

AN AYURVEDIC AND BIOMEDICAL COMPARATIVE REVIEW OF DANTADHAVANA CONTRAINDICATIONS AS PROTECTIVE GUIDELINES DURING SYSTEMIC ILLNESS

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ABSTRACT

Background: *Dantadhavana* (tooth brushing) is an integral component of Ayurvedic *Dinacharya* practices, prescribed to maintain oral cleanliness, stimulate sensory organs, and promote systemic balance. Ayurvedic texts simultaneously prescribe several contraindications for brushing during specific systemic diseases: *Ajirṇa* (indigestion), *Chardi* (vomiting), *Shvasa* (dyspnoea), *Kasa* (cough), *Jvara* (fever), *Ardita* (facial paralysis), *Tṛṣṇa* (excessive thirst/dehydration), *Mukha-vraṇa* (oral ulcers), *Hṛdroga* (heart disease), and *Shiro- Akshi- Karna Rogas* (disorders of the head, eyes, and ears). Rather than absolute prohibitions, these classical guidelines appear to function as protective, context-sensitive precautions during systemic imbalance. This review paper critically reinterprets these contraindications through the lens of contemporary biomedical science. **Methods:** Ayurvedic texts *Charaka*

Samhita, *Sushruta Samhita*, *Ashtanga Hridayam*, and *Bhavaprakasha* were analysed for references to *Dantadhavana* indications, *Nishedhas* (contraindications), and associated pathophysiology. Contemporary biomedical literature was reviewed from PubMed and

Scopus. Authoritative clinical guidelines were retrieved from the American Dental Association (ADA), Cochrane Database of Systematic Reviews, National Cancer Institute (PDQ), MASCC/ISOO, NIDCR, and the NHS. A comparative interpretive framework was applied for thematic correlation. **Results:** Ayurvedic contraindications of *Dantadhavana* correspond with biomedical concerns: enamel erosion after vomiting; mucosal fragility during fever and dehydration; impaired oral motor control in facial palsy; bacteraemia risk in cardiac patients; cough-reflex and aspiration risk in respiratory compromise; mechanical trauma to ulcerated mucosa; and trigeminal-pathway sensitivity in craniofacial pain. The strongest direct evidence supports modifications in vomiting, cardiac disease, facial palsy, oral ulcers, and xerostomia. Moderate evidence supports respiratory conditions. Indigestion is supported by plausible reflex-based reasoning. **Conclusion:** Contraindications for *Dantadhavana* align with modern pathophysiological mechanisms and should be interpreted as relative, condition-specific precautions rather than rigid prohibitions. Both traditions advocate modified oral hygiene - *Kavala*, *Gandusha*, or gentle brushing during systemic illness. This integrative perspective supports individualised, safer oral-health practices.

KEYWORDS: *Dantadhavana*, *Dinacharya*, Tooth brushing, contraindications, Systemic illness.

1. INTRODUCTION

Dantadhavana (tooth brushing) is described in Ayurvedic *Dinacharya* (daily routine) as essential for maintaining oral hygiene, improving sensory perception, strengthening the gingiva, and supporting systemic health. Meanwhile, modern dentistry corroborates this view as tooth brushing is the cornerstone of oral hygiene, and its consistent practice reduces dental caries, periodontal inflammation, and the systemic inflammatory burden implicated in diabetes and cardiovascular disease.

Uniquely, Ayurveda classical texts prescribe specific systemic conditions in which *Dantadhavana* should be avoided or modified. A careful examination, however, reveals that each corresponds to a physiological state in which mechanical oral stimulation may worsen the patient's condition through identifiable biomedical mechanisms like reflex activation, mucosal trauma, bacteraemia, enamel erosion, or sensory overstimulation.

This paper systematically examines all classical contraindicated conditions and re-evaluates their clinical relevance through contemporary evidence. The aim is to demonstrate that each

carries plausible or well-supported biomedical rationale, and to translate these contraindications into practical, evidence-aligned oral-care guidance.

2. MATERIALS AND METHODS

Ayurvedic Review

Charaka Samhita, *Sushruta Samhita*, *Ashtanga Hridayam* and *Bhavaprakasha* were analysed for chapter-level references to *Dantadhavana* indications, contraindications (*Nishedhas*), disease descriptions, and the associated Ayurvedic pathophysiology (*Samprapti*).

Biomedical Review

Literature was reviewed from PubMed and Scopus using keywords: "oral hygiene during illness," "tooth brushing contraindications," "vomiting enamel erosion," "gag reflex brushing," "oral care critical care," "xerostomia brushing," "facial palsy oral health," "bacteraemia toothbrushing," "mucositis oral care," and "trigeminal neuralgia dental." Authoritative clinical guidelines were retrieved from the ADA, Cochrane Database of Systematic Reviews, National Cancer Institute (PDQ), MASCC/ISOO, NIDCR, and the NHS. Findings were mapped to classical Ayurvedic conditions for thematic correlation.

3. RESULTS

Classical Contraindications

The following conditions are listed as contraindications for *Dantadhavana* in classical Ayurvedic literature^[1,2,3,4]

- *Ajīrṇa* (Indigestion)
- *Chardi* (Vomiting)
- *Śvāsa* (Dyspnoea) and *Kāsa* (Cough)
- *Jvara* (Fever)
- *Ardita* (Facial Paralysis)
- *Tr̥ṣṇā* (Excessive Thirst / Dehydration)
- *Mukha-vraṇa* (Oral Ulcers / Stomatitis)
- *Hṛdroga* (Heart Disease)
- *Akṣi-Śira-Karṇa Roga* (Disorders of the Eyes, Head, and Ears)

Comparative Table: Ayurvedic Condition, Biomedical Mechanism, and Protective Oral-

Care Logic

Ayurvedic Condition	Biomedical Mechanism	Protective Logic & Recommended Oral-Care Modification
Ajirṇa (Indigestion)	In indigestion, nausea, heaviness, and upper gastrointestinal discomfort are commonly present. Deep brushing, especially over the posterior tongue, soft palate, or pharyngeal area, stimulates the gag reflex and vagal afferents (Cranial nerve IX/X), which may worsen nausea or provoke vomiting. Oral-gut microbiome research supports a broader relationship between oral health and gastrointestinal function, though it does not directly prove that brushing is contraindicated in indigestion. ^[5,6,7]	Avoid deep, forceful brushing when <i>Ajirṇa</i> is associated with nausea, heaviness, belching, or vomiting tendency. Gentle rinsing, superficial brushing, <i>Kavala</i> , or <i>Gandusha</i> may be safer until digestive discomfort improves. ^[5,6,7]
Chardi (Vomiting)	Vomiting exposes teeth to gastric acid (pH 1.5–3.5), which temporarily softens enamel by dissolving calcium hydroxyapatite. Brushing immediately after vomiting mechanically abrades the acid-softened enamel and may trigger further gagging. This risk is supported by clinical studies of erosion in patients with eating disorders and by ADA guidance. ^[8,9]	Do not brush immediately after vomiting. First rinse with water, milk, or sodium bicarbonate solution. Delay brushing approximately 30–60 minutes, allowing saliva to neutralise acid and reduce enamel damage. ^[8,9]
Śvāsa / Kāsa (Dyspnoea / Cough)	In dyspnoea or cough, brushing may trigger coughing, gagging, breath-holding, or aspiration risk, particularly in respiratory-compromised patients. Critical-care oral hygiene evidence supports modified oral-care methods – mouthrinse, gel, suction toothbrush, swabs, and assisted oral care over vigorous mechanical brushing. ^[10]	Minimise respiratory effort. Use upright positioning, gentle cleansing, rinsing, suction-assisted brushing, oral swabs, or assisted care rather than vigorous brushing during acute breathlessness or severe cough. ^[10]
Jvara (Fever)	Fever is commonly associated with dehydration, reduced oral intake, dry mouth, general weakness, and mucosal sensitivity. Dry oral mucosa has diminished salivary protection and is more vulnerable to friction, irritation,	Prevent gingival trauma and mucosal injury. Use soft or ultra-soft brushing, saline or bicarbonate rinses, oral moisturization, and gentle cleansing instead of forceful brushing during febrile weakness

	and trauma. Supportive oral-care guidance recommends gentle cleaning, soft-bristle brushing, and bland rinses when the mucosa is vulnerable. ^[11,12,13,14]	or oral dryness. ^[11,12,13,14]
Ardita (Facial Paralysis)	Facial paralysis reduces facial muscle control, lip seal, cheek movement, and oral clearance. Food may remain pooled in the cheek pouch; the patient may drool or have difficulty managing liquids. Brushing may be less effective or unsafe on the affected side. Strobelt et al. ¹⁵ demonstrated significantly higher prevalence of periodontal disease and caries on the paretic side, confirming differential oral vulnerability.	Prevent accidental injury, cheek biting, food retention, and plaque accumulation. Assisted or mirror-guided brushing, soft toothbrushes, and gentle rinsing are preferable. Emphasis on the paretic side is essential. ^[15]
Tr̥ṣṇā (Excessive Thirst / Dehydration)	Excessive thirst commonly indicates dehydration or dry mouth (xerostomia). Dehydration and xerostomia reduce salivary lubrication and oral buffering capacity. Reduced saliva increases burning sensation, friction, mucosal fragility, caries risk, and infection susceptibility. ^[13,14,15,16]	Protect dry and fragile mucosa. Encourage hydration, frequent gentle rinsing, saliva substitutes if needed, and avoidance of forceful or abrasive brushing. ^[13,14,15,16]
Mukha-vraṇa (Oral Ulcers / Stomatitis)	Oral ulcers and inflamed mucosa are mechanically sensitive. Direct brushing over ulcerated tissue may increase pain, bleeding, irritation, and delay epithelial healing by disrupting migrating keratinocytes. Oral mucositis guidance consistently recommends soft-bristle brushing, saline or bicarbonate rinses, and gentle cleaning rather than traumatic brushing. ^[11,12,13,14]	Avoid vigorous brushing directly over ulcers. Maintain oral hygiene with soft brushing around lesions, bland rinses, topical care when indicated, <i>Kavala</i> or <i>Gandusha</i> with herbal decoctions, and avoidance of irritant dentifrices. ^[11,12,13,14]
Hṛidroga (Heart Disease)	Tooth brushing can cause transient bacteraemia, particularly when the gingiva is inflamed or brushing is traumatic. Lockhart et al. ^[17] confirmed bacteraemia in 23% of subjects after brushing, comparable to dental extraction, with viridans streptococci as predominant organisms. This is clinically relevant in patients at risk of infective endocarditis.	Avoid vigorous or traumatic brushing in high-risk cardiac patients. Maintain oral hygiene through gentle, atraumatic technique, periodontal care, and individualised dental and medical advice. ^[17,18]

	However, poor oral hygiene itself increases periodontal inflammation and systemic inflammatory burden, reinforcing that hygiene must be maintained — not abandoned. ^[17,18]	
Akṣi-Śira-Karṇa Roga (Disorders of Eyes, Head & Ears)	Oral and dental stimulation involves trigeminal sensory pathways (CN V). In trigeminal neuralgia and craniofacial pain states, even light stimulation such as tooth brushing can trigger severe facial pain. This evidence most directly supports caution in acute craniofacial pain and head disorders. The link with all eye and ear disorders should be presented cautiously as plausible, based on trigemino-autonomic reflex arcs. ^[19,20]	Avoid excessive oral sensory stimulation during acute head, facial, eye, or ear pain states. Use gentle, short-duration oral care, warm water rinsing, soft brushes, or rinsing until sensitivity reduces. ^[19,20]

4. DISCUSSION

Ayurvedic Rationale for Contraindications

The contraindications for *Dantadhavana* are grounded in four interdependent Ayurvedic principles. First, states of *Doṣic* imbalance alter tissue response, mucosal and dental tissues that are resilient under physiological equilibrium become vulnerable when *Vata*, *Pitta*, or *Kapha* are vitiated. Second, *Agni* impairment compromises tissue repair and immune defence, making trauma more consequential. Third, depleted *Ojas* (systemic vitality) leaves the body unable to mount adequate local responses to microtrauma. Fourth, the principle of *Ahita Dinacharya*, modifying daily routine during illness is an explicit Ayurvedic tenet. Together, these form a coherent and contextually sensitive safety framework.

Acharyas understood that brushing with hard twigs (*Danta Kashtha*), could in specific circumstances intensify nausea, trigger cough, cause oral bleeding, increase pain, or introduce infection risk during systemic vulnerability. The *Nishedhas* are therefore precision safety instructions, not anti-hygienic directives.

Biomedical Convergence

The reviewed evidence demonstrates meaningful convergence with classical observations across all contraindicated conditions:

- **Chardi:** Acid softening of enamel post-vomiting is well-documented, and the 30–60 minute delay before brushing is now an ADA recommendation.^[8,9]
- **Hridroga:** Transient bacteraemia from toothbrushing confirmed at clinically relevant rates by Lockhart *et al.*^[17], with broader oral-cardiovascular associations further substantiated.^[18]
- **Ardita:** Direct clinical evidence of poorer periodontal and dental outcomes on the paretic side in facial palsy patients.^[15]
- **Shvasa/Kasa:** Critical-care oral hygiene protocols for ventilated patients advocate modified, atraumatic oral care for precisely the reasons Ayurveda identified.^[10]
- **Mukha-vrana:** Oncology and mucositis guidelines restrict mechanical brushing over ulcerated mucosa, consistent with the Ayurvedic contraindication.^[11,12,13]
- **Tr̥ṣṇa:** Xerostomia and dehydration increase mucosal fragility and abrasive wear, substantiated by NIDCR and NHS guidance.^[14,16]
- **Ajir̥ṇa:** The gag reflex and vagal pathway mechanism is plausible and supported by evidence on gag reflex management in dental settings^[5], with contextual support from oral-gut microbiome research.^[6,7]

Relative Contraindications and Safe Modifications

These Ayurvedic contraindications are best understood as relative contraindications - contextual safety modifications, not blanket prohibitions. The integrative evidence-aligned approach recommends:

- Use ultra-soft or extra-soft toothbrushes to reduce trauma potential in all medically vulnerable states.
- Postpone brushing temporarily e.g., 30–60 minutes post-vomiting^{8,9}, during acute respiratory distress^[10], or during rigors.
- Substitute with *Kavala* (medicated oil/decoction gargling) or *Gandusha* (passive oil holding), which align with medicated rinse and oil-pulling protocols in integrative dentistry.
- Use warm saline, fluoride, or alkaline rinses as interim oral hygiene measures.
- Employ foam swabs, gauze wipes, or suction toothbrushes for severely ill, bedbound, or dyspnoeic patients.^[10]

- Resume *Dantadhavana* progressively as systemic illness resolves; these are time-limited precautions, not permanent prohibitions.

5. CONCLUSION

This comparative review demonstrates that Ayurvedic contraindications for *Dantadhavana* carry clinically coherent, biomedically grounded protective reasoning across all nine contraindicated conditions. The correspondences reflect shared recognition of fundamental physiological vulnerabilities - mucosal fragility, reflex hypersensitivity, bacteraemia risk, enamel erosion, and impaired motor control during systemic illness.

These *Nishedhas* (contraindications) should be reinterpreted as relative, condition-specific precautions that modify the *how* of oral hygiene during illness, not instructions to abandon it. Both Ayurveda and evidence-based dentistry agree: oral hygiene during systemic illness should be maintained but adapted using gentler instruments, medicated rinses, or *Kavala/Gandusha* as physiologically appropriate alternatives.

Future research should include prospective clinical trials evaluating modified versus standard brushing protocols in each of these conditions, and randomised controlled studies assessing *Kavala* and *Gandusha* as adjunct oral-care interventions in medically compromised patients.

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