



Received: October 9, 2025
Revised: November 8, 2025
Accepted: January 27, 2026

Corresponding Author:
Swaathi Ravindran, Department of Oral Pathology and Microbiology, SRM Kattankulathur Dental College and Hospital, Faculty of Medicine and Health Sciences, SRM Institute of Science and Technology, Kattankulathur, Chengalpattu, Tamil Nadu 603203, India
E-mail: swaathir@srmist.edu.in

Oral-Systemic Mechanisms in Diagnostic Medicine: A Syndromic and Translational Review

Kashish Kukreja¹, Arun Kalyan Venkatesh Babu¹, Swaathi Ravindran¹ ,
Magesh Karuppur Thiagarajan¹, Aravindhan Ravi¹

¹Department of Oral Pathology and Microbiology, SRM Kattankulathur Dental College and Hospital, Faculty of Medicine and Health Sciences, SRM Institute of Science and Technology, Kattankulathur, Chengalpattu, Tamil Nadu, India

Abstract

The oral cavity's diagnostic potential remains underutilized in mainstream medicine, despite being a dynamic interface between systemic physiology and environmental exposure. This review proposes a mechanism-based framework that repositions oral structures and secretions as bio-reflective zones, thereby mirroring pathophysiological processes across endocrine, cardiovascular, renal, neurological, and genetic domains. By integrating evidence from salivary biomarkers, mucosal alterations, craniofacial anomalies, and radiographic features, we demonstrate how oral diagnostics can serve as early indicators of systemic dysfunction. Mechanistic clues to multisystem disorders are provided by oral phenotypes, with a particular emphasis on syndromic convergence. The manuscript also underscores the potential for implementation in the fields of interdisciplinary screening protocols, AI-assisted oral imaging, and salivary biosensing. It is imperative to take diagnostic equity into account when examining the potential of oral evaluations to address disparities in underserved populations, particularly in situations where systemic testing is unavailable. By integrating clinical, molecular, and imaging-based insights, this review enhances oral diagnostics from adjunctive observations to actionable tools in the detection and monitoring of systemic diseases, thereby promoting a paradigm.

Keywords: diagnosis, oral cavity, oral manifestations, saliva, systemic diseases