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Review Article

GARA VISHA AND GUT MICROBIOME DYSBIOSIS: A CONCEPTUAL REVIEW OF THEIR RELATIONSHIP AND RELEVANCE TO HEALTH PRESERVATION

Mandarkumar Madankar[1]*, Shraddha Bawane[2]

*[1]Associate Professor, Department of Swasthvritta, Dr. Rajendra Gode Ayurved College, Hospital & Research Center, Amaravati, Maharashtra, India.

[2]Assistant Professor, Department of Kriya Sharir, Smt. Shalinitai Meghe Ayurvedic Medical College, Hospital & Research Center, Bhilewada, Bhandara, Maharashtra, India.

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ABSTRACT

Ayurveda describes *Gara Visha* as an artificial or hidden poison that gradually disturbs body functions without producing immediate fatality. Studies show that diets rich in refined foods, environmental toxins, and pollutants disrupt the gut microbiome and lead to systemic toxicity like diet-induced gut dysbiosis and Leaky Gut Syndrome. Dysbiosis-derived toxins such as lipopolysaccharides (LPS), ammonia, and uremic solutes act like hidden poisons, reflecting Ayurvedic concepts of *Gara Visha*. **Aim and Objectives:** Aim of this study is to explore gut microbiome dysbiosis as a modern correlate of *Gara Visha* and analyze its physiological implications in relevance to health preservation. **Material and Methods:** Ayurvedic texts on *Gara Visha* were reviewed alongside PubMed/Scopus studies (2010–2026) on gut dysbiosis; parallels between traditional and modern physiology were systematically mapped. **Result:** *Gara Visha* parallels gut-derived toxins from dysbiosis, both causing chronic, multi-system harm. Dysbiosis is associated with oxidative stress, inflammation, leaky gut, and endocrine imbalance, contributing to chronic diseases via LPS TLR4/NF-κB pathways. Ayurvedic triggers like *Viruddha ahara* (incompatible dietary practices) resemble dysbiosis causes. **Conclusion:** Gut dysbiosis reflects *Gara Visha*, causing hidden toxicity. Integrating Ayurveda and modern science may offer preventive and therapeutic strategies; future studies should explore combined interventions.

INTRODUCTION

The rapidly expanding field of microbiome research has established that gut dysbiosis is not merely a localized gastrointestinal disturbance but a systemic phenomenon capable of influencing metabolic, immunological, neurological, and inflammatory pathways throughout the body[1] .However, these diverse manifestations are often studied individually, and a comprehensive conceptual framework explaining the cumulative and long-term effects of such hidden toxic influences remains an area of ongoing exploration.

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In this context, the Ayurvedic concept of *Gara Visha* offers a unique perspective. The Ayurvedic concept of *Gara Visha* describes the gradual harmful effects of repeated exposure to incompatible foods, environmental contaminants, and other harmful substances[2]. Its effects, such as impaired digestion and metabolism, accumulation of harmful substances, inflammation, and progressive changes in body functions, show similarities with the physiological changes associated with gut microbiome dysbiosis.[3] Dysbiosis can alter microbial metabolites, weaken the intestinal barrier, and contribute to chronic low-grade inflammation and systemic disturbances [4]. Studying this physiological correlation may help explain how disturbances in the gut microbiome influence overall health and how the Ayurvedic understanding of *Gara Visha* may contribute to the preservation of health by maintaining healthy digestion, metabolism, and physiological balance. This may also provide a

meaningful link between traditional Ayurvedic concepts and contemporary microbiome research.

MATERIALS AND METHODS

The present review was undertaken to explore the physiological correlation between the Ayurvedic concept of *Gara Visha* and gut microbiome dysbiosis. A comprehensive literature search was conducted using electronic databases including PubMed and Google Scholar. The search strategy involved the use of keywords such as *Gara Visha*, gut microbiome, dysbiosis, and hidden toxins, both individually and in various combinations to identify relevant studies. Articles published in the English language from 2015 to the present and available as free full-text were considered for inclusion. The selection process focused on studies discussing gut microbiome dysbiosis, intestinal permeability, microbial toxins, systemic inflammation, and their implications in human health. Non-peer-reviewed publications, duplicate records, and articles unrelated to the study objectives were excluded from the review. In addition to contemporary scientific literature, classical Ayurvedic texts including *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya* were reviewed to understand the etiology, pathogenesis, and manifestations of *Gara Visha*. Standard textbooks of physiology were also consulted to correlate Ayurvedic concepts with modern physiological mechanisms. The selected literature was critically analyzed and synthesized to identify similarities in causative factors, pathological processes, and systemic effects between gut microbiome dysbiosis and *Gara Visha*. Based on these observations, a conceptual correlation between the two conditions was established.

RESULT AND DISCUSSION

Gut Microbiome and Normobiosis

A healthy microbial balance, known as normobiosis, is characterized by the predominance of beneficial microorganisms such as *Lactobacillus*, *Bifidobacterium*, *Faecalibacterium*, *Roseburia*, and *Bacteroides*. These microbes contribute to intestinal barrier maintenance, immune tolerance, and overall metabolic homeostasis[5]. Recent studies have demonstrated that normobiosis protects against pathogen colonization, reduces inflammation, and supports normal physiological functioning. The evidence suggests that the gut microbiome plays a fundamental role in maintaining human health and is now considered a key regulator of metabolic, immune, and neurological functions[6]. Studies have shown that gut microorganisms assist in the digestion of complex carbohydrates, production of short-chain fatty acids (SCFAs), synthesis of vitamins, regulation of immune responses, and maintenance of intestinal barrier integrity. The gut microbiota also influences the gut–brain axis through the production of neurotransmitters and neuroactive compounds. Therefore, maintenance of normobiosis is considered essential for preserving systemic health (summarize in table 1).

Table 1: Role of Gut Microbiome in Preservation of Health

Function	Role of gut microbiome	Health significance
Gut barrier	Produces SCFAs and supports epithelial integrity	Prevents microbial translocation [7]
Immune regulation	Modulates host immune responses	Maintains immune homeostasis [8]
Pathogen protection	Provides colonisation resistance	Limits pathogen overgrowth [9]
Metabolism	Regulates SCFAs, bile acids and energy metabolism	Supports metabolic homeostasis [10]
Gut–brain axis	Produces metabolites involved in gut–brain signalling	Supports neurophysiological balance [11]

Gut Microbiome Dysbiosis

Gut microbiome dysbiosis is characterized by an imbalance in the composition and function of the intestinal microbial community, resulting in a reduction of beneficial microorganisms and an increase in pathogenic or opportunistic species[12]. Factors such as antibiotic use, processed-food-rich diets, environmental pollutants, infections, and chronic stress have been identified as major contributors to this microbial imbalance [13]. A healthy gut microbiota maintains intestinal barrier integrity, regulates immune responses, and supports metabolic homeostasis. Alterations in microbial composition disrupt these functions, leading to degradation of the protective mucin layer and impairment of intestinal barrier integrity. The resulting increase in intestinal permeability facilitates the translocation of bacterial endotoxins and harmful microbial metabolites into systemic circulation, promoting immune activation and chronic low-grade inflammation (fig 1).[14]



Figure 1: Mechanism of Gut microbiome Dysbiosis

Concept of *Gara Visha*

Gara visha is a unique concept described in Ayurveda under the broader classification of *Visha* (poisons). Unlike naturally occurring poisons (*Akritrima Visha*), *Gara visha* is considered an artificial poison formed by the combination of two or more substances that are individually non-toxic but become harmful when combined.[15] Such combinations gradually exert toxic effects on the body by disturbing the *Doshas* and contaminating the *Dhatus* (body tissues), eventually leading to the development of various disease conditions. A characteristic feature of *Gara visha* is its delayed onset of toxicity [16]. Unlike acute poisons that produce immediate and severe manifestations, *Gara visha* acts slowly and does not cause instant death. It commonly enters the body through contaminated or incompatible food preparations and exerts its effects over a prolonged period.[17] Clinical manifestations may appear after several days to weeks, typically ranging from 15 days to one month following exposure. Classical Ayurvedic texts describe symptoms such as fatigue, heaviness of the body, cough, dyspnea, edema, indigestion, and generalized weakness, reflecting the chronic and cumulative nature of its toxicity[18,19].

Conceptual Correlation Between *Gara Visha* and Gut Microbiome Dysbiosis

Both *Gara Visha* and gut microbiome dysbiosis involve a gradual disturbance of normal physiological functions that can eventually produce systemic effects. In *Gara Visha*, toxic or incompatible substances disturb *Agni* (digestive fire) and normal metabolism, leading to the formation and accumulation of *Ama* (undigested toxic residue)[20,21]. In gut microbiome dysbiosis, an imbalance in intestinal microorganisms affects the gut barrier and immune function, resulting in endotoxin leakage and inflammation[22]. Thus, both pathways show a similar progression from an initial disturbance to the accumulation or movement of harmful substances, followed by inflammation and ultimately chronic systemic effects. This similarity suggests that the Ayurvedic concept of *Gara Visha* and the modern concept of gut microbiome dysbiosis may have comparable underlying patterns of metabolic disturbance, impaired protective mechanisms and systemic inflammation (fig 2)[23,24].

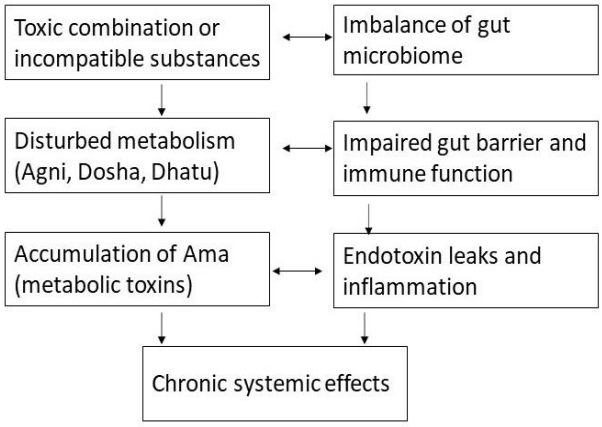


Figure 2: Conceptual Correlation Between *Gara Visha* and Gut Microbiome Dysbiosis

CONCLUSION

Gara Visha describes the gradual and cumulative harmful effects of combinations of substances that may be harmless individually but become toxic when consumed repeatedly or together. Its delayed effects and progressive disturbance of *Agni* (digestive fire), *Dosha* (functional principles) and *Dhatu* (body tissue), can be conceptually related to chronic low-grade exposures encountered in modern life. Gut microbiome dysbiosis may be one possible modern perspective for understanding these effects. Poor diet, processed foods, food additives, medications, environmental pollutants, stress, and unhealthy lifestyle can disturb the gut microbial balance and contribute to inflammation and impaired metabolic and immune functions. Although *Gara Visha* and microbiome dysbiosis are not directly equivalent, their shared features of cumulative exposure and gradual disruption of normal physiology provide an interesting area for interdisciplinary research. Further clinical and experimental studies are needed to establish this relationship.

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***Address for correspondence**
Dr. Mandarkumar Madankar
Associate Professor,
Department of Swasthvritta,
Dr. Rajendra Gode Ayurved College,
Hospital & Research Center, Amaravati,
Maharashtra, India.
Email: mandar.madankar@gmail.com

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