A conceptual study of Updhatu in Ayurveda

Dr. Kaustubh Mani Tripath, Dr. Sunil P Nikhate, Dr. Vaidehi V Raole and Dr. Sujit Kumar

Abstract

Ayurveda has explained the physiological functions of human body under three elements viz. Dosha, Dhatu and Mala. Dosha, Dhatu and Mala form the essential components of the body. They are generated from Dhatu. They are nourished from Sara portion produced in nutrient fluid in Dhatus vah srotas. It means they are not produced directly from Ahara rasa. Upadhatus are important physiological units and are derived from Dhatus and resemble Dhatus in terms of structure, function and nature. Upadhatus are sub tissues or secondary tissues in the body which serve as important components and have certain fixed functions to render. Dhatus are closely associated with the Upadhatus. Upadhatus are derived from the first four Dhatus. Upadhatus are finest product of Dhatu metabolism. Dhavagni plays major role in metabolism of Dhatus and Upadhatus. References related Dhatus are very less in Ayurvedic literature. In this conceptual study an effort is made to collect the information regarding the concept of Upadhatus which is being scattered in Ayurvedic Samhitas. The basic concept of Upadhatus and various Upadhatus mentioned by different Acharyas has been collected in this study from various sources.

Keywords: Upadhatus, agni, Dhatu, Srotas, Dhatvagni

1. Introduction

According to the various acharyas Dosha, Dhatu & Mala are the fundamental and the three pillars of our body. Dhatu's are the most stable constituents of the body. They are generated from Dhavah. They are nourished from Sara portion produced in nutrient fluid in Dhatu vaha srotas. It means they are not produced directly from Ahara rasa. It is needed for Ahara Rasa to undergo more digestion for giving rise to dhatu as well as Upadhatus. Upadhatus are important physiological units and are derived from Dhatu's and resemble Dhatu's in terms of structure, function and nature. Upadhatus are alike Dhatu in view point of some qualities and some functions.

Apart from this the above told basic elements, some other indeterminate elements were also discovered later by Acharyas and these were termed as Upadhatus.[1] The word Upadhatus has been made by combination of two words i.e. Up and Dhatu. ‘Upa’ is a prefix attached to the word “Dhatu”. Prefix changes the meaning of the word with which it is acting. Dhatu form the Basic architecture of the body, they are not accomplished to execute the functions of the body without the support of Upadhatus. So, Upadhatus are basically the derivatives of the Dhatu's and resemble Dhatu's in terms of functional and structural nature. so, it is mandatory to disclose the basic concept of Upadhatus.


1.1 Definitions of Upadhatus

Upadhatus has been defined variously

Upmitah Dhatubhi Iti Dhatuh (shabda thomas mahaniidhi). That which is similar or identical to Dhatu is an up adhatu. In Modern Era, Te Ch Stanyadyo Dhat wantar poshanachshariroposhaka Api Upadhatus Shabdenochyate. The Ayurvedic scholars like P.S. Variyara, Dr. C. Dwarkanatha, and Ranjitrai Desai have tried to explain these Upadhatus. Astanga Sangrahakarika has mentioned these components under 'Prasadaaja' elements. In Samhita Kala Charaka Samhita was the first who had elucidated Upadhatus collectively in one Sutra.
1.2 Evolvement of Upadhatu

Acharya Charaka while describing the nutrition of body elements defines a separate group of elements, but has not entitled them. Further while analyzing this unit commentator Cakrapani entitled them as Upadhatu. These seven components are Stanyā, Rakta (indicative of Raja), Sīra, Vasa, Twak and Snayu. Cakrapani has also quoted the opinion of Acharya Bhoja in this regard. Bhoja has mentioned only five components of this unit, which are Sīra, Snayu, Raja, Stanyā and Twak He has nomenclated this unit as Upadhatu. Sushruta is seen not to have described Upadhatu.

<table>
<thead>
<tr>
<th>Name of Acharya</th>
<th>Name of Upadhatu Mentioned</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharangdhara, Bhavamishra, Trimallo Bhatt, Y.T.</td>
<td>Stanyā, Raja, Vasa, Sweda, Danța, Kesha, Oja.</td>
<td>07</td>
</tr>
<tr>
<td>Vriddhā Vagbhātt, Dalhana.</td>
<td>Stanyā, Raja, Kandara, Sīra, Vasa, Twak, Snayu, Sandhi.</td>
<td>08</td>
</tr>
<tr>
<td>Charaka Samhitā, Gayadvās, Cakrapani</td>
<td>Stanyā, Raja, Kandara, Sīra, Vasa, Twak, Snayu.</td>
<td>07</td>
</tr>
<tr>
<td>Acharya Bhoj</td>
<td>Stanyā, Raja, Vasa, Sweda, Danța, Kesha, Oja, Stanyā, Raja, Sīra, Twak, Snayu</td>
<td>05</td>
</tr>
</tbody>
</table>

1.3 Physiology of Upadhatu Formation-

Dhatu metabolism is a nourished pool of all the body constituents. Food after digestion takes two forms viz. the Prasadaja (essence) and the Kitta. Depending upon their nourishment from Prasadaja or the Kitta, the tissue elements of the body are described of two types, the pure one “Prasadakhyā” and waste product “Malakaya”. From Prasadaja portion all the Dhatus are formed in progressive order. Upadhatu are also nourished from this Prasadaja part or are produced from out of the breakdown products of Sihira Dhatu.

1.4 Utpatti (Origin) of Upadhatu

Sarirasthana of classics have illustrated this subject in “Garbhavakranti Sarirā” and “Garbhavyakarana Sarirā”. In this regard ancient seers have explained that: “Trutiye Masi Sarvendriyani Sarvanga Avayaavasca Yaugapadyenya Abhinirvartante”[S. Sa. 3/15]

Origin of all the body constituents takes place at embryological stage. “Raktadayo Hi Garbhat Prabhuti Eva Utpanna…”[C. Ci. 15/16-Cakra]

While commenting on the verse regarding the nourishment of Dhatu, Cakrapani has clearly mentioned that all the Dhatus manifest during gestational period itself. Their “Sastame Masi Snayu Sīra Twak Bala…. Utpatti |” [A. H. Sa. 1/51]

Revered seer has stated that during sixth month of gestational period emergence of Snayu, Sīra and Twak takes place. The characters, which are present since birth, are termed as “Nitya Bhava.” All the Dhatus and Upadhatus are termed as “Nitya Bhava” of the body. Upadhatu Raja and Stanyā are exceptions for this, since they emerge few years after birth and also not continue throughout the life. Such entities are known as “Anitya Bhava”.[4]

1.5 Characters of Upadhatu-

Upadhatu are derived from Dhatus. Acharya Caraka has explained their specific correlation in the following verse: “Rasat Stanyam Tato Raktam Asrijah Kandarah Sirah Mamsat Vasa Twacah Sat Ca Medasah Snayu Sambhavah |”[C.GI5/17]

- Dhatu Related Upadhatus
- Rasa Stanyā, Raja
- Rakta Kandara, Sīra
- Mamsa Vasa, Twak

but his commentator Dalhana is seen to have only taken note of them but also to have included sandhis(joints) in the list. Tatha Hi Rasat Stanyamartavam Ch Rakatakandara Sirashch Mansadasvatwacho Medasah Snayusandhyo Iti. (Dalhan on su.sut.14:10) Acharya Vagbhatta has considered rajah n stanyā as two different entities, while elucidating the Anjali Pramana of body elements (A.S.sa5/93). Referred oracle Laghu Vagbhatta has not mentioned these components collectively anywhere and also not used the term “Upadhatu”, commentators of A.S. & A.H. have not nomenclated these components as Upadhatu [3].

1.6 Upadhatu Raja & Stanya

Raja & Stanya are present only in females. They are derived by means of specific function attributed to female physiology that is reproduction. They are called as Upadhatu because they derive their nourishment from Prasadaja portion of Dhatus. Both the entities are present in liquid state. These two entities are functional one. These two entities are excretory in nature. After certain period they are to be expelled from the body, otherwise they function as Mala and will be pathological for body.

A. Rajas

Rajas is the menstrual blood. menstruation is intimately co-related with the normal functional states of the female and it is an index of her well being. As in developing and aged plants flower and fruits do not come up, as in bud and decaying flowers or fruits the fragrance is not explicit, similarly in females Raja (menstrual blood)

B. Stanya

(milk) before twelve years and after fifty years of age are not visible. Upacaya means slow accumulation of the Raja in the Garbhasaya. According to Modern Science the gonadotrophic harmones and ovarian steroid hormones are the causative factors for the menstrual blood. These are the reasons elucidated by classics regarding the Utpatti of Raja for specific time period [6].

1.7 Kandara

Vyapatti - "Kadi + Aran Tapa Ca |”

Nirukti -"Mahatyah Snayavah Prokthah Kandarah”[BH.Pa.51]

1.8 Synonyms

Asthivatshulshirayam Mahasayav (Vd shabd sindhu) Ehikikandara shabden Sthulsnayuruchyaste (Chkrapani.chi.15:17)…..Sthul sirā…..(Sushruta)

Mahasayav are termed as Kandara. Annotator Cakrapani named it as Sthula Snayu. Commentator of Sarnagadhara quotes it as Mahanadya.
1.9 Sira
VyαUpati - "Senoti | Sin Bandhane | Bahulam Anyatrapi" [A.K.]
Saranam means flowing, moving, proceeding, going. [S.E. Dic.]
They receive their nourishment from Rakta Dhatu. gen. this
term stands for blood vessels, even Sushruta also used it in
the sense of nerves (Vatavaha sira), lymphatics (Kaphavaha
Sira. Sira lies at the site of Marma and supply nutrition to
Snayu, Asthi, Mamsa, and Sandhi and thus maintains the
body.

2. Vasa Upadhatus
Upαtti - "Vasa Mansa Niryasah " [S.Su.23/12] Vasa is
derived from essence of Main Dhatu. It is nothing but the
extract of Mansa Dhatu.

2.1 Functions of Vasa: Snehana, Varnya, Brmmana, Bala and
it alleviates Vata dosha. it represents the fat that fills up
muscle spaces and supports various structures like blood
vessels and nerves etc.

2.2 Twak Uadhatu
VyαUpati - "Twak+ Paksa Tap"|
Nirukti - "Tvacati Samvrnoti Meda Sonitadikam

3. Discussion
Upadhatus are the by products of the Dhatu metabolism but
Snayus are not considered as the Malas because Upadhatus are
nourished by the prasadaj part of the Dhatu.
Dhatus are dissimilar from Upadhatus in the subsequent
framework:
a. Upadhatus are by product of Dhatus.
b. Upadhatus have no fate to get transformed into another

Table 2: Relation of Upadhatus with their Disease Status

<table>
<thead>
<tr>
<th>Upadhatus</th>
<th>Disease Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rajah, Stanya</td>
<td>Concern with female physiology</td>
</tr>
<tr>
<td>Kandara, Sira, Snayu, Sandhi</td>
<td>Distinctly related with vatavyadhi &amp; involved in chronic stages of other diseases.</td>
</tr>
<tr>
<td>Sira</td>
<td>Conveyance of doshas to the place of &quot;kha-vaigunya&quot; thus involved in pathogenesis of many diseases.</td>
</tr>
<tr>
<td>Vasa</td>
<td>Distinctly involved in prameha, one of the dusya of prameha.</td>
</tr>
<tr>
<td>Twak</td>
<td>Many underlying pathological conditions manifest on skin(5)</td>
</tr>
</tbody>
</table>

"Asthi Samyogah Tatra Upaniaddhah Ca Snayuh " [C. Su. 11/48]. Due to contiguous support of Snayu all the joints of the body are able to sustain the body weight.

Classics have described Nine hundred Snayus. These are of
four types:
1. Pravanavati (ramifying and branching)
2. Vrτta (ring shaped)
3. Prτhu (thick or broad)
4. Susira (hollow)

Table 3: Relation of Dosha with their Upadhatus

<table>
<thead>
<tr>
<th>Upadhatus</th>
<th>Dosa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rajah, Stanya</td>
<td>Kandara, Sira, Snayu, Sandhi</td>
</tr>
<tr>
<td>Rajah, Twak</td>
<td>Vata (su.ni.1/25-29 nyavchandrika)</td>
</tr>
<tr>
<td>Twak</td>
<td>Pitta</td>
</tr>
<tr>
<td>Stanya, Vasa</td>
<td>Kapha</td>
</tr>
</tbody>
</table>

Table 4: Relation of Upadhatus with their Rogmargas

<table>
<thead>
<tr>
<th>Upadhatus</th>
<th>Rogmarga</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rajah, stanya</td>
<td>Bahya</td>
</tr>
<tr>
<td>Kandara, Sira, Snayu, Sandhi</td>
<td>Madhyam</td>
</tr>
<tr>
<td>Vasa, Twak</td>
<td>Bahya</td>
</tr>
</tbody>
</table>

3.3 Functions of the Snayus
"Snayavo Bandhanani Syuh Dehe Mamsasthi Medasam|" [ŚA.Pr.5/36; BH.Pu.3/258-259]
Snayu bound the various structures of the body. Mansa, Asthi, Meda are fastened by the Snayu. It supports the above structures.

Table 4: Relation of Upadhatus with their Rogmargas

4. Conclusion
The different Acharayats at different periods of time
enlightened the concept of Upadhatus in their own ways.
Upadhatus do not nourish any successive. Upadhatus are
basically nourished from the Sukshma Prasadaj part of the
Dhatu, which also nourishes the subsequent Dhatu. Dhavaggni and Srotas play an important role in the
nourishment of Dhatu and upadhatus. Each upadhatus has its own dhavagwi. Upadhatus are of two type i.e. structural
entities & functional entities. Kandara, Sira, Snayu, Sandhi and Twak are principally involved to design the structural
architecture of the body. Kandara & Snayu show anatomical and functional resemblance. Upadhatus of Rakta is Kundra
while Upadhatus of Meda is Snayu. Upadhatus of Mansa is Vasa [10]. It is a lubricating agency placed for smooth
functioning of muscles. Twak mantles the whole body, it also
provides platform for various functions of Vayu and other

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Dosa, Sandhis are Upadhatu of Meda. They are articulating joints of the body. All the movements of body are practiced due to presence of this entity. Upadhatus have great importance in pathogenesis of disease. Kandara, Sira, Snayu and Sandhi are included in Madhyama Roga Marga, which are intricate for treatment.

5. References
5. Dr. Brahmhand Tripathi, Charak Samhita, Chaukhamba Surbharti Prakashan, Varanasi reprint, 2011, (1, 2).