

Perioperative Dental Considerations for the Geriatric Patient

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As the general population increases its' life expectancy, it is also retaining more natural teeth. The percentage of older adults losing all their natural teeth has declined substantially since the 1950s, when the majority of persons aged ≥ 65 years were edentulous.¹ With tooth retention, the geriatric patient remains at risk for dental caries and periodontal disease, as well as presenting the anesthesiologist with unique perioperative dental considerations. Although anesthesiologists consistently work in the mouth of patients, they may not have received a comprehensively relevant education of dental nomenclature, anatomy and pertinent prostheses.

Several intra-oral characteristics of the geriatric patient warrant attention. Dry mouth (i.e. xerostomia) is a subjective sensation mostly caused by medications.² Xerostomia was found to affect 25% of the elderly population.³ Severe hyposalivation compromises taste, swallowing and digestion. Erosion and ulceration of mucosal tissues can occur, as well as fungal infections such as candidiasis, due to a diminished intra-oral immunity. In addition, the beneficial buffering effects of saliva are reduced, yielding teeth that become more susceptible to decay. New and recurrent decay is untreated in 30% of dentate adults.⁴ Along with advancing age is a concomitant recession of the gingiva (i.e. gums), exposing root surfaces of teeth which leads to root caries. It was found that 50% of persons ≥ 75 years were found to have root caries.⁵

Periodontal disease commonly manifests in an adult's mouth as inflamed gingiva, gingival recession, and calculus (i.e. tartar) accumulation. It is an inflammatory process involving a bacterial infection of the periodontium.⁶ As the disease progresses, bone support is lost and tooth mobility becomes more pronounced.

Patients exhibiting very poor oral hygiene and chronic oral neglect may be harboring an unknown odontogenic infection that can compromise surgical outcome.⁷ Significantly mobile teeth are at an increased risk for tooth avulsion and/or aspiration. It was found that 31% of elderly patients had not seen a dentist in the previous 5 years.⁸ Prior to surgery, it may be the anesthesiologist who is the first caregiver to look inside a patient's mouth in years or even decades. Adoption of a more extensive intra-oral examination into one's preoperative assessment is not suggested for most patients, but in some instances a "hands-on" evaluation of the patient's dental status (i.e. wearing a glove and inspecting more closely) is recommended in order to better appreciate any vulnerable teeth or soft tissues. Notable redness, swellings, purulent discharge or fistulas may be visible along the gingiva and symptomatic of an odontogenic infection. Ideally, if an acute dental abscess is present, it should be treated prior to the operation. Such an investment can yield significant improvements in surgical outcome and overall patient health.⁹

Perioperative dental damage is one of the most common anesthesia-related adverse events and is responsible for the greatest number of successful malpractice claims against anesthesiologists. Decayed, restored, or periodontally involved teeth are more susceptible to becoming damaged perioperatively than a natural dentition. Dental trauma results from the coupling of a compromised dentition with a physical event such as pressure or forces applied to a tooth. An increased incidence of dental injury has also been reported in cases exhibiting the following anesthesia risk factors: general anesthesia; endotracheal intubation; emergency surgery; and a difficult airway (i.e. Mallampati Class 3 or 4).¹⁰ The combination of a patient who possesses a pre-existing dental condition with any of the aforementioned anesthesia risk factors results in a dentition that is even more vulnerable to damage.¹¹

During the preoperative evaluation, the recognition of the various types of intraoral restorations and prostheses such as crowns, veneers, bridges, dentures and implants can aid in the prevention of dental trauma. Intra-oral soft tissue abnormalities or swellings should be noted. Appreciating the relationship of a patient's two jaws (i.e. maxilla and mandible) and the existence of any T.M.D. is beneficial. Moreover, the biting surfaces of particularly anterior teeth should be carefully scrutinized, any incomplete dental treatment should be verified, and removable prostheses such as dentures should be removed, labeled and stored. Patients who present with significantly loose teeth are usually aware of such mobility but may not admit it due to their embarrassment, or their underestimation of the condition's potentially significant perioperative implications. Securing a loose tooth is a cautious measure in order to prevent aspiration and assist in a tooth's retrieval should it become dislodged.

A preoperative discussion with the patient of the risk of dental injury is recommended, especially with the existence of an anticipated difficult intubation and/or a patient's vulnerable dentition. Clear communication can significantly reduce the magnitude of postoperative disputes and costs. Detailed documentation of the patient's preoperative dental condition serves to minimize the potential for inflated dental treatment estimates following a perioperative dental incident.¹² Preventive measures such as careful mouth opening, laryngoscope placement, suctioning, and extubation maneuvers can help reduce the likelihood of a dental injury. Following an incident of perioperative dental damage, the goal is to obtain an immediate assessment and provide a fair reimbursement for the injury incurred. Enhancing one's awareness of the various perioperative dental considerations for the geriatric population can minimize costs while maximizing anesthetic outcome and patient satisfaction.

References

1. Burt BA, Eklund SA. Dentistry, dental practice and the community, 5th ed. Philadelphia, Pennsylvania: WB Saunders Co., 1999.
2. Ship JA, Pillemer SR, Baum BJ. Xerostomia and the geriatric patient. *J Am Geriatr Soc.* 2002;50(3):535-43.
3. Fox PC. Dry Mouth and Salivary Gland Dysfunction. In: Max MB, Lynn J, eds. *Symptom Research: Methods and Opportunities*. Baltimore: National Institutes of Health/National Institute of Dental and Craniofacial Research. 2003.
4. U.S. Department of Health and Human Services. *Healthy People 2010, 2nd ed. With Understanding and Improving Health and Objectives for Improving Health* (2 vols.). Washington, DC: U.S. Department of Health and Human Services, 2000.
5. U.S. Department of Health and Human Services. *Oral health in America: A Report of the Surgeon General*. Rockville, Maryland; U.S. Department of Health and Human Services, National Institutes of Health, National Institute of Dental and Craniofacial Research, 2000.
6. Boehm TK, Scannapieco FA. The epidemiology, consequences and management of periodontal disease in older adults. *J Am Dent Assoc* 2007;138 Suppl:26S-33S.
7. Yasny JS, White J. Dental considerations for cardiac surgery. *J Card Surg* 2009;24:64-68.
8. Gilbert GH, Duncan RP, Crandall L, Heft MW. Older floridians' attitudes toward and use of dental care. *Journal of Aging and Health*, Vol. 6, No.1, 89-110 (1994).
9. Yasny JS, Silvey G. The value of optimizing dentition before cardiac surgery. *J Cardiothorac Vasc Anesth* 2007;21:587-91.

10. White A, Kander P. Anatomical factors in difficult direct laryngoscopy. *Br J Anaesth* 1975;47(4):468-74.
11. Chadwick RG, Lindsay S. Dental injuries during general anaesthesia. *Br Dent J* 1996;180(7):255-58.
12. Yasny JS. Perioperative Dental considerations for the anesthesiologist. *Anesth Analg* 2009;108:1564-73.