

**ANALOGY: THE BASE OF SURGICAL DEVELOPMENTS IN AYURVEDA****Dadu Vaibhav Prakashchandra**

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**ABSTRACT**

The Indian Philosophy of *Nyaya* is known for its deliberations on the means of valid examination known as *Pramana*. The study of these means of scientific enquiry is known as 'Epistemology'. Therefore, this crux of the *Nyaya* system of thinking or Epistemology has transformed the method of scientific enquiry as systematic and pragmatic. The epistemology or the *Pramana Vijnana* is the foundation stone of the development of the *Ayurveda* basic principles. The fourfold means of validation described in the Indian Philosophy of *Nyaya* viz. the *Pratyaksha* (direct observation/perception), *Anumana* (inference), *Shabda* (authoritative testimony) and *Upamana* (analogy) find their application in *Ayurveda* ubiquitously. The *Charaka* School of medicine applies mainly the first three while the *Sushruta* School of Surgery utilizes mainly the Analogy as the guiding principle. The development of the Indian surgical knowledge owes a lot to the *Upamana*. The principles of the *surgical training* and the nomenclature of the *instruments* (sharp and blunt) *et al* are based on the application of the analogy. This paper therefore, brings to light the role of *analogy (upamana)* especially in the development of the fundamentals of the Indian surgery.

Key-words: *Nyaya*, epistemology, *pramana*, training, nomenclature, instruments.

**INTRODUCTION**

The holistic Indian medical science of *Ayurveda* approves of the two objectives of the health maintenance and cure of the disease.<sup>[1]</sup> *Ayurveda* considers the pain as disease while the health is termed as the coveted pleasure.<sup>[2]</sup> There are two main schools of the *Ayurveda* system of medicine namely the *Charaka* and the *Sushruta* schools, the former being predominantly the science of medicine while the latter is mainly the science of surgical procedures. These two schools of Indian medicine have one thing in common i.e. they are developed on the tenets of the Indian Philosophical schools mainly the six theistic doctrines. The six philosophies known as the *darshana* in *Sanskrit* parlance can be considered as the backbone of the indigenous knowledge systems. The Basic Prin-

ciples of *Ayurveda* owe their origin to the tenets of the six philosophical schools and their deliberations however, in a modified version. This modification validates the independent nature of the science of *Ayurveda*. The *Sushruta* School describes the significance of surgery as the numero - uno branch of *Ayurveda* validated by the fourfold means of investigation.<sup>[3]</sup> *Charaka*, on the other hand terms these means of validation as the *Pareeksha*.<sup>[4]</sup> The difference in the two lies in the fact that the *Charaka* approves of the *Yukti* (logic) while the *Sushruta* validates the *Upamana* (analogy) as the tools of knowing the truth. This variation in these schools is of great value which is reflected in the exposition of their specialities in medicine and surgery respectively. The detailed analysis of the *Sushruta Samhita* and other *Ayurveda*

treatises confirm the fact that the development and up-gradation of the surgical knowledge is mainly based on the philosophical tenet of the *Upamana* (Analogy). The wide range of the surgical knowledge like the nomenclature of the instruments used in the surgical procedures like the *Yantra & Shastra* (blunt and sharp instruments), the types of bandages, the surgical training in the form of *Yogya* and the treatment through the surgical procedures is based on the analogical foundations. Thus, it is significant to understand the concept of *Upamana* and its role in the development and expansion of the knowledge vistas in *Ayurveda* especially the Surgical up - gradation. This paper therefore brings to light the role of *upamana* (analogy) in the systematic development of the knowledge of surgery in *Ayurveda*.

#### **The Concept of *Upamana* (Analogy) -**

The *Upamana* (analogy) is the means of validation based on the similarities. It involves the gaining of the knowledge of the unknown by the virtue of its similarity/comparability with the known. [5] The thing which is well known is utilized to know the hitherto unknown. The essential cause of *Upamiti* (Comparative/Analogous knowledge) is the *Upamana* (Comparison/Analogy). The cause of *upamiti* is the *Sadrishya Jnanam* i.e. cognition of the similitude. [6] The knowledge of the relation of a 'name' (*Samjna*) and the 'named/object' (*Samjni*) is the *Upamiti*. [7] *Dalhana*, the commentator opines that the *Upamana* is the knowledge of the minute and far but unfamiliar by the virtue of similarity with the well-known. [8] *Caraka* defines *Aupamyia* as the knowledge explained by the comparison of unknown one with the known on the basis of their similarity e.g. the diseases named *dandaka* and *dhanushtambha* named on the basis of similarity with the *danda* (stick) and the

*dhanusha* (bow) and the term *Ishwasa* (archer) for the person bestowing the health. [9]

#### ***Upamana*: The base of surgical knowledge-**

The surgery in *Ayurveda* classics is defined as the extraction of the foreign/alien bodies like the grass, wood, grit, metal, bone, hair, nail, and pus; improper presentations of the foetus and application of the *Yantra* (blunt instruments), *Shastra* (sharp instruments), *Kshara* (caustics) and *Agni* (cauterization) along with the ascertainment of the *Vrana* (wound). [10]

Commentator *Dalhana* defines *Shalya* - (foreign body) as that which disturbs the normalcy of body. [11]

For the knowledge and practice of surgery, the training of *Shalya karma* (surgical procedures) is essential as the theory alone cannot suffice to the needs of an aspiring surgeon. [12] The surgical training is imparted on the representative substances like the cucumbers, dummies et al based on their analogy/similarity with the actual body components upon which surgery is conducted. This surgical training and practice is detailed in the *Yogya Sootriyam* chapter of the *Sushruta Samhita*. Thus, the essential component of the surgery i.e. training is based on the tenets of analogy. The *Yogya* signifies the gaining of the perfection in the surgical procedures and this is based on the principle of analogy.

Similarly, the diagnosis of the Surgical diseases like the *Nadivrana* (Sinuses), *Bhagandara* (Fistula), *Vrana avastha* (stage of the wound), *Bhagna* (fractures & dislocations) along with the treatment procedures are well understood through the application of the analogy.

Thus, we infer that the *Upamana* (analogy) forms the base of the surgical know how and its training methodology. All these are explained in detail as under-

1. **The development of the surgical instruments-** The *Ayurveda* surgery describes the sharp and the blunt surgical tools on the basis of their similarity with the commonly known animals, birds or the shapes. Thus, again the analogy forms the base of the knowledge of the surgical instruments. The five of the six types of the blunt instruments described in the *Sushruta Samhita* are named on the basis of their shapes analogous with the commonly known shapes. The *yantras* (blunt surgical instruments) are shaped like that of the *Swastika* (cruciform), *Samdamsha* (forceps/tongs), *Tala* (flat discs), *Nadi* (tubular), *Shalaka* (rod like) *et al.*<sup>[13]</sup> The *Swastika* (cruciform instruments) are twenty-four in number named on the basis of their resemblance with the animals and birds like the *Simhamukha* (face of the Lion), *Vyaghramukha* (face of the tiger), *Kakamukha* (face of the crow), *Nandimukha* (face of the flamingo) *et al.*<sup>[14]</sup> The second variety of the *Samdamsha yantra* (forceps which bite/hold) has the capability to bite or hold tightly due to the presence of teeth.<sup>[15]</sup> The third variety namely the *Tala Yantra* is named so because they resemble the palate of the fish or have discs used for the removal of the foreign bodies of the ear, nose and tubular structures of the body mainly the sinuses.<sup>[16]</sup> The *Nadi Yantra* (tubular structures) is of various shapes and types having either one or two openings.<sup>[17]</sup> The *arsha yantra* resembles the *Gostana* (Cow's mammary organs), *basti yantra* resembles to the

urinary bladder.<sup>[18]</sup> The *Shalaka Yantra* are the rod like structures resembling various commonly seen animals/plants/substances like the *Sarpaphana mukha* (simulating the hood of the Snake), *Karpasakritoshneesha* (fitted with the cotton at the top) and the *Darvyakriteeni* (shaped like the scoop) *et al.*<sup>[19]</sup> The *shastra* (sharp instruments) which are the actual tools of surgical procedures also utilize the knowledge of *upamana* (analogy). The name of these surgical instruments is based on their analogous shapes like the *Mandalagra* (round at the anterior end), *Mudrika* (resembling the ring), *Nakha Shastra* (nail pare instrument) *et al.*<sup>[20]</sup>

2. **The practical training** – The surgical training has been described in the *Yogya Sootriyam* chapter of the *Sushruta Samhita*. The substances utilized for the surgical training are analogous with the part of the body which is the site of a surgical procedure. For the attainment of surgical acumen, it is ethical for the aspiring surgeon, to have a rigorous practice on the non living representatives of the living body. The first training on the human beings is considered to be unethical as the novice trainer may put the life of the patient at risk. Therefore, the *Yogya Sootriyam* chapter is yet another example of the ethical considerations given utmost importance in this holistic system of medicine. The following table depicts the choice of the training material for attaining the surgical acumen.<sup>[21]</sup>

S.No.	Action/procedure to be performed	Analogous raw material for training
01	<i>Chhedana</i> (Excision)	Cucumber, Watermelon <i>et al.</i>
02	<i>Bhedana</i> (Incision)	Urinary bladder of animals, leather sac et al filled with water.
03	<i>Lekhana</i> (Scrapping)	Leather piece with hair

04	<i>Vedhana</i> (Puncturing)	The blood vessels of the dead animals and stalk of the Lily plant, Bamboo and Pitcher gourd.
05	<i>Eshana</i> (Probing)	Wood having pores created by the moths, various sticks like the hollow reed, Bamboo, Dry pitcher gourd.
06	<i>Aharana</i> (Extraction)	Fleshy tissue of the fruits of <i>Bilwa</i> , <i>Panasa</i> , <i>Bimbi et al</i> and the teeth of dead animals.
07	<i>Visravana</i> (Drainage of the fluids)	<i>Shalmali</i> plank covered with bee wax.
08	<i>Seevana</i> (Suturing)	Thin and thick cloth or soft hides like the leather.
09	<i>Bandhana</i> (Bandage)	Dummies of human body as used for display in the garment stores.
10	<i>Agni, Kshara karma</i> (Cautery & Caustic)	The soft fleshy tissue
11	<i>Netra Pranidhana Vasti, Vrana basti, Vasti peedana</i> (Application of various enema & related procedures)	Pot/pitcher having a beak/spout by its side.

The *Sushruta Samhita* mentions a significant note that the aspiring surgeon should undergo rigorous training on the objects based on the attribute of *sadharmya* (similarity/analogy) to achieve the status of perfection in various surgical procedures.<sup>[22]</sup>

3. **The diagnosis** – The nomenclature of the diseases in *Ayurveda* is again predominantly based on the Analogy. The diseases are named on many parameters like the main sign & symptom, special characters *et al*. The main criterion however is based on the analogy with the commonly known and perceived things/objects. In the development of the *Ayurveda* surgery, the diseases are explained with the utility of Analogy at one step or the other. Some of the diseases described in *Sushruta Samhita* expecting the surgical intervention and diagnosed on the lines of analogy are discussed below.

a. *Bhagandara* (Fistula - in - ano) - The five varieties of *Bhagandara* (fistula in ano) are named on the basis of analogy. The *Shataponaka* (multiple openings)

is so named as it resembles a Sieve having a number of pores, *Ush-tragreevi* resembling the neck of the Camel, *Parisravi* i.e. exuding, *Sham-bookavarta* named on the analogy of spirals in the Conch shell and the *Un-margi* characterized by the deviated path.<sup>[23]</sup>

b. *Arsha* (Piles) – The name *arsha* suggests the disease which is antagonistic to the life. Thus, it symbolizes the destructive nature of this disease condition. Also, the word *arsha* symbolizes something that obstructs i.e. the pile mass obstructs the anal passage. The *Vataja arsha* resembles flower of *kadamba* and *Tundikeri* and *Suchimukha* (needle shaped). The *Pittaja Arsha* are bluish at their tips, resemble the appearance of a liver, tongue of a parrot and mouth of leech. The *kaphaja Arsha* are white, resemble the *gostana* (mammary organ of the Cow). The

*Raktaja Arsha* resembles leaf bud of the *Nyagrodha* (Peepal tree), Coral, and *Kakanantika* (*Gunja*).<sup>[24]</sup>

- c. *Ashmari* (Stones) – The various types of *Ashmari* is diagnosed on the basis of analogy like the *Vatika* resembling the thorny/prickly flower of the *Kadamba* and is uneven and hard. The *Pittaja* on the other hand is characterized by the resemblance with colour of honey or the seed of marking nut.<sup>[25]</sup>

Apart from these diseases, there are a number of instances where the analogy has been utilized to explain and demonstrate the signs and symptoms of the pathology. Like the nature of the secretions/exudates from the various wounds affecting the different entities of the body.<sup>[26]</sup>

4. **The treatment procedure** – The eight methods of treatment in Surgery viz. *Chhedana* (excision), *Bhedana* (incision), *Lekhana* (scrapping), *Vedhana* (puncturing), *Eshana* (probing), *Aharana* (extraction), *Visravana* (draining) and *Seevana* (suturing) are the words commonly understood and seem to be derived from the commonly known and observed procedures in the routine life. The un-ripened/*Ama* state of the wound is converted to the ripened state with the hot substances analogous with the method of ripening of the fruits in nature. Thus, these are some of the instances of the analogy being at the background of the development of *Ayurveda* knowledge.

**DISCUSSION:** The philosophy mainly the theistic schools have played an inevitable contribution towards the development of the Basic Principles of *Ayurveda* as visualized in the methods of examination and validation described in the *Nyaya* system practically described as *Pareeksha* in *Ayurveda*.

The concept of research in *Ayurveda* finds its roots embedded in these tools of examination.

Amongst the four methods of examination, the *Upamana* termed as Analogy in the contemporary era has been the base of proper understanding of the *Ayurveda* fundamentals of the disease and its treatment. A detailed analysis of the *Sushruta Samhita* along with the other treatises confirm to the fact that the coveted speciality of Surgery owes its development to the tenets of Analogy. The development and introduction of the sharp and blunt instruments, tools of surgery, practical training in the form of representatives described under the umbrella of *Yogya* and the diagnosis and treatment modalities all have progressed in the background of analogy. This is very significant as this demonstrates the proximity of the science and humanity. Even the ignorant can understand the nitty-gritty of Surgery as it is explained on the basis of Analogy which indeed is the explanation of the unknown through the knowledge of the known.

#### **CONCLUSION:**

The philosophical tenets have led to the extension and expansion of knowledge vistas in the ancient science of *Ayurveda*. Among the many principles of the philosophical doctrines like the six categories of the school of *Vaisheshika* and the theory of transformation of *Samkhya* School, the *Nyaya* tenet of Analogy has led to the development of the Basic Principles of Surgery including its knowledge and training acumen. The application of the analogy is seen ubiquitously in the *Ayurveda* classics mainly the *Sushruta Samhita*, the numero - uno classical text of surgical knowledge. The efficiency in the surgi-

cal or clinical knowledge is incomplete without the proper practice or training. This is the goal of higher education/learning in Ayurveda. [27] This training in surgery is achieved through *Yogya* based on analogy. This proximity of the science with the common man is what that makes the *Ayurveda* a holistic science of life that has successfully survived through the generations.

#### REFERENCES:

1. *Sushruta, Nagarjuna, Chandrata, Sushruta Samhita with Dalhana Commentary, Sootra Sthana, Vedotpattim Adhyaya, 1/14*, edited by Vaidya Yadavji Trikamji Acharya and Narayan Ram Acharya, 8<sup>th</sup> Edition, Chaukhamba Orientalia, Varanasi, 2005;4.
2. *Agnivesha, Charaka, Dridhbala, Charaka Samhita, Sootra Sthana, Khuddak Chatuspada Adhyaya, 9/4*, edited by Acharya P.V. Sharma, 1<sup>st</sup> edition, Chowkhamba Orientalia, Varanasi, 1983;2.
3. *Ibidem Sushruta Samhita (1), Vedotpattim Adhyaya, 1/16;4*.
4. *Agnivesha, Charaka, Dridhbala, Charaka Samhita with Ayurveda Deepika Commentary of Chakrapanidutta, Sootra Sthana, Tisraishaneeya Adhyaya, 11/17*, edited by Acharya Yadavji Trikamji, Revised edition, Rashtriya Sanskrit Sansthana, New Delhi, 2006;70.
5. Mishra YC. *Basic Principles of Ayurveda, Padartha Vijnana*. Reprint ed. Varanasi; 2009. pp. 453.
6. Acarya S. *Nyaya Darshana of Gautama*. Second ed. Bareilly; 1996. pp.28.
7. *Madhavacharya, Sarva darshana samgraha, Chapter 1, Charvak Darshana, 1/10*, edited by Umashankar Rishi, Revised edition, Chaukhamba Vidyabhawan, Varanasi, 2004;14.
8. *Dalhana, Commentator, Sushruta Samhita, Sootra Sthana, Vedotpattim Adhyaya, 1/16*, 8<sup>th</sup> edition, Chowkhamba Orientalia, Varanasi, 2005;4.
9. *Ibidem Charaka Samhita (2), Vimana Sthana, Rogbhishagjiteeyam Adhyaya, 8/42; 349*.
10. *Sushruta, Nagarjuna, Chandrata, Sushruta Samhita, Sootra Sthana, Vedotpattim Adhyaya, 1/8(1)*, translated by Prof. K.R. Srikanth Murthy, 2<sup>nd</sup> Edition, Chaukhamba Orientalia, Varanasi, 2004;4.
11. *Dalhana, Commentator, Sushruta Samhita, Sootra Sthana, Vedotpattim Adhyaya, 1/8(1)*, 8<sup>th</sup> edition, Chowkhamba Orientalia, Varanasi, 2005; 3.
12. *Ibidem Sushruta Samhita (10), Adhyayan sampradaneeyam Adhyaya, 3/47-50; 23-24*.
13. *Ibidem Sushruta Samhita (1), Yantravidhim Adhyaya, 7/6, 8; 30-31*.
14. *Ibidem Sushruta Samhita (1), Yantravidhim Adhyaya, 7/10; 31*.
15. *Ibidem Sushruta Samhita (1), Yantravidhim Adhyaya, 7/11; 32*.
16. *Ibidem Sushruta Samhita (1), Yantravidhim Adhyaya, 7/12; 32*.
17. *Ibidem Sushruta Samhita (1), Yantravidhim Adhyaya, 7/13; 32*.
18. *Ibidem Sushruta Samhita (1), Chikitsa Sthana, Arshasam Chikitsitam Adhyaya, 6/11; 432*.
19. *Ibidem Sushruta Samhita (1), Yantravidhim Adhyaya, 7/14; 33-34*.
20. *Ibidem Sushruta Samhita (1), Shastravacharaneeyam Adhyaya, 8/3; 36*.
21. *Ibidem Sushruta Samhita (1), Yogyasutreeyam Adhyaya, 9/4; 42*.

22. *Ibidem Sushruta Samhita (1), Yantravidhim Adhyaya, 9/6; 42.*
23. *Ibidem Sushruta Samhita (1), Nidana Sthana, Bhagandaranam Nidanam Adhyaya, 4/3; 281.*
24. *Ibidem Sushruta Samhita (1), Nidana Sthana, Arshasam Nidanam Adhyaya, 2/10-13; 272-3.*
25. *Ibidem Sushruta Samhita (1), Nidana Sthana, Ashmarinam Nidanam Adhyaya, 3/7-10; 277-8.*
26. *Ibidem Sushruta Samhita (10), Vranasrava Vijnaniyam Adhyaya, 22/8; 166.*
27. *Ibidem Sushruta Samhita (1), Adhyayana Sampradaniyam Adhyaya, 3/56; 25.*

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