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DECODING THE *SAMPRAPTI* OF HYPOTHYROIDISM IN *AYURVEDA* VIA THE GUT – THYROID AXIS

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ABSTRACT

Introduction: Emerging evidence shows that nearly half of hypothyroid patients present with small intestinal bacterial overgrowth and impaired gut motility, conditions that improve with thyroid hormone therapy. The gut–thyroid axis describes the bidirectional relationship between gut microbiota, intestinal integrity, and thyroid function. **Aim:** To decode the *sampraphti* of hypothyroidism via gut thyroid axis. **Conceptual Framework:** Gut dysfunction alters micronutrient absorption and immune regulation, leading to thyroid hormone deficiency and autoimmune processes such as Hashimoto's thyroiditis. Ayurveda conceptualizes this as *grahani dosha* (impaired digestion and absorption) progressing to *dhatwagni mandya* (impaired tissue metabolism). Pathogenesis begins in the gut, where weakened *jatharagni* and *grahani* disturbance manifest initially as *pandu* (anemia-like state). With chronicity, it advances to *sotha* (myxedema/edema) and further to *mamsa dhatu* involvement, presenting as *galaganda* and *gandamala*. **Discussion:** According to the Ayurvedic dictum "*roga sarve api mandagnou*," impaired digestive fire underlies most diseases. In hypothyroidism, the pathogenic sequence begins with *grahani dosha* induced by inappropriate diet (*santarpaneeya nidanas*) and evolves through systemic *dhatwagni* dysfunction. This integrative model highlights the central role of the gut in endocrine regulation and provides a stage-wise framework for Ayurvedic intervention. **Conclusion:** Hypothyroidism in Ayurveda represents a multi-stage disorder originating from *grahani dosha* and progressing through *pandu*, *sotha*, *galaganda*, and *medoroga*. Recognition of this continuum allows for rational, stage-specific management rooted in *agni* and *dhatwagni* correction.

ROLE OF GUT THYROID AXIS AND GUT DYSBIOSIS

Gut Thyroid Axis is a recently recognized endocrine communication pathway. Complex interplay between the gut microbiota, the gut's mucosal barrier and the endocrine functions of the thyroid gland. Gut absorbs nutrients essential for thyroid hormone synthesis and regulation like Iodine which helps in the synthesis of T3 and T4, Selenium which helps in deiodinase enzyme production leading to conversion of T4 to T3.Zinc, Magnesium which acts as cofactors for deiodinase enzyme. Iron which is a Component of Thyroid peroxidase O enzyme and also helps in iodination of thyroglobulin. Vitamin D and B12 which support immune regulation. Malabsorption of these micronutrients causes impairment in thyroid hormone synthesis resulting in reduced production of thyroid hormones leading to Hypothyroidism. Gut dysbiosis is the imbalance between beneficial and harmful gut microbes. It is caused by Chronic stress, poor diet (low fibre, high sugar), use of antibiotics, infections, toxin exposure etc. Gut dysbiosis causes gut lining inflammation which results in increased intestinal permeability leading to leaky gut syndrome. This cause entry of undigested food proteins, lipopolysaccharides (LPS), bacterial toxins into the blood stream and they acts as autoantigens and initiates autoimmunity. Gut dysbiosis alters balance between T– helper1, T-helper 2 and T - helper 17. Gut dysbiosis reduces T – regulatory cells which normally suppresses autoimmunity. Hence altogether a pre autoimmune environment is generated finally resulting in Hashimoto's Thyroiditis.[1]

ROLE OF *AGNI* AND *GRAHANI* IN HYPOTHYROIDISM

The entire pathology of hypothyroidism starts from the level of gut due to

Mal absorption – causing impaired metabolism of micro nutrients

Gut dysbiosis – imbalance between useful and harmful gut flora

Both the above factors leads to Hypometabolism which can be understood as *Mandagni* . As per *Vagbhata,* " मन्दस्तु सम्यगप्यन्नमुपयुक्तं चिरात्पचेत् | "[2].चिरात्पचेत् can be understood as delayed metabolism or hypometabolism.Hence throught the *sampraphti* /stages of hypothyroidism, there is a constant role for *mandagni* starting at *Koshta* and gradually extending into dhatus as *Dhatwagni mandyam.Vishesha nidana (Grahani nidana) sevana – dosha vaishamyata* in *koshta – Grahani dosha- mandagni* - Hypometabolism

GRAHANI DUSHTI (EARLY STAGE) IN HYPOTHYROIDISM

Presenting with *mandagni* at *koshta* manifesting as *Grahani dosha* – Gut dysbiosis and mal absorption.Initially Patient presents with *Grahani Purvarupa* indicating *Sthana samshraya* stage.

पूर्वरूपं तु तस्येदं **तृष्णाऽऽलस्यं बलक्षयः** |
विदाहोऽन्नस्य **पाकश्च चिरात् कायस्य गौरवम्** | |[3]

Later *Doshaja grahani lakshanas* are exhibited based on the *vishesha nidana* –

Vataja Grahani Spectrum - मनसः सदनं, दौर्बल्यं, जीर्णे जीर्यति चाध्मानं[4]

(Brain fogging/slow thinking, lethargy, postprandial distension)

Pittaja Grahani Spectrum – पूत्यम्लोद्गारहृत्कण्ठदाहा[5]

(Sour belching, burning sensation in epigastric region and throat)

Kaphaja Grahani Spectrum - हृल्लासच्छर्द्यं, स्त्रीष्वहर्षणम्, भिन्नामश्लेष्मसंसृष्टगुरुवर्चःप्रवर्तनम्, अकृशस्यापि दौर्बल्यमालस्यं [6]

(Nausea, Vomiting, loss of interest in sex, generalized oedema with lethargy and lack of enthusiasm)

Most often miss diagnosed stage.

GRAHANI TO PANDU STAGE IN HYPOTHYROIDISM

As *the Grahani Dosha* continues , *Rasa dhatu dushti* happens and *Rasa gata ama* is formed.Rasa to Raktha transformation is hampered. Once *Rasa* to *Rakta* transformation is hampered – *Charakokta Pandu Roga* manifests. Specific *pandu nidanas* like *Chinta Bhaya Krodha and shoka* also play a crucial role here. Initially patients present with *Pandu Purva Rupa* – रौक्ष्यं स्वेदाभावः श्रमस्तथा. (generalized skin dryness, reduced perspiration and fatigue). As the disease progress – specific and more clear signs and symptoms manifest – शूनाक्षिकूटो (periorbital puffiness) शीर्णलोमा (Hairfall) हतप्रभः (Loss of skin complexion) शिशिरद्वेषी (cold intolerance) निद्रालुः (increased sleep) भवन्त्यारोहणायासैर्विशेषश्चास्य वक्ष्यते (Dyspnoea on exertion).[6] Classical signs & symptoms of Hypothyroidism manifests in this stage. *Rasa* and *Raktha* level of *dushti* happens in this stage.

PANDU TO SHOTHA STAGE IN HYPOTHYROIDISM

As *Pandu* stage continues, Proper *Raktha dhatu* formation is hampered. Gradual increase in *Rasa* & *Raktha gata ama. Malarupi Kapha pitta* and *rakta gata ama* causes *Sroto rodha in Bahya Siras.*

बाह्याः सिराः प्राप्य यदा कफासृक्प्रपित्तानि सन्दूषयतीह वायुः | तैर्बद्धमार्गः स तदा विसर्पन्नुत्सेधलिङ्गं श्वयथुं करोति [7]

Vata gati is being obstructed in *Bahya Siras*, manifesting externally as *Shotha*. Fluid retention myxoedema, constipation and hoarseness of voice manifests at this stage in Hypothyroidism. As the *Ama* extends into *mamsa* and *medo dhatus – mamsapradoshaja vikaras* in the form of *galaganda* and *gandamala* manifests(Chronic lymphocytic Thyroiditis).Hashimoto's thyroiditis cases come in this stage in general due to the presence of *gala ganda /gandamala*(thyroiditis)

SHOTHA TO MEDO ROGA STAGE IN HYPOTHYROIDISM

Mamsa – Medo level transformation impairment resulting in improperly formed *medo dhatu. Ama* extends from *mamsa* to *medo* level – *dushta medas causing sroto rodha*. *Sroto rodha* manifests as insulin resistance in some patients in this stage.Medo dhatvagni mandyam is manifested in the form of increased LDL and Triglycerides due to low activity of lipoprotein lipase (LPL) resulting from reduced T3 levels. Patient presents with symptoms like " मेदोमांसातिवृद्धत्वाच्चलस्फिगुदरस्तनः | अयथोपचयोत्साहो"[8]. There will be an increase in Body Mass Index (BMI) at this stage. क्षुद्श्वासः (dyspnoea on exertion) manifests in this stage.

CONCLUSION AND TAKE HOME INSIGHTS

In general, Hypothyroidism cannot be correlated to a single disease entity.From Ayurvedic point of view , the *samprapthi* of Hypothyroidism always starts from *Koshta. Mandagni* (Gut dysbiosis and impaired micro nutrient metabolism) as a root cause present throughout the *samprapti* of Hypothyroidism. Hypothyroidism should be understood in different stages as per Ayurveda. Presentation differs from patient to patient depending on the stage in the *samprapthi*. Samprapathi flow chart follows as ग्रहणीदोष– पाण्डुरोग – शोथ, गलगण्ड–गण्डमाला – मेदोरोग. In short diagnosis of hypothyroidism in Ayurveda is purely based on the *avastha* of the patient. After analysing the stage in which patient presents , appropriate *chikitsa* can be adopted.

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