



## Review Article

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### ROLE OF SHILAJIT AND TRIPHALA KWATH IN HYPOTHYROIDISM: A REVIEW

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#### ABSTRACT

Hypothyroidism is one of the burning issues in the current scenario and is affecting the lives of many people on various levels. Autoimmunity is responsible for over 90% of non-iatrogenic hypothyroidism in iodine-sufficient areas. In iodine-sufficient areas, the most common cause of hypothyroidism is chronic autoimmune thyroiditis (also known as Hashimoto's disease). Subclinical hypothyroidism is a mild form of primary hypothyroidism. Signs and symptoms of hypothyroidism are weight gain, cold intolerance, fatigue, somnolence, dry skin, dry hair, menorrhagia are more common constipation, hoarseness of voice, aches and pains, muscle stiffness, deafness, depression, infertility is less common. As per Ayurveda (science of life), it is caused due to vitiation of Agni. Shilajit an exudate, contains mainly fulvic acid, humic acid, and trace element (iron, selenium) which includes anti-inflammatory, immune-stimulant, properties. Anaemia as a symptom is associated with Hypothyroidism. The constituent present in Shilajit that is Fulvic acid enhances the absorption of iron so that serum iron status increases and can be helpful in the management of hypothyroidism. Triphala is an Ayurvedic herbal formulation of dried fruits of *Terminalia chebula*, *Terminalia bellerica* and *Phyllanthus emblica*. The major phytoconstituent of *Terminalia bellerica*, *Terminalia chebula* and *Phyllanthus emblica* fruits is gallic acid, which is known to have a wide range of therapeutic activity, e.g. anti-atherosclerotic, cardioprotective. In this review paper, it is being established that all these characteristics of Shilajit with Triphala kwath may be the probable reason for its effect on the management of hypothyroidism.

**Keywords:** Hypothyroidism, Shilajit, Triphala, Anti-Inflammatory, Immune-stimulant.

#### INTRODUCTION

Hypothyroidism an Endocrine Disorder which has been increased with alarming speed over the years. Reduced production of thyroid hormone is the central feature of the clinical state termed Hypothyroidism.<sup>1,2</sup> It can be primary or secondary. Primary hypothyroidism is the etiology in approximately 99% of cases of hypothyroidism.<sup>3</sup>

Subclinical hypothyroidism is a mild form of primary hypothyroidism, in which serum TSH is raised and serum t3 and t4 concentrations are at the lower end of the reference range.<sup>4</sup> This may persist for many years, although there is a risk progression to overt thyroid failure, particularly if antibodies to thyroid peroxidase are present or if the TSH rises above 10 mlU/L.<sup>5</sup>

Primary hypothyroidism is up to 8-9 times more common in women than in men, and the prevalence increases with age, with a peak incidence between the ages of 30 and 50 years.<sup>6,7</sup> In the united states, 0.3% have overt hypothyroidism, defined as an elevated serum TSH concentration and reduced free thyroxin concentration (fT4), and 4.3% have what has been described as subclinical or mild hypothyroidism.

In the US, hypothyroidism affects an estimated 4% of women aged 18-24 years and 21% of women older than 74 years; respective values in men are 3% and 16%.<sup>8</sup> A UK survey determined that approximately 7.5% of women and 2.8% of men have elevated serum levels of TSH.<sup>9</sup>

#### Cause of Primary hypothyroidism

Iodine deficiency remains the most common cause of hypothyroidism worldwide. In iodine-sufficient areas, the most common cause of hypothyroidism is chronic autoimmune thyroiditis (also known as Hashimoto's disease).<sup>10</sup>

Hypothyroidism, which is 50% of the cases is of autoimmune etiology, is observed in chronic autoimmune thyroiditis and In the remaining 50%, it is due to other causes or drugs.<sup>11</sup> Raised concentrations of thyroid peroxidase antibodies are also detected in about 11% of the general population.<sup>12</sup> In patients with subclinical hypothyroidism, thyroid peroxidase antibody measurements help to predict progression to overt disease.<sup>13,14</sup>

Other causes for hypothyroidism include surgical removal of thyroid tissue, radioactive iodine therapy, infiltrative destruction of thyroid tissue, drug-mediated inhibition of thyroid hormone production, and release like thionamides, lithium.<sup>15</sup>

#### Cause of Secondary hypothyroidism

It causes due to insufficient secretion of TRH or TSH. Hypothalamic disorders as a tumor, irradiation, inflammation (vasculitis) and hypopituitarism as mass lesions, pituitary radiation etc.<sup>16</sup>

## Ayurvedic View

Acharya Charaka describes Galganda (goitre) under Trisothiya Adhyaya as a part of Sotharoga and in Svayathu Chikitsa Adhyaya.<sup>17,18</sup> There, only the causes of Sotha Roga have been explained and no specific cause of Galganda (goitre) has been mentioned. In Sushruta Samhita at different places, under different topics few references for Galganda (goitre) Nidana are available.<sup>19,20</sup>

Since Charaka has mentioned Galganda (goitre) under Kapha Nanatmaja Vyadhi, the provocative factors of Kapha can also be taken as the cause of it<sup>21</sup>.

Ayurvedic Nidana is concerned about the etiological factors related to kapha-vataprakopa (provocative stage), agnimandya (diminution of agni) janaka, and srotorodha (obstructive pathology occurring in channels) nidana will be responsible for the hypothyroidism.

According to Acharya Charaka, it is not necessary that every disease manifestation must have a certain name, but it is more important to understand the possible pathogenesis of the disease in terms of involved factors like dosha, dushya.<sup>22</sup>

According to the principals of Ayurveda (science of life), we find that it is caused due to vitiation of Agni. Vitiation of jatharagni (metabolic factors located in digestive tract), which affects dhatwagni (metabolic factors located in dhātu) or independently vitiation of dhatwagni (metabolic factors located in dhātu), eventually, brings out pathology sequence and ultimately, the diseased condition developed.<sup>23</sup> There are many systems which involve in the pathogenesis of hypothyroidism, in the context of dosha-dushya sammurchana may be considered as kapha

associated pitta- dushti with vitiation of vatadosha due to margavarana and predominantly rasa-vaha, mamsa-vaha and Medovaha srotodusti can be leads condition of hypothyroidism.<sup>24</sup>

The major function of the thyroid gland is to increase the rate of chemical reaction in most cells, thus increasing metabolic rate and promotes the deposition of calcium in the bones.<sup>25</sup> In light of Ayurvedic principals, this is attributed to the function of Agni which is an important factor for digestion and metabolic processes. The management of hypothyroidism through Ayurveda (science of life) is concerned; hormonal replacement is not possible through drugs.

However, the pathogenesis of hypothyroidism in the context of Ayurveda (science of life) one can interpret the role of Agni is foremost and through its management; the wholesome normal activity of the thyroid gland may be achieved.

The objective of treatment should be to address the problem at its root by regulating the immune system and decreasing inflammation.<sup>26</sup> The drug Shilajit with Triphala is mentioned in Charaka Samhita for the management of Tridoshaj Shotha (oedema), which is one of the common manifestations of hypothyroidism.<sup>27</sup>

## Sign and symptom

Weight gain, cold intolerance, fatigue, somnolence, dry skin, dry hair, menorrhagia, anemia are mostly common.

Constipation, hoarseness of voice, aches and pains, muscle stiffness, deafness, depression, infertility are less common.<sup>28</sup>

## Drug review

### Triphala

Drug	Rasa	Guna	Virya	Vipaka	Dosha karma	Chemical composition
Amala	Lavanrahit Panchras (Amla-pradhan)	Guru, Ruksh, Sheeta	Ushna	Madhura	Tridoshar Visheshatah Pitta Shamak	Vitamin C, Garlic Acid, Tannic Acid, Linoleic Acid, Indolassitate, Acetic Acid
Haritiki	Lavanrahit Panchras (Kashaya-Pradhan)	Laghu, Rukshna	Ushna	Madhura	Tridosha, Vishesta Vatashamak	Chebulic acid, Tannic acid, Vitamin C, Oleic acid, Palmitic Acid
Bibhitaka	Kashaya	Laghu, Ruksha	Ushna	Madhura	Tridoshar	Gallic acid, Tannic acid, Ascorbic acid, β-sitosterol

### Shilajit (Black bitumen)

Drug	Rasa	Guna	Virya	Vipaka	Dosha karma	Chemical composition
Shilajit	Tikta, kashaya	Guru, Snigdha, Madhura	Sheeta	Katu	Pacifies kapha, vata and detoxifies pitta	Fulvic Acid Hippuric acid, Benzoic acid, and minerals such as Iron, Aluminum, Magnesium, Potassium, Calcium

### Probable mode of action of Drugs

Acharya Sushruta has described deepana property of triphala.<sup>29</sup> Triphala also having vatalomaka (proper regulation of excretory system), deepana (stimulation of digestive power), pachana (increasing of digestive power), rashyana, sothahar (reduced oedema) and srotoshodhaka (purification of a channel) properties.<sup>30</sup> Hence Triphala may correct the state of Agnimandya (diminution of agni) which is a major factor in the development of hypothyroidism.

### Hypolipidemic effect

*Terminalia chebula* (haritaki) contains  $\beta$ -sitosterol as the main constituent belonging to the family of phytosterols which has a similar structure as of cholesterol.<sup>31</sup> Various foods of plant origin contain naturally this organic compound and are widely used as a food enrichment as well as a dietary supplement.<sup>32</sup>  $\beta$ -sitosterol and phytosterols inhibit the absorption of cholesterol from the digestive tract and help lower high levels of serum cholesterol.<sup>33</sup> *Phyllanthus emblica* (amla) also used as an anti-atherosclerotic agent, was evaluated in rabbits fed with a cholesterol-rich diet. After 60 days the serum cholesterol, triglyceride, phospholipid, and LDL levels got reduced by 82%, 66%, 77%, and 90%, respectively.<sup>34</sup> Importantly, the aortic plaques are treated animals were regressed suggesting a potent hypolipidemic action of *Phyllanthus emblica* is one of the risk factors for coronary artery disease which is a complication of Hypothyroidism.<sup>35</sup>

### Composition of Shilajit

Shilajit contains Humic substances including Fulvic Acid, that account for around 60% to 80% of the total nutraceutical compound plus some oligo-elements including selenium of antiaging properties.<sup>36,37</sup> Shilajit amplifies the benefit of other herbs by enhancing their bio-availability.<sup>38</sup> Shilajit remove deep-seated toxins, actively takes part in the transportation of nutrients into deep tissue, improve memory and reduces stress, recovery time in muscle, bone nerve injuries stimulate the immune system and helps to overcome chronic fatigue, lethargy which is most abundant features of hypothyroidism.<sup>39,40</sup>

### Anti-Inflammatory

The presence of a high concentration of fulvic acid and humic acid reduces inflammation which prevents the toxic effect of inflammation on body tissue and improves insulin resistance.<sup>41</sup> Shilajit also stimulates the pancreas to secrete insulin and maintains the equilibrium of catabolism and anabolism in the body.<sup>42</sup> Thus by reducing inflammation and increasing serum insulin, Shilajit may be helpful in the reduction of symptoms, as body weight and oedema.

### Elemental status

Trace elements are essential for the regulation of immunological and antioxidant functions as well as essential components or cofactors of various enzymes through metabolism.<sup>43</sup> Trace element as selenium is required for the synthesis, activation, and metabolism of thyroid hormone.<sup>44</sup> Anemia's are diagnosed in 20-60% patients with hypothyroidism.<sup>45</sup> Shilajit, contain various trace element along with a higher concentration of iron, copper etc.<sup>46</sup> along with organic materials which have the highest percentage of fulvic acid that helps in the absorption of iron into the body.<sup>47,48</sup> Thus Shilajit has high iron concentration. Fulvic acid enhance absorption of iron so that serum iron status increases and become helpful in the management of hypothyroidism.<sup>49</sup>

### Immuno-stimulant

Shilajit is very helpful in improving the immunity of the body.<sup>50</sup> Shilajit contains active organic molecules such as fulvic acid along with minerals.<sup>51</sup> The fulvic acid helps in the transportation of these minerals into cells for maintaining and restoring their electrical potency, which prevents their decay and death.<sup>52</sup> Shilajit helps in metabolism and promotes energy production in the body.<sup>53</sup> It maintains the equilibrium of catabolism and anabolism, enhances the absorptive and detoxifying capacity of the body, and stimulates the immune system as it is an immune-stimulant and has been found to be very effective in treating immune disorders.<sup>5</sup>

### CONCLUSION

Hypothyroidism is a metabolic Endocrine disorder mainly caused by chronic autoimmune thyroiditis (also known as Hashimoto's disease). According to the principals of Ayurveda (science of life), the pathogenesis of hypothyroidism is caused due to vitiation of Agni (digestive power). Vitiation of jatharagni (metabolic factors located in digestive tract), which affects dhatwagni (metabolic factors located in dhātu) or independently vitiation of dhatwagni (metabolic factors located in dhātu), eventually, brings out the pathology sequence, and ultimately, the diseased condition develops. The pathology of hypothyroidism in the context of dosha-dushya sammurchana may be considered as Kaphadosha associated pitta- dushti with vitiation of vatadosha (dosa responsible for movement and cognition) due to margavarana and predominantly rasa-vaha, mamsa-vaha, and medovaha srotodusti occurs. Shilajit an exudate, contains mainly fulvic acid and trace element (iron, selenium) which includes anti-inflammatory, immune-stimulant properties. Shilajit also possesses agnideepan, chedana, lekhana (scraping), vrishya, and yogvahi property (carrier of properties). The properties of Triphala Kwath can be amplified with the combination of Shilajit due to yogavahitwa (carrier of properties). Triphala also has hypolipidemic properties. Probably these properties of Shilajit with Triphala can check the pathological process of Hypothyroidism. Thus helpful in the management of hypothyroidism.

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