolamine. Anticholinergic drugs competitively block the effects of acetylcholine at muscarinic receptor sites. Side effects of anticholinergics include xerostomia, constipation, blurred vision, tachycardia and urinary retention. Tertiary amines, such as atropine, glycopyrrolate, propantheline and scopolamine, can cross the blood brain barrier and may produce CNS effects. Glycopyrrolate and propantheline are quaternary amines that do not cross the blood brain barrier. Parekh et al. reported 51 patients who developed parotid sialoceles and fistulas who were treated by conservative management alone. This included a combination of administering nothing orally, maintenance intravenous fluid, pressure dressing, antisialogogues and parenteral nutrition. The injury healed in 50 of the 51 patients.

Botulinum toxin (Botox) type A and B has been used to manage parotid fistulas. Botulinum toxin is a neurotoxin produced by the bacterium Clostridium botulinum. The primary effect of botulinum toxin is receptor-mediated endocytosis of the toxin, which prevents the release of acetylcholine, thereby inhibiting neurons of the secretomotor parasympathetic nerve responsible for salivary secretion.

Radiation therapy has been used to cause fibrosis and atrophy of the gland. However, radiation has known side effects and carcinogenicity, making its use hard to justify for a benign disease.

Conclusion

Unrecognized parotid injury can lead to the formation of a parotid fistula or sialocele, which can be difficult to treat. When treatment of the parotid injury is delayed, extravasated saliva can cause extensive fibrosis of the surrounding tissue, increasing the risk for facial nerve injury during surgical dissection. In addition, accessing and identifying the proximal stump of the parotid duct in order to ligate it can be difficult. Creating a controlled intraoral fistula is a relatively simple procedure that has the benefit of minimizing the risk of facial nerve injury, as less dissection needs to be carried out and the proximal portion of the injured parotid duct does not need to be identified.

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REFERENCES


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Spontaneous Gingival Bleeding
A Surprising and Sinister Etiology: A Case Report

David Levenson, D.D.S., M.S.

ABSTRACT
It is rare for a dentist to be confronted with a situation where the immediate well-being of a patient is dependent upon his or her diagnosis. Spontaneous gingival bleeding, as in this case report, may present such a situation. The patient had no remarkable medical history, was not taking medication and had a recent (two weeks) normal CBC. Only by noticing petechiae on the patient’s palate and buccal mucosa was the dentist convinced of an underlying clotting problem. A patient visit to his physician confirmed thrombocytopenia due to quinine in the tonic water he was taking.

Any underlying disease that could affect the integrity of blood vessel walls (e.g., connective tissue disease), liver clotting factors (e.g., cirrhosis) or platelets (e.g., infection or cancer of bone marrow) can affect hemostasis. A patient taking drugs such as Coumadin, Plavix, aspirin or other anticoagulants, may bleed easily. Many drugs can induce autoimmune thrombocytopenia (i.e., quinine, furosemide, acetaminophen, ibuprofen, ampicillin, etc.). At least 100 different medications have been implicated as possible causes. However, a patient with spontaneous gingival bleeding who has no such medical history, is not taking any medications, and had a recent (2 weeks prior) normal CBC and platelet count presents with a different problem. What other signs or symptoms might tell the dentist that there is, indeed, an underlying systemic problem? And how can the dentist convince the patient that, indeed, another blood test is needed? That is the focus of this case report.

Case Report
The patient, a 60-year-old white male, made an emergency visit to the dentist’s office for gingival bleeding. An initial oral exam found general gingival inflammation and areas of spontaneous gingival bleeding. What made the situation so unusual was that the patient had been seen four days prior for a filling, at which time, the gingiva was normal. He also had no history of periodontal disease.

Both the patient’s past and present medical history were unremarkable. He said he was not taking any medications, including aspirin, Plavix, Coumadin or any other anticoagulant. Further examination revealed widespread petechiae on the buccal mucosa and soft palate. There were indications of possible petechiae on the hands and feet. It was clearly indicative of a systemic clotting problem.

The dentist told the patient “his blood was not clotting properly” and that he should see his physician for a blood workup immediately. His response was, “Impossible! I just had a complete physical and blood workup two weeks ago. All was normal.” He felt no need to see his physician again and would rather try an antibiotic or mouthwash. The dentist looked at the petechiae again. It was clearly a coagulation problem. He explained to the patient that there appeared to be a problem with...
his platelets. Upon hearing that word, the patient interjected, “You mean I have thrombocytopenia!”

How did the patient know that word? He explained that 10 years prior, he had taken quinine for leg cramps. One of the possible side effects of quinine is thrombocytopenia.1-4 The patient said he had been hospitalized as a result (this was never mentioned in his medical history). A light bulb went off in his head. He said for the past few days, he had taken tonic water (over-the-counter) for his leg cramps. Tonic water has trace amounts of quinine in it.

A quick visit to his physician revealed very low levels of platelets—under 20,000. Normal is 150,000 to 400,000. He was given a prescription for steroids and stopped the tonic water. Two weeks later, his platelets and gingiva were back to normal. Knowledge, a change in communication and persistence saved the patient from another trip to the hospital.

Discussion

In the case report presented here, the patient’s blood failed to clot properly. Hemostasis has three components: the blood vessel wall constricts; platelets form an initial plug; and clotting factors form a fibrin mesh. If any of these components fails, or works only partially, a proper clot will not form.

Spontaneous gingival bleeding may be a symptom of defective hemostasis. Some causes might be connective tissue disease, leukemia, thrombocytopenia, a microbial infection, drug-induced anticoagulant therapy and autoimmune factors.1 The list is rather extensive. However, the symptoms of both spontaneous gingival bleeding and accompanying petechiae are mostly indicative of platelet insufficiency (thrombocytopenia) or malfunction.1 These were the symptoms in this patient.

The patient was prescribed steroids to treat his condition. Why steroids? There are numerous drugs, quinine being one, which, on rare occasion (28 persons per million per week of exposure3) can form complexes with platelets. 2-4 The immune system recognizes this complex as foreign and destroys the platelet.2,3 Treatment consists of stopping use of the drug—in this case, the tonic water—and taking steroids to combat the immune process.2 The patient did not require hospitalization because, according to his physician, the cause of the problem was known and the patient’s overall health seemed good. He did say there were petechiae covering his back and chest.

There was another important component needed to arrive at a timely diagnosis. As important as knowledge of biology and medical considerations is, effective communication with the patient is also necessary. As a clinical professor, the dentist often teaches his students to use simple language, e.g., “clotting problem,” when speaking to patients. He used these words initially. However, in order to convince the patient of the necessity to see his physician, he felt it was more important to appear knowledgeable. The dentist, therefore, decided to use the more technical word “platelets” to describe the problem. It was
only because of this change in communication that the patient was able to recognize his condition and agreed to act accordingly.

Conclusions
A dentist may draw the following conclusions from this case report:

- **There is no substitute for knowledge.** Knowing the biology and symptoms of a systemic problem enabled the dentist to make the correct diagnosis. When you see petechiae, think thrombocytopenia.

- **Communication takes many forms.** We teach our students to use simple words when communicating with a patient. Sometimes, however, it is more important to show the patient how knowledgeable the dentist is.

- **Don’t stick your head in the sand.** It would have been easier for the dentist to give the patient a mouthrinse and antibiotic. Had the patient continued to take the tonic water, the results could have initiated a medical emergency.

Queries about this article can be sent to Dr. Levenson at dal11@nyu.edu.

REFERENCES


ABSTRACT

Burning mouth syndrome is distressing to both the patient and practitioner unable to determine the cause of the patient’s symptoms. Burning mouth syndrome is a diagnosis of exclusion, which is used only after nutritional deficiencies, mucosal disease, fungal infections, hormonal disturbances and contact stomatitis have been ruled out. This article will explore the many causes and treatment of patients who present with a chief complaint of “my mouth burns,” including symptomatic treatment for those with burning mouth syndrome.

Nutritional Deficiencies

B12 is an essential nutrient, with its only source being dairy or animal products. Liver stores are usually adequate to support normal function for six months or more; therefore, extended changes in diet or absorption are needed for B12 deficiency. B12 deficiency may present with a shiny, atrophic, burning tongue lacking papilla and, in extreme cases, dementia and parasthesia of the body. Blood smears will show macrocytic anemia. Folate deficiency can produce burning mouth, but does not produce the other neurologic symptoms of B12 deficiency.

Iron, zinc and vitamin B6 deficiency can also cause parasthesia of the tongue; B6 deficiency often presents with angular cheilitis. Zinc is essential for taste, and patients will often complain of concomitant dysgeusia with zinc deficiency. With iron deficiency, weakness and fatigue are often most troubling to the patient.

Treatment of nutritional deficiencies involves replacement by appropriate routes.

Mucosal Disease & Xerostomia

Fissured tongue and benign migratory glossitis may be associated with painful burning sensations when consuming certain foods. Avoidance of triggers is the only treatment needed. Aphthus ulcers, lichen planus, pemphigus and pemphigoid can all cause ulceration and desquamation of the mucosa; some patients may describe the pain of these conditions as a sense of burning. Symptomatic relief can be achieved with magic mouthwash and similar agents, but the underlying disease must be treated, usually with topical/systemic steroids with/without immunosuppressive agents.
Fungal Infections
While all candida infections can cause irritation in the oral cavity, atrophic (erythematous) candidiasis is the clinical presentation most frequently associated with the sensation of burning. When atrophic candidiasis occurs with dentures, the term “denture sore mouth” is used. The tongue often appears red, with loss of filiform papilla; the thinning of epithelium may explain the sensitivity and pain much like benign migratory glossitis and fissured tongue. Treatment involves topical antifungals, removal of the denture at night and fabrication of a new denture.

Contact Dermatitis
Patients may report triggers; careful history is essential to this diagnosis. Patients rarely have an allergy to a prosthetic material—it is more common for a patient to be allergic to metals (specifically, nickel) in partial dentures than complete dentures, which usually only occurs when the acrylic is incompletely cured.

Signs & Symptoms of Burning Mouth Syndrome
If the above conditions have been ruled out, burning mouth syndrome may, in fact, be the cause of the discomfort. Classically, it presents with a burning sensation or pain that builds throughout the day and peaks in the evening. It typically does not keep the patient awake at night, but this is not always the case. It may be constant, or it may have periods of remission that can last hours to years. Patients may complain of a sensation of a dry mouth—if the patient has true xerostomia, burning mouth syndrome is excluded.

Treatment
There is no agreed upon treatment for burning mouth syndrome, because of disagreement as to the cause. Fortunately, 50% of patients will improve without treatment over a two-year period. All patients should receive medication for symptomatic relief; oral lubricants for those who complain of dry mouth and magic mouthwash are useful. One of the biggest supports for burning mouth syndrome, as it is a variant of atypical facial pain, is that it responds to anticonvulsant and antidepressant therapy. Behavioral therapy with psychiatrists/psychologists has also been shown to be beneficial in patients who are receptive to therapy.

Conclusion
Burning mouth syndrome is an entity that is often difficult to treat and frequently presents in an anxious and/or depressed population, which only further complicates treatment. This should not discourage us. Until better understanding and treatments are available, we must use all available resources to provide relief for these patients.

Queries about this article can be sent to Dr. Rifkind at Jacob.rifkind@gmail.com.

REFERENCES
Ethics, Economics and Dentistry for Individuals with Disabilities in New York State


ABSTRACT
The ADA Principles of Ethics and Code of Professional Conduct is an expression of the obligation occurring between the profession and society to meet the oral health needs of the public. At a time of economic concerns for the profession, suggestions are made to bring together the ethics of the profession and the need to expand services to underserved populations, including individuals with disabilities and the poor. The profession's effort to secure economic support for such an effort is possible with increased legislative awareness of the magnitude of the problem. To this end, the number of individuals with disabilities was developed for each Congressional district in New York State in an effort to challenge members of Congress to recognize the need in terms of their constituents, rather than in terms of the tens of millions with disabilities in the United States—which become “just numbers,” not actual people.

When we speak of ethics, most often it is meant to describe an individual’s behavior. Ethics, however, also reflects upon a group’s actions or moral performance in a range of evolving circumstances. While a group is a totality of individuals, the performance of a small or even a large group may be quite different with the addition of the characteristics of one new member. For example, “Safety experts recommend that newly licensed teenage drivers do not transport teenage passengers for the first 1,000 miles, or 6 months, of unsupervised driving. The risk of a fatal crash for a teen driver doubles with the presence of just one teen passenger. Each additional passenger increases the risk of a fatal crash.”

A profession is defined as an occupation requiring a long and specialized course of higher education and one that is governed by a special code of ethics. Professions serve the public well-being. A prerequisite for membership in the American Dental Association (ADA) is an individual’s voluntary willingness to abide by the ADA Principles of Ethics and Code of Professional Conduct. The code is a written expression of the obligations arising from the implied contract between the dental profession and society.

U.S. Population Changes
“The term ‘minority,’ at least as used to describe racial and ethnic groups in the United States, may need to be retired or rethought soon: by the end of this decade, according to Census Bureau projections, no single racial or ethnic group will constitute a majority of children under 18. And in about three decades, no single group will constitute a majority of the country as a whole.”

For example, the Hispanic population is projected to “...more than double, from 53.3 million in 2012 to 128.8 million in 2060. Consequently, by the end of the period, nearly one in three U.S. residents would be Hispanic, up from about one in six today.”

In addition, according to Census Bureau projections: “...the population age 65 and older is expected to more than double between 2012 and 2060, from 43.1 million to 92.0 million.”
The older population would represent just over one in five U.S. residents by the end of the period, up from one in seven today. The increase in the number of the ‘oldest old’ would be even more dramatic—those 85 and older are projected to more than triple, from 5.9 million to 18.2 million, reaching 4.3 percent of the total population."

How Does this Apply to Morality and the Dental Profession?
The answer to the question may be to substitute the words “dental practitioners” for “national candidates” in the following quotation:

The election of Barack Obama as the first African-American multi-ethnic president with the “...strong support among blacks, Hispanics, and other fast-growing minorities suggest that future national candidates need to pay greater attention to the issues embraced by minorities as they become players in the electorate.”

In actuality, however, concern for the care of others is inescapably intertwined with the realities of economics of both the practitioner and the individual in the public sector.

By way of example, in mid-April 2013, the lead headline of the ADA News announced that “Baby boomers boost utilization: older patients show rise in dental expenditures.” However, the following paragraphs of the column emphasized a different story:

- Americans aren’t spending any more on dental care than they were five years ago.
- After decades of steady growth, national dental expenditures began to slow in the 2000s, years before the economy soured.
- Once the great recession hit in 2008, national dental expenditures leveled off and have remained flat ever since.

The rising proportion of those over 65 years old could significantly increase dental expenditures, “...buoying up the dental economy for years to come.” Frequently, these services require major expenditures, including prosthetic services and advanced periodontal care. Unfortunately, waiting decades for the number of seniors to increase dramatically and boost the economics of dentistry is not a viable option for current practitioners. Similarly, reliance solely on emphasizing efforts to increase the use of services by the traditional consumers of oral health care may have its limitations.

How we pay for dental services is another problem. Out-of-pocket spending represented 44 percent of all dental service costs. By contrast, out-of-pocket spending represented 14 percent for all health care expenditures for the total population (including 17% of the costs for youngsters < 18 years; 15% for the 18- to 64-year population and 12% for the 65+ year population). In essence, spending for dental services “is felt” to a greater extent than for total health services for the following reasons:

- Private insurance does not cover 54% of dental expenses.
- Medicaid provided 6% of all expenditures for dental services.

However, it represented 42% of costs for children less than 5 years, 21% for the Hispanic population, 38% for the poor population and 73% for the 65+ years individuals with public insurance.

- Studies suggest that fewer than 25% of all dentists accept Medicaid patients, and fewer than 10% have at least 30% of their practice represented by Medicaid beneficiaries.

Yes, there are explanations, including inadequate fee schedules and Byzantine bureaucratic impediments. However, from the prospective of the public, the results are limitations in the availability of dentists to provide access to care.

Individuals with Disabilities
Approximately 56.7 million people living in the United States in 2010 (18.7% of the population) had some kind of disability. About 12.6%, or 38.3 million people, had a severe disability, including more than 2 million people in New York State in 2011. This number has increased and will continue to do so as the expanding aging population reaches into the 70s, 80s, 90s and beyond. In 2010, almost 29% of individuals with disabilities (many of whom are dependent upon the Medicaid program
for care) did not obtain dental services because of cost. Also, Medicaid dentists are "...so hard to find."13

Unfortunately, the use of "mega numbers" (whether it is millions of individuals with disabilities, billions of dollars for needed services, the annual carnage of tens of thousands killed in automobile accidents, or the thousands of children brought to emergency rooms as a result of playground accidents) is difficult for any person to place in proper perspective. For example: "The average lifetime cost for one person with (intellectual disabilities) is estimated to be $1,014,000 (in 2003 dollars). This represents costs over and above those experienced by a person who does not have a disability... It is estimated that the lifetime costs of all people with (intellectual disabilities) who were born in 2000 will cost $51.2 billion."14

We tend to generalize and smother such numbers, unable to comprehend the impact of these costs and the particu-
lar conditions and events on individuals and their families. The fact that there are millions of children and adults with a wide range of disabilities becomes "just numbers," not actual people. But rather than "just" presenting incomprehensible millions of individuals with varying disabilities and needed services that range in tens of billions of dollars, legislative representatives need to be lobbied with particular information about the constituents in their states and, if possible, in their respective districts.

**Realities and Direction**

The need is for:

1. Improved economics of dental practices (and maintaining the ethical responsibilities of the profession) by expanding services beyond the traditional patient registry in many offices.

2. Increased economic support of services for underserved populations, particularly at the Congressional level.

3. Increased awareness of the unmet oral health needs of individuals with disabilities by presenting the numbers of those individuals who are the constituents of elected officials.

To this end, data from the Census Bureau American Community Surveys were used to develop disability data at the state-wide and Congressional district level (for the 112th Congress) for New York State.15,16 Previous reviews in The NYSDJ considered the numbers of children in the state with disabilities and the availability of dentists to provide the needed services for individuals with disabilities.17,18

**Statewide**

In 2011, there were an estimated 2.1 million New York State civilian non-institutionalized residents (11% of the population, compared to 12% nationally) with one or more severe disabilities, including, approximately:

- 157,000 children less than 18 years; the highest proportion of those had cognitive difficulties.
- 1,000,000 adults between 18 and 64 years; the highest proportion of those had cognitive difficulties.
- 872,000 seniors 65 years and over; the highest proportion of those had ambulatory and cognitive difficulties.
- 1,400,000 white, 354,000 Hispanic and 351,000 black individuals in the population.

The proportion of individuals with disabilities increased with age, reaching 34% of the resident population 65 and over (Table 1). The number of elderly with disabilities, no doubt, will increase as the baby boomers reach their older senior years.19

**N.Y. Congressional Districts**

The number of individuals with severe disabilities ranged from:

- 51,000 (8.2% of the population) in the 14th Congressional

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**TABLE 1**

Estimate of Number and Proportion of Individuals with Severe Disabilities in New York State: 201113

(Individuals may have more than 1 disability)

<table>
<thead>
<tr>
<th>Race/ethnicity</th>
<th>Number</th>
<th>Percent of Total Population</th>
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<tbody>
<tr>
<td>White alone</td>
<td>1,431,027</td>
<td>11.4%</td>
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<tr>
<td>Black alone</td>
<td>351,483</td>
<td>11.9%</td>
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<tr>
<td>Asian alone</td>
<td>86,960</td>
<td>6.0%</td>
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<td>American Indian- Alaska Native</td>
<td>11,664</td>
<td>17.5%</td>
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<tr>
<td>Other races</td>
<td>154,301</td>
<td>9.3%</td>
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<tr>
<td>Two or more races</td>
<td>55,418</td>
<td>10.7%</td>
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<tr>
<td>Hispanic</td>
<td>353,928</td>
<td>10.2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Number</th>
<th>Percent of Total Population</th>
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</thead>
<tbody>
<tr>
<td>Total</td>
<td>2,091,270</td>
<td>10.9%</td>
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<tr>
<td>&lt; 5 yrs</td>
<td>8,067</td>
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<td>Hearing difficulty</td>
<td>4,081</td>
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<tr>
<td>Vision difficulty</td>
<td>5,490</td>
<td>0.5%</td>
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<tr>
<td>5-17 yrs</td>
<td>148,637</td>
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<tr>
<td>Hearing difficulty</td>
<td>18,328</td>
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<td>Vision difficulty</td>
<td>20,326</td>
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<tr>
<td>Cognitive difficulty</td>
<td>110,965</td>
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<td>Ambulatory difficulty</td>
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<td>18-64 yrs</td>
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<td>Hearing difficulty</td>
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District, including 38,000 white, 3,000 black and 9,000 Hispanic residents with disabilities; to

- 109,000 (15.6% of the population) in the 16th Congressional District, including 24,000 white, 36,000 black and 74,000 Hispanic residents with disabilities.

Despite the fact that the average total population per Congressional district in the state ranged from 602,000 to 711,000 residents, with most in the mid-600,000s, there was a two-fold difference between the number and proportion of individuals with severe disabilities in these two Congressional districts, as well as marked variations by race and ethnicity. These are just a few examples of information for dental practitioners and legislators at the local level that can be gathered from Census Bureau study reports (Table 2).

### Challenge

While many practitioners do provide care for individuals with disabilities, the dual challenge is: 1. for the dental profession to expand services to individuals beyond the traditional registry of patients; and 2. to awaken Congressional legislators to the need to provide the essential financial resources for these services. Lobbying is a competitive effort directed at reaching legislators who are attempting to balance the demands of individuals, organized groups, political parties and the complex economic realities of our times. In such an environment, any effort that can personalize the needs of a large special group among the constituents of the home district and state of a member of Congress, as well as state legislators, enhances the potential for success.

The initial step in lobbying for change is to present the drama of the need, but in understandable and personal terms. Casting the number and proportion of individuals with disabilities, as well as their family members, in the communities of dental practitioners and as constituents in a politician’s district is one such avenue. Indeed, the numbers do speak for themselves!

Queries about this article can be sent to Dr. Waldman at h.waldman@stonybrook.edu.

### REFERENCES


### TABLE 2

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Note: Number and proportion of individuals by types of disabilities for each Congressional district are available from Census Bureau at web site: http://factfinder2.census.gov/ (American Community Survey listing).


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20. Dr. Waldman, Dr. Perlman

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ABSTRACT

Soft tissue fenestrations are extremely rare in the natural dentition and have only recently been reported on dental implants. Although the pathogenesis of their formation is not completely understood, several predisposing risk factors have been identified, some of which may affect dental implants as well. This article presents a thorough review of the literature pertaining to gingival fenestration. It also describes the surgical management of lesions developed approximately six years following osseointegration of two dental implants.

Soft tissue fenestrations, which are window-like openings through the oral mucosa exposing root surfaces, are rarely seen in the natural dentition. They have been described on dental implants only recently. Lane was the first to report three cases of gingival fenestrations occurring on permanent mandibular incisors that had a thin keratinized mucosa and heavy subgingival plaque and calculus deposits. The offending factor, Lane reported, is bacterial plaque that triggers inflammation and loss of collagen fibers in these areas, leading to fenestration. He hypothesized that gingival fenestration precedes gingival recession and is, therefore, a short transitory stage. According to Lane, this phenomenon occurs as a result of the loss of gingival corium and its firm attachment to the cementum and the alveolar bone caused by inflammation. The net result of this process is a movable tissue that is more susceptible to damaging forces of mastication and toothbrushing, which if combined with subgingival biofilm, may result in fenestration. Since then, several reports have linked this lesion with orthodontic tooth movement, enamel pearls, the path of tooth eruption, apical periodontitis and the presence of a thin gingival biotype.

Orthodontic expansion of the dental arch into areas of thin biotype is considered a risk factor for bone and gingival fenestrations. However, preoperative augmentation of the alveolar ridge could prevent such undue outcomes. Another risk factor is the presence of enamel pearls, which are abnormal enamel formations over the cementum. It has been reported that only epithelial cells are capable of attaching to enamel, while fibroblasts and collagen fibers lack this ability. Claffey and Shanley defined a thin tissue biotype as gingival thickness of <1.5 mm. This type of tissue tends to be delicate and quite translucent in appearance, with a minimal zone of attached gingiva. The underlying bone in these cases is thin too, characterized by either bony dehiscences or fenestrations. An inflammatory or traumatic process in this environment may induce a lateral proliferation of the sulcular epithelium and unification with the oral epithelium. This union may cause a focal ischemia and necrosis of the overlying soft tissues, which leads to root denudation.

Another possible factor involved in the pathogenesis of these lesions is the path in which a tooth erupts into the oral cavity, which may affect its mucogingival complex position. Ectopic eruption of teeth through alveolar mucosa, rather than through...
the gingiva, could result in both osseous and gingival fenestration. Obviously, osseous fenestration always precedes gingival fenestration. Tooth eruption through a thick bony housing and a thick biotype with a wide zone of attached gingiva could minimize the risk of developing these lesions.

Dental Implants and Gingival Fenestrations
Some of the factors involved in the etiology of gingival fenestrations in the natural dentition could be involved in implant fenestration too.

A main determining factor in gingival recession is the path of implant insertion in relation to the bony ridge. Dental implants placed in areas of inadequate bony width, or placed ectopically, may result in bony fenestrations or dehiscences that if not managed immediately with a regenerative procedure (e.g., guided bone regeneration) may result in gingival recessions or fenestrations postoperatively. These complications are more commonly seen in cases of immediate implant placement after tooth extraction, following a “flapless” implant placement or in cases of thin residual buccal bone and /or a thin biotype.

The preoperative width of the facial bone is critical for adequate support of the oral mucosa. It plays a major role in maintaining soft-tissue height, especially over maxillary anterior implants. In a clinical study, Spray et al. demonstrated that at least 1.8 mm of bony thickness is required following implant placement in order to minimize undue bone resorption and to preserve the soft tissue height. In cases where the facial bone was less than 1.8 mm in thickness, vertical resorption was observed, in some cases exceeding 3 mm apically from the shoulder of the implant.

Patients with thin gingival biotype are at risk of developing osseous fenestration and gingival recession. In these cases, implant placement should be delayed for at least eight weeks following extraction in order to allow for proper healing and for an increase in the soft tissue volume to take place. This delay will facilitate better management of the surgical flap and promote adequate thickness of the facial mucosa.

The main objective of this article is to present a case of gingival fenestration that developed six years post-insertion over two adjacent dental implants, and its surgical management via a subepithelial connective tissue graft.

Case History
A 67-year-old Caucasian female, a nonsmoker, was referred to us for evaluation and possible gingival grafting on her maxillary central implants.

The patient’s medical history was significant for hypercholesteremia, for which she was taking lovastatin. She had been on risedronate sodium for osteoporosis, but she discontinued taking it several years prior to implant surgery. Her dental history included extraction of teeth #8 and #9 in 2004 due to a nonrestorable root fracture of #9 and severe mobility of #8. The teeth were removed atraumatically and flapless. Two StableDent implants (Crystal Medical Corp., Pelham, AL) were immediately placed in the extraction sockets, along with a mixture of approximately 30% of synthetic (OsteoGen, ImplantDent LTD, Hol-
lis) and autogenous bone grafts. The implants were immediately temporized and permanently restored approximately six months postoperatively without undue sequella. However, six years postoperatively, the patient noticed “darkening spots” over the implants and was referred for periodontal care.

A complete clinical periodontal and radiographic examination revealed well-integrated implants on #8 and #9 but with soft tissue fenestrations on the buccal surface (Figures 1, 2). The openings were approximately 2 mm to 3 mm apical to the gingival margins, exposing the implants’ threads. A thin gingival biotype was noted with a narrow zone of attached gingiva on the labial aspect of these implants.

The proposed therapy included soft tissue grafting and augmentation of the oral mucosa in order to cover the fenestrations and increase the gingival thickness prior to bone grafting.

After achieving local anesthesia, an intrasulcular incision with preservation of the interdental papillae was performed around #8 and #9, along with vertical incisions on the distal line angles of the same teeth. A full thickness flap was elevated, revealing partial resorption of buccal bone—especially on implant #8—exposing threads on its facial side (Figure 3). The exposed threads on #8 were smoothed with a diamond bur and thoroughly irrigated to prevent overheating of the implants and tattooing of the soft tissue (Figure 4). A thick sub-epithelial connective tissue measuring 17 mm x 10 mm was harvested from the palate and secured in place over the implants, and covered by the buccal flap (Figures 5, 6, 7). A hemostatic agent was placed (Surgicel, Johnson and Johnson, NJ) under the palatal flap, and the area on the palate was sutured and covered with a surgical stent.

The postoperative regimen included doxycycline 100 mg twice a day for 10 days, acetaminophen/hydrocodone 5/500 mg for pain management and chlorhexidine 0.12% oral rinse for plaque control. The sutures were removed two weeks postoperatively. Healing was uneventful. The patient received periodic follow-up appointments (Figures 8, 9) and maintenance recall therapy. Her final oral examination, three years postoperatively, revealed a stable periodontal condition around the dental implants; complete implant coverage was noted, along with an increase in gingival thickness and width. The periodontal tissue around the implants appeared healthy, with good soft tissue attachment and minimum probing depths (Figure 10). The original treatment plan consisted of two separate surgical procedures: correction of the soft tissue defect, followed by bone augmentation around the implants through guided bone regeneration (GBR). However, after a detailed evaluation, the postoperative results of the first phase and the long-term stability of the mucogingival complex, a second surgical procedure of bone grafting was deemed not necessary. The patient was very satisfied with the final esthetic results.
Discussion

Soft tissue alterations around dental implants can certainly be an esthetic problem for some patients—especially in the maxillary anterior areas. A number of surgical techniques, such as free gingival graft,\textsuperscript{23} sub-epithelial connective tissue graft,\textsuperscript{8} lateral sliding flap,\textsuperscript{24} double papillae\textsuperscript{25} and guided tissue regeneration,\textsuperscript{26} have been described in the literature for managing gingival recessions on the natural dentition. The use of the sub-epithelial connective tissue graft technique has previously been reported around dental implants.\textsuperscript{27}

The size of the fenestration dictates treatment option. For cases of small (≤ 2 mm) gingival fenestrations, there are many treatment options. However, the large (>2 mm) ones can pose a clinical challenge because of limited treatment options. The presence of large tissue openings surrounded by an extremely thin tissue with a compromised vasculature may pose a surgical challenge to the surgeon. Disregarding these factors can lead to flap necrosis and failure of the surgical procedure.

In the above case, a sub-epithelial connective tissue graft was chosen to manage and correct the gingival fenestrations and increase the thickness of the gingiva around the implants.\textsuperscript{28} The new environment may enhance esthetics while providing some resistance to mechanical trauma or inflammation, thus preventing future recurrence. In addition, creating a collagenous collar around implants enhances the esthetic appearance of peri-implant soft tissues, as demonstrated in this case.\textsuperscript{29}

The main advantage of connective tissue graft over other surgical techniques is its ability to survive in areas where the overlying flap is perforated, or is extremely thin with diminished blood supply. The graft’s ability to survive in this environment is mainly due to blood supply from the underlying periosteum and the surrounding bone that provides nutrients and oxygen during the angiogenesis and revascularization stage of the graft healing. Additionally, leaving part of the connective tissue graft uncovered by the flap may lead to an increase of the width of keratinized gingiva.\textsuperscript{30,31} Similar results could be achieved using a thick, free gingival graft,\textsuperscript{32} but it might create a postoperative spectrum discrepancy between its color and the recipient site, thus compromising esthetics.

Summary

Gingival fenestrations around dental implants could best be managed through prevention and careful treatment planning. The implant should be placed in adequate bone thickness and covered by a sufficient amount of attached gingiva. Otherwise, the area should be augmented prior to implant placement to prevent bone resorption exposing the implant’s threads, which could cause gingival fenestration and recession. When it occurs, it should serve as a warning for the clinician, since bony defects and loss of sup-

Figure 7. Overlying buccal flap covering graft and secured with vicryl sutures.

Figure 8. Clinical appearance of grafted site four weeks (left) and three months (right) postoperatively.

Figure 9. Clinical appearance of grafted site two years postoperatively indicating full implant coverage. Note increase in gingival thickness and width while maintaining shallow crevice.

Figure 10. Clinical appearance of grafted site three years postoperatively with complete implant coverage. Slight inflammation can be seen in distal line of #9.
port are often associated with these lesions; some of them are severe enough to jeopardize the implant’s longevity.

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REFERENCES


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