



A Patient with a History of Right-Sided Stroke and Hemiplegia, in a Wheelchair, Presents with a Complaint of Upper Left Tooth Pain

Miriam R. Robbins, DDS, MS, DABSCD^{*},
Alicia Risner-Bauman, DDS, DABSCD

KEYWORDS

• Wheelchair • Hemiplegia • Dental care with stroke • Oral care adaptations

KEY POINTS

- Treating dental patients in wheelchairs.
- Poststroke dental needs assessment and treatment.
- Patient assessment and accommodations in poststroke patients.

SCENARIO

A 40-year-old man reports with sharp upper left tooth pain that is worse with chewing and cold that has been getting progressively worse during the previous week and now requires pain relief medication when it flares up.

Medical History

Patient had a right-sided stroke 3 years ago secondary to underlying atrial fibrillation resulting in left-sided hemiplegia. He is currently taking apixaban, metoprolol succinate, lisinopril, atorvastatin, and fluoxetine. Vital signs today are 130/84 mmHg, pulse 84. He is awake, alert, and oriented to person, place, and time with minor delay in decision-making abilities but able to provide consent for self.

Dental History

Sporadic dental care for last 3 years because of the provider's inability to accommodate a wheelchair. Third molars were extracted more than 10 years ago. Restorations

Department of Oral Medicine, University of Pennsylvania, School of Dental Medicine, 240 South 40th Street, Philadelphia, PA 19104, USA

* Corresponding author.

E-mail address: mrrobb@upenn.edu

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are present. Mild-to-moderate generalized cervical plaque and calculus with increased amounts on the right maxillary posterior and lower lingual anterior areas with moderate gingival inflammation. Moderate xerostomia secondary to medication. Buccal cervical caries noted #12, 13, and 15. Bite wing radiographs more than 2 years ago. Uses manual toothbrush 2 times per day with fluoride toothpaste and is not able to floss since stroke because of manual dexterity limitations.

Social History

Patient uses motorized wheelchair for ambulation and prefers to remain in chair for treatment. Reports living at home with parents since the stroke, previously lived independently. Works part time substitute teacher.

DENTAL MANAGEMENT DECISION AND JUSTIFICATION

Comprehensive history obtained before patient arrival. Because the patient does not transfer, the wheelchair was backed against the dental chair and the headrest reversed to provide support. Full mouth radiographs and comprehensive examination were completed. Cold testing and evaluation of occlusion determined reversible pulpitis secondary to buccal caries on upper second molar as the source of discomfort. Two carpules of 2% lidocaine with 1:100,000 epinephrine delivered via infiltration was used. Caries excavation revealed deep caries without pulp exposure. A restoration was placed following an indirect pulp cap. Patient tolerated care without complications. A preventive plan including oral hygiene instruction with adaptive toothbrush and introduction of mechanical toothbrush and oral irrigation flosser, 1.1% neutral sodium fluoride toothpaste prescribed bid, and prophylaxis with 3-month recall interval and fluoride varnish application was formulated.

Accommodating patients with wheelchairs depends on several factors: approximate size of the chair, whether the chair can recline, office size and layout, and whether the user can transfer or uses a Hoyer lift.^{1,2} If you do not have a Hoyer lift, the patient needs to be informed before their arrival so they can plan appropriately for toileting needs, long-term chair use, and so forth. Wheelchair tilt devices are available but the cost balanced against the amount of use and room to use may not be feasible for most practitioners. In addition to backing the patient to the dental chair, support boards and pillows can be placed between the patient and their chair² to provide proper head support.

Specific neurologic deficits that may be present secondary to stroke present treatment challenges for the patient and the provider (Table 1).³ Addressing the oral health of these patients is critical to their overall health and preventing the worsening of comorbidities that may have led to the ischemic event.⁴ This critical role of the dental provider in the recovery of these patients should be focused on disease prevention and early treatment interventions. Orofacial and tongue paralysis can lead to an increased accumulation of food debris on the affected side. Impaired dexterity, especially if on the dominant side, can decrease the patient's ability to provide effective oral hygiene. Oral health professionals need to assess the patient's abilities and teach them how to accommodate limitations to aid in their own oral care. The prevention plan developed needs to be reassessed at each recall visit, and more frequent recall may be necessary.⁵

Modifications to treatment should be based on the degree of neurologic impairment and any underlying comorbidities. Mouth props can be used during treatment if patients have difficulty remaining open due to muscle dysfunction. Vital signs should be monitored at every visit. Local anesthetics with vasoconstrictors limited to 2 carpules

Table 1 Neurologic deficits secondary to ischemic stroke	
Neurologic Deficits and Disability	Oral Health Management
Hemiparesis/hemiplegia	Modify oral care implements, monitor breathing, teach care givers, accommodate positioning with pillows, and other support
Cognitive deficits	Consent issues, understanding and following instructions
Hemianopia	Inability to see mouth, demonstrations, read clearly
Aphasia	Need to develop communication, longer appointments
Sensory deficits	Need to accommodate for office and home care
Depression	Medications can cause xerostomia, may not be motivated for self-care
Leg and ambulation impairment	Accommodate wheelchair or other mobility devices
Bladder incontinence	Numerous breaks, time and location to change incontinence items
Dysphagia	Airway protection, altered diet can lead to oral disease
Visuospatial neglect	Adaptive equipment for oral health
Arm and hand impairment	Adaptive equipment for oral health, assistance with home care

Many observed 6 mo postevent.¹

should be used to ensure profound anesthesia. All oral antithrombotic medications should be continued even for surgical procedures and local hemostatic measures used to ensure good bleeding control as needed.

CLINICS CARE POINTS

- It is important to assess the patient's medical and physical condition before providing dental treatment. This includes a review of their medical history, current medications, and any physical limitations related to their wheelchair use.
- Vital signs should be monitored at every visit.
- Local anesthetics with vasoconstrictors limited to 2 carpules should be used to ensure profound anesthesia.
- All oral antithrombotic medications should be continued with the use of local hemostatic measures to help control bleeding as needed.
Dental care should be focused on disease prevention and early treatment interventions
Modifications to treatment should be based on the degree of neurologic impairment and any underlying comorbidities
- Consider the patient's comfort during treatment, including the use of cushions or supports to alleviate pressure on the back and legs.
- Communication with the patient should consider any hearing or vision impairments that they may have.

DISCLOSURE

The authors have no financial or other interests to disclose.

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