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A Review of Oral Surgical Management in Patients with Epilepsy

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Abstract This comprehensive review examines the specific clinical considerations and evidence-based protocols necessary for safe and effective oral surgical interventions in patients diagnosed with epilepsy. The study synthesizes current literature on perioperative management, pharmacological interactions, and complication prevention strategies. A systematic literature review was conducted encompassing publications from 2003-2024 across PubMed, Scopus, Web of Science, and Cochrane databases. Search terms included "epilepsy," "oral surgery," "dental management," "antiepileptic drugs," and "seizure disorders." Inclusion criteria focused on clinical studies, systematic reviews, and evidence-based guidelines pertaining to oral surgical care in epileptic populations. Patients with epilepsy present unique challenges in oral surgical settings, including elevated risks of seizure occurrence during procedures, significant drug interactions between antiepileptic medications and dental therapeutics, and distinct oral manifestations secondary to prolonged antiepileptic drug (AED) therapy. Phenytoin induces gingival hyperplasia in approximately 50% of patients undergoing long-term treatment, necessitating specialized surgical interventions. Approximately 20 to 30% of epilepsy patients demonstrate refractory responses to current antiepileptic medications and continue experiencing seizures, requiring heightened perioperative vigilance. Evidence indicates that meticulous preoperative assessment, appropriate scheduling strategies, stress reduction protocols, and comprehensive emergency preparedness significantly minimize intraoperative complications.

Keywords Epilepsy, Oral surgery, Antiepileptic drugs, Seizure management, Dental care, Gingival hyperplasia, Perioperative management

1. Introduction

Epilepsy represents one of the most prevalent serious neurological disorders globally, with population prevalence ranging from 0.5% to 1% [1]. The highest incidence occurs at the extremes of age and in individuals with structural or developmental brain abnormalities [6,8]. The condition manifests as a chronic neurological disorder characterized by recurrent, unprovoked seizures resulting from abnormal electrical discharges in cerebral neurons [8,9].

The dental implications of epilepsy extend beyond the neurological manifestations themselves. Patients with epilepsy demonstrate significantly higher numbers of decayed and missing teeth, increased dental abrasion, and worse periodontal indices compared to the general population [11,16]. These oral health disparities arise from multiple factors including motor skill impairment affecting oral hygiene practices, medication side effects, trauma from seizures, and reduced access to dental care [2,16,17].

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- **Pathophysiology and Classification**

The human brain contains approximately 86 billion neurons interconnected through elaborate synaptic networks [4]. Seizures occur when sudden, synchronous, and excessive electrical discharges disrupt normal neurotransmission processes [8,10]. The International League Against Epilepsy classifies seizures into focal (partial) and generalized categories, with generalized tonic-clonic seizures representing the most relevant type for dental practitioners due to their dramatic clinical presentation and potential for oral trauma [6,7,9].

- **Relevance to Oral Surgery**

Seizure episodes in dental clinics constitute medical emergencies, making it imperative for oral healthcare providers to possess adequate knowledge about epilepsy management [4,7,18]. The dental surgical environment presents multiple potential seizure triggers, including psychological stress,

bright operatory lighting, pain, and anxiety [2,4,10]. Furthermore, generalized tonic-clonic seizures frequently cause minor oral injuries such as tongue lacerations, tooth trauma, and occasionally maxillofacial trauma, complications that may necessitate surgical intervention [8,9,11].

2. Oral Manifestations of Epilepsy and Antiepileptic Drug Therapy

• Drug-Induced Gingival Hyperplasia

Gingival hyperplasia represents the most common and clinically significant oral manifestation of antiepileptic drug therapy [21,22,23]. The incidence of phenytoin-induced gingival overgrowth ranges from 3% to 93%, with 50% of patients on long-term therapy prone to developing gingival overgrowth [22,23,29]. This drug-induced overgrowth is initially noticed in the papillary region and during progression involves the margins and gingival attachment, developing a characteristically lobulated and thickened appearance that may partially or completely cover tooth surfaces [21,24,26].

The pathophysiology involves complex interactions between genetic susceptibility, medication effects on fibroblast function, and inflammatory mediators [22,25,30]. Histologically, drug-related gingival overgrowth exhibits increases in extracellular ground substance and increased numbers of fibroblasts [22,25]. Extensive gingival enlargement can cause both psychological and physical challenges, with gingival tissue potentially covering all teeth, creating difficulties in speech and mastication [21,23,24].

Beyond phenytoin, other antiepileptic medications contribute to gingival changes. Sodium valproate has been associated with xerostomia, stomatitis, dysgeusia, and glossitis, increasing patient discomfort and caries susceptibility [4,11]. The clinical presentation varies considerably among individuals, influenced by factors including drug dosage, treatment duration, oral hygiene status, and genetic predisposition [22,29,30].

• Dental Caries and Periodontal Disease

Poor oral hygiene, dental trauma during seizures, and medication side effects result in tooth loss, caries, and periodontal disease occurring more frequently in epilepsy patients than in the general population [11,16,17]. Motor skill difficulties, including impaired fine motor coordination, negatively influence toothbrushing ability in epileptic individuals [16,17]. Xerostomia induced by various antiepileptic medications further exacerbates dental caries risk by reducing salivary protective factors [4,11].

• Traumatic Oral Injuries

Seizure-related oral trauma represents a significant concern requiring surgical intervention [8,9,11]. Injuries include tongue lacerations, dental fractures, luxation injuries, avulsions, temporomandibular joint damage, and maxillofacial fractures [8,9]. Patients with epilepsy demonstrate increased fracture risk because enzyme-inducing antiepileptic drugs such as phenytoin, phenobarbital, and carbamazepine alter vitamin D metabolism and clearance, potentially causing osteopenia and osteomalacia [8,13].

3. Perioperative Management Considerations

• Preoperative Assessment and Medical Consultation

Comprehensive preoperative evaluation forms the foundation of safe oral surgical care for epileptic patients [2,4,6]. A thorough health history to fully understand the patient's disease and medications is essential, along with proper oral examination to uncover dental problems and possible oral effects of antiepileptic drugs [2,18,20].

Critical information includes [4,7,8]:

- Epilepsy type and classification
- Seizure frequency and timing patterns
- Last seizure occurrence
- Current antiepileptic medication regimen and compliance
- Identified seizure triggers
- History of status epilepticus
- Previous dental treatment experiences
- Neurologist contact information

Dentists must obtain clearance from the treating neurologist prior to treating an epileptic patient, ensuring the patient is well-controlled on medication [4,12,20]. Approximately 70% of dentists prefer short-term general anesthesia for critical patients, highlighting the importance of coordinated care planning [12].

• Antiepileptic Drug Management

Maintenance of therapeutic antiepileptic drug levels throughout the perioperative period is paramount [5,13,14,19]. Patients should be advised to take regular medications on the morning of surgery, and regular dosing should be re-established as early as practicable after surgery [5,13,19]. Antiepileptic drugs should be taken early in the morning before surgery, and patients typically instructed not to eat or drink after midnight should inform their doctor about seizure medications [13,19].

If single doses are missed during day-case surgery, they should be taken as soon as possible postoperatively [5,13]. Where multiple doses are likely to be missed, antiepileptic drugs should be administered parenterally where possible, as intravenous formulations of phenytoin, sodium valproate, and levetiracetam are available with equivalent dosing to oral forms [5,13,14].

The risk of perioperative seizures increases when antiepileptic medication levels are subtherapeutic [5,13,14]. In hospitalized patients undergoing general surgery under general anesthesia, perioperative seizure frequency in known epileptics was 3.4%, while those treated with regional local anesthesia showed 5.8% incidence [13]. Primary contributing factors include insufficient systemic antiepileptic drug levels from missed or altered doses, reduced absorption, and

medication interactions [5,13,14].

- **Appointment Scheduling and Environmental Modifications**

Strategic appointment timing significantly reduces seizure risk [4,7,10]. Appointments should be scheduled during times when seizures are less likely to occur, with many patients experiencing predictable timing patterns [7,10,18]. Morning appointments are generally preferred when patients are well-rested and medication levels are optimal [4,10].

Environmental modifications to minimize seizure triggers include [2,4,7,10]:

- Keeping bright lights out of patients' eyes, with dark glasses in the operatory representing an effective choice
- Reducing noise levels in the treatment area
- Minimizing waiting times to reduce anxiety
- Maintaining comfortable ambient temperature
- Explaining procedures before starting to reduce stress and anxiety

- **Anesthetic Considerations**

Local Anesthesia

Local anesthetics administered in therapeutic dosages do not interact with standard antiepileptic drugs, though critical overdoses may trigger generalized tonic-clonic convulsions [4,6,8]. Local anesthesia should be preferred over general anesthesia when possible, as the brain may suffer temporary anoxia during general anesthesia, potentially initiating epileptic seizures [4,8,20].

Vasoconstrictor use requires consideration. Mepivacaine and articaine with minimal epinephrine concentrations (maximum 1:200,000) are recommended [4,8]. The anxiety reduction benefits of effective local anesthesia typically outweigh theoretical risks associated with epinephrine administration [6,8].

Conscious Sedation and General Anesthesia

The use of conscious sedation and general anesthesia is not contraindicated in patients with epilepsy [13,14,15]. Many anesthetics have been reported to have proconvulsant effects at low levels but act as anticonvulsants when administered at levels required for general anesthesia [13,14, 15]. Thiopental represents a safe and effective anesthetic that can counter convulsive status epilepticus, while propofol can be administered intraoperatively to suppress epileptic events [13,14,15].

Certain anesthetics including ketamine, etomidate, and methohexital demonstrate both proconvulsant and anticonvulsant properties depending on dosage [14,15]. Inhalational agents such as isoflurane, halothane, and desflurane are not inherently proconvulsant but may promote epileptic episodes when combined with other medications [13,14].

Approximately 92% of neurologists recommend general anesthesia for critical patients, including uncooperative patients, those with learning difficulties, and patients with frequent generalized tonic-clonic or complex partial seizures [12]. Selection between sedation techniques and general anesthesia depends on seizure control status, procedure complexity, patient cooperation, and medical comorbidities [5,12,13].

- **Drug Interactions**

Antiepileptic medications interact with numerous dental therapeutics, potentially compromising seizure control or causing adverse effects [4,6,12]. Metronidazole, antifungal agents such as fluconazole, and antibiotics including erythromycin may interfere with antiepileptic drug metabolism [4,6,12]. Coadministration of fluconazole and phenytoin produces clinically significant increases in phenytoin plasma concentrations, requiring dose adjustments to maintain safe therapeutic levels [6,12].

Newer anticonvulsants including vigabatrin, lamotrigine, levetiracetam, oxcarbazepine, and gabapentin demonstrate minimal interaction potential with fluconazole [6,12]. Analgesic selection requires careful consideration, as certain nonsteroidal anti-inflammatory drugs may interact with antiepileptic medications or increase bleeding risk when combined with valproate [4,6].

4. Surgical Management of Gingival Hyperplasia

- **Conservative Management**

Initial management of drug-induced gingival hyperplasia emphasizes conservative approaches [22,24,25,26]. Controlling the inflammatory component through appropriate oral hygiene programs may benefit patients by limiting gingival overgrowth severity [22,25,26]. Professional dental hygiene every three months is recommended to control dental plaque, and patients should practice thorough oral hygiene twice daily before breakfast and before bed, rinsing with plain water after each meal [24,26,27].

Drug substitution feasibility should be discussed with the physician, as carbamazepine, ethosuximide, and sodium valproate represent alternatives to phenytoin that do not cause drug-induced gingival enlargement [4,22,25]. Regression of gingival overgrowth has been demonstrated after discontinuation of causative medications, though this approach often proves impractical when medications provide essential seizure control [22,25,30].

- **Surgical Interventions**

When conservative measures prove insufficient, surgical intervention becomes necessary [21,23,24,26,27]. Scalpel gingivectomy, flap surgery, electrosurgery, and laser gingivectomy represent surgical modalities frequently used to manage severe overgrowths [23,24,25,27]. Management of phenytoin-induced gingival overgrowth may be obtained through periodontal procedures combined with good oral hygiene and periodontal supportive care [24,26,27].

The surgical approach selection depends on several factors [23,24,25]:

- Extent and distribution of gingival overgrowth
- Presence of underlying periodontal disease
- Bone involvement
- Patient cooperation and pain tolerance
- Surgeon expertise and equipment availability

Conventional scalpel gingivectomy remains the gold standard, providing excellent tissue removal with predictable healing [24,27]. The procedure involves [24,26,27]:

1. Adequate local anesthesia administration
2. Marking of incision lines at appropriate gingival positions
3. Surgical excision of excessive tissue
4. Thorough tissue contouring and smoothing
5. Periodontal dressing placement when indicated
6. Postoperative care instructions and follow-up scheduling

Laser-assisted surgery offers advantages including reduced bleeding, decreased postoperative discomfort, and enhanced precision [25,27]. However, equipment costs and technique-specific training requirements limit universal adoption [25].

Electrosurgery provides effective hemostasis and good tissue contouring but requires careful application to prevent thermal damage to underlying structures [24,25]. Bone exposure necessitates modification to flap procedures rather than simple gingivectomy [24,27].

- **Postoperative Management and Recurrence Prevention**

The prevention and management of drug-induced gingival enlargement remains unsatisfactory, with the problem compounded by high recurrence rates arising from chronic medication usage and persistent risk factors [22,24,30]. Long-term success requires [24,26,27,30]:

- Continuation or intensification of oral hygiene protocols
- Regular professional maintenance at 3-month intervals
- Oral medicine specialist and periodontist monitoring for as long as patients receive therapy with drugs inducing gingival overgrowth
- Patient education regarding condition chronicity
- Consideration of medication alternatives when recurrence occurs

5. Emergency Seizure Management in the Dental Office

- **Seizure Recognition and Classification**

Seizures are defined as fits or convulsions occurring when sudden bursts of electrical activity in the brain temporarily interfere with normal messaging processes [7,9,10]. Generalized tonic-clonic (grand mal) seizures represent the most dramatic presentation, progressing through distinct phases [7,9,10]:

Tonic Phase: Sudden loss of consciousness, muscle rigidity, possible cyanosis, lasting 10-30 seconds [7,9]

Clonic Phase: Rhythmic muscle contractions, possible tongue biting, excessive salivation, lasting 30-60 seconds [7,9]

Postictal Phase: Gradual consciousness return, confusion, fatigue, possible amnesia, lasting minutes to hours [7,9,10]

Many patients experience auras—subjective warning symptoms including unusual sensations, visual disturbances, or emotional changes—providing brief opportunities for protective positioning before seizure onset [7,9,10].

- **Immediate Management Protocol**

The basic algorithm for management involves positioning, airway, breathing, circulation, and definitive treatment [7,9,10,18]. When a patient experiences a seizure during dental treatment [7,9,10]:

Initial Response:

1. Remove all dental instruments and supplies from the patient's mouth immediately [7,9,18]
2. If the patient is on the dental chair, place it in a supported supine position as near to the floor as possible; if not on the chair, ease the patient onto the floor and protect the head from injury by gently cushioning with a pillow or coat [7,9,10]
3. Move objects away from the patient to prevent injury [7,9]
4. If dental treatment has begun, try easing the patient onto their side to reduce aspiration risk of secretions and recent dental work [7,9]

Critical Don'ts:

- Do not restrain the patient [7,9,10]
- Do not put fingers in the patient's mouth or attempt to insert bite blocks [7,9,10]
- Do not attempt to control convulsive movements [7,9]
- Do not offer liquids or medications by mouth during the seizure [7,9]

Monitoring and Assessment:

- Time the seizure duration carefully [7,9,10]
- Observe seizure characteristics for medical reporting [7,9]
- Loosen tight clothing around the neck and belts [7,9]
- Monitor airway patency and breathing adequacy [7,9,10]
- Check pulse to verify cardiovascular function [7,9]

- **Prolonged Seizures and Status Epilepticus**

If the seizure lasts longer than five minutes or repeated seizures occur, administer buccal midazolam or appropriate emergency antiepileptic drugs and contact emergency services [7,9,10]. Status epilepticus, defined as seizures refractory to two antiepileptic drugs, carries high morbidity and requires general anesthesia, with treatment using midazolam, thiopental, or propofol being acceptable [7,9,13].

Buccal midazolam administration (10 mg for adults) provides rapid absorption and onset, offering advantages over intravenous access attempts in actively seizing patients [7,9]. The medication should be placed in the buccal pouch when possible, though absorption occurs even with suboptimal placement [7,9].

• Post-Seizure Management

Once the seizure finishes, place the patient in the recovery position on their side [7,9,10]. Additional considerations include [7,9,10]:

1. Do not undertake further dental treatment that day
2. Talk to the patient to evaluate consciousness level during the postictal phase
3. Do not attempt to restrain the patient, as confusion is common
4. Do not allow the patient to leave if awareness is not fully restored
5. Contact the patient's family if alone
6. Perform a brief oral examination for sustained injuries
7. Depending on postictal state, discharge the patient home with a responsible person, to their family physician, or to an emergency room for further assessment

• Emergency Equipment and Medications

Dental practices treating patients with epilepsy should maintain appropriate emergency equipment and medications [7,9,10,18]:

- Oxygen delivery system with positive pressure ventilation capability
- Suction equipment for airway clearance
- Blood pressure monitoring equipment
- Pulse oximetry
- Emergency medications including buccal or intramuscular midazolam
- Emergency contact protocols and numbers
- Documentation forms for incident reporting

6. Prosthetic Considerations

• Fixed Versus Removable Prosthetics

Fixed prosthetics are preferable to removable prosthetics because they reduce choking and aspiration hazards during seizures [4,8,12,20]. If prosthetic restorations are considered, ensure they are appropriate for the seizure rate, level, and frequency, and they are resistant to damage or displacement during epileptic seizures [4,8,20].

Approximately 70% of dentists recommend dental ceramic for prosthetic reconstruction of anterior teeth, while 64% would not recommend removable dentures [12]. These preferences reflect concerns regarding aspiration risk, fracture during seizures, and potential airway obstruction [12,20].

• Dental Implants

Dental implants offer advantages for epileptic patients by providing stable, fixed prosthetic support without reliance on removable components [4,8]. Considerations include [4,8]:

- Assessment of bone density, particularly in patients on enzyme-inducing antiepileptic drugs
- Evaluation of seizure control status before undertaking extensive surgical procedures
- Discussion of maintenance requirements and potential complications
- Financial and accessibility factors influencing long-term implant success

• Protective Devices

For patients experiencing frequent nocturnal seizures or those at high risk for dental trauma, custom-fabricated mouth guards provide protection during sleep [8,9]. These devices should balance protection with comfort to encourage compliance [8,9]. Materials selection should consider durability, biocompatibility, and ease of cleaning [8].

7. Special Populations and Situations

• Pediatric Patients

Children with epilepsy present unique management challenges [1,17]. Epileptic children are more anxious about dental care than healthy counterparts, potentially leading to decreased dental visit frequency and poor oral health [1,17]. Behavioral management techniques including tell-show-do approaches, positive reinforcement, and parent presence often facilitate successful treatment [1,17].

Rather than sedation, some practitioners successfully advocate conditioning to pending dental procedures by tell-show-do approach [1,17]. Pharmacological behavior management remains available when psychological techniques prove insufficient [1,17].

• Intellectually Disabled Patients

Patients with combined epilepsy and intellectual disabilities require additional considerations [3,17]. Epilepsy with intellectual deterioration and neurological disorders can have social, physical, and psychological consequences, with seizure episodes and mental deterioration compromising oral and dental care [3,17]. Treatment planning must account for cooperation limitations, communication challenges, and caregiver involvement [3,17].

• Refractory Epilepsy

In the UK, an estimated 100,000 people with epilepsy need continuing specialist neurological input, and while some respond to surgical intervention, over 35,000 continue having more than one seizure monthly [5]. These patients require enhanced precautions [5,8]:

- Mandatory neurologist consultation before treatment
- Possible hospital setting for complex procedures
- General anesthesia consideration for extensive interventions
- Heightened emergency preparedness

8. Multidisciplinary Team Approach

• Communication with Neurologists

Effective epilepsy management in dental settings necessitates collaboration between dental practitioners and neurologists [4,5,12,20]. Approximately 62% of neurologists are asked for advice by their patients, and 71% know about particular

risks and interactions between antibiotics/analgesics and antiepileptic drugs [12]. Communication should address [4,5,12]:

- Current seizure control status and frequency
- Antiepileptic medication regimen and recent changes
- Clearance for dental procedures under consideration
- Emergency contact information
- Management of perioperative antiepileptic drug administration

• Role of Anesthesiology

For complex surgical procedures or patients with poorly controlled epilepsy, anesthesiologist involvement enhances safety [13,14,15,19]. Anesthesiologists provide expertise in [13,14,15]:

- Perioperative antiepileptic drug management
- Anesthetic agent selection and administration
- Airway management during seizures
- Status epilepticus treatment if required
- Postoperative monitoring protocols

• Family and Caregiver Education

Patient families and caregivers play crucial roles in successful oral health management [1,3,17]. Education should encompass [1,3,17]:

- Importance of medication compliance
- Home oral hygiene techniques adapted to patient abilities
- Recognition of medication side effects requiring dental attention
- Emergency seizure management
- Scheduling and transportation for dental appointments
- Financial resources and assistance programs

9. Conclusions

Oral surgical management of patients with epilepsy requires comprehensive understanding of the neurological condition, its oral manifestations, medication effects, and potential complications [4,6,8,20]. Success depends on [2,4,5,6,7,8]:

1. **Thorough Preoperative Assessment:** Including seizure history, current control status, medication regimen, and neurologist consultation [2,4,6]
2. **Strategic Treatment Planning:** Optimizing appointment timing, environmental modifications, and procedure staging to minimize seizure risk [4,7,10]
3. **Pharmacological Management:** Maintaining antiepileptic drug levels, recognizing drug interactions, and selecting appropriate anesthetics [5,6,12,13,14]
4. **Emergency Preparedness:** Equipment availability, staff training, and protocol familiarity for seizure management [7,9,10]
5. **Multidisciplinary Coordination:** Communication among dental surgeons, neurologists, anesthesiologists, and caregivers [4,5,12,13]
6. **Long-term Maintenance:** Addressing medication side effects, particularly gingival hyperplasia, through combined surgical and nonsurgical approaches [22,24,26,27]

In general, patients are satisfied with their dental treatment, though dentists need more knowledge regarding treating patients with seizures [12,20]. Continued education, protocol development, and research into optimal management strategies will further improve outcomes for this patient population [4,6,8].

The dental profession bears responsibility for providing equitable, safe, and effective care to all patients, including those with epilepsy [2,4,6]. By implementing evidence-based practices and maintaining current knowledge of epilepsy management, oral surgeons and general dentists can significantly improve both oral health and quality of life for patients living with seizure disorders [4,6,8,16].

REFERENCES

[1] M. Goswami, S. Johar, and A. Khokhar, "Oral Health Considerations and Dental Management for Epileptic Children in Pediatric Dental Care," International Journal of Clinical Pediatric Dentistry, vol. 16, no. 1, pp. 170-176, 2023.

[2] "Oral Health Fact Sheet for Dental Professionals: Adults with Epilepsy," University of Washington School of Dentistry. Available at: https://dental.washington.edu/wp-content/media/sp_need_pdfs/Epilepsy-Adult.pdf.

[3] S. R. Joshi, "A comprehensive oral and dental management of an epileptic and intellectually deteriorated adolescent," Journal of Contemporary Dental Practice, vol. 14, no. 4, pp. 744-747, 2013.

[4] Y. Mehmet, et al., "Management of Epileptic Patients in Dentistry," Surgical Science, vol. 3, pp. 47-52, 2012.

[5] P. J. Chapman, et al., "Specialist management of routine dental procedures in adults with refractory epilepsy," British Dental Journal, vol. 216, no. 8, E17, 2014.

[6] E. T. Stoopler, T. P. Sollecito, and M. S. Greenberg, "Seizure disorders: update of medical and dental considerations," Journal of the American Dental Association, vol. 134, no. 6, pp. 746-752, 2003.

[7] J. J. Fitzpatrick, N. S. McArdle, M. H. Wilson, and L. F. Stassen, "Epilepsy in dental practice," Journal of the Irish Dental Association, vol. 54, no. 3, pp. 132-137, 2008.

[8] M. D. Turner and R. S. Glickman, "Epilepsy in the Oral and Maxillofacial Patient: Current Therapy," Journal of Oral and Maxillofacial Surgery, vol. 63, no. 7, pp. 996-1005, 2005.

[9] B. J. Sanders, J. A. Weddell, and N. N. Dodge, "Managing Patients Who Have Seizure Disorders: Dental and Medical Issues," Journal of the American Dental Association, vol. 126, no. 12, pp. 1641-1647, 1995.

[10] J. Fiske and C. Boyle, "Epilepsy and Oral Care," Dental Update, vol. 29, pp. 180-187, 2002.

[11] E. O. Ogunbodede, B. Adamolekun, and A. O. Akintomide, "Oral Health and Dental Treatment Needs in Nigerian Patients with Epilepsy," Epilepsia, vol. 39, no. 6, pp. 590-594, 1998.

[12] S. Steinhäuser-Andresen, et al., "Dental care in patients with epilepsy: a survey of 82 patients and their attending dentists and neurologists in southern Germany," International Journal of Environmental Research and Public Health, vol. 17, no. 24, 9395, 2020.

[13] A. Perks, S. Cheema, and R. Mohanraj, "Anaesthesia and epilepsy," British Journal of Anaesthesia, vol. 108, no. 4, pp. 562-571, 2012.

[14] S. Y. Lee and Y. J. Lim, "Antiepileptic drugs and anesthesia," Korean Journal of Anesthesiology, vol. 69, no. 6, pp. 545-551, 2016.

[15] "Anesthesia Considerations for Patients with Epilepsy," Radius Anesthesia Services, 2021. Available at: https://radiusanesthesia.com/epilepsy-anesthesia/.

[16] K. Károlyházy, E. Kovács, P. Kivovics, P. Fejérdy, and Z. Arányi, "Dental status and oral health of patients with epilepsy: an epidemiologic study," Epilepsia, vol. 44, no. 8, pp. 1103-1108, 2003.

[17] "Dental concerns and management of children with Epilepsy: An overview," Open Access Macedonian Journal of Medical Sciences, vol. 8, no. D, pp. 265-270, 2020.

[18] "Dental Management of Epileptic Patient," Clinical Guidelines. Available at: https://www.slideshare.net/emanhassona/dental-management-of-epileptic-patppt.

[19] "Anesthesia and Surgery in People with Epilepsy," University of Virginia Health System, 2015. Available at: https://med.virginia.edu/neurology/wp-content/uploads/sites/235/2015/11/PE04105_eng_GuidelinesAnesthesia.pdf.

[20] "Management of Epileptic Patients in Dentistry," ResearchGate, 2012. doi:10.4236/ss.2012.31009.

[21] V. Bharti, C. Bansal, S. R. Galgali, and P. Kalra, "Phenytoin-induced gingival enlargement," BMJ Case Reports, 2014: bcr2014203888, 2014.

[22] S. Barclay, J. M. Thomason, J. R. Idle, and R. A. Seymour, "Medically Induced Gingival Hyperplasia," Mayo Clinic Proceedings, vol. 73, no. 12, pp. 1196-1199, 1998.

[23] R. Sharma, et al., "Drug induced gingival enlargement - phenytoin: an overview and case report," Journal of Surgical Case Reports, vol. 2024, no. 5, rjae304, 2024.

[24] S. C. Steinberg and A. D. Steinberg, "Clinical management of phenytoin-induced gingival overgrowth in handicapped children," ASDC Journal of Dentistry for Children, vol. 49, no. 2, pp. 104-109, 1982.

[25] "Drug-Induced Gingival Hyperplasia Treatment & Management," Medscape, 2023. Available at: https://emedicine.medscape.com/article/1076264-treatment.

[26] S. Dhir and S. Gupta, "Periodontal management of phenytoin induced gingival enlargement: a case report," Journal of Advanced Medical and Dental Sciences Research, vol. 5, no. 8, pp. 93-96, 2017.

[27] B. C. V. Gurgel, et al., "Surgical and non-surgical treatment of phenytoin-induced gingival enlargement," Journal of Applied Oral Science, vol. 12, no. 4, pp. 365-368, 2004.

[28] R. Livada and J. Shiloah, "Calcium channel blocker-induced gingival enlargement," Journal of Human Hypertension, vol. 28, no. 1, pp. 10-14, 2014.

[29] L. Brunet, J. Miranda, P. Roset, L. Berini, M. Farré, and C. Gay-Escoda, "Prevalence and risk of gingival enlargement in patients treated with anticonvulsant drugs," European Journal of Clinical Investigation, vol. 31, no. 9, pp. 781-788, 2001.

[30] R. I. Marshall and P. M. Bartold, "A clinical review of drug-induced gingival overgrowths," Australian Dental Journal, vol. 44, no. 4, pp. 219-232, 1999.