

Those who ignore history are doomed to repeat it

To the Editor:

I must admit that I do not always read every word of editorials in journals, however I hung to each sentence in your recent editorial entitled "Retreating to our Cottages." I am very uneasy about the changes that are occurring in our specialty. For those of us who do not know our history, we are doomed to repeat our problems if we do not step up to the plate. As you so eloquently pointed out, oral and maxillofacial surgery began as a cottage industry and many battles were fought by giants in our profession over many years for us to enjoy the current environment in health care and in the hospital. Oral and maxillofacial surgeons remain some of the most talented people I have ever met and I am convinced that the reason we are where we are is because of the sacrifices that people made to always put the specialty first.

If you look at the movers and shakers in our profession, these are intelligent, hardworking, and dedicated individuals who never took no for an answer and stood their ground regardless of criticism, compensation, or sacrifice of convenience. When most of us were oral and maxillofacial surgery residents, we did whatever it took to get the job done. We did not worry about the patient's ability to pay, the time of day or night that we were summoned to the emergency room, or even sometimes being abused by other specialties. We knew how important it was to fly the flag of oral and maxillofacial surgery, set a positive example, and advance our specialty. There has definitely been a huge swing in the past decade to the other direction. I am not sure how or why but it appears that many younger oral and maxillofacial surgeons simply refuse to make the sacrifices that generations before them have. So many people refuse to do cases because there is no payment, they refuse to go to the emergency room because it is inconvenient, and unfortunately many of our specialties are taking the "teeth and titanium" path and totally disregarding our role in the hospital.

Again, I find this very distressing and I think these people have just had it too easy and have become too far withdrawn from the sacrifices that occurred. We stand to lose a century of progress in a decade and I, like many of my colleagues, shake my head and am ashamed that our specialty is coming to this point. Let us face it; none of us like to work for free but all

specialties involve cases where there is no compensation. There has also been a shift from insurance companies that has caused us to have fewer hospital cases, but for people refusing to take an ER call, I think this is just selfishness and I am embarrassed for our specialty.

Again, as you pointed out, we are headed back to the direction of an office-based practice, and I fear that in the next decade oral and maxillofacial surgeons will be totally disconnected from the hospital environment and once you lose ground, it is difficult to ever gain that back. I congratulate every oral and maxillofacial surgeon of any age who has the tenacity to make personal sacrifices for the good of the specialty, and I respectfully ask all other maxillofacial surgeons to seriously consider the actions that their personal convenience has on the progress of our specialty.

We are where we are because we stand on the shoulders of giants before us and we owe it to our specialty and our history to "share the pain" with trauma call, etc. I have always thought of oral and maxillofacial surgeons as very, very special people. Only a small segment of our society has the honor to be among this special group. One of the reasons we have always been so respected is that we have always responded to the needs of our specialty and put it first and foremost.

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Oral lichenoid lesions: More than mercury

To the Editor:

In their remarkable and timely review article Issa et al report evidence of oral lichenoid lesions (OLLs) associated with mercury dental amalgams.¹ We congratulate this work but would like to raise several issues about their statements and conclusions.

The authors conclude that patch testing is of limited value to determine the response to treatment with amalgam removal in patients affected by OLLs. We disagree. At present, we believe that patch testing for dental series is still the most reliable tool to determine allergic sensitization to metals in individuals with OLLs.² We

surmised that in many cases, mercury is not the most important causative pathogenic in OLLs. And we would like to address another plausible explanation.

To understand this perspective, we need another way to interpret the patch testing in OLL patients. In fact, metallic mercury is only 1 part of the dental amalgam. Other immunoallergic transition metals^{3,4} are in amalgams.

We hypothesize that these metals may be causative, and this assumption is supported by evidence. By using mass spectrometry techniques, we determined the content of these metals in dental amalgam. Also, energy-dispersive spectroscopy analysis confirmed that metals reside even on the outermost surface of the amalgam. The latter, crucially, is in close topographical contact in many cases of OLLs. We detected several parts per million of nickel, cobalt, gold, and palladium, which may contribute up to 1 mg in alloy powder or more in palladium amalgams.

On the other hand, the primary metal components which constitute the alloy powder (eg, silver 30%-35%, copper 13%-15%, tin 2%-3%, and zinc 1%) do not appear to be involved in pathogenic immune responses to OLLs, being essentially immunological unreactive.^{4,1}

Furthermore, there are 2 basic issues on the metallurgy of dental amalgam that warrant clarification. As the authors correctly highlight, mercury from dental amalgam is released in the oral cavity. Surprisingly, they omit to mention which form of mercury is emitted from amalgams. It is actually a source of elemental (metallic) form of mercury.^{5,6}

Considering chemistry, elemental mercury evaporates from liquid metallic mercury continuously from dental amalgam. Thus, biodegradation of mercury amalgam, as the authors state, is an unnecessary condition because amalgam is intrinsically instable.^{6,8}

Again, the investigators reported in their review that there is a release of mercury in the oral cavity in the presence "of different types of amalgam alloys." This is a misconception. In unstimulated condition, a single dental amalgam in a tooth is able to generate a level of mercury vapor measurable by atomic absorption spectroscopy.⁷

Most notably, occlusal forces (normal chewing, clenching, bruxing, or chewers) have been shown to be superior in the released of mercury vapor with respect to the electrochemical reactions between amalgam fillings.⁸ Similarly, in a cohort of around 200 individuals who had dental amalgams, we measured the levels of total mercury in saliva. After chewing-gum test, the concentrations of total mercury found in saliva was far exceeding the baseline level in the presence of the sole electrochemical reactions (unpublished

data). Yet, mercury vapor continuously released from amalgams may chemically induce inflammation.⁹ In this regard, mercury is deposited in the oral mucosa.¹⁰

Equally important, there is organic mercury. Presumably as monomethylmercury, it occurs in saliva in subjects with amalgams owing to biotransformation of inorganic mercury by oral bacteria.¹¹ Thus, mercury vapor and its by-products from amalgams in oral cavity have been reported to be associated with increase of saliva of matrix metalloproteinase 9 (gelatinase B/MMP-9).¹² Overexpression of MMP-9 may play a role in various oral pathologies.

Arguably, excessive levels of the total mercury in saliva may explain OLLs in subjects with no topographic relationship to dental amalgam.^{13,14} Mercury ions dissolved in saliva spur both allergic sensitization and local cytotoxicity reactions.^{13,15} Of note, these individuals somehow have genetic susceptibility.¹⁶ Given these notions, total amalgam removal is suggested.^{13,17}

We also caution that, although undoubtedly useful, dental amalgam removal is a well-known critical step. Mercury vapor emission during the removal of amalgams puts the patient at risk of adverse effects⁵ and, in our view, may affect the clinical efficacy of OLL treatment. To avoid local and systemic immunotoxic reactions to mercury, proper technique should be adopted in individuals with allergy to mercury receiving amalgam-removal treatment.^{18,19}

On the basis of our clinical experience in OLLs, we observed that the replacement of amalgams with other metal alloys, particularly with gold-based alloys, may hamper the recovery of OLLs. Immunologically, gold is thought to be linked to mercury and presumably the immune system goes awry.²⁰

Certainly, negative patch-test reactions to other antigenic metals does not prevent future allergic sensitization to metals. It is possible that exposure of pre-sensitized subjects to other alloys (with noble or un-noble metals) can lead to cross-reactivity between metals, resulting in a poor outlook for OLL treatment.

These caveats aside, both mercury exposure and allergy to metals from amalgams appear to be related to the pathogenesis of OLLs as outlined above.

Finally, we believe that patch testing has sufficient sensitivity and specificity to support clinical decision. At the same time, the procedures involved in the amalgam removal and dental material replacement may lead to substantial variability in response to treatment, rendering patch testing apparently unpredictable.

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